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Close at hand

Valves for Hygienic Fluid Handling Equipment, January 2021



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Everything at your fingertips

Alfa Laval's solutions for hygienic applications are the result of continuous innovation, and our dedicated efforts to meet the challenges faced by industries. With the Alfa Laval online catalogue, detail of our comprehensive product range can now be conveniently at your fingertips at all times.

Whatever you need, and wherever you are, Alfa Laval's components and expertise are always readily available through our network of over 1500 channel partners, supported by our own sales companies around the world.

Alfa Laval has a wide range of tools and resources to make life easier. Our online catalogue is easily accessible and updated regularly. We also offer the possibility to download 2D and 3D drawings. Go to www.alfalaval.com/high.

At www.alfalaval.com/biopharm you can download the comprehensive Q-doc documentation for our UltraPure portfolio.

Our channel partners also have access to a growing pool of resources at the Alfa Laval eBusiness portal, including full documentation, real-time stock availability and the opportunity to order and track shipments online. As well as being kept up to date on the latest developments through the InSight newsletter.

Discover a world of hygienic solutions at our dedicated portals:

www.alfalaval.com/biopharm

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Technical Information

Stainless Steel and Rubber Materials

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. The resistance to ozone is excellent.

Acrylonitrile 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 recommend 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 acrylonitrileButadiene 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 recommend 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
Water and water solutions	< 70°C	3	4	4	3	2-4
Hot water and steam	< 130°C	1	4	4	2	-
Concentrated fruit juices and etheral oils	< 100°C	1	-	1	1	3
Non-oxydising acids	< 80°C	1-2	2	3	1-2	2
Oxydising acids	< 80°C	-	2	3	1	2
Weak concentrate of lye	< 100°C	2	3-4	4	2	2
Strong concentrate of lye	< 100°C	1	2-3	3	1	1
Mineral oils	< 110°C	3	4	-	-	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
Ozyne 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

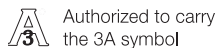
	Designation of flexible rubber materials	Abbreviation symbol
1)	Nitrile rubber	N
2)	Hydrogenated actylonitrile rubber	H
3)	Ethylene propylene rubber	E
4)	Silicone rubber	Q
5)	Fluorinated rubber	F
6)	Polytetraflour ethylene	

Technical Information

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 standards-compliant processing plants around the world.

For special requests please contact your local Alfa Laval organisation



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 is based on the requirement of the European Directive 94/9/EC (also known as ATEX 95 (100a)), the Equipment Directive. The name ATEX (ATmospheres EXplosible) is commonly given to the framework for controlling explosive atmospheres and the standards of equipment and protective systems used in them



The European Hygienic Engineering & Design Group (EHEDG) is a consortium of equipment manufacturers, food industries, research institutes as well as public health authorities and was founded in 1989 with the aim to promote hygiene during the processing and packing of food products.

EHEDG has authorised the use of the EHEDG Certification logo for Alfa Laval equipment complying with the EHEDG hygienic design criteria. The Certification include cleanability testing of equipment according to the methodology described in EHEDG guidelines.



All valves are delivered with Alfa Laval Q-doc including:

- 3.1 certificate in accordance to EN 10204
- FDA compliance and USP Class VI declaration
- TSE statement
- Surface finish declaration (Ra)
- Manufacturing and quality



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").

1. Valves

Our valves are developed not only to meet your demands for safety, efficiency and hygiene, but also to ensure careful handling of your products.



Product Presentation	1.0
Ball valves	1.1
Butterfly valves	1.2
Control / Check valves	1.3
Diaphragm valves	1.4
Double seal valves	1.5
Double seat valves	1.6
Regulating valves	1.7
Safety valves	1.8
Sampling valves	1.9
Shutter Valves	1.10
Single Seat Valves	1.11

Hygienic product animations

Get a look inside our products and see how it works. Mouseover the image and click to see animations. - See more at:

<http://www.alfalaval.com/products/fluid-handling/hygienic-product-animations>



- Valves

Alfa Laval Unique Mixproof Valve

Alfa Laval Unique Mixproof Large Particle Valve

Alfa Laval Unique Mixproof Horizontal Tank Valve (inlet)

Alfa Laval Valve matrix

Alfa Laval Unique Mixproof Horizontal Tank Valve (outlet)

Alfa Laval Unique Single Seat Valve

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1.1 Ball valves

The full bore design with zero flow restriction makes the Alfa Laval range the optimum choice for viscous or particulate liquids.



Product leaflets

SBV Sanitary Ball Valve	1.1.14
5308/5309 Series Ball Valves	1.1.17

Ordering leaflets

SBV Ball Valve	1.1.21
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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 as a hygienic product valve across the dairy, food, beverage, brewery, chemical and many other industries.

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
- Easy to clean (optional cavity filler or cavity cleaning)

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.

The valve can also be fitted with the Alfa Laval ThinkTop® V50 valve 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 cleaning and product recovery using pigging systems. Actuated valves are delivered normally closed (NC) and can easily be rebuilt to normally open (NO). To optimize valve cleaning, an optional cavity filler or cavity cleaning is available.

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
Sterilization (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*

*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

Leak rate:	A (DIN EN 12266-1)
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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 $\varnothing 4.09"$:	0.5 NI
Air consumption $\varnothing 5.08"$:	0.75 NI
Max recommended pressure during actration	86 PSI (6 bar)

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 μ m
Product wetted seals:	EPDM
Other seals:	NBR

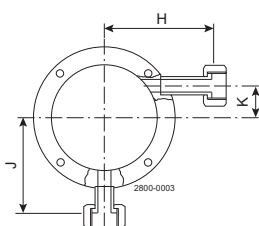
Note! If welding both flanges, ensure that the flanges can be moved axially 1.18-1.57 in depending on size to allow for valve maintenance (see manual for further details).

Actuated valves are delivered NC (normally closed) and are easily rebuilt to NO (normally open). See manual for further details.

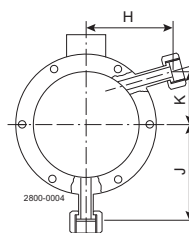
Options

- A. Male parts or clamp liners in accordance with required standard.
- B. Actuator for mounting of the Alfa Laval.: IndiTop, ThinkTop or ThinkTop Basic.
- C. Cavity cleaning connections, (ISO 228 - 6 1/2).
- D. Cavity fillers (encapsulating valve seats).
- E. Handle and bracket for inductive proximity switches (manual valves).
- F. Product wetted elastomer seals of NBR, Q or FPM.

Dimensions (inch)

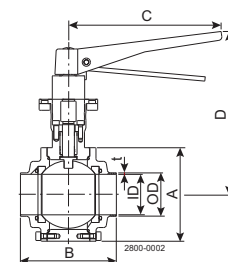


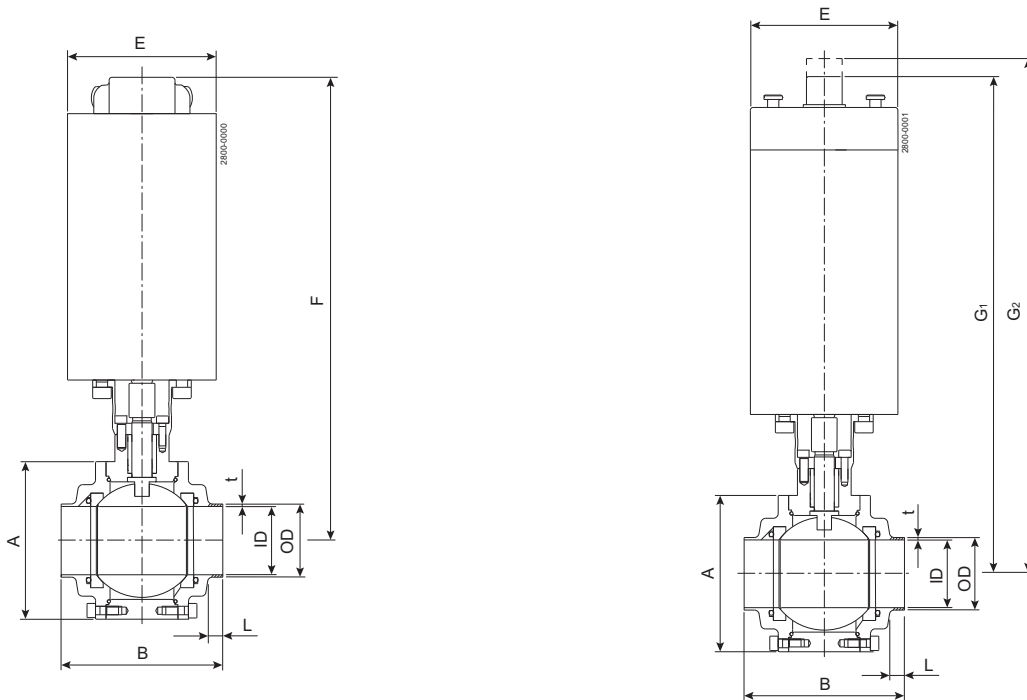
DN/OD 25 - 63.5 /DN 25-65



DN/OD 76.1 - 101.6 /DN 80100

Cavity cleaning connections (optional)





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"	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
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	8.6	18.96	9.7	21.38	11.1	24.47	13.3	29.32	19.8	43.65	37.7	83.11
(kg)/(lb)												

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
Actuator surface	Epoxy coated
Actuator bracket, coupling and hardware	304 stainless steel

Options

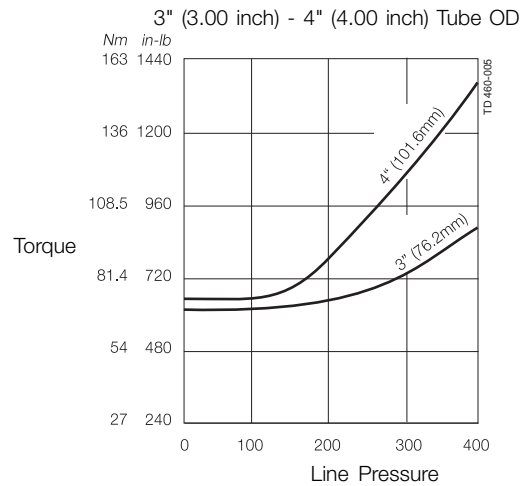
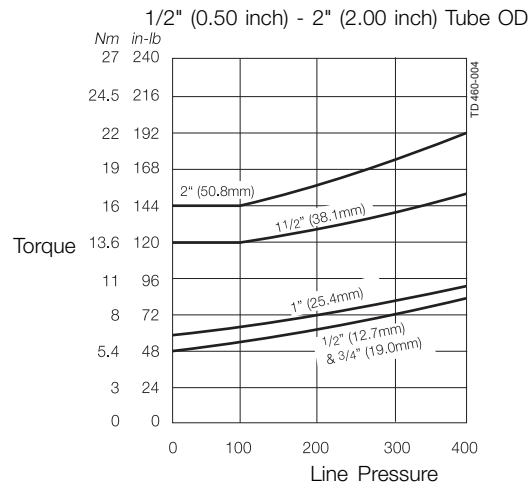
Actuator Function

- A. Pneumatic actuator air to air
- B. Pneumatic actuator air to spring
- C. Reinforced PTFE
- D. Stainless Steel
- E. Actuator bracket, coupling and hardware
- 1.4301 (304) stainless steel

Note: Actuators cannot be utilized in Europa, as they are not CE marked.

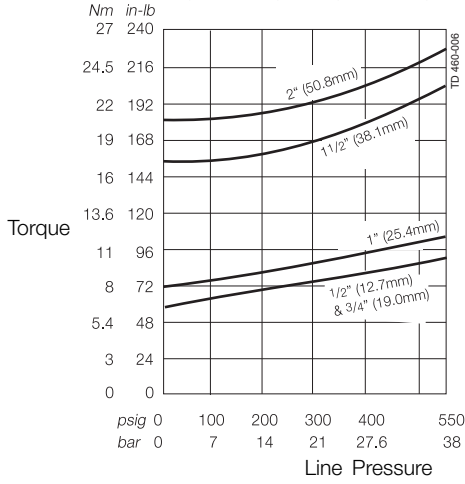
Torque vs. Pressure

Standard Seats

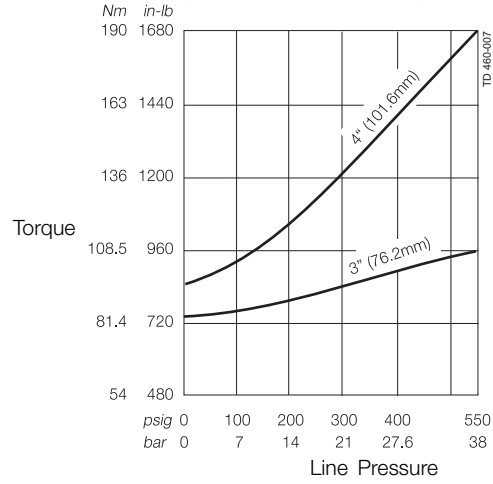


Encapsulated Seats

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

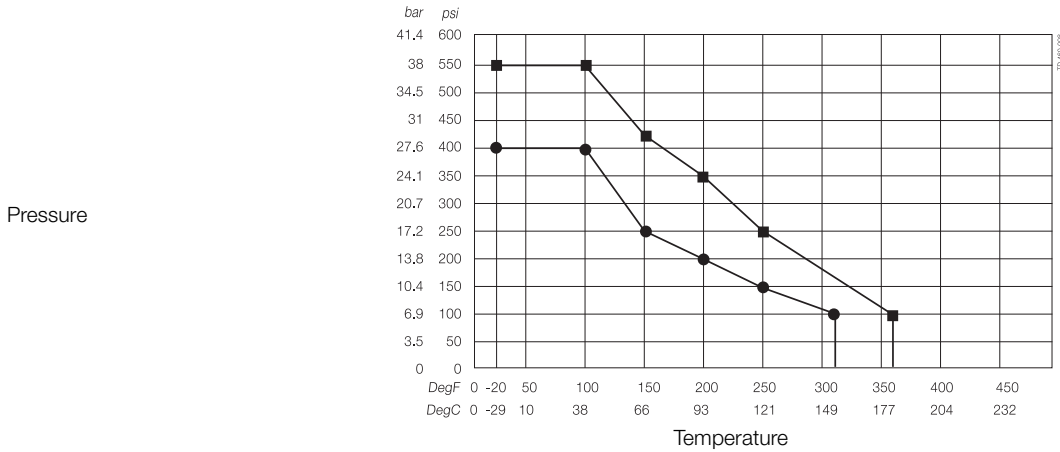


3" (3.00 inch) - 4" (4.00 inch) Tube OD



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

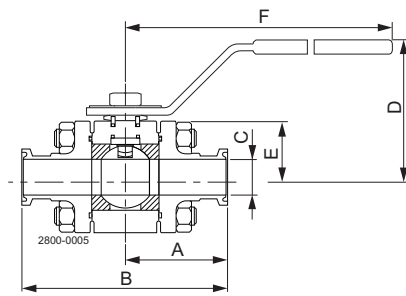
Standard and Encapsulated Seats: Ratings - Pressure vs. Temperature



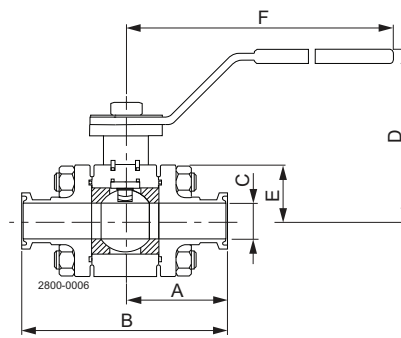
- Reinforced (glass-filled) PTFE
- PTFE

Dimensions (inch)

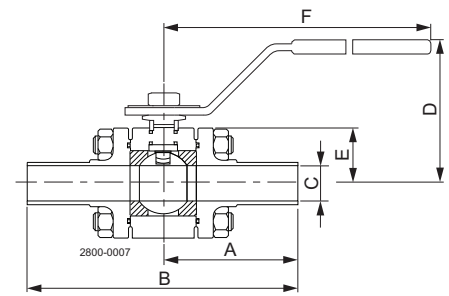
Manual Valve



Tri-Clamp® Ends
Model 5308
Sizes 1/2" - 2"



Tri-Clamp® Ends
Model 5308
Sizes 3" and 4"



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
5309 Butt-Weld (both ends)	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
	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
5309 Butt-Weld (both ends)	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

Valves with Pneumatic Actuators

Alfa Laval offers two types of pneumatic actuators, available in air-to-air or air-to-spring. Air-to-spring is available in normally open or normally-closed models. All models are offered with epoxy-coated aluminium alloy or optional 304 stainless steel housing. Pneumatic actuator air pressure requirements are:

Air-to-Air: 25 to 100 psi (1.7 to 6.9 bar)

Air-to-Spring: 80 to 100 psi (5.5 to 6.9 bar)

Note: Air pressure requirements are dependent upon the valve scope and operating conditions.

Hygienic ball valves
Product code: 5272

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

Item No.	LLP EUR	Item No.	LLP EUR	Size		Dimension (in)		
Inch tube DN/OD		DIN tube DN		DN/OD	DN	A	B	Manually operated
9612644001		9612646037		1	25	2.91	3.66	
9612644002		9612646038		1.5	40	3.74	4.06	
9612644003		9612646039		2	50	4.33	4.45	
9612644004		9612646040		2.5	65	5.12	4.92	
9612644005		9612646041		3	80	6.26	6.42	
9612644006		9612646042		4	100	7.68	8.66	
Air-operated - normally closed								
9612644013		9612646049		1	25	12.09	3.66	
9612644014		9612646050		1.5	40	12.40	4.06	
9612644015		9612646051		2	50	12.76	4.45	
9612644016		9612646052		2.5	65	13.19	4.92	
9612644017		9612646053		3	80	13.62	6.42	
9612644018		9612646054		4	100	15.55	8.66	
Air-operated - normally closed, prepared for ThinkTop®								
9612644019		9612646055		1	25	13.54	3.66	
9612644020		9612646056		1.5	40	13.86	4.06	
9612644021		9612646057		2	50	14.17	4.45	
9612644022		9612646058		2.5	65	14.65	4.92	
9612644023		9612646059		3	80	15.04	6.42	
9612644024		9612646060		4	100	17.01	8.66	

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1.2 Butterfly valves

Alfa Laval Butterfly Valves are economical on/off routing valves, available for either automatic or manually operated systems. Due to their large opening areas, these stainless steel valves offer low flow resistance and provide gentle treatment of low and medium viscosity product.



Product leaflets

LKB and LKB-F	1.2.25
LKB UltraPure	1.2.32
Unique Control	1.2.38

Description codes

LKB Series Butterfly Valve (Manual)	1.2.42
LKB Series Butterfly Valve (Pneumatic)	1.2.43
LKB UltraPure Series Butterfly Valve (Manual)	1.2.44
LKB UltraPure Series Butterfly Valve (Pneumatic)	1.2.45

Ordering leaflets

LKB Automatic or Manual Butterfly Valve	1.2.46
LKB-F Butterfly Valve	1.2.48
LKB UltraPure Automatic or Manual Butterfly Valve	1.2.50
Handles for Butterfly Valves	1.2.51
Air Actuator LKLA	1.2.53
Air Actuator LKLA-T	1.2.54
LKB-W with 9 Position Green Handle	1.2.55
LKB-W with 2 Position Black Handle	1.2.56
LKB-W with 4 Position Black Handle	1.2.57
LKB-W with Regulating 90° Black Handle	1.2.58
LKB-W with 2 Position Black Locking Handle	1.2.59
LKB-W with Multi-Position Handle	1.2.60
LKB-A with 9 Position Green Handle	1.2.61
LKB-A with 2 Position Black Handle	1.2.62
LKB-A with 4 Position Black Handle	1.2.63
LKB-A with Regulating 90° Black Handle	1.2.64
LKB-A with 2 Position Black Locking Handle	1.2.65
LKB-A with Multi-Position Handle	1.2.66

1.2 Butterfly valves

Alfa Laval Butterfly Valves are economical on/off routing valves, available for either automatic or manually operated systems. Due to their large opening areas, these stainless steel valves offer low flow resistance and provide gentle treatment of low and medium viscosity product.

LKB-W with LKLA	1.2.67
LKB-W with LKLA-TKT Actuator and Bracket	1.2.70
LKB-W with LKLA-T	1.2.73
LKB-A with LKLA Actuator and Bracket	1.2.76
LKB-A with LKLA-TKT Actuator and Bracket	1.2.79
LKB-A with LKLA-T Actuator and Bracket	1.2.82
Mounting Brackets	1.2.85
Unique Control	1.2.88
Mounting Brackets for Unique Control	1.2.89

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, \varnothing 3.35" and \varnothing 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*

*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

- A. Tri-Clamp® or butt weld ends standard
 - other connections available upon request
- B. ThinkTop® for control and indication.*
- C. Green Top - position indication MS or PS
- D. Indication unit with micro switches.*
- E. Indication unit with inductive proximity switches.*
- F. Handle with two or four positions (standard on 6")
- G. Handle for electrical position indication.
- H. Handle with infinite intermediate positions (not for 6")
- I. Multi-positioning handle with lever handle or pull knob
- J. Service tool for actuator.
- K. Service tool for fitting 1"-1.5" valve discs

Note! For further details, see also ESE02446.

LKB Handle Options

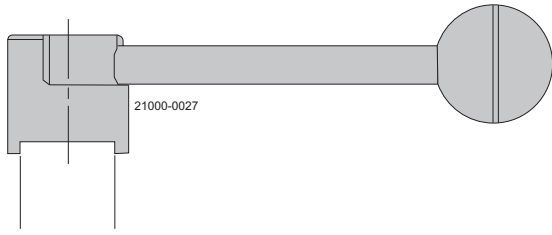


Fig. 5. LKB two position handle (black handle)

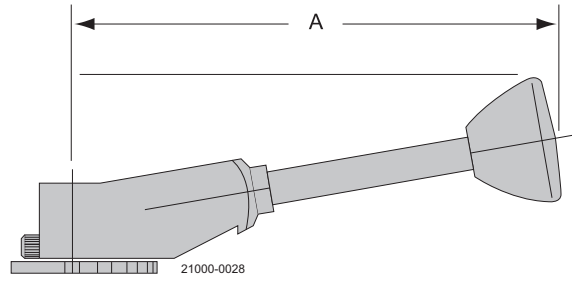


Fig. 6. LKB multi-position handle (green handle)

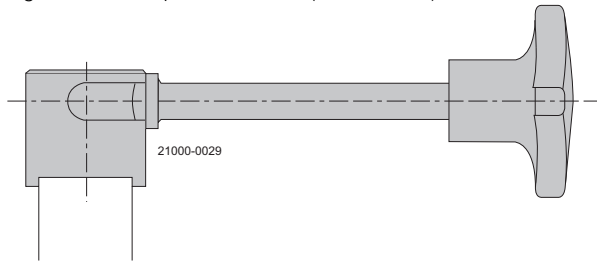


Fig. 7. LKB butterfly valve regulating handle

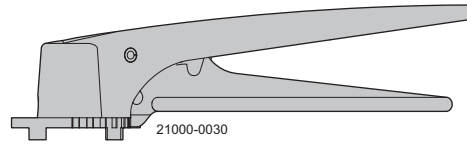
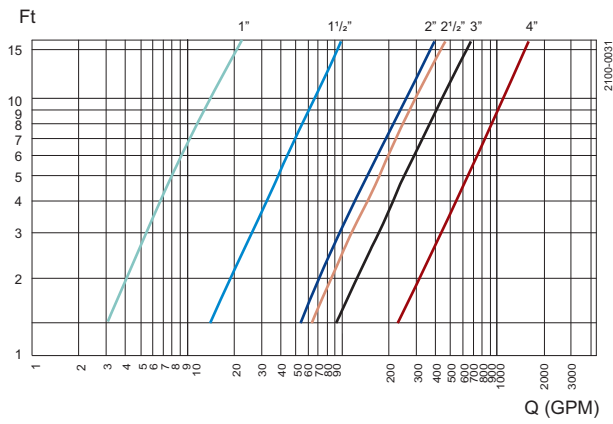


Fig. 8. LKB lockable multi-position handle

Capacity/Pressure drop diagrams



Note!

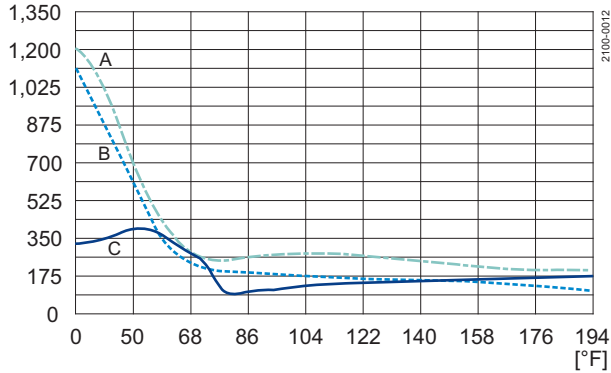
For the diagrams the following applies:

Medium: Water (68°F).

Measurement: In accordance with VDI 2173.

Torque diagrams - Actuator

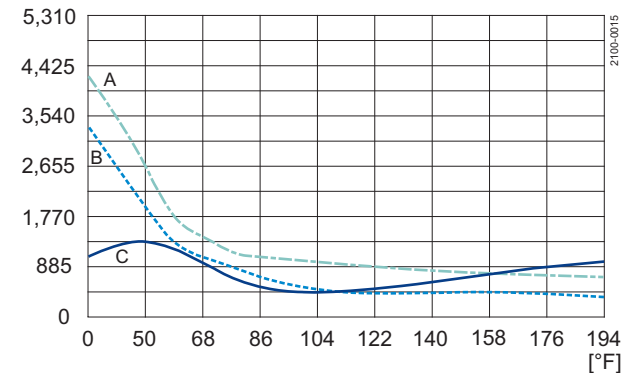
LKLA ϕ 3.35 in:
[Inch lbs]



Closing - Spring activated Opening - Air activated

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

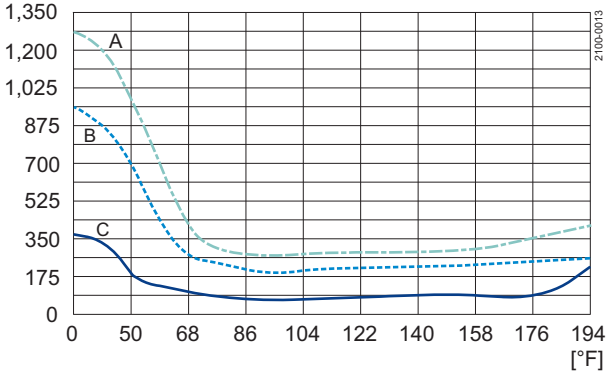
LKLA ϕ 5.25 :
[Inch lbs]



Closing - Spring activated Opening - Air activated

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

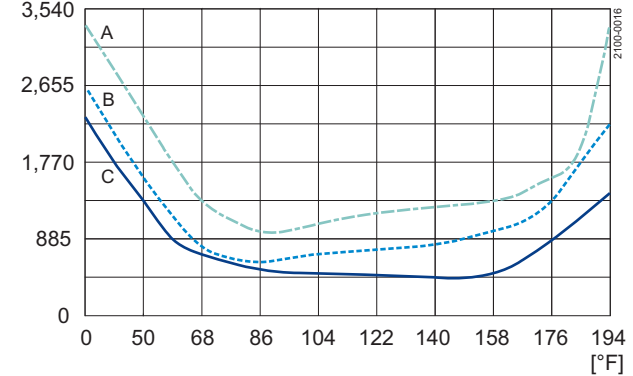
[Inch lbs]



Closing - Air activated Opening - Spring activated

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

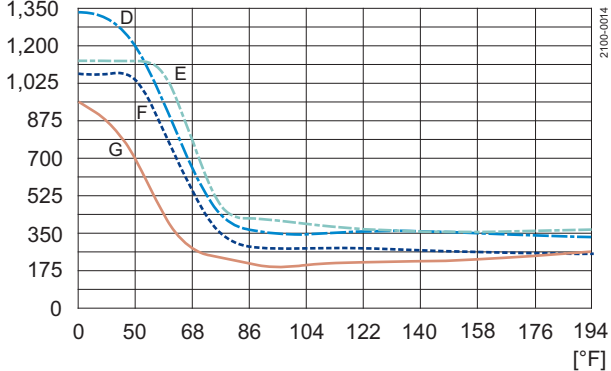
[Inch lbs]



Closing - Air activated Opening - Spring activated

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

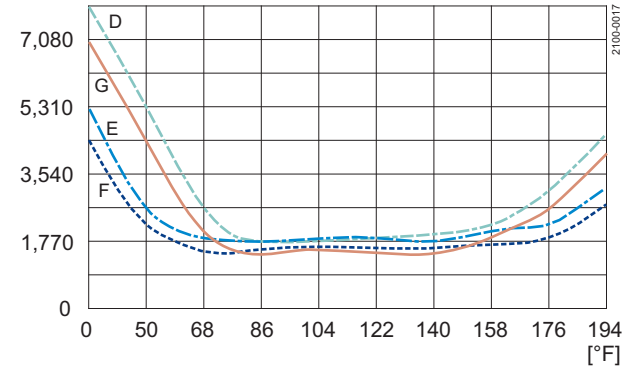
[Inch lbs]



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

[Inch lbs]



Closing Opening

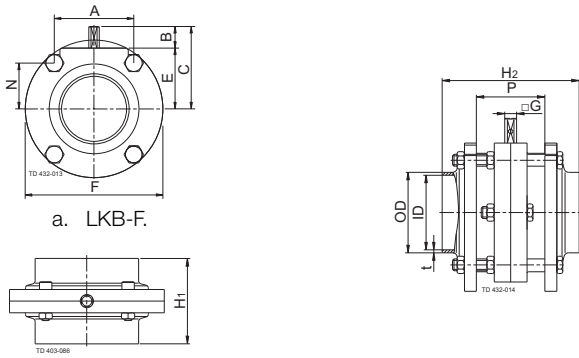
D = 6 bar air pressure connection on top
E = 6 bar air pressure connection on bottom
F = 5 bar air pressure connection on top
G = 5 bar air pressure connection on bottom

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)

Fig. 1. Dimensions - valve.



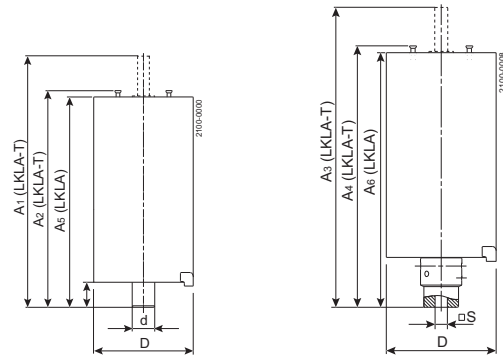
a. LKB-F.

b. LKB with welding ends.

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

c. LKB with male part/nut and liner.

Fig. 2. Dimensions - actuator



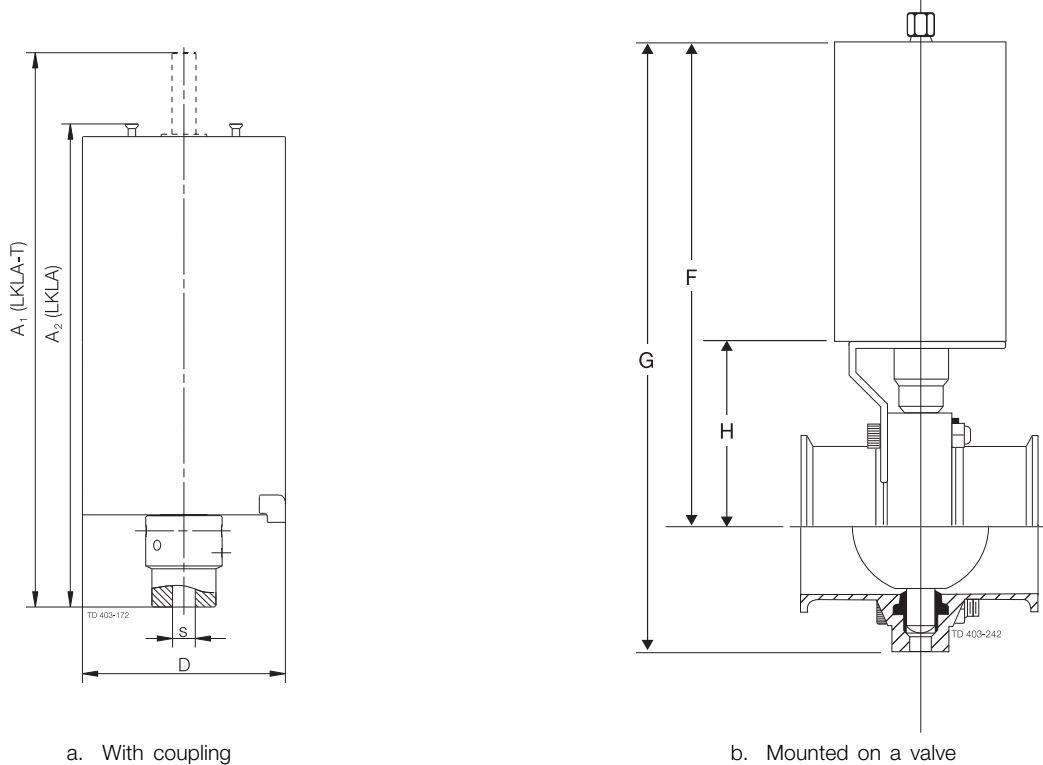
a. Without coupling.

b. With coupling.

$a1 = d$

$b1 = \square S$

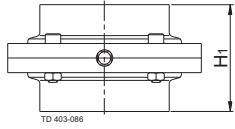
Dimensions - actuator



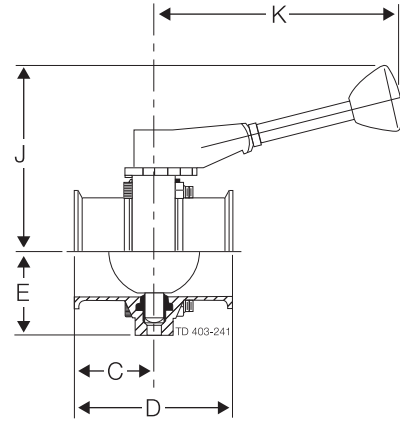
a. With coupling

b. Mounted on a valve

Dimensions - valve



a. LKB with welding ends



b. 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
D	3.50	3.50	3.69	3.75	4.06	4.75	6.13
E	1.53	1.53	1.94	2.31	2.59	3.34	4.25
F	3.07	3.07	3.90	4.61	5.20	6.65	8.46
H ¹	1.85	1.85	2.05	2.13	2.44	3.15	3.15
J	3.23	3.23	3.62	4.02	4.21	5.00	5.98
J (green handle)	4.00	4.00	4.38	4.78	4.97	5.75	6.19
K (black handle)	4.72	4.72	4.72	4.72	6.38	6.38	6.34
K (green handle)	6.31	6.31	6.31	6.31	6.31	6.31	14.50
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
l	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 a 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, \varnothing 3.35" and \varnothing 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*

*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**	Matching tubes and fittings: ASME BPE Acc. to ASME BPE
Clamp ends	Matching tubes and fittings: ASME BPE Acc. to ASME BPE

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

* According to ASME BPE 2009 table SF-3

Options

- A. Product wetted seals: FPM (acc. to FDA and USP Class VI), Q and PFA
- B. Tri-Clamp® or butt weld ends standard
- C. ThinkTop® for control and indication.*
- D. Green Top - position indication MS or PS
- E. Indication unit with micro switches.*
- F. Indication unit with inductive proximity switches.*
- G. Handle with two or four positions.
- H. Handle for electrical position indication.
- I. Handle with infinite intermediate positions.
- J. Multi-positioning handle with lever handle or pull knob
- K. Service tool for actuator.
- L. Service tool for fitting 1"-1.5" valve discs

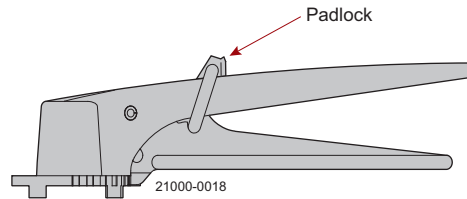


Fig. 1. Lockable Multiposition Handle with padlock.

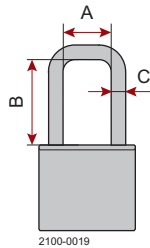


Fig. 2. Dimensions - padlock.

- A. Min. 0.79 inch
- B. Min. 1.38 inch
- C. \varnothing 0.23 inch

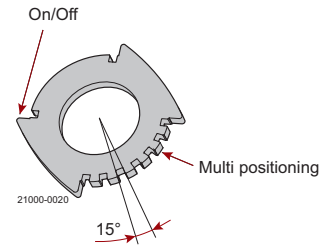


Fig. 3 Positioning cap.

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.

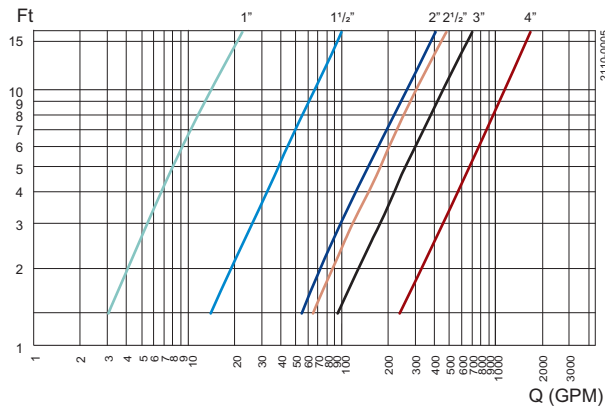
Documentation

All valves are delivered with Alfa Laval Q-doc.

Note!

For further details, see also ESE01699.

Capacity/Pressure drop diagrams



NOTE!

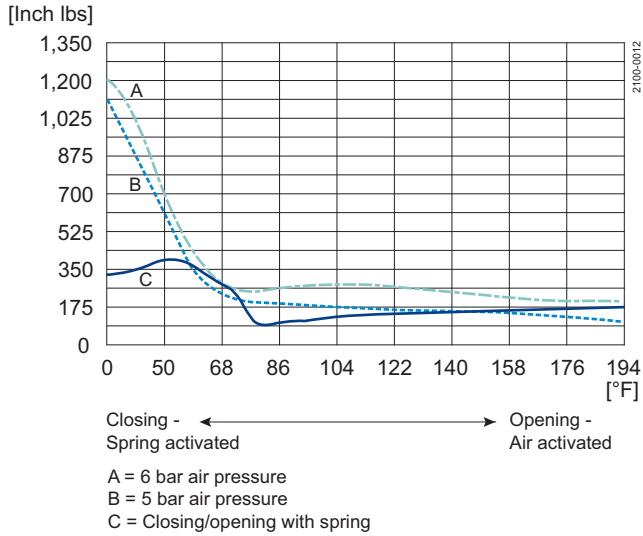
For the diagrams the following applies:

Medium: Water (68°F).

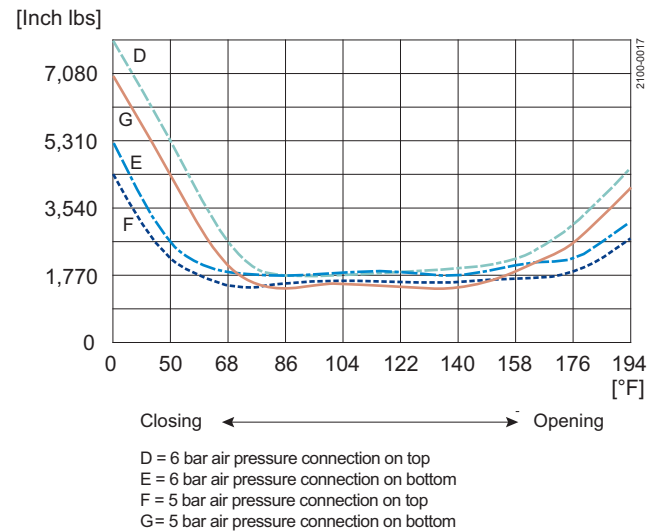
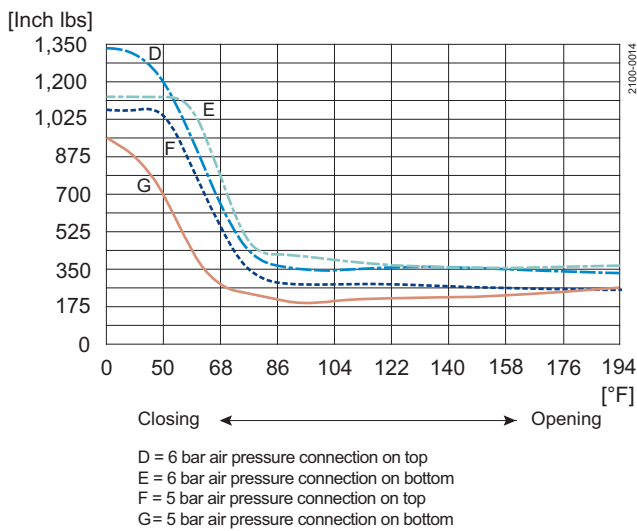
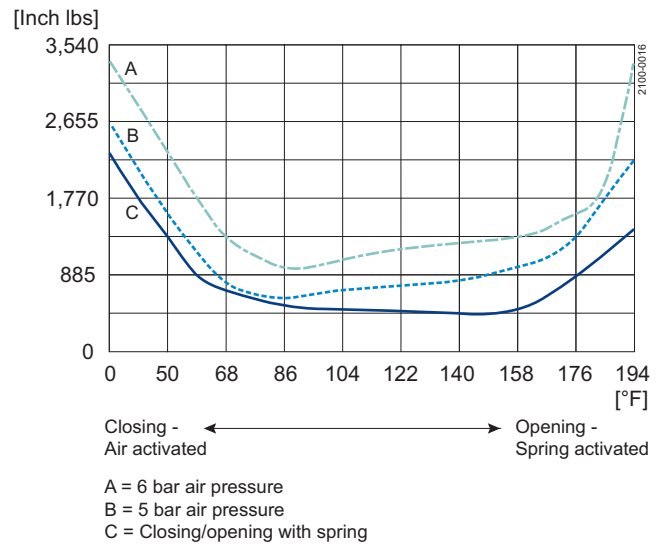
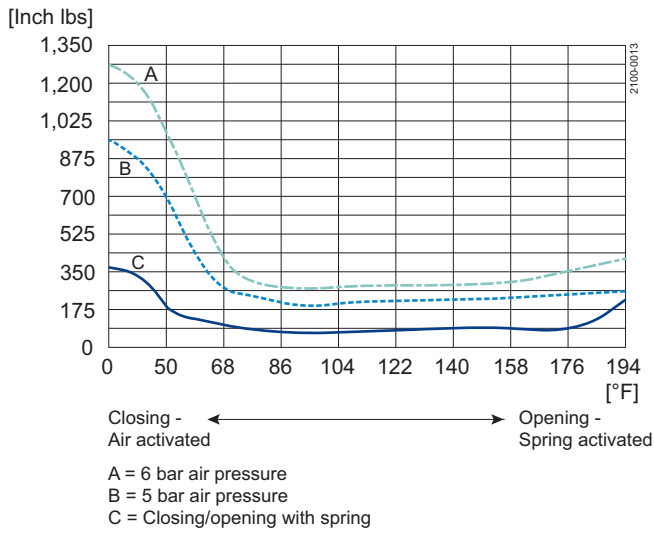
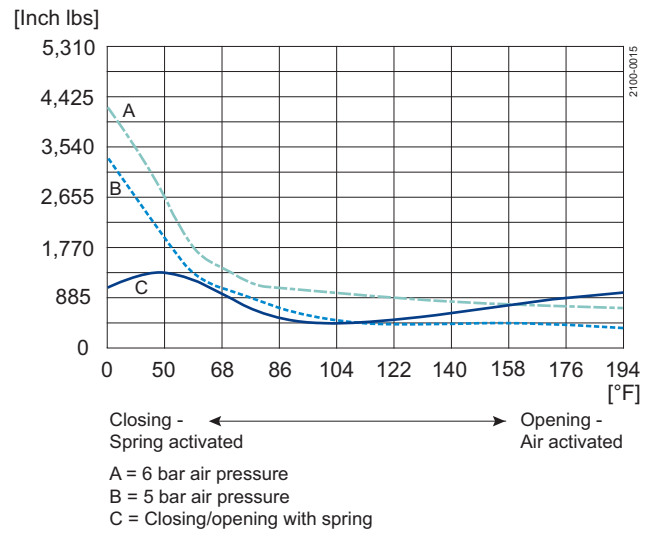
Measurement: In accordance with VDI 2173.

Torque diagrams - Actuator

LKLA \varnothing 3.35 in:



LKLA \varnothing 5.25 :



1.2

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

LKB UltraPure	Max Torque (ft-lbs)
1-inch	11
1.5-inch	11
2-inch	11
2.5-inch	15
3-inch	18
4-inch	26

Dimensions (inch)

Fig. 1. Dimensions - valve.

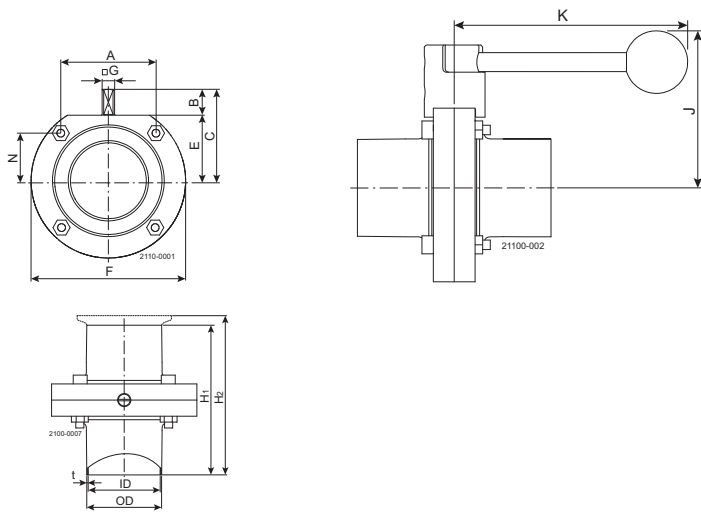
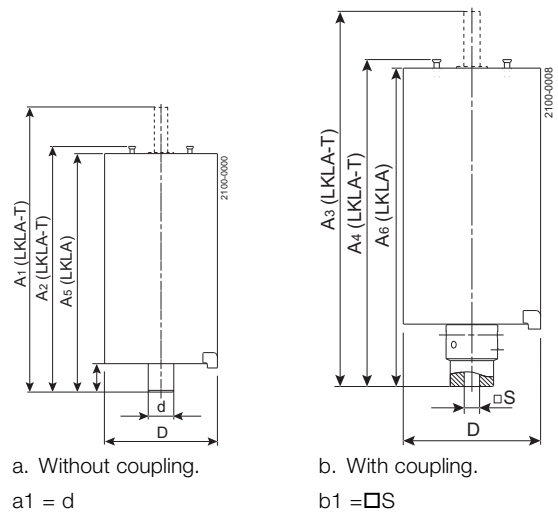


Fig. 2. Dimensions - actuator.



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
□ G	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

900594

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 male functions, 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 \pm 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-energized valve
Feedback signal #2	Energized 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 (\emptyset 0.16 - \emptyset 0.31 in.)
Max. wire diameter	0.0016 inch ² (AWG 18)

Solenoid valve

Supply voltage	24 VDC \pm 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

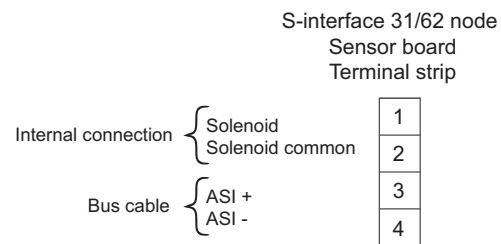
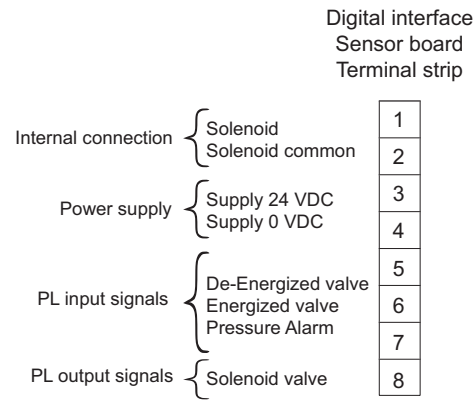
Bracket kit 1" to 4" (One kit for each valve size).

Note!

For further information: See also instruction manual ESE02126

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

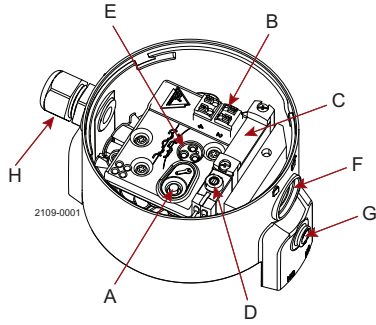
Electrical connection



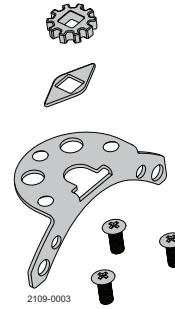
AS-Interface bits assignment

- 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 override
- E. LED indications
- F. Gore venting membrane
- G. Push-in fittings
- H. Cable gland entry

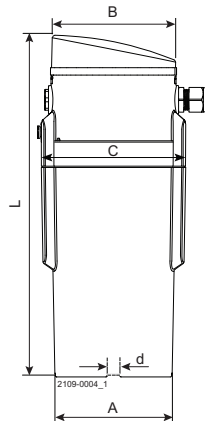


Bracket kit
changeable coupling
supporting 1" to 4" LKB valves

Actuator performance

PSI	Torque lbf-ft
43.5	32.5
58.0	44.3
72.5	56.1
87.0	66.4
101.5	76.7
116.0	87.0

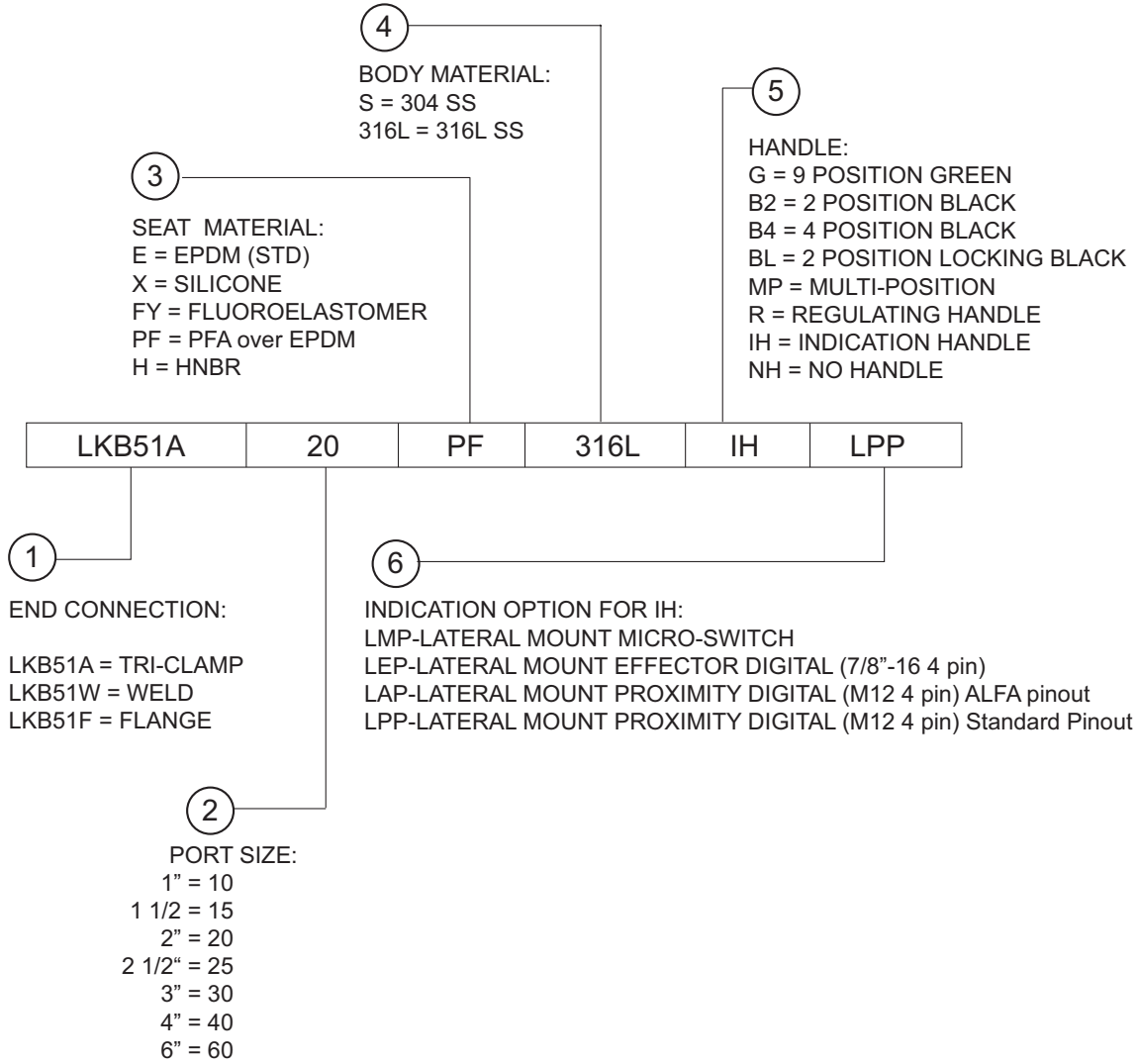
Dimensions (inch)



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

Description codes



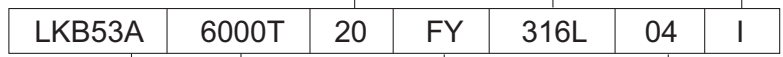
Description codes

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
<hr/>	
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



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 SWITVHES 0 SOLENOID
 12-GREEN TOP 2 PROX SWITVHES 0 SOLENOID
 18-GREEN TOP 24 VDC 2 MECH SWITVHES 1 SOLENOID
 20-GREEN TOP 110 VAC 2 MECH SWITVHES 1 SOLENOID
 34-GREEN TOP 24 VDC 2 MECH SWITVHES 1 SOLENOID
 36-GREEN TOP 110 VAC 2 MECH SWITVHES 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
 LMP-LATERAL MOUNT MICRO-SWITCH
 NNN-NO TOP

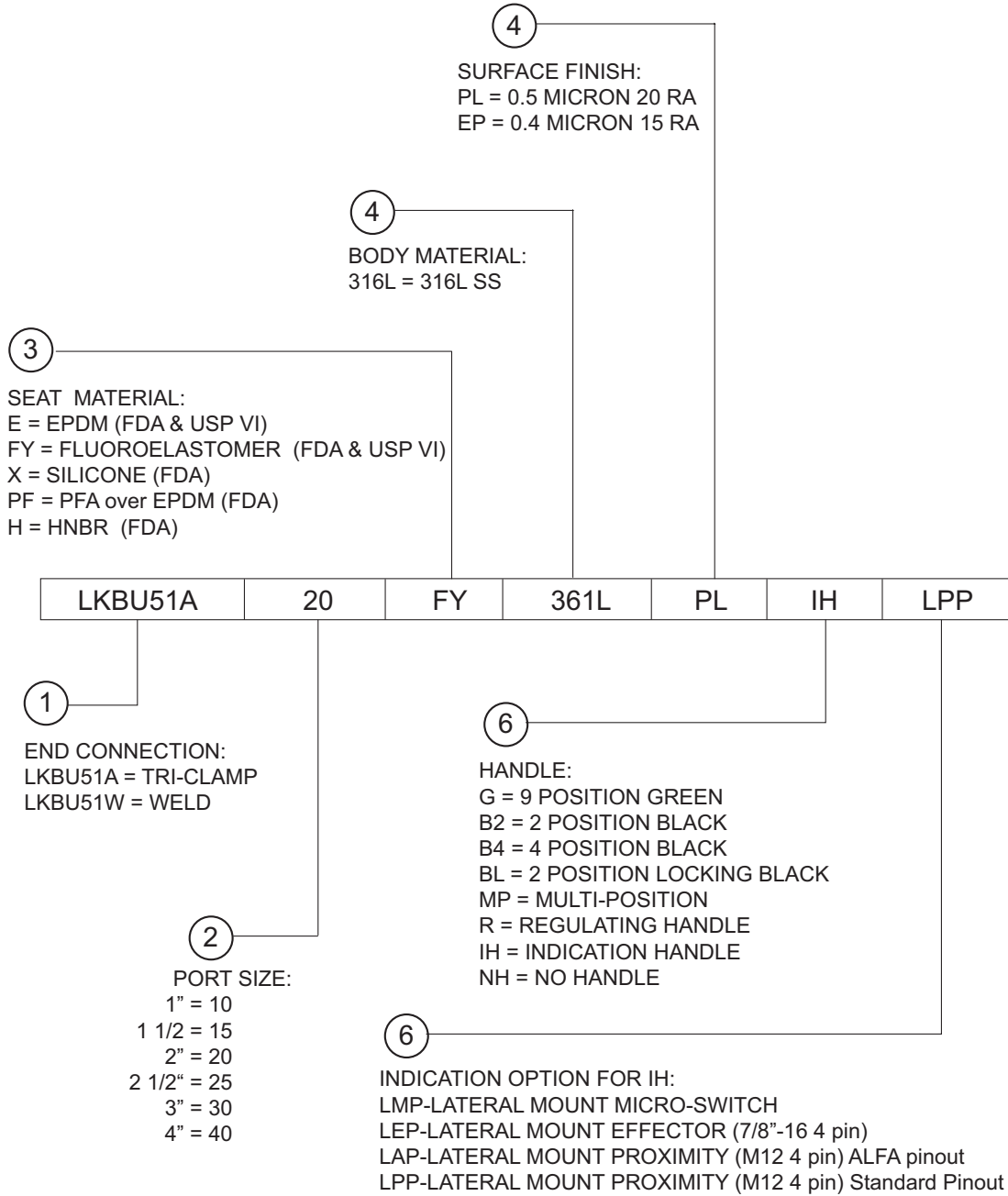
2 ACTUATOR TYPE:
 SERIES LKB53A w/o CONTROL TOP
 AIR-to-SPRING
 1" - 2 1/2" 6200 (NO) 6000 (NC) 85mm
 3" 6300 (NO) 6100 (NC) 85mm
 4" 6800 (NO) 6700 (NC) 85mm
 4" 7400 (NO) 7300 (NC) 133mm
 6" 6600 (NO) 7500 (NC) 85mm
 6" 7000 (NO) 7200 (NC) 133mm
 AIR-to-AIR
 1" - 2 1/2" 6400 (85mm)
 3" 6500 (85mm)
 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

Description codes



Description codes

6

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

5

BODY MATERIAL:
 316L = 316L SS

3

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

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

4

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

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 *

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

8

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

7

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 SWITVHES 0 SOLENOID
 12-GREEN TOP 2 PROX SWITVHES 0 SOLENOID
 18-GREEN TOP 24 VDC 2 MECH SWITVHES 1 SOLENOID
 20-GREEN TOP 110 VAC 2 MECH SWITVHES 1 SOLENOID
 34-GREEN TOP 24 VDC 2 MECH SWITVHES 1 SOLENOID
 36-GREEN TOP 110 VAC 2 MECH SWITVHES 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
 LMP-LATERAL MOUNT MICRO-SWITCH
 NNN-NO TOP

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

LKBU53A	6000T	20	FY	316L	PL	04	I
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Item No Tri-Clamp	LLP USD	Item No Butt-Weld	LLP USD	Size		
				in	mm	
LKB51A-Size-E-S		LKB51W-Size-E-S				Valve Only - EPDM Seat
9611444905		9611444500		1	25,4	
9611444915		9611444510		1,5	38,1	
9611444925		9611444520		2	50,8	
9611444935		9611444530		2,5	63,5	
9611444945		9611444540		3	76,2	
9611414955		9611414550		4	102	
9613434441		9611414571		6	152	
LKB51A-Size-X-S		LKB51W-Size-X-S				Valve Only - Silicone Seat
9611440365		9611440300		1	25.4	
9611440105		9611440250		1.5	38.1	
9611440115		9611440260		2	50.8	
9611440125		9611440270		2.5	63.5	
9611440135		9611440280		3	76.2	
9611410145		9611410290		4	102	
9613434440		9612935201		6	152	
LKB51A-Size-FY-S		LKB51W-Size-FY-S				Valve Only - FPM Seat
9611445635		9611444580		1	25.4	
9611445645		9611444590		1.5	38.1	
9611445655		9611444600		2	50.8	
9611445665		9611444610		2.5	63.5	
9611445675		9611444620		3	76.2	
9611415685		9611414630		4	102	
9613434442		9611414651		6	152	
LKB51A-Size-H-S		LKB51W-Size-H-S				Valve Only - HNBR Seat
9613434401		9612650200		1	25.4	
9613434402		9612650201		1.5	38.1	
9613434403		9612650202		2	50.8	
9613434404		9612650203		2.5	63.5	
9613434405		9612650204		3	76.2	
9613434406		9612650205		4	102	
9613434407		9612935203		6	152	
LKB51A-Size-PF-S		LKB51W-Size-PF-S				Valve Only - PFA Seat
Not Available		Not Available		1	25.4	
9613434412		9612943202		1.5	38.1	
9613434413		9612943203		2	50.8	
9613434414		9612943204		2.5	63.5	
9613434415		9612943205		3	76.2	
9613434416		9612943206		4	102	
Not Available		Not Available		6	152	

Item No Tri-Clamp	LLP USD	Item No Butt-Weld	LLP USD	Size		
				in	mm	
LKB51A-Size-E-316L		LKB51W-Size-E-316L				Valve Only - EPDM Seat
9611445155		9611444501		1	25.4	
9611445165		9611444511		1.5	38.1	
9611445175		9611444521		2	50.8	
9611445185		9611444531		2.5	63.5	
9611445195		9611444541		3	76.2	
9611415205		9611414551		4	102	
9613434444		9611414572		6	152	
LKB51A-Size-X-316L		LKB51W-Size-X-316L				Valve Only - Silicone Seat
9611442475		9611442191		1	25.4	
9611442485		9611442211		1.5	38.1	
9611442495		9611442221		2	50.8	
9611442505		9611442231		2.5	63.5	
9611442515		9611442241		3	76.2	
9611412525		9611412261		4	102	
9613434443		9612935202		6	152	
LKB51A-Size-FY-316L		LKB51W-Size-FY-316L				Valve Only - FPM Seat
9611445875		9611444581		1	25.4	
9611445885		9611444591		1.5	38.1	
9611445895		9611444601		2	50.8	
9611445905		9611444611		2.5	63.5	
9611445915		9611444621		3	76.2	
9611415925		9611414631		4	102	
9613434445		9611414652		6	152	
LKB51A-Size-H-316L		LKB51W-Size-H-316L				Valve Only - HNBR Seat
9613434421		9612650206		1	25.4	
9613434422		9612650207		1.5	38.1	
9613434423		9612650208		2	50.8	
9613434424		9612650209		2.5	63.5	
9613434425		9612650210		3	76.2	
9613434426		9612650211		4	102	
9613434427		9612935204		6	152	
LKB51A-Size-PF-316L		LKB51W-Size-PF-316L				Valve Only - PFA Seat
Not Available		Not Available		1	25.4	
9613434432		9612943214		1.5	38.1	
9613434433		9612943215		2	50.8	
9613434434		9612943216		2.5	63.5	
9613434435		9612943217		3	76.2	
9613434436		9612943218		4	102	
Not Available		Not Available		6	152	

LKB-F Butterfly Valve

Butterfly valves

Product code: 5214

Material: See below
Connection: ISO/DIN Welding ends

1.2

Item No.	LLP USD	Item No.	LLP USD	Item No.	LLP USD	Item No.	LLP USD	Size		Dimension (in)		Inch tube, 1.4307 (304L)
								ISO DN/OD	DIN DN	E	H ₂	
Silicone (Q)		EPDM		FPM		HNBR						
9612400041		9612400031		9612400051		9612400061		25		1.28	3.27	
9612400042		9612400032		9612400052		9612400062		38		1.28	3.27	
9612400043		9612400033		9612400053		9612400063		51		1.65	3.62	
9612400044		9612400034		9612400054		9612400064		63.5		2.05	3.62	
9612400045		9612400035		9612400055		9612400065		76.1		2.24	4.49	
9612400046		9612400036		9612400056		9612400066		101.6		3.03	5.20	
9612402741		9612402731		9612402751				25		1.28	3.27	
9612402742		9612402732		9612402752				38		1.28	3.27	
9612402743		9612402733		9612402753				51		1.65	3.62	
9612402744		9612402734		9612402754				63.5		2.05	3.62	
9612402745		9612402735		9612402755				76.1		2.24	4.49	
9612402746		9612402736		9612402756				101.6		3.03	5.20	

NOTE! Other combinations on request. Operating parts, handles and actuators please see later this chapter.

NOTE! LKB-F (DIN) with HNBR and LKB-F (DIN and ISO) with PFA can be supplied, but with EPDM flange seal.

Item No.	LLP USD	Item No.	LLP USD	Item No.	LLP USD	Item No.	LLP USD	Size		Dimension (in)		Inch tube, 1.4307 (304L)	
								ISO DN/OD	DIN DN	E	H ₂		
Silicone (Q)								EPDM		FPM		HNBR	
9612400011		9612400001		9612400021				25	1.31	3.27			
9612400012		9612400002		9612400022				32	1.31	3.27			
9612400013		9612400003		9612400023				40	1.48	3.27			
9612400014		9612400004		9612400024				50	1.83	3.62			
9612400015		9612400005		9612400025				65	2.26	4.49			
9612400016		9612400006		9612400026				80	2.48	4.57			
9612400017		9612400007		9612400027				100	3.03	5.20			
9612400018		9612400008		9612400028				125	3.81	5.35			
9612400019		9612400009		9612400029				150	4.09	5.98			
9612402711								9612402701		9612402721		9612402761	
9612402712								9612402702		9612402722		9612402762	
9612402713								9612402703		9612402723		9612402763	
9612402714								9612402704		9612402724		9612402764	
9612402715								9612402705		9612402725		9612402765	
9612402716								9612402706		9612402726		9612402766	
9612402717								9612402707		9612402727			
9612402718								9612402708		9612402728			
9612402719								9612402709		9612402729			

NOTE! Other combinations on request. Operating parts, handles and actuators please see later this chapter.

NOTE! LKB-F (DIN) with HNBR and LKB-F (DIN and ISO) with PFA can be supplied, but with EPDM flange seal.

LKB UltraPure Automatic or Manual Butterfly Valve

Butterfly valves

1.2

Product code: 5219

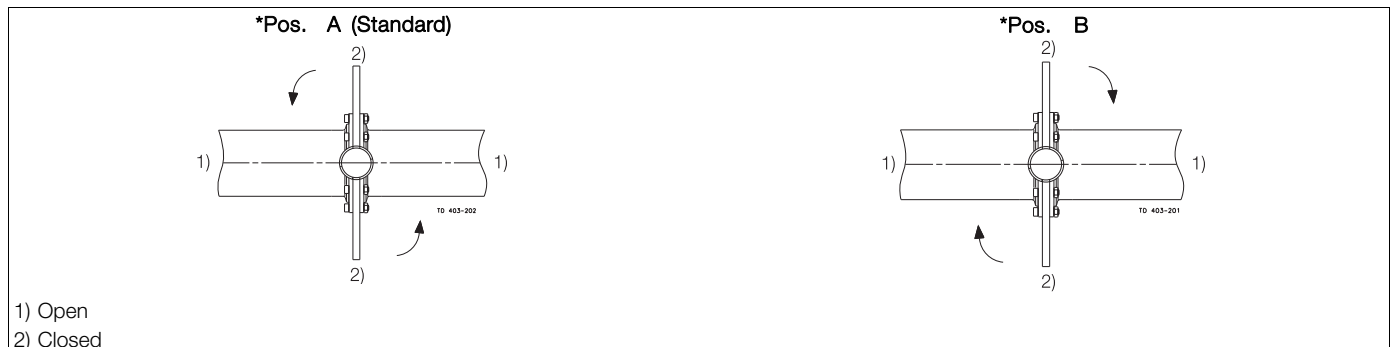
Material: 1.4404 (316 L)
 Connection: Orbital welding ends/clamp ends
 Seals: EPDM - FDA and USP Class VI
 Seals: FPM - FDA and USP Class VI

Item No.	LLP USD	Item No.	LLP USD	Size	Dimension (inch)		20RA Mechanical Polish
EPDM		FPM			E	H¹	ASME BPE
9613858201		9614051901		1"	1.28	5.00	
9613858202		9614051902		1½"	1.28	5.00	
9613858203		9614051903		2"	1.65	5.20	
9613858204		9614051904		2½"	2.05	5.28	
9613858205		9614051905		3"	2.24	6.38	
9613858206		9614051906		4"	3.03	7.09	
					E	H²	ASME BPE Clamp
9613858301		9614051913		1"	1.28	2.85	
9613858302		9614051914		1½"	1.28	2.85	
9613858303		9614051915		2"	1.65	3.05	
9613858304		9614051916		2½"	2.05	3.13	
9613858305		9614051917		3"	2.24	3.44	
9613858306		9614051918		4"	3.03	4.40	
EPDM		FPM			E	H¹	15RA electropolished
9613858207		9614051907		1"	1.28	5.00	
9613858208		9614051908		1½"	1.28	5.00	
9613858209		9614051909		2"	1.65	5.20	
9613858210		9614051910		2½"	2.05	5.28	
9613858211		9614051911		3"	2.24	6.38	
9613858212		9614051912		4"	3.03	7.09	
					E	H²	ASME BPE Clamp
9613858307		9614051919		1"	1.28	2.85	
9613858308		9614051920		1½"	1.28	2.85	
9613858309		9614051921		2"	1.65	3.05	
9613858310		9614051922		2½"	2.05	3.13	
9613858311		9614051923		3"	2.24	3.44	
9613858312		9614051924		4"	3.03	4.40	

Operating parts for LKB, LKB-2, LKB-F and LKB-LP valves
 Product code: 5226

Material: 1.4301 (304)

Item No.	LLP USD	Item No.	LLP USD	Size	Dimension (in)				
Pos. A* (standard)		Pos. B*		Inch**	S	K	R	T	1.1 with 2 positions
9612045001		9612523701		1-2.5	0.31	4.65	1.5	0.87	
9612045101		9612523703		3	0.39	6.70	1.5	1.19	
9612045901		9612523705		4	0.47	6.70	1.5	1.19	
1.1 with 4 positions									
9612045002		9612523702		1-2.5	0.31	4.65	1.5	0.87	
9612045102		9612523704		3	0.39	6.70	1.5	1.19	
9612045902		9612523706		4	0.47	6.70	1.5	1.19	
9612079101				6	0.59	14.37	2.00	1.89	
1.1 regulating 363.15°K									
9612047401				1-2.5	0.31	4.76	1.34	0.87	
9612047402				3	0.39	6.35	1.34	1.19	
9612047403				4	0.47	6.35	1.34	1.19	



** NOTE! Sold before 890601 - LKB 4": Square S = 0.39 in..

Operating parts for LKB, LKB-2, LKB-F and LKB-LP valves
 Product code: 5226, 5222

Item No.	LLP USD	Long/Short	Size	Dimension (in)				Lockable Multiposition*
				S	K	R	T	
1.4301 (304)			Inch**					
Product code: 5226								
9612592801		Long	1-2.5	0.31	7.87	1.70	0.87	
9612592802		Long	3	0.39	7.87	1.70	1.18	
9612592803		Long	4	0.47	7.87	1.70	1.18	
9612592804		Short	1-2.5	0.31	5.91	1.72	0.87	
9612592805		Short	3	0.39	5.91	1.72	1.18	
9612592806		Short	4	0.47	5.91	1.72	1.18	

*A padlock can be mounted on the Lockable Multiposition Handle (see PD 65396). Note! Padlock is not delivered.

The Lockable Multiposition Handle can be used in on/off position or for regulating with on/off position and 5 intermediate positions with 15° step.

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

The Lockable Multiposition Handle can not be fit on the following valve connections (valve flanges with connections):

LKB

ISO (IDF) male part, size 4"

DS male part, size 1.5", 2", 3"

BS male part, size 1.5", 2", 2.5", 3"

SMS male part, size 38

DIN nut and liner, size DN40

DIN male part, size DN40, DN50, DN65

LKB-2

DIN male part/nut and liner, size DN32, DN40

Item No.	LLP USD	Long/Short	Size	Dimension (in)			Mounting brackets with handle 1.1 for indication unit
				S	A	B	
1.4301 (304)			LKB for Inch**				
Product code: 5226							
9612047501			1-2.5	0.31	3.80	5.96	
9612047502			3	0.39	4.25	7.89	
9612047503			4	0.47	4.25	7.89	

Actuators $\varnothing 3.35$ and $\varnothing 6.24$ for LKB, LKB-2 and LKB-F valves
 Product code: 5228

Item No.	LLP USD	Size	Function	Dimension (in)					
				A ₆	D	d	S		
1.4301 (304)		Inch*						With coupling	
9611416301		1-2.5	NC	7.28	3.35		0.31		
9611416302		3	NC	7.20	3.35		0.39		
9611416306		4	NC	7.20	3.35		0.47		
9612271306		4	NC	12.13	5.24		0.47		
9612271316		6	NC	12.13	5.24		0.59		
9611416304		1-2.5	NO	7.28	3.35		0.31		
9611416305		3	NO	7.20	3.35		0.39		
9611416307		4	NO	7.20	3.35		0.47		
9612271307		4	NO	12.13	5.24		0.47		
9612271317		6	NO	12.13	5.24		0.59		
9611417491		1-2.5	A/A	7.28	3.35		0.31		
9611417492		3	A/A	7.20	3.35		0.39		
9611417493		4	A/A	7.20	3.35		0.47		
9611417500		6	A/A	7.36	3.35		0.59		
9612271308		4	A/A	12.13	5.24		0.47		
9612271318		6	A/A	12.13	5.24		0.59		
1.4301 (304)		Inch*		A₅		d	S		Without coupling
9611416300			NC	6.50	3.35	0.67			
9612271301			NC	11.10	5.24	1.18			
9611416303			NO	6.50	3.35	0.67			
9612271302			NO	11.10	5.24	1.18			
9611417490			A/A	6.50	3.35	0.67			
9611417501			A/A	6.50	3.35	0.79			
9612271303			A/A	11.10	5.24	1.18			

* NOTE! Sold before 890601 - LKB 4": Square S = 0.39 in.

Alfa Laval recommends actuator size $\varnothing 5.24$ for $\geq 4"$

Actuators $\varnothing 3.35$ and $\varnothing 6.24$ for LKB, LKB-2 and LKB-F valves
 Product code: 5228

Item No.	LLP USD	Size	Function	Dimension (in)					
				A ₃	D	d	S		
1.4301 (304)		Inch*						With coupling	
9612194002		1-2.5	NC	9.25	3.35		0.31		
9612194003		3	NC	9.17	3.35		0.39		
9612194007		4	NC	9.17	3.35		0.47		
9612374906		4	NC	14.29	5.24		0.47		
9612374916		6	NC	14.29	5.24		0.59		
9612194005		1-2.5	NO	9.25	3.35		0.31		
9612194006		3	NO	9.17	3.35		0.39		
9612194008		4	NO	9.17	3.35		0.47		
9612374907		4	NO	14.29	5.24		0.47		
9612374917		6	NO	14.29	5.24		0.59		
9612194102		1-2.5	A/A	9.25	3.35		0.31		
9612194103		3	A/A	9.17	3.35		0.39		
9612194104		4	A/A	9.17	3.35		0.47		
9612194201		6	A/A	9.33	3.35		0.59		
9612374908		4	A/A	14.29	5.24		0.47		
9612374918		6	A/A	14.29	5.24		0.59		
A₁									Without coupling
9612194001			NC	8.46	3.35	0.67			
9612374901			NC	13.27	5.24	1.18			
9612194004			NO	8.46	3.35	0.67			
9612374902			NO	13.27	5.24	1.18			
9612194101			A/A	8.46	3.35	0.67			
9612194203			A/A	8.46	3.35	0.79			
9612374903			A/A	13.27	5.24	1.18			

* NOTE! Sold before 890601 - LKB 4": Square S = 0.39 in.

Alfa Laval recommends actuator size for $\varnothing 5.24 \geq 4"$

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 304								
330053		9634078402		9634078406		1	25.4	
330054		9634053344		331450		1.5	38.1	
331247		9634053346		330216		2	50.8	
330060		9634078403		9634078407		2.5	63.5	
331248		9634078404		9634047765		3	76.2	
330067		9634078405		9634078408		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078409		Not Available				1	25.4	
9634078410		9634078415				1.5	38.1	
9634078411		9634078416				2	50.8	
9634078412		9634078417				2.5	63.5	
9634078413		9634078418				3	76.2	
9634078414		9634078419				4	102	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 316L								
9636000051		9636000038		9634078424		1	25.4	
331263		9634078227		9634078425		1.5	38.1	
330160		9635000216		9634078426		2	50.8	
9634078421		9634078422		9634078427		2.5	63.5	
9635000138		9634078423		9634053365		3	76.2	
9634075289		331432		330902		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078428		Not Available				1	25.4	
9634078429		9634078432				1.5	38.1	
9634078430		9634078433				2	50.8	
9634078431		9634078434				2.5	63.5	
9635000142		9634078435				3	76.2	
9635000143		9634078436				4	102	

LKB-W with 2 Position Black Handle

Butterfly valves

Product Code: 5205

Material: See below
Connection: Weld ends

1.2

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 304								
9613700011		9613700131		9613700151		1	25.4	
9613700031		9613700171		9613700191		1.5	38.1	
9613700051		9613700211		9613700231		2	50.8	
9613700071		9613700251		9613700271		2.5	63.5	
9613700091		9613700291		9613700311		3	76.2	
9613700109		9613700329		9613700345		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9613700691		Not Available				1	25.4	
9634078437		9634078441				1.5	38.1	
9634078438		9634078442				2	50.8	
9634078439		9634078443				2.5	63.5	
9613700693		9634078444				3	76.2	
9634078440		9634078445				4	102	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 316L								
9613700016		9613700136		9613700156		1	25.4	
9613700036		9613700176		9613700196		1.5	38.1	
9613700056		9613700216		9613700236		2	50.8	
9613700076		9613700256		9613700276		2.5	63.5	
9613700096		9613700296		9613700316		3	76.2	
9613700113		9613700333		9613700349		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078446		Not Available				1	25.4	
9634078447		9634078450				1.5	38.1	
9613700688		9634078451				2	50.8	
9634078448		9634078452				2.5	63.5	
9634078449		9634078453				3	76.2	
9634078086		9634078454				4	102	

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 304								
9613700012		9613700132		9613700152		1	25.4	
9613700032		9613700172		9613700192		1.5	38.1	
9613700052		9613700212		9613700232		2	50.8	
9613700072		9613700252		9613700272		2.5	63.5	
9613700092		9613700292		9613700312		3	76.2	
9613700110		9613700330		9613700346		4	102	
9613700119		9613700355		9613700359		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078455		Not Available				1	25.4	
9634078456		9634078464				1.5	38.1	
9634078457		9634078465				2	50.8	
9634078458		9634078466				2.5	63.5	
9634078459		9634078467				3	76.2	
9634078462		9634078468				4	102	
9634078463		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 316L								
9613700017		9613700137		9613700157		1	25.4	
9613700037		9613700177		9613700197		1.5	38.1	
9613700057		9613700217		9613700237		2	50.8	
9613700077		9613700257		9613700277		2.5	63.5	
9613700097		9613700297		9613700317		3	76.2	
9613700114		9613700334		9613700350		4	102	
9613700120		9613700356		9613700360		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078469		Not Available				1	25.4	
9634078470		9634078475				1.5	38.1	
9634078471		9634078476				2	50.8	
9634078472		9634078477				2.5	63.5	
9634078473		9634078478				3	76.2	
9636000003		9634078479				4	102	
9634078474		Not Available				6	152	

LKB-W with Regulating 90° Black Handle

Butterfly valves

Product Code: 5205

Material: See below
Connection: Weld ends

1.2

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 304								
9613700015		9613700135		9613700155		1	25.4	
9613700035		9613700175		9613700195		1.5	38.1	
9613700055		9613700215		9613700235		2	50.8	
9613700075		9613700255		9613700275		2.5	63.5	
9613700095		9613700295		9613700315		3	76.2	
9613700112		9613700332		9613700348		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078480		Not Available				1	25.4	
9634078481		9634078486				1.5	38.1	
9634078482		9634078487				2	50.8	
9634078483		9634078488				2.5	63.5	
9634078484		9634078489				3	76.2	
9634078485		9634078490				4	102	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 316L								
9613700020		9613700140		9613700160		1	25.4	
9613700040		9613700180		9613700200		1.5	38.1	
9613700060		9613700220		9613700240		2	50.8	
9613700080		9613700260		9613700280		2.5	63.5	
9613700100		9613700300		9613700320		3	76.2	
9613700116		9613700336		9613700352		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078491		Not Available				1	25.4	
9634078492		9634078497				1.5	38.1	
9634078493		9634078498				2	50.8	
9634078494		9634078499				2.5	63.5	
9634078495		9634078500				3	76.2	
9634078496		9634078501				4	102	

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 304								
9613700014		9613700134		9613700154		1	25.4	
9613700034		9613700174		9613700194		1.5	38.1	
9613700054		9613700214		9613700234		2	50.8	
9613700074		9613700254		9613700274		2.5	63.5	
9613700094		9613700294		9613700314		3	76.2	
9634078502		9634078503		9634078504		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078505		Not Available				1	25.4	
9634078506		9634078511				1.5	38.1	
9634078507		9634078512				2	50.8	
9634078508		9634078513				2.5	63.5	
9634078509		9634078514				3	76.2	
9634078510		9634078515				4	102	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 316L								
9613700019		9613700139		9613700159		1	25.4	
9613700039		9613700179		9613700199		1.5	38.1	
9613700059		9613700219		9613700239		2	50.8	
9613700079		9613700259		9613700279		2.5	63.5	
9613700099		9613700299		9613700319		3	76.2	
9636000072		9634078516		9634078517		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078518		Not Available				1	25.4	
9634078519		9634078524				1.5	38.1	
9634078520		9634078525				2	50.8	
9634078521		9634078526				2.5	63.5	
9634078522		9634078527				3	76.2	
9634078523		9634078528				4	102	

LKB-W with Multi-Position Handle

Butterfly valves

Product Code: 5205

Material: See below
 Connection: Weld ends

1.2

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 304								
9613700013		9613700133		9613700153		1	25.4	
9613700033		9613700173		9613700193		1.5	38.1	
9613700053		9613700213		9613700233		2	50.8	
9613700073		9613700253		9613700273		2.5	63.5	
9613700093		9613700293		9613700313		3	76.2	
9613700111		9613700331		9613700347		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078529		Not Available				1	25.4	
9634078530		9634078538				1.5	38.1	
9634078531		9634078539				2	50.8	
9634078532		9634078540				2.5	63.5	
9634078533		9634078541				3	76.2	
9634078534		9634078542				4	102	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51W 316L								
9613700018		9613700138		9613700158		1	25.4	
9613700038		9613700178		9613700198		1.5	38.1	
9613700058		9613700218		9613700238		2	50.8	
9613700078		9613700258		9613700278		2.5	63.5	
9613700098		9613700298		9613700318		3	76.2	
9613700115		9613700335		9613700351		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078543		Not Available				1	25.4	
9634078544		9634078549				1.5	38.1	
9634078545		9634078550				2	50.8	
9634078546		9634078551				2.5	63.5	
9634078547		9634078552				3	76.2	
9634078548		9634078553				4	102	

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A 304								
330288		330290		330285		1	25.4	
330306		330318		330296		1.5	38.1	
330307		330326		330297		2	50.8	
330308		330329		330298		2.5	63.5	
330309		330331		330299		3	76.2	
330310		330333		330300		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078554		Not Available				1	25.4	
9634078555		9634078560				1.5	38.1	
9634078556		9634078561				2	50.8	
9634078557		9634078562				2.5	63.5	
9634078558		9634078563				3	76.2	
9634078559		9634078564				4	102	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A 316L								
330287		330289		330282		1	25.4	
330301		330312		330291		1.5	38.1	
330302		330313		330292		2	50.8	
330303		330314		330293		2.5	63.5	
330304		330316		330294		3	76.2	
330305		330317		330295		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634080460		Not Available				1	25.4	
9634078566		9635000174				1.5	38.1	
9634078567		9635000175				2	50.8	
9634078568		9634078570				2.5	63.5	
9634067824		9636000065				3	76.2	
9634078569		9634078571				4	102	

LKB-A with 2 Position Black Handle

Butterfly valves

Product Code: 5209

Material: See below
Connection: Clamp ends

1.2

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A 304								
961370001		9613700121		9613700141		1	25.4	
9613700021		9613700161		9613700181		1.5	38.1	
9613700041		9613700201		9613700221		2	50.8	
9613700061		9613700241		9613700261		2.5	63.5	
9613700081		9613700281		9613700301		3	76.2	
9613700101		9613700321		9613700337		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078572		Not Available				1	25.4	
9634078573		9634078577				1.5	38.1	
9634078574		9634078578				2	50.8	
9634078575		9634078579				2.5	63.5	
9613700694		9634078580				3	76.2	
9634078576		9634078581				4	102	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A 316L								
9613700006		9613700126		9613700146		1	25.4	
9613700026		9613700166		9613700186		1.5	38.1	
9613700046		9613700206		9613700226		2	50.8	
9613700066		9613700246		9613700266		2.5	63.5	
9613700086		9613700286		9613700306		3	76.2	
9613700105		9613700325		9613700341		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9613700673		Not Available				1	25.4	
9613700675		9635000176				1.5	38.1	
9613700677		9635000178				2	50.8	
9613700679		9634076645				2.5	63.5	
9613700681		9635000179				3	76.2	
9613700683		9635000180				4	102	

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A 304								
961370002		9613700122		9613700142		1	25.4	
961370022		9613700162		9613700182		1.5	38.1	
961370042		9613700202		9613700222		2	50.8	
961370062		9613700242		9613700262		2.5	63.5	
961370082		9613700282		9613700302		3	76.2	
9613700102		9613700322		9613700338		4	102	
9613700117		9613700353		9613700357		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078582		Not Available				1	25.4	
9634078583		9634078588				1.5	38.1	
9634078584		9634078589				2	50.8	
9634078585		9634078590				2.5	63.5	
9613700855		9634078591				3	76.20	
9634078586		9634078592				4	102	
9634078587		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A 316L								
9613700007		9613700127		9613700147		1	25.4	
9613700027		9613700167		9613700187		1.5	38.1	
9613700047		9613700207		9613700227		2	50.8	
9613700067		9613700247		9613700267		2.5	63.50	
9613700087		9613700287		9613700307		3	76.2	
9613700106		9613700326		9613700342		4	102	
9613700118		9613700354		9613700358		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9613700674		Not Available				1	25.4	
9613700676		9634078205				1.5	38.1	
9613700678		9634078593				2	50.80	
9613700680		9634078594				2.5	63.5	
9613700682		9634078595				3	76.2	
9613700684		9634078596				4	102	
9613434427		Not Available				6	152	

* = Please contact your Alfa Laval contact person for further information.

LKB-A with Regulating 90° Black Handle

Butterfly valves

Product Code: 5209

Material: See below
Connection: Clamp ends

1.2

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A 304								
9613700005		9613700125		9613700145		1	25.4	
9613700025		9613700165		9613700185		1.5	38.1	
9613700045		9613700205		9613700225		2	50.8	
9613700065		9613700245		9613700265		2.5	63.5	
9613700085		9613700285		9613700305		3	76.2	
9613700104		9613700324		9613700340		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634080116		Not Available				1	25.4	
9634080117		9634080122				1.5	38.1	
9634080118		9634080123				2	50.8	
9634080119		9634080124				2.5	63.5	
9634080120		9634080125				3	76.2	
9634080121		9634080126				4	102	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A316L								
9613700010		9613700130		9613700150		1	25.4	
9613700030		9613700170		9613700190		1.5	38.1	
9613700050		9613700210		9613700230		2	50.8	
9613700070		9613700250		9613700270		2.5	63.5	
9613700090		9613700290		9613700310		3	76.2	
9613700108		9613700328		9613700344		4	102	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634080127		Not Available				1	25.4	
9634080128		9634080133				1.5	38.1	
9634080129		9634080134				2	50.8	
9634080130		9634080135				2.5	63.5	
9634080131		9634080136				3	76.2	
9634080132		9634080137				4	102	

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A 304								
961370004		9613700124		9613700144		1	25.4	
961370024		9613700164		9613700184		1.5	38.1	
961370044		9613700204		9613700224		2	50.8	
961370064		9613700244		9613700264		2.5	63.5	
961370084		9613700284		9613700304		3	76.2	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078599		Not Available				1	25.4	
9634078600		9634078604				1.5	38.1	
9634078601		9634078605				2	50.8	
9634078602		9634078606				2.5	63.5	
9634078603		9634078607				3	76.2	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A 316L								
961370009		9613700129		9613700149		1	25.4	
961370029		9613700169		9613700189		1.5	38.1	
961370049		9613700209		9613700229		2	50.8	
961370069		9613700249		9613700269		2.5	63.5	
961370089		9613700289		9613700309		3	76.2	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078608		Not Available				1	25.40	
9634078609		9634068951				1.5	38.1	
9634078610		9634078613				2	50.8	
9634078611		9634078614				2.5	63.5	
9634078612		9634078615				3	76.2	

LKB-A with Multi-Position Handle

Butterfly valves

Product Code: 5209

Material: See below
Connection: Clamp ends

1.2

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A 304								
9613700003		9613700123		9613700143		1	25.4	
9613700023		9613700163		9613700183		1.5	38.1	
9613700043		9613700203		9613700223		2	50.8	
9613700063		9613700243		9613700263		2.5	63.5	
9613700083		9613700283		9613700303		3	76.2	
9613700103		9613700323		9613700339		4	102.00	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078616		Not Available				1	25.4	
9634078617		9634078622				1.5	38.1	
9634078618		9634078623				2	50.8	
9634078619		9634078624				2.5	63.5	
9634078620		9634081303				3	76.2	
9634078621		9634078626				4	102.00	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB51A 316L								
9613700008		9613700128		9613700148		1	25.4	
9613700028		9613700168		9613700188		1.5	38.1	
9613700048		9613700208		9613700228		2	50.8	
9613700068		9613700248		9613700268		2.5	63.5	
9613700088		9613700288		9613700308		3	76.2	
9613700107		9613700327		9613700343		4	102.00	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078627		Not Available				1	25.4	
9634078628		9634078632				1.5	38.1	
9635000206		9634078633				2	50.8	
9634078629		9634078634				2.5	63.5	
9634078630		9634078635				3	76.2	
9634078631		9634078636				4	102.00	

Butterfly valves

LKB-W with LKLA

Product Code: 5204

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter
 Actuator: Normally Closed
 Material: See below
 Connection: Weld ends

1.2

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 304								
331540		9634067073		9634078640		1	25.4	
330897		9613700717		9634078641		1.5	38.1	
330024		331297		9634059441		2	50.8	
331563		9613700749		9634078642		2.5	63.5	
331564		9634067075		9634068162		3	76.2	
9634078637		9634078638		9634078643		4	102	
9634054154		9634078639		9634078644		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078645		Not Available				1	25.4	
9634078646		9634078652				1.5	38.1	
9634078647		9634078653				2	50.8	
9634078648		9634078654				2.5	63.5	
9634078649		9634078655				3	76.2	
9634078650		9634078656				4	102	
9634078651		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 316L								
331517		9634078658		9613700735		1	25.4	
330798		9634078659		331215		1.5	38.1	
9634048669		9613700740		331226		2	50.8	
9634049065		9634078660		9634050132		2.5	63.5	
331217		9613700741		9634078663		3	76.2	
331218		9634078661		9613700873		4	102	
331583		9634078662		9634069374		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078664		Not Available				1	25.4	
9634078665		9634078671				1.5	38.1	
9634081053		9634078672				2	50.8	
9634078667		9634078673				2.5	63.5	
9634078668		9634078674				3	76.2	
9634078669		9634078675				4	102	
9634078670		Not Available				6	152	

Product Code: 5204

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Actuator: Normally Open

Material: See below

Connection: Weld ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 304								
9613700734		9634078677		9634078680		1	25.4	
331214		9634078678		9634078681		1.5	38.1	
319269		9634059251		9634058713		2	50.8	
9634068639		9634078679		9634078682		2.5	63.5	
331267		9634059250		9634078683		3	76.2	
331266		9634053831		9634078684		4	102	
9634078676		9634059248		9634078685		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078686		Not Available				1	25.4	
9634078687		9634078693				1.5	38.1	
9634078688		9634078694				2	50.8	
9634078689		9634078695				2.5	63.5	
9634078690		9634078696				3	76.2	
9634078691		9634078697				4	102	
9634078692		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 316L								
9634078698		9634078700		9634078707		1	25.4	
9634059492		9634078701		9634078708		1.5	38.1	
9613700759		9634078702		9634078709		2	50.8	
9634058346		9634078703		9634078710		2.5	63.5	
9634067751		9634078704		9634078711		3	76.2	
9613700766		9634078705		9634078712		4	102	
9634078699		9634078706		9634078713		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078714		Not Available				1	25.4	
9634078715		9634078720				1.5	38.1	
9634078716		9634078721				2	50.8	
9634078717		9634078722				2.5	63.5	
9634078718		9634078723				3	76.2	
9613700725		9634078724				4	102	
9634078719		Not Available				6	152	

Butterfly valves

LKB-W with LKLA

Product Code: 5204

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Note: Pricing below does not include Green Control Top Unit.
Refer to section for Control Top pricing.

Actuator: Air-to-Air
Material: See below
Connection: Weld ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 304								
9636000155		9634078728		9634078734		1	25.4	
9634078725		9634078729		9634078735		1.5	38.1	
9634047965		9634078730		319212		2	50.8	
9634078726		9634078731		9634078736		2.5	63.5	
9634057986		9634078732		9634078737		3	76.2	
9634057987		9634051135		9634078738		4	102	
9634078727		9634078733		9634078739		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078740		Not Available				1	25.4	
9634078741		9634078747				1.5	38.1	
9634078742		9634078748				2	50.8	
9634078743		9634078749				2.5	63.5	
9634078744		9634078750				3	76.2	
9634078745		9634078751				4	102	
9634078746		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 316L								
9634078752		9634078757		9634070508		1	25.4	
9634078753		9634078758		9634078764		1.5	38.1	
9634058141		9634078759		9634067972		2	50.8	
9634078754		9634078760		9634078765		2.5	63.5	
9613700784		9634078761		9634078015		3	76.2	
9634078755		9634078762		9634078766		4	102	
9634078756		9634078763		9634078767		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078768		Not Available				1	25.4	
9634078769		9634078774				1.5	38.1	
9634078770		9634078775				2	50.8	
9634078771		9634078776				2.5	63.5	
9634078772		9634078777				3	76.2	
9613700725		9634078778				4	102	
9634078773		Not Available				6	152	

LKB-W with LKLA-TKT Actuator and Bracket

Butterfly valves

1.2

Product Code: 5204
 Note: Pricing below does not include ThinkTop® Unit.
 Refer to section for ThinkTop® pricing.

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter
 Actuator: Normally Closed w/Coupling for ThinkTop®
 Material: See below
 Connection: Weld ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 304								
9634078857		9634078864		9634078871		1	25.4	
9634078858		9634078865		9634078872		1.5	38.1	
9634078859		9634078866		9634078873		2	50.8	
9634078860		9634078867		9634078874		2.5	63.5	
9634078861		9634078868		9634078875		3	76.2	
9634078862		9634078869		9634078876		4	102	
9634078863		9634078870		9634078877		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078878		Not Available				1	25.4	
9634078879		9634078885				1.5	38.1	
9634078880		9634078886				2	50.8	
9634078881		9634078887				2.5	63.5	
9634078882		9634078888				3	76.2	
9634078883		9634078889				4	102	
9634078884		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 316L								
9634078890		9634078897		9634078904		1	25.4	
9634078891		9634078898		9634078905		1.5	38.1	
9634078892		9634078899		9634078906		2	50.8	
9634078893		9634078900		9634078907		2.5	63.5	
9634078894		9634078901		9634078908		3	76.2	
9634078895		9634078902		9634078909		4	102	
9634078896		9634078903		9634078910		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078911		Not Available				1	25.4	
9634078912		9634078918				1.5	38.1	
9634078913		9634078919				2	50.8	
9634078914		9634078920				2.5	63.5	
9634078915		9634078921				3	76.2	
9634078916		9634078922				4	102	
9634078917		Not Available				6	152	

Butterfly valves

LKB-W with LKLA-TKT Actuator and Bracket

Product Code: 5204

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Note: Pricing below does not include ThinkTop® Unit.
Refer to section for ThinkTop® pricing.

Actuator: Normally Open w/Coupling for ThinkTop®
Material: See below
Connection: Weld ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 304								
9634078923		9634078930		9634078937		1	25.4	
9634078924		9634078931		9634078938		1.5	38.1	
9634078925		9634078932		9634078939		2	50.8	
9634078926		9634078933		9634078940		2.5	63.5	
9634078927		9634078934		9634078941		3	76.2	
9634078928		9634078935		9634078942		4	102	
9634078929		9634078936		9634078943		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078944		Not Available				1	25.4	
9634078945		9634078951				1.5	38.1	
9634078946		9634078952				2	50.8	
9634078947		9634078953				2.5	63.5	
9634078948		9634078954				3	76.2	
9634078949		9634078955				4	102	
9634078950		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 316L								
9634078956		9634078963		9634078970		1	25.4	
9634078957		9634078964		9634078971		1.5	38.1	
9634078958		9634078965		9634078972		2	50.8	
9634078959		9634078966		9634078973		2.5	63.5	
9634078960		9634078967		9634078974		3	76.2	
9634078961		9634078968		9634078975		4	102	
9634078962		9634078969		9634078976		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078977		Not Available				1	25.4	
9634078978		9634078984				1.5	38.1	
9634078979		9634078985				2	50.8	
9634078980		9634078986				2.5	63.5	
9634078981		9634078987				3	76.2	
9634078982		9634078988				4	102	
9634078983		Not Available				6	152	

LKB-W with LKLA-TKT Actuator and Bracket

Butterfly valves

1.2

Product Code: 5204
 Note: Pricing below does not include ThinkTop® Unit.
 Refer to section for ThinkTop® pricing.

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter
 Actuator: Air-to-Air w/Coupling for ThinkTop®
 Material: See below
 Connection: Weld ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 304								
9634078989		9634078996		9634079003		1	25.4	
9634078990		9634078997		9634079004		1.5	38.1	
9634078991		9634078998		9634079005		2	50.8	
9634078992		9634078999		9634079006		2.5	63.5	
9634078993		9634079000		9634079007		3	76.2	
9634078994		9634079001		9634079008		4	102	
9634078995		9634079002		9634079009		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079010		Not Available				1	25.4	
9634079011		9634079017				1.5	38.1	
9634079012		9634079018				2	50.8	
9634079013		9634079019				2.5	63.5	
9634079014		9634079020				3	76.2	
9634079015		9634079021				4	102	
9634079016		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 316L								
9634079022		9634079029		9634079036		1	25.4	
9634079023		9634079030		9634079037		1.5	38.1	
9634079024		9634079031		9634079038		2	50.8	
9634079025		9634079032		9634079039		2.5	63.5	
9634079026		9634079033		9634079040		3	76.2	
9634079027		9634079034		9634079041		4	102	
9634079028		9634079035		9634079042		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079043		Not Available				1	25.4	
9634079044		9634079050				1.5	38.1	
9634079045		9634079051				2	50.8	
9634079046		9634079052				2.5	63.5	
9634079047		9634079053				3	76.2	
9634079048		9634079054				4	102	
9634079049		Not Available				6	152	

Butterfly valves

LKB-W with LKLA-T

Product Code: 5204

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Note: Pricing below does not include Green Control Top Unit.
Refer to section for Control Top pricing.

Actuator: Normally Closed w/Adapter for Green Control Top
Material: See below
Connection: Weld ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 304								
9634079253		9634079260		9634079267		1	25.4	
9634079254		9634079261		9634079268		1.5	38.1	
9634079255		9634079262		9634079269		2	50.8	
9634079256		9634079263		9634079270		2.5	63.5	
9634079257		9634079264		9634079271		3	76.2	
9634079258		9634079265		9634079272		4	102	
9634079259		9634079266		9634079273		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079274		Not Available				1	25.4	
9634079275		9634079281				1.5	38.1	
9634079276		9634079282				2	50.8	
9634079277		9634079283				2.5	63.5	
9634079278		9634079284				3	76.2	
9634079279		9634079285				4	102	
9634079280		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 316L								
9634079286		9634079293		9634079300		1	25.4	
9634079287		9634079294		9634079301		1.5	38.1	
9634079288		9634079295		9634079302		2	50.8	
9634079289		9634079296		9634079303		2.5	63.5	
9634079290		9634079297		9634079304		3	76.2	
9634079291		9634079298		9634079305		4	102	
9634079292		9634079299		9634079306		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079307		Not Available				1	25.4	
9634079308		9634079314				1.5	38.1	
9634079309		9634079315				2	50.8	
9634079310		9634079316				2.5	63.5	
9634079311		9634079317				3	76.2	
9634079312		9634079318				4	102	
9634079313		Not Available				6	152	

LKB-W with LKLA-T

Butterfly valves

1.2

Product Code: 5204
 Note: Pricing below does not include Green Control Top Unit.
 Refer to section for Control Top pricing.

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter
 Actuator: Normally Open w/Adapter for Green Control Top
 Material: See below
 Connection: Weld ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 304								
9634079319		9634079326		9634079333		1	25.4	
9634079320		9634079327		9634079334		1.5	38.1	
9634079321		9634079328		9634079335		2	50.8	
9634079322		9634079329		9634079336		2.5	63.5	
9634079323		9634079330		9634079337		3	76.2	
9634079324		9634079331		9634079338		4	102	
9634079325		9634079332		9634079339		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079340		Not Available				1	25.4	
9634079341		9634079347				1.5	38.1	
9634079342		9634079348				2	50.8	
9634079343		9634079349				2.5	63.5	
9634079344		9634079350				3	76.2	
9634079345		9634079351				4	102	
9634079346		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
LKB53W 316L								
						in	mm	
9634079352		9634079359		9634079366		1	25.4	
9634079353		9634079360		9634079367		1.5	38.1	
9634079354		9634079361		9634079368		2	50.8	
9634079355		9634079362		9634079369		2.5	63.5	
9634079356		9634079363		9634079370		3	76.2	
9634079357		9634079364		9634079371		4	102	
9634079358		9634079365		9634079372		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079373		Not Available				1	25.4	
9634079374		9634079380				1.5	38.1	
9634079375		9634079381				2	50.8	
9634079376		9634079382				2.5	63.5	
9634079377		9634079383				3	76.2	
9634079378		9634079384				4	102	
9634079379		Not Available				6	152	

Butterfly valves

LKB-W with LKLA-T

Product Code: 5204

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Note: Pricing below does not include Green Control Top Unit.
Refer to section for Control Top pricing.

Actuator: Air-to-Air w/Adapter for Green Control Top
Material: See below
Connection: Weld ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 304								
9634079385		9634079392		9634079399		1	25.4	
9634079386		9634079393		9634079400		1.5	38.1	
9634079387		9634079394		9634079401		2	50.8	
9634079388		9634079395		9634079402		2.5	63.5	
9634079389		9634079396		9634079403		3	76.2	
9634079390		9634079397		9634079404		4	102	
9634079391		9634079398		9634079405		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079406		Not Available				1	25.4	
9634079407		9634079413				1.5	38.1	
9634079408		9634079414				2	50.8	
9634079409		9634079415				2.5	63.5	
9634079410		9634079416				3	76.2	
9634079411		9634079417				4	102	
9634079412		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53W 316L								
9634079418		9634079425		9634079432		1	25.4	
9634079419		9634079426		9634079433		1.5	38.1	
9634079420		9634079427		9634079434		2	50.8	
9634079421		9634079428		9634079435		2.5	63.5	
9634079422		9634079429		9634079436		3	76.2	
9634079423		9634079430		9634079437		4	102	
9634079424		9634079431		9634079438		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079439		Not Available				1	25.4	
9634079440		9634079446				1.5	38.1	
9634079441		9634079447				2	50.8	
9634079442		9634079448				2.5	63.5	
9634079443		9634079449				3	76.2	
9634079444		9634079450				4	102	
9634079445		Not Available				6	152	

LKB-A with LKLA Actuator and Bracket

Butterfly valves

Product Code: 5209

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Actuator: Normally Closed

Material: See below

Connection: Clamp Ends

1.2

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
								LKB53A 304
330398		330739		330740		1	25.4	
330400		330409		330402		1.5	38.1	
330412		330824		330415		2	50.8	
330481		330817		330479		2.5	63.5	
330470		330455		330453		3	76.2	
330383		330387		330385		4	102	
330866		331152		9613700839		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078779		Not Available				1	25.4	
9634078780		9634078785				1.5	38.1	
9634078781		9634078786				2	50.8	
9634078782		9634078787				2.5	63.5	
9634078783		9634078788				3	76.2	
9613700752		9634078789				4	102	
9634078784		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
								LKB53A 316L
330399		330742		330741		1	25.4	
330401		330411		330403		1.5	38.1	
330413		330417		330416		2	50.8	
330480		331150		318437		2.5	63.5	
330452		330457		330454		3	76.2	
330384		330388		330386		4	102	
9634078790		9634078791		9613700843		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9613700776		Not Available				1	25.4	
9613700767		9634057023				1.5	38.1	
9613700747		9634069724				2	50.8	
9634078792		9634076646				2.5	63.5	
9613700727		9634076647				3	76.2	
9613700748		9634078794				4	102	
9634078793		Not Available				6	152	

Butterfly valves

LKB-A with LKLA Actuator and Bracket

Product Code: 5209

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Actuator: Normally Open

Material: See below

Connection: Clamp Ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 304								
330462		9634078795		9613700848		1	25.4	
330463		9634051057		331167		1.5	38.1	
330469		9634069348		9634050952		2	50.8	
330379		9613700852		9634078797		2.5	63.5	
330381		9634078796		9634059102		3	76.2	
330395		9613700853		319686		4	102	
330866		331152		9634069582		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078798		Not Available				1	25.4	
9634078799		9634078805				1.5	38.1	
9634078800		9634078806				2	50.8	
9634078801		9634078807				2.5	63.5	
9634078802		9634078808				3	76.2	
9634078803		9634078809				4	102	
9634078804		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 316L								
9613600500		9634078810		9634058901		1	25.4	
330465		330468		9634067064		1.5	38.1	
330377		330378		330743		2	50.8	
330749		9634078811		331431		2.5	63.5	
330382		9613700782		9634050817		3	76.2	
330396		9613700783		9634078813		4	102	
9634058135		9634078812		9636000101		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078814		Not Available				1	25.4	
9634078815		9634078820				1.5	38.1	
9634078816		9634078821				2	50.8	
9634078817		9634078822				2.5	63.5	
9634058520		9634078823				3	76.2	
9634078818		9634078824				4	102	
9634078819		Not Available				6	152	

LKB-A with LKLA Actuator and Bracket

Butterfly valves

Product Code: 5209

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter
 Actuator: Air-to-Air
 Material: See below
 Connection: Clamp Ends

1.2

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 304								
330744		9634059051		9634078828		1	25.4	
330746		9634050818		319553		1.5	38.1	
330747		9634078825		319049		2	50.8	
331244		9634078826		9634078829		2.5	63.5	
330750		9634070572		331547		3	76.2	
330751		9613700840		319048		4	102	
331155		9634078827		9634078830		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078831		Not Available				1	25.4	
9634078832		9634078838				1.5	38.1	
9634078833		9634078839				2	50.8	
9634078834		9634078840				2.5	63.5	
9634078835		9634078841				3	76.2	
9634078836		9634078842				4	102	
9634078837		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 316L								
331466		9634078843		314046		1	25.4	
9634057824		9634059267		314595		1.5	38.1	
330794		9613700867		9613600657		2	50.8	
330748		9634078844		331520		2.5	63.5	
331475		9634078845		318305		3	76.2	
330753		9634078846		318498		4	102	
9613700775		9634078847		9634078848		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634078849		Not Available				1	25.4	
9634078850		9634078854				1.5	38.1	
9634080711		9634078855				2	50.8	
9634080712		9634078856				2.5	63.5	
9613700696		9634057022				3	76.2	
9613700729		9634057071				4	102	
9634078853		Not Available				6	152	

Butterfly valves

LKB-A with LKLA-TKT Actuator and Bracket

Product Code: 5204

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Note: Pricing below does not include ThinkTop® Unit.
Refer to section for ThinkTop® pricing.

Actuator: Normally Closed w/Coupling for ThinkTop®
Material: See below
Connection: Clamp ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 304								
9634079055		9634079062		9634079069		1	25.4	
9634079056		9634079063		9634079070		1.5	38.1	
9634079057		9634079064		9634079071		2	50.8	
9634079058		9634079065		9634079072		2.5	63.5	
9634079059		9634079066		9634079073		3	76.2	
9634079060		9634079067		9634079074		4	102	
9634079061		9634079068		9634079075		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079076		Not Available				1	25.4	
9634079077		9634079083				1.5	38.1	
9634079078		9634079084				2	50.8	
9634079079		9634079085				2.5	63.5	
9634079080		9634079086				3	76.2	
9634079081		9634079087				4	102	
9634079082		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 316L								
9634079088		9634079095		9634079102		1	25.4	
9634079089		9634079096		9634079103		1.5	38.1	
9634079090		9634079097		9634079104		2	50.8	
9634079091		9634079098		9634079105		2.5	63.5	
9613700836		9634079099		9634079106		3	76.2	
9634079093		9634079100		9634079107		4	102	
9634079094		9634079101		9634079108		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079109		Not Available				1	25.4	
9634079110		9634079116				1.5	38.1	
9634079111		9634079117				2	50.8	
9634079112		9634079118				2.5	63.5	
9634079113		9634079119				3	76.2	
9634079114		9634079120				4	102	
9634079115		Not Available				6	152	

LKB-A with LKLA-TKT Actuator and Bracket

Butterfly valves

1.2

Product Code: 5204
 Note: Pricing below does not include ThinkTop® Unit.
 Refer to section for ThinkTop® pricing.

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter
 Actuator: Normally Open w/Coupling for ThinkTop®
 Material: See below
 Connection: Clamp ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 304								
9634079121		9634079128		9634079135		1	25.4	
9634079122		9634079129		9634079136		1.5	38.1	
9634079123		9634079130		9634079137		2	50.8	
9634079124		9634079131		9634079138		2.5	63.5	
9634079125		9634079132		9634079139		3	76.2	
9634079126		9634079133		9634079140		4	102	
9634079127		9634079134		9634079141		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079142		Not Available				1	25.4	
9634079143		9634079149				1.5	38.1	
9634079144		9634079150				2	50.8	
9634079145		9634079151				2.5	63.5	
9634079146		9634079152				3	76.2	
9634079147		9634079153				4	102	
9634079148		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
LKB53A 316L								
9634079154		9634079161		9634079168		1	25.4	
9634079155		9634079162		9634079169		1.5	38.1	
9634079156		9634079163		9634079170		2	50.8	
9634079157		9634079164		9634079171		2.5	63.5	
9634079158		9634079165		9634079172		3	76.2	
9634079159		9634079166		9634079173		4	102	
9634079160		9634079167		9634079174		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079175		Not Available				1	25.4	
9634079176		9634079182				1.5	38.1	
9634079177		9634079183				2	50.8	
9634079178		9634079184				2.5	63.5	
9634079179		9634079185				3	76.2	
9634079180		9634079186				4	102	
9634079181		Not Available				6	152	

Butterfly valves

LKB-A with LKLA-TKT Actuator and Bracket

Product Code: 5204

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Note: Pricing below does not include ThinkTop® Unit.
Refer to section for ThinkTop® pricing.

Actuator: Air-to-Air w/Coupling for ThinkTop®
Material: See below
Connection: Clamp ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 304								
9634079187		9634079194		9634079201		1	25.4	
9634079188		9634079195		9634079202		1.5	38.1	
9634079189		9634079196		9634079203		2	50.8	
9634079190		9634079197		9634079204		2.5	63.5	
9634079191		9634079198		9634079205		3	76.2	
9634079192		9634079199		9634079206		4	102	
9634079193		9634079200		9634079207		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079208		Not Available				1	25.4	
9634079209		9634079215				1.5	38.1	
9634079210		9634079216				2	50.8	
9634079211		9634079217				2.5	63.5	
9634079212		9634079218				3	76.2	
9634079213		9634079219				4	102	
9634079214		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 316L								
9634079220		9634079227		9634079234		1	25.4	
9634079221		9634079228		9634079235		1.5	38.1	
9634079222		9634079229		9634079236		2	50.8	
9634079223		9634079230		9634079237		2.5	63.5	
9634079224		9634079231		9634079238		3	76.2	
9634079225		9634079232		9634079239		4	102	
9634079226		9634079233		9634079240		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079241		Not Available				1	25.4	
9634079242		9634079248				1.5	38.1	
9634079243		9634079249				2	50.8	
9634079244		9634079250				2.5	63.5	
9634079245		9634079251				3	76.2	
9634079246		9634079252				4	102	
9634079247		Not Available				6	152	

LKB-A with LKLA-T Actuator and Bracket

Butterfly valves

1.2

Product Code: 5204

Note: Pricing below does not include Green Control Top Unit.
Refer to section for Control Top pricing.

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Actuator: Normally Closed w/Adapter for Green Control Top

Material: See below

Connection: Clamp ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 304								
9634079451		9634079458		9634079465		1	25.4	
9634079452		9634079459		9634079466		1 ½	38.1	
9634079453		9634079460		9634079467		2	50.8	
9634079454		9634079461		9634079468		2 ½	63.5	
9634079455		9634079462		9634079469		3	76.2	
9634079456		9634079463		9634079470		4	102	
9634079457		9634079464		9634079471		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079472		Not Available				1	25.4	
9634079473		9634079479				1 ½	38.1	
9634079474		9634079480				2	50.8	
9634079475		9634079481				2 ½	63.5	
9634079476		9634079482				3	76.2	
9634079477		9634079483				4	102	
9634079478		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 316L								
9634079484		9634079491		9634079498		1	25.4	
9634079485		9634079492		9634079499		1 ½	38.1	
9634079486		9634079493		9634079500		2	50.8	
9634079487		9634079494		9634079501		2 ½	63.5	
9634079488		9634079495		9634079502		3	76.2	
9634079489		9634079496		9634079503		4	102	
9634079490		9634079497		9634079504		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079505		Not Available				1	25.4	
9634079506		9634079512				1 ½	38.1	
9634079507		9634079513				2	50.8	
9634079508		9634079514				2 ½	63.5	
9634079509		9634079515				3	76.2	
9634079510		9634079516				4	102	
9634079511		Not Available				6	152	

Butterfly valves

LKB-A with LKLA-T Actuator and Bracket

Product Code: 5204

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Note: Pricing below does not include Green Control Top Unit.
Refer to section for Control Top pricing.

Actuator: Normally Open w/Adapter for Green Control Top
Material: See below
Connection: Clamp ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 304								
9634079517		9634079524		9634079531		1	25.4	
9634079518		9634079525		9634079532		1.5	38.1	
9634079519		9634079526		9634079533		2	50.8	
9634079520		9634079527		9634079534		2.5	63.5	
9634079521		9634079528		9634079535		3	76.2	
9634079522		9634079529		9634079536		4	102	
9634079523		9634079530		9634079537		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079538		Not Available				1	25.4	
9634079539		9634079545				1.5	38.1	
9634079540		9634079546				2	50.8	
9634079541		9634079547				2.5	63.5	
9634079542		9634079548				3	76.2	
9634079543		9634079549				4	102	
9634079544		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 316L								
9634079550		9634079557		9634079564		1	25.4	
9634079551		9634079558		9634079565		1.5	38.1	
9634079552		9634079559		9634079566		2	50.8	
9634079553		9634079560		9634079567		2.5	63.5	
9634079554		9634079561		9634079568		3	76.2	
9634079555		9634079562		9634079569		4	102	
9634079556		9634079563		9634079570		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079571		Not Available				1	25.4	
9634079572		9634079578				1.5	38.1	
9634079573		9634079579				2	50.8	
9634079574		9634079580				2.5	63.5	
9634079575		9634079581				3	76.2	
9634079576		9634079582				4	102	
9634079577		Not Available				6	152	

LKB-A with LKLA-T Actuator and Bracket

Butterfly valves

1.2

Product Code: 5204

Note: Pricing below does not include Green Control Top Unit.
Refer to section for Control Top pricing.

1-4" Actuator - Ø 3.35 in. Diameter, 6" Actuator - Ø 5.24 in. Diameter

Actuator: Air-to-Air w/Adapter for Green Control Top
Material: See below
Connection: Clamp ends

Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 304								
9634079583		9634079590		9634079597		1	25.4	
9634079584		9634079591		9634079598		1 ½	38.1	
9634079585		9634079592		9634079599		2	50.8	
9634079586		9634079593		9634079600		2 ½	63.5	
9634079587		9634079594		9634079601		3	76.2	
9634079588		9634079595		9634079602		4	102	
9634079589		9634079596		9634079603		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079604		Not Available				1	25.4	
9634079605		9634079611				1 ½	38.1	
9634079606		9634079612				2	50.8	
9634079607		9634079613				2 ½	63.5	
9634079608		9634079614				3	76.2	
9634079609		9634079615				4	102	
9634079610		Not Available				6	152	
Item No EPDM	LLP USD	Item No Silicone	LLP USD	Item No FPM	LLP USD	size		
						in	mm	
LKB53A 316L								
9634079616		9634079623		9634079630		1	25.4	
9634079617		9634079624		9634079631		1 ½	38.1	
9634079618		9634079625		9634079632		2	50.8	
9634079619		9634079626		9634079633		2 ½	63.5	
9634079620		9634079627		9634079634		3	76.2	
9634079621		9634079628		9634079635		4	102	
9634079622		9634079629		9634079636		6	152	
Item No HNBR	LLP USD	Item No PFA	LLP USD			size		
						in	mm	
9634079637		Not Available				1	25.4	
9634079638		9634079644				1 ½	38.1	
9634079639		9634079645				2	50.8	
9634079640		9634079646				2 ½	63.5	
9634079641		9634079647				3	76.2	
9634079642		9634079648				4	102	
9634079643		Not Available				6	152	

Mounting brackets for other valves
Product code: 5222

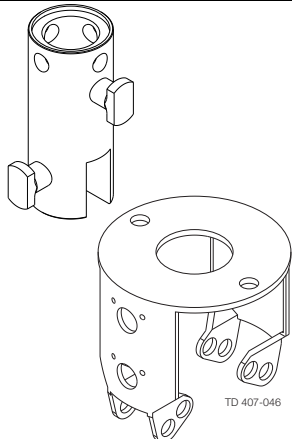
Material: 1.4301 (304)

Item No.	LLP USD	Item No.	LLP USD	Type	DN Reduced	Dimension (In)		Number of holes	Hole for bolt		
9612491801				A44-45	8-15	1.57	1.40	6	ø0.28		
9612491802				A44-45	20	1.57	1.40	2	ø0.28		
9612491803				A44-45	25	1.57	1.40	2	ø0.35		
9612491804				A44-45	32	1.97	1.20	4	ø0.24		
9612491805				A44-45	40	1.97	1.38	6	ø0.28		
9612491806				A44-45	50	1.97	1.40	6	ø0.28		
9612491807				A44-45	65	2.44	1.40	4	ø0.35		
		9612491808		A45-45	65	3.15	1.38	4	ø0.35		
		9612491809		M45	80100	3.35	1.77	4	ø0.43		
		9612491810		A44-45	80100	3.35	1.77	4	ø0.43		
9612491814				459	65	2.44	2.19	4	ø0.35		
		9612491813		459	65	3.15	2.19	4	ø0.35		
		9612491815		459	80	3.35	2.17	4	ø0.35		
		9612491816		459	100	3.35	2.78	4	ø0.43		
9612497101					18-20	1.57	1.00	4	ø0.24		
9612497102					25	1.65	1.20	4	ø0.24		
9612497103					32	1.89	1.20	4	ø0.24		
9612497104					40-65	1.97	1.40	6	ø0.28		
		9612497105			65	2.68	1.40	4	ø0.28		
		9612497106			80	3.03	2.19	4	ø0.35		
		9612497107			100	3.03	2.19	4	ø0.35		
For Meca Inox ball valves											
9612491817					8-20						
9612491818					25-32						
9612491819					40-50						
9612491820					65						

Item no.	LLP USD	ISO	Dimension (in)			For Definox butterfly Valves
			A	B	C	
9614204701		1"	0.59	2.58	1.77	
9614204701		1½"	0.59	2.58	1.77	
9614204702		4"	0.75	3.82	2.24	

Mounting brackets for other valves
 Product code: see below

Material: 1.4301 (304)

Item No.	LLP USD	Size		Item No.	LLP USD	Butterfly
Product code: 5222		ISO		Yoke		Coupling Type JJ
9613497203		1"-2½"	ø3.35	9613497501		
9613497202		3"	ø3.35	9613497401		
9613497201		4"	ø3.35	9613497401		
9613497204		6"	ø5.24	9613497301		
Product code: 5822				Air fittings, Quick coupling KRG		
9611992323		1/8"	0.24 in			

Item No.	LLP USD	Supply sensor system	Function	Dimension (inch)		Actuator for LKB/i-BFV
				A ₁	D	
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

Item No.	LLP USD	Valve types	Size			Mounting brackets for Unique Control
			inch	DIN	□d	
9614090101		LKB/LKB-F	1"-2½"	25-50	0.31	
9614090102		LKB/LKB-F		65	0.31	
9614090103		LKB/LKB-F	3"	80	0.39	
9614090104		LKB/LKB-F	4"	100	0.47	
9614090105		i-BFV	1"-2½"	25-50	0.31	
9614090106		i-BFV	3"	80	0.39	
9614090107		i-BFV	4"	100	0.47	

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

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1.3 Control / Check valves

The non-return valve LKC-2 is designed for use in hygienic installations to prevent reverse product flow.



Product leaflets

LKC Non-return Valve	1.3.92
LKC UltraPure	1.3.95
LKUV-2 Air-relief Valve	1.3.98
62-174/326 Air Blow Check Valve	1.3.101
45BYMP	1.3.105
Unique Vacuum Breaker Valve	1.3.109
SB Self-cleaning CO ₂ -valve	1.3.112

Ordering leaflets

LKC Series Check Valves	1.3.114
LKC UltraPure	1.3.115
Air Relief Valve	1.3.117
Relief Valves	1.3.118
Air-Blow Check Valve Assemblies	1.3.119
45BYMP Series Check Valves	1.3.120
Unique Vacuum Breaker Valve	1.3.121
Sample Valves	1.3.122
SB Self Cleaning CO ₂ Valve	1.3.123

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)
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ATEX

Classification	II 2 G D*
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*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

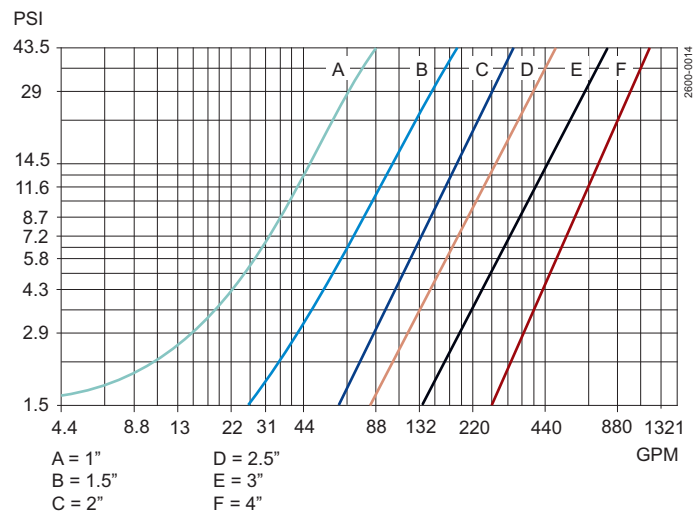
Product wetted seal rings of Nitrile (NBR) or Fluorinated rubber (FPM).

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

Fig. 1. **Note!**

For the diagram the following applies:

Medium: Water (68°F).

Measurement: In accordance with VDI 2173.

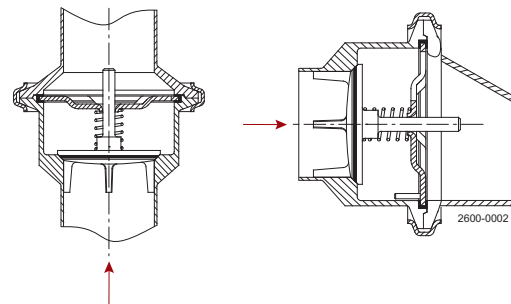
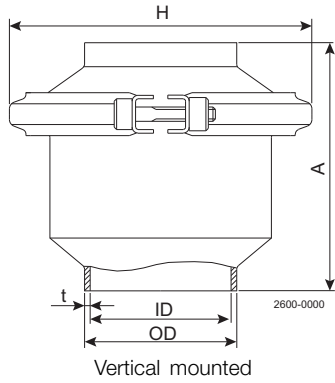


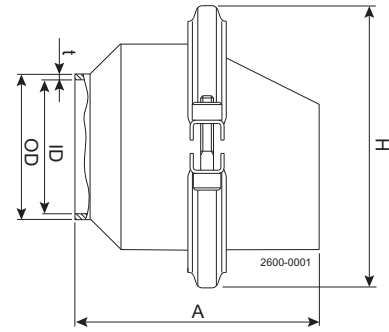
Fig. 2 = Flow direction.

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.

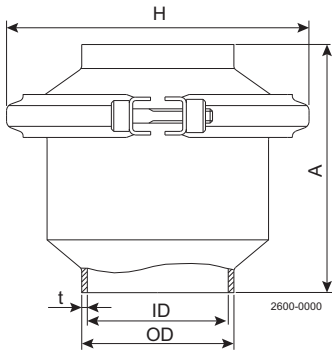
Dimensions (inch)



Vertical mounted



Horizontal mounted



Vertical mounted

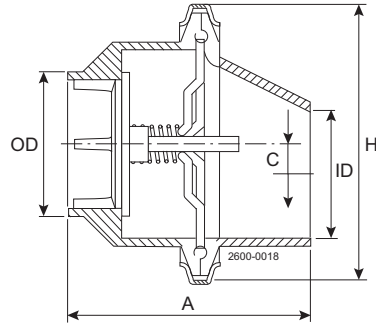


Fig. 4. Dimensions LKC-Drainable

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
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



TECHNICAL DATA

Max. product pressure:	145 PSI (10 bar)
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Required differential pressure for opening the valve when fitted in a vertical pipe, as shown in fig. 2, 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*

*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

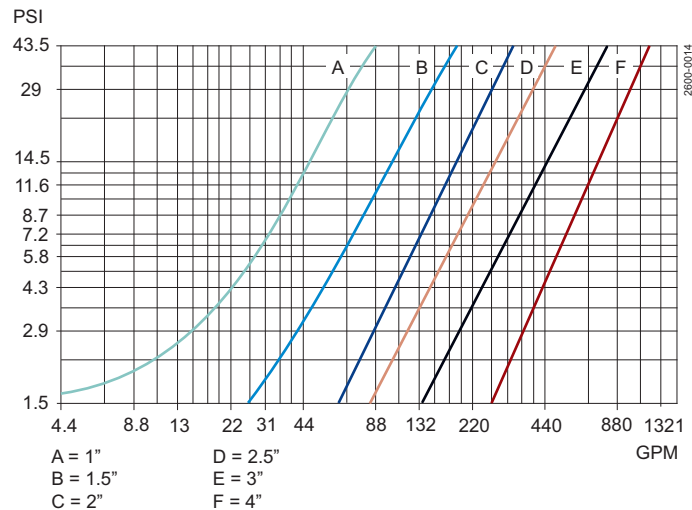


Fig.1. **Note!**
For the diagram the following applies:
Medium: Water (68°F).
Measurement: In accordance with VDI 2173.

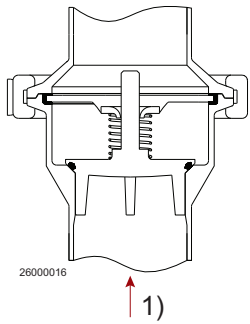


Fig.2.

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.

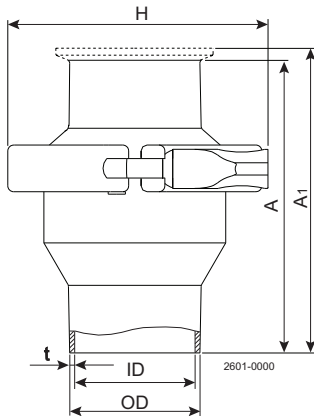
Dimensions (inch)

Table 1. Dimensions (inch)

Size	ISO						DIN						
	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.

Certificates

 Authorized to carry the 3A symbol



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)
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ATEX

Classification	II 2 G D*
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*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)

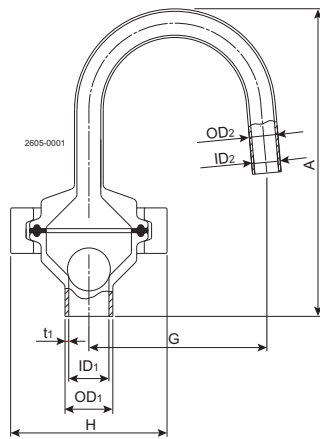


Fig. 1. Dimensions

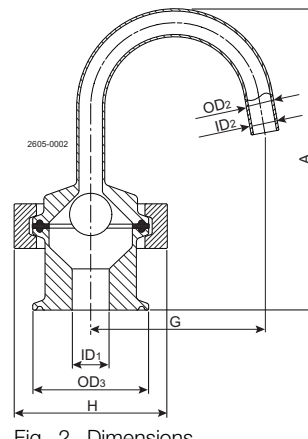


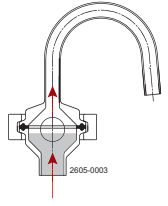
Fig. 2. Dimensions

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
OD3	49.5	1.95
t1	1.6	0.06
Weight	(kg)	(lb)
	0.6	1.32

1.3

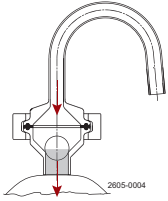
Situation 1



Pressure conditions
Pressure, air or product, or air/product.

Effect
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
Vacuum, air or product, or air/ product.

Effect
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.



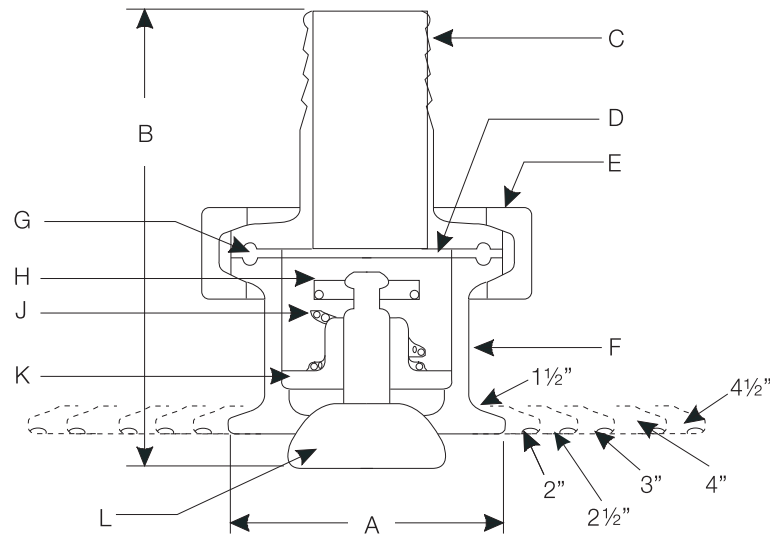
TECHNICAL DATA

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

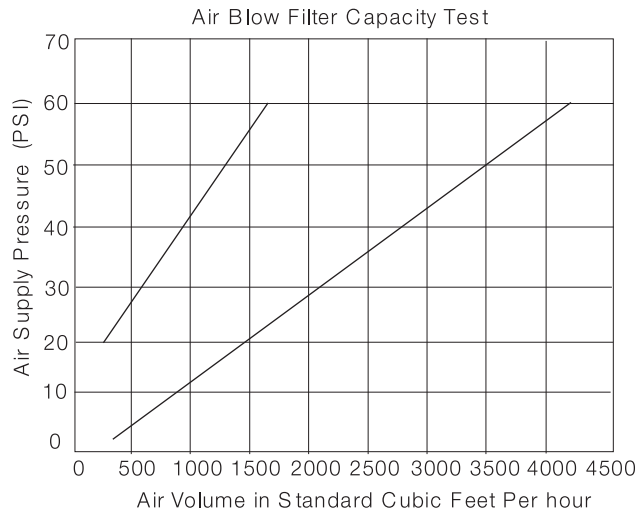
Dimensions (inch)



- 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

n/a = not available



Options

Equipment


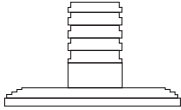
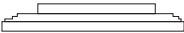
- SFY molded elastomers
- Air fittings - Air quick coupler
- Hose barb
- NPT tapped hole

Ordering


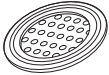
Please state the following when ordering:

- 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
 <p>"A" Adapter - For Air Line Quick Coupler</p>	(A) #37-80	(A) #37-161
 <p>"B" Adapter - For 1" ID Rubber Hose</p>	(B) #14MPHR-1-S	(B) #14MPHR-2 x 1-S
 <p>"C" Adapter - For NPT Female Connector "C1" Adapter</p>	(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 ¼-S ¾ NPT Female Connection

Replacement Media Ordering Information

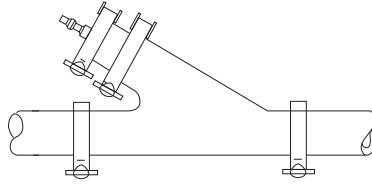
Item	For Model 62-174R	For Model 62-326
 <p>Filter Disc (fits all sizes)</p>	Order #FA-1½-30C Sold 50/pkg. .3 MICRON	Order #FA-2-30C Sold 50/pkg. .3 MICRON
 <p>SS Perforated Disc and Buna Gasket</p>	Order #FAD-1½01 Sold in Single Units	Order #FAD-201 Sold in Single Units

Notel

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.

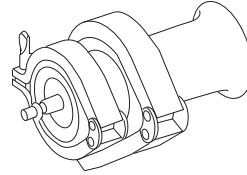
Typical Installations of Air Blow Check Valve and Disposable Air Filter Media

(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

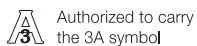
Standard Design

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.

Certifikate



TECHNICAL DATA

Pressure	
Max. product pressure	200 PSI (contact Alfa Laval for higher PSI)
Min. product pressure	1 PSI - to unseat check ball
Temperature	
Temperature range	based on elastomer choice

PHYSICAL DATA

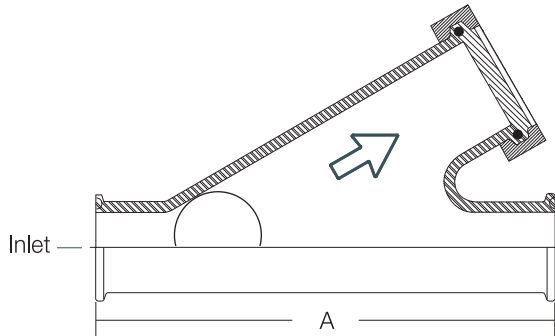
Materials	
Product wetted steel parts	Stainless steel AISI 316L
Other steel parts	Stainless steel AISI 304
Product wetted parts	See option list below
Finish	32 Ra standard

Size	
Available in sizes:	1½" to 3".

Connections	
Tri-Clamp	

Dimensions

45BYMP-Size-Ball Mat'I*



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

End Connection: Tri-Clamp®

Valve Material:

316L Stainless Steel

All dimensions are for identification purposes only.

45BY-Size02-Ball Mat'I*, 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	

*Ball Material:

U = Buna Ball

N = Nylon Ball

SF = Viton Ball

E = EPDM

- Buna
- EPDM
- SFY

Options
Ball Material

- Nylon (max. 140°F)

Gasket Material

- NBR (standard)

Ordering

Please state the following when ordering:

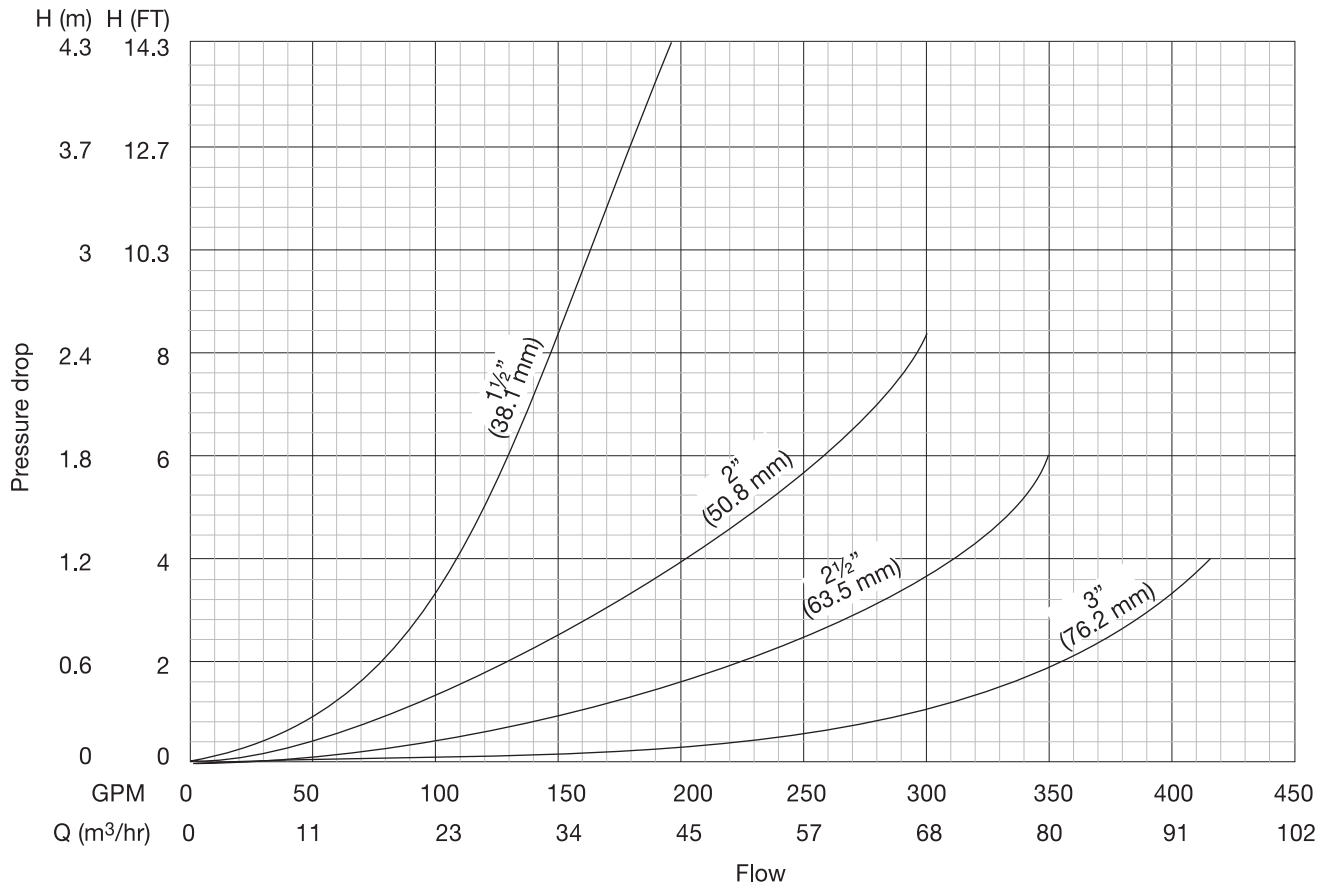
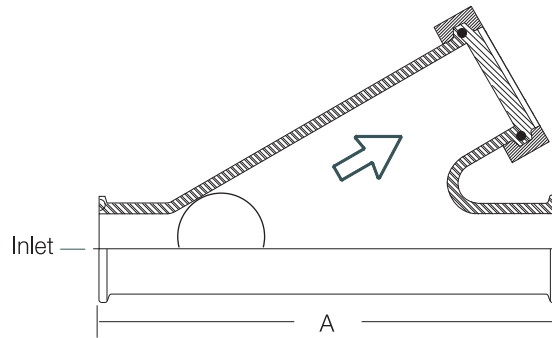
- Connection size
- Connection type
- Check ball material

1.3

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

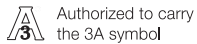
The Unique Vacuum Breaker Valve is designed to prevent vacuum conditions in hygienic high-temperature, short-time pasteurization systems across the dairy, food, beverage industries.

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.



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. 1a).

When pipeline pressure drops, the ball is drawn downward, allowing air to enter the vent, thereby preventing vacuum in the system (Fig. 1b).

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. 1c).

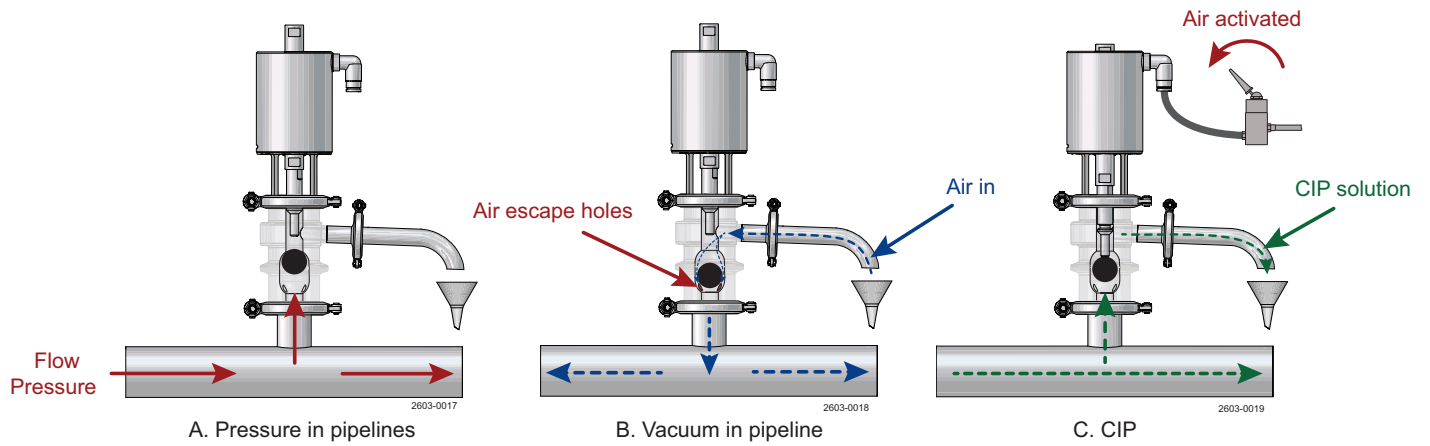


Fig. 1. Working Principle

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

Options	
Seal material	Nitrile (NBR) or (FPM)

Connections	
Compressed air	1/4"
Vent	1/2" Tri-Clamp
Process/CIP	1 1/2" Tri-Clamp

Ordering

Please state the following when ordering:

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

Dimensions (inches)

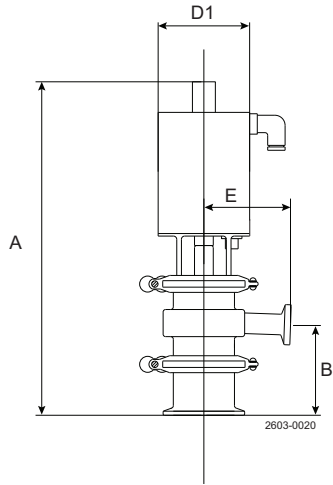


Fig. 2. Dimensions

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 CO₂ 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 CO₂ 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 CO₂ 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

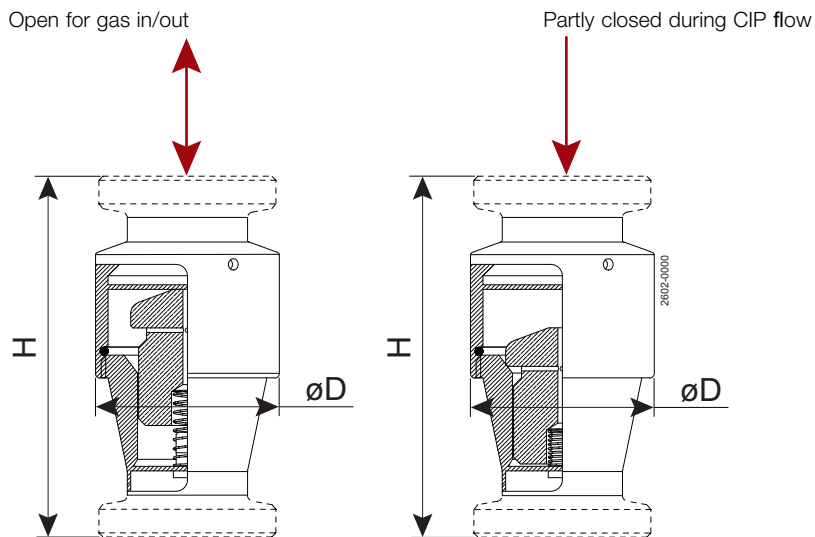
Materials

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)



	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

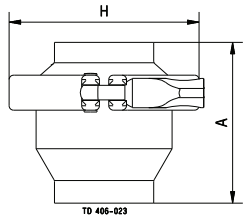
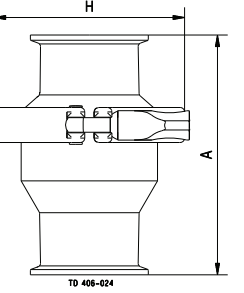
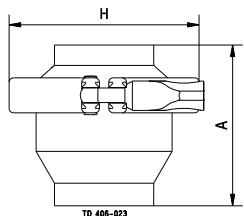
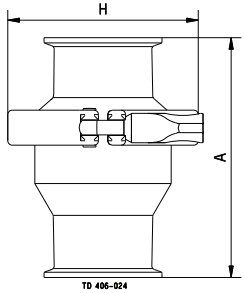
AISI 304 Item No.	LLP USD	AISI 316 Item No.	LLP USD	Size inch	
					LKC-2-W-POL , vertical*
9612220013		9612220019		1	
9612220014		9612220020		1.5	
9612220015		9612220021		2	
9612220016		9612220022		2.5	
9612220017		9612220023		3	
9612220018		9612220024		4	
					LKC-2-GC-POL, vertical*
88126175		88226183		1	
88126088		88226107		1.5	
88126176		88226184		2	
88126177		88226185		2.5	
88126178		88226186		3	
88126179		88226187		4	

AISI 316 Item No.	LLP USD	Size in	Description	
			LKC Drainable-W-POL	
				LKC-2 Check Valve, horizontal*
88234493		1		
88234494		1.5	Check Valve	
88228654		2	Horizontal	
88234495		2.5	Weld	
88234496		3	Polished	
			Description	
			LKC Drainable-GC-POL	
				LKC-2 Check Valve, horizontal*
88231011		1	Check Valve	
88231012		1.5	Horizontal	
88231013		2	Tri-Clamp®	
88234480		2.5	Polished	
88234425		3		

* Authorized to carry the 3A symbol.

Product code: 5298

Material: 1.4404 (316L)
 Connection: Welding ends/clamp ends
 Seals: EPDM USP class VI, FPM
 Inside surface finish Ra < 32 µin
 Outside surface finish: Ra < 32 µin

Item No.	LLP USD	Item No.	LLP USD	Size DN/OD		Dimension (in)		ISO
				(mm)	DIN	A	H	
9613484301		9613484314		1"		2.46	3.05	
9613484302		9613484315		1½"		2.95	3.56	
9613484303		9613484316		2"		3.44	4.08	
9613484304		9613484317		2½"		3.74	5.22	
9613484305		9613484318		3"		4.53	5.67	
9613484306		9613484319		4"		6.10	6.46	
9613484327		9613484340		1"		4.15	3.05	
9613484328		9613484341		1½"		4.65	3.56	
9613484329		9613484342		2"		5.14	4.08	
9613484330		9613484343		2½"		5.43	5.22	
9613484331		9613484344		3"		6.22	5.67	
9613484332		9613484345		4"		7.80	6.46	
9613484307		9613484320			25	2.46	3.05	
9613484308		9613484321			32	2.95	3.56	
9613484309		9613484322			40	2.95	3.56	
9613484310		9613484323			50	3.44	4.08	
9613484311		9613484324			65	3.74	5.22	
9613484312		9613484325			80	4.53	5.67	
9613484313		9613484326			100	6.10	6.46	
9613484333		9613484346			25	4.15	3.05	
9613484334		9613484347			32	4.65	3.56	
9613484335		9613484348			40	4.65	3.56	
9613484336		9613484349			50	5.14	4.08	
9613484337		9613484350			65	5.43	5.22	
9613484338		9613484351			80	6.22	5.67	
9613484339		9613484352			100	7.80	6.46	

Product code: 5298

Material: 1.4404 (316L)
 Connection: Welding ends/clamp ends
 Seals: EPDM USP class VI, FPM
 Inside surface finish Ra < 20 µin
 Outside surface finish: Ra < 32 µin

1.3

Item No.	LLP USD	Item No.	LLP USD	Size DN/OD		Dimension (in)		ISO
				(inch)	DIN	A	H	
9613481901		9613481914		1"		2.46	3.05	
9613481902		9613481915		1½"		2.95	3.56	
9613481903		9613481916		2"		3.44	4.08	
9613481904		9613481917		2½"		3.74	5.22	
9613481905		9613481918		3"		4.53	5.67	
9613481906		9613481919		4"		6.10	6.46	
9613481927		9613481940		1"		4.15	3.05	
9613481928		9613481941		1½"		4.65	3.56	
9613481929		9613481942		2"		5.14	4.08	
9613481930		9613481943		2½"		5.43	5.22	
9613481931		9613481944		3"		6.22	5.67	
9613481932		9613481945		4"		7.80	6.46	
9613481907		9613481920			25	2.46	3.05	
9613481908		9613481921			32	2.95	3.56	
9613481909		9613481922			40	2.95	3.56	
9613481910		9613481923			50	3.44	4.08	
9613481911		9613481924			65	3.74	5.22	
9613481912		9613481925			80	4.53	5.67	
9613481913		9613481926			100	6.10	6.46	
9613481933		9613481946			25	4.15	3.05	
9613481934		9613481947			32	4.65	3.56	
9613481935		9613481948			40	4.65	3.56	
9613481936		9613481949			50	5.14	4.08	
9613481937		9613481950			65	5.43	5.22	
9613481938		9613481951			80	6.22	5.67	
9613481939		9613481952			100	7.80	6.46	

1.4307 (304) Item No.	LLP USD	Gasket	A	G	H	OD1	OD2	
Air Relief 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 Relief Valve LKUV-2 - Tri-Clamp								
9613426905		EPDM	5.50	2.93	2.57	1.5		
9613426906		NBR	5.50	2.93	2.57	1.5		
9613426907		FPM	5.50	2.93	2.57	1.5		
9613426908		EPDM	5.50	2.93	2.57	2		
9613426909		NBR	5.50	2.93	2.57	2		
9613426910		FPM	5.50	2.93	2.57	2		

Tri-Clamp® End Connection
 316L Stainless Steel
 Buna Elastomers

1.3

Item No.	LLP USD	Size in	(Tube OD) mm	
D60RTHMP-Size T-Type Relief valve with Metal Seat*				
200006		1	25.4	
200082		1½	38.1	
200059		2	50.8	
200110		2½	63.5	
200111		3	76.2	

Part #62-174R-A-Size Quick Couple Adapter ("A" Adapter)		Part #62-174R-B-Size Rubber Hose Adapter ("B" Adapter)		Part #62-174R-C-Size Female NPT Adapter ("C" Adapter)		Connection Size		
Item No.	LLP USD	Item No.	LLP USD	Item No.	LLP USD	mm	in	
Check Valve Capacity Rating 1600 Cubic Ft./Hour Air Volume								
830051		830020		830196		1½	38.1	
830103		830198		830076		2	50.8	
830012		830176		830172		2½	63.5	
830135		830006		830213		3	76.2	
830013		830175		830003		4	101.6	
830026		9634054669		830110		4½	114.3	
Part #62-326-A-Size Quick Couple Adapter ("A" Adapter)		Part #62-326-B-Size Rubber Hose Adapter ("B" Adapter)		Part #62-326-C-Size Female NPT Adapter ("C" Adapter)		Connection Size		
Item No.	LLP USD	Item No.	LLP USD	Item No .	LLP USD	mm	in	
Check Valve Capacity Rating 4000 Cubic Ft./Hour Air Volume								
830129		830171		830073		2	50.8	
830130		830185		830085		2½	63.5	
830131		830197		830087		3	76.2	
830132		830186		830089		4	101.6	
830133		830214		830091		4½	114.3	

Each air-blow check valve assembly must be used with a #FA-(size)-30C Filter Disc (not furnished with unit).

Note: Filter Disc are sold in boxes of 50

Also Available as part of the Y-Body Ball Check Valve. For more information contact Alfa Laval.

Item No (Buna Ball)	LLP USD	Item No (Nylon Ball)*	LLP USD	Item No (SFY Ball)	LLP USD	Item No (EPDM Ball)	LLP USD	Size (Tube OD)		
								in	mm	
45BYMP-Size-316L-Elastomer										
200009		200200		200159		200161		1½	38.1	
200010		200201		200139		200031		2	50.8	
200050		200202		200176		200125		2½	63.5	
200093		200203		200164		200004		3	76.2	

(Buna) Item No	LLP USD	(EPDM) Item No	LLP USD	(SFY) Item No	LLP USD	Size (Tube OD)		
						in	mm	
C45MP-Size-Mat'I-316L								
200040		200057		200062		½	12.7	
200041		9634054251		200063		¾	19.05	

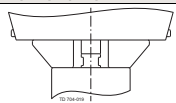
(Buna) Item No	LLP USD	(EPDM) Item No	LLP USD	(SFY) Item No	LLP USD	(Teflon) Item No	LLP USD	Size (Tube OD)		
								in	mm	
C45MPS-Size-Mat'I-316L										
200038		200112		200066		9635000133		½	12.7	
200039		9634048520		200078		200121		¾	19.05	

Code Letter				Material Descriptions			
	ESF						EPDM sulfur free
	G						Teflon
	SFY						Steam Resistant Fluoroelastomer
	U						Buna N
	N						Nylon

AISI 316 Item no.	LLP USD	Size		
		in	mm	
				Unique Vacuum Breaker
9634082901		1½	38.1	
				B44MP Vacuum Breaker
200133		1½	38.1	
200158		2	50.8	
				A49-42 Vacuum Breaker
767236		2	50.8	

NOTE: Not for use on tanks.

Accessories

Item No.	LLP USD	Description	
Unique 7000 Small Single Seat Valve size 12.7-19.0 mm			
9612947601		Adapter set for ThinkTop V70, ThinkTop V50, ThinkTop D30 and IndiTop	

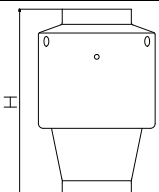
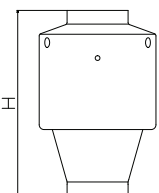
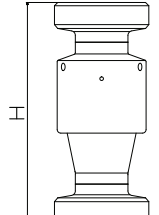
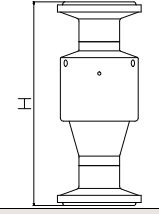
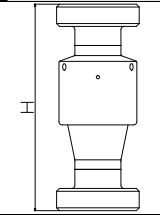
Item no.	LLP USD	Size		
		in	mm	
				Tri-Clamp** Part # A30SMP-Size
200088		1½	38.1	
200090		2	50.8	
				Bevel Seat Part # A30SA-Size
020033		1½	38.1	
020034		2	50.8	

* = Please contact your Alfa Laval contact person for further information.

* Authorized to carry the 3A symbol.

Check Valves
Product code: 5920

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: $Ra \leq 0.8 \mu m$
Outside surface finish: $Ra \leq 1.6 \mu m$

Item No.	LLP USD	Size DN	Dimension		SCANDI BREW
			H (mm)	H (in)	
Welding End - DIN 11850					
9615116001		DN25	78	3.07	
9615116002		DN40	86	3.39	
9615116003		DN50	113	4.45	
9615116004		DN65	133	5.24	
9615116005		DN80	165	6.5	
9615116006		DN100	165	6.5	
Welding End - ISO 2037					
9615110601		1"	78	3.07	
9615110602		1.5"	86	3.39	
9615110603		2"	113	4.45	
9615110604		2.5"	133	5.24	
9615110605		3"	165	6.5	
9615110606		4"	165	6.5	
DIN Male Part - DIN 11851					
9615117801		DN25	122	4.8	
9615117802		DN40	130	5.12	
9615117803		DN50	159	6.26	
9615117804		DN65	183	7.2	
9615117805		DN80	215	8.46	
9615117806		DN100	225	8.86	
Clamp Ferrule - ISO 2852					
9615118001		1"	130	5.12	
9615118002		1.5"	137	5.39	
9615118003		2"	164	6.46	
9615118004		2.5"	184	7.24	
9615118005		3"	216	8.5	
9615118006		4"	216	8.5	
DIN Hygienic Male Part - DIN 11853					
9615117901		DN25	130	5.12	
9615117902		DN40	148	5.83	
9615117903		DN50	175	6.89	
9615117904		DN65	205	8.07	
9615117905		DN80	249	9.8	
9615117906		DN100	265	10.43	

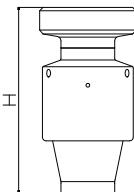
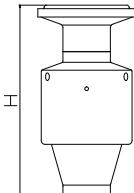
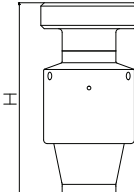
SB Self Cleaning CO2 Valve

Control / Check valves

Non-Return Valve
Product code: 5920

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 μm
Outside surface finish: Ra ≤ 1.6 μm

1.3

Item No.	LLP USD	Size DN	Dimension		SCANDI BREW
			H (mm)	H (in)	
DIN Male/Weld End - DIN11851 / DIN11850					
9615117807		DN25	100	3.94	
9615117808		DN40	108	4.25	
9615117809		DN50	136	5.35	
9615117810		DN65	158	6.22	
9615117811		DN80	190	7.48	
9615117812		DN100	195	7.68	
Clamp Ferrule/Weld End - ISO2852 / ISO2037					
9615118007		1"	104	4.09	
9615118008		1.5"	112	4.41	
9615118009		2"	139	5.47	
9615118010		2.5"	159	6.26	
9615118011		3"	191	7.52	
9615118012		4"	191	7.52	
Hygienic/Weld End - DIN11853 / DIN11850					
9615117907		1"	104	4.09	
9615117908		1.5"	117	4.61	
9615117909		2"	144	5.67	
9615117910		2.5"	169	6.65	
9615117911		3"	207	8.15	
9615117912		4"	215	8.46	

1.4 Diaphragm valves

Our extensive range of aseptic diaphragm valves covers your need for ultra-hygienic processes.



Product leaflets

Unique DV-ST UltraPure 1.4.126

Ordering leaflets

Unique DV-ST UltraPure - Tandem Valves 1.4.137

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. Furthermore 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.



2-way



T-Block



Multi-port



Tandem



Tank outlet-block

PHYSICAL DATA

Materials

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

* Other alloys on request.

	Cast	Forged and block
Material	CF3M (316L)	1.4435 (316L)
Delta ferrite	< 2.0%	< 0.5%
Sulphur content	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⁾
External surface finish		Blasted ²⁾

¹⁾Electro Polished

²⁾ Block with external machined surface.

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 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)
- Cure date of diaphragms
- Surface finish conformity declaration

The following documentation is available upon request:

- Surface finish certificate (Ra test results)
- ATEX certificate

Handle and actuator:

The diaphragm valves can be operated by a handle or a pneumatic actuator. Alfa Laval offers 2 different types of manual handles and 1 type of pneumatic actuator.

Actuator



Model	SS/SL	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	
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	1/4" - 2"	EPDM 145.03 PSI	Sizes	1/4" - 4"	EPDM 145.03 PSI
		PTFE/EPDM 87 PSI			PTFE/EPDM 145.03 PSI
		TFM/EPDM 87 PSI			TFM/EPDM 87 PSI
	2 1/2"-3"	EPDM 116 PSI			
		PTFE/EPDM 72 PSI			
		TFM/EPDM 72 PSI			
	4"	EPDM 87 PSI			
		PTFE/EPDM 58 PSI			
		TFM/EPDM 58 PSI			

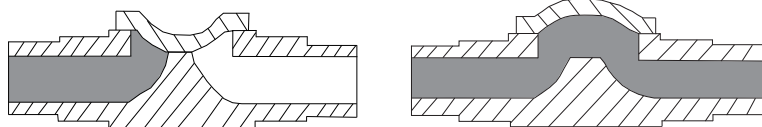
1) 249.8°F for max. 60 min

2) Min. Air pressure see instruction manual

3) See image below for Delta P 100% and Delta P 0%

Delta P 100%

Delta P 0%



Handles



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⁾
Atex		II 2 G D ³⁾

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:

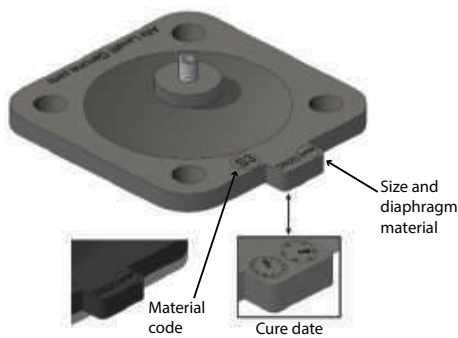
Description	Temperature recommendations °F			Documentation			Available sizes	Available Diaphragm connections:		
	Min.	Max.	Max. Steam	FDA	USP	TSE		Button ³⁾	Thread	Bayonet ⁴⁾
EPDM	-40°F	266°F	302°F ¹⁾	✓	✓	✓	0.3" - 4"	1/4" - 3/4"	1" - 4"	
PTFE/EPDM	23°F	347°F	302°F ²⁾	✓	✓	✓	1/2" - 4"			1/2" - 4"
TFM/EPDM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

- 1) Continuous temperature
- 2) 40 min. steam sterilization
- 3) < DN25 thread optional
- 4)TFM/EPDM point-fixed thread optional

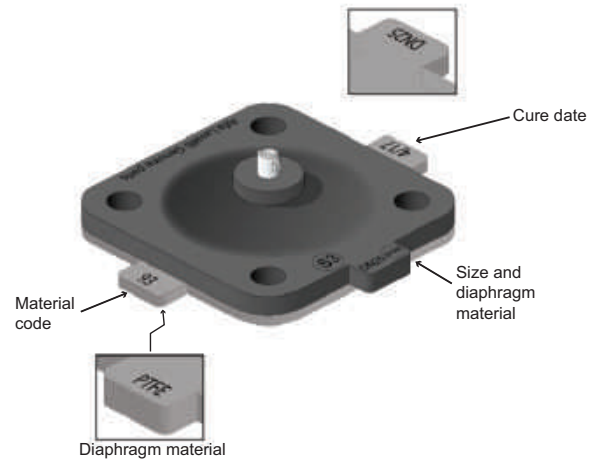
FDA - Declaration of conformity to FDA (CFR 21: 177.2600 or 177.1550)
 USP - Certificate of conformity to USP Class VI (chapter 88, biological reactivity test)
 TSE/ADI Declaration (Transmissible Spongiform Encephalopathy /Animal Derived Ingredients)

Alfa Laval Cast valve bodies with Optimized Flow utilize smaller diaphragm and topwork vs. Valve pipe dimension. Topwork being either pneumatic og 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)

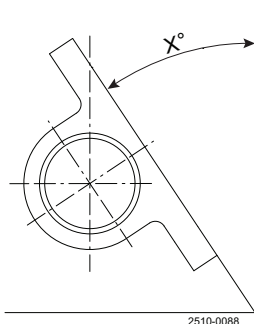
KV Value (Pipe standard ASME BPE / ISO 2037 Cast OP)

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:

1.4



Drain angles, forged and block valve bodies

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

Drain angles, forged mini valve bodies

Port size DN	Inch	ASME
8	1/4"	38°
10	3/8"	30°
15	1/2"	26°

Drain angles, Cast OP valve bodies

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

Dimensions (inch)

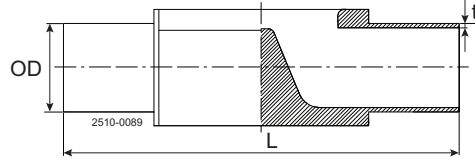
2-way body:

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 further in the DV-ST catalogue

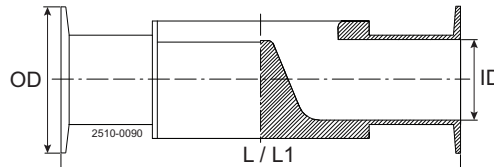
Weld ends: (inch)



DN	Port size Inch	Length L	ASME BPE OD x t
8	1/4"	3.50	0.25 x 0.035
10	3/8"	3.50	0.38 x 0.035
15	1/2"	4.33	0.50 x 0.065
20	3/4"	4.68	0.75 x 0.065
25	1"	5.08	1.00 x 0.065
40	1 1/2"	6.34	1.50 x 0.065
50	2"	7.56	2.00 x 0.065
65	2 1/2"	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):



DN	Port size Inch	Length L	Length L1 1)	Clamp ASME BPE for OD	ASME BPE ID
8	1/4"	3.50	2.5	0.98	0.18
10	3/8"	3.50	2.5	0.98	0.31
15	1/2"	4.25	3.5	0.98	0.37
20	3/4"	4.65	4.0	0.98	0.62
25	1"	5.00	4.5	1.98	0.87
40	1 1/2"	6.26	5.5	1.98	1.37
50	2"	7.52	6.25	2.52	1.87
65	2 1/2"	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.

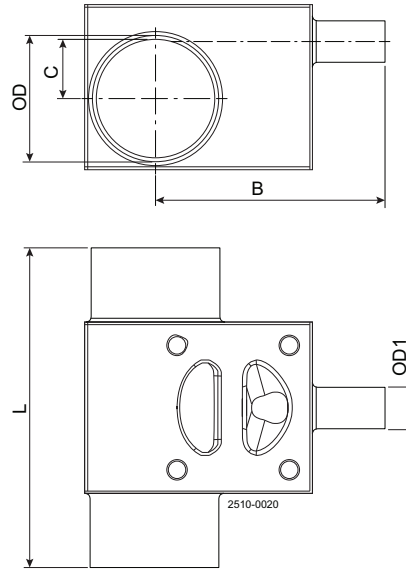
T- body:

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 further in the DV-ST catalogue.



Dimension table for T-block bodies - ASME

1.4



Main tube DN	Valve DN	Main tube OD x t in	Valve OD1 x t in	B - Weld in	B - Clamp in	C in	L - Weld in	L - Clamp 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
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

Note: 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".

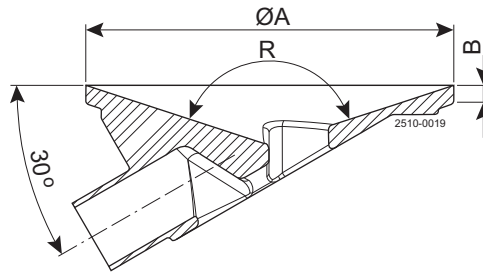
Tank outlet body:

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 (in)	B (in)	R
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

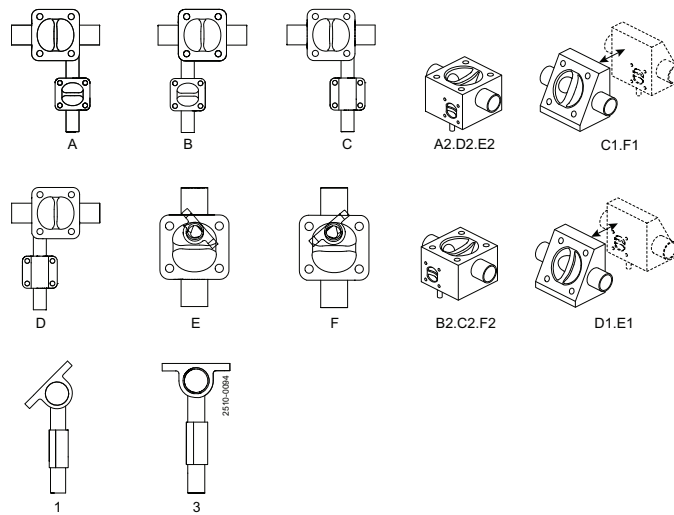
Tandem body:

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 Access Valves block solution (IAV). See further 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.



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.

Product code: 5355

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.

Size of branch valve		LLP USD	LLP USD
		Ra < 20 µin (SF1)	Ra < 16 µin Electropolished ¹⁾ (SF4)
8	1/4"		
10	3/8"		
15	1/2"		
20	3/4"		
25	1"		
40	1 1/2"		
50	2"		
65	2 1/2"		
80	3"		

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) (as shown in drawings below).

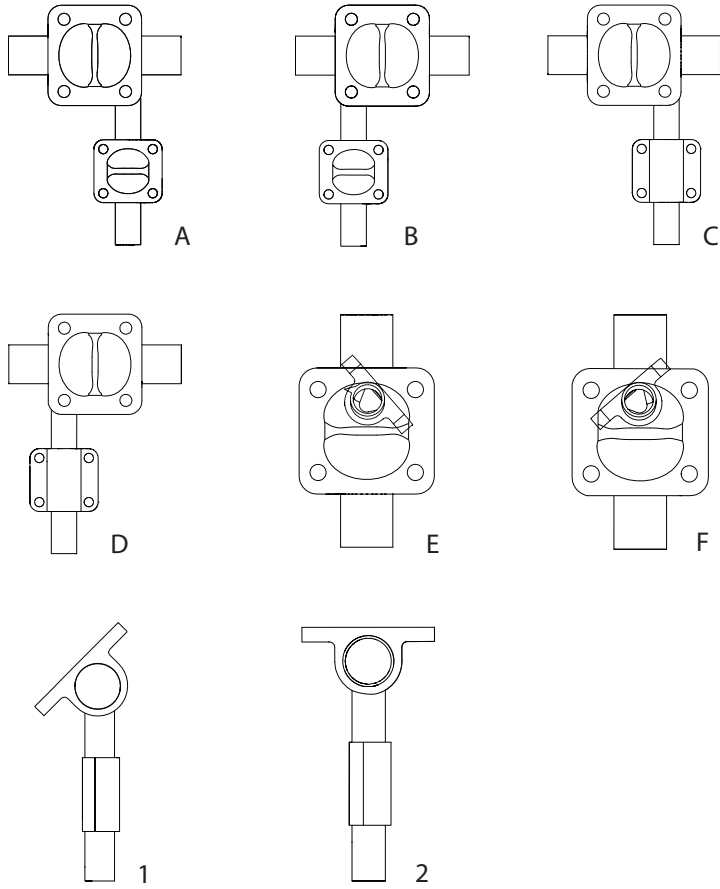
Forged Tandem Valves configurations (Sizes)

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

Note: For other size configurations please contact Alfa Laval

Product code: 5355

1.4



TD 456-192

1.5 Double seal valves

Alfa Laval's Mixproof Valve concept offers you customized and modular solutions that exactly fit your applications demands.



Product leaflets

SMP-BC	1.5.140
SMP-BCA	1.5.148

Ordering leaflets

SMP-BC Mixproof	1.5.154
SMP-BCA Mixproof	1.5.156

Alfa Laval SMP-BC

Double seal valves

1.5

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)

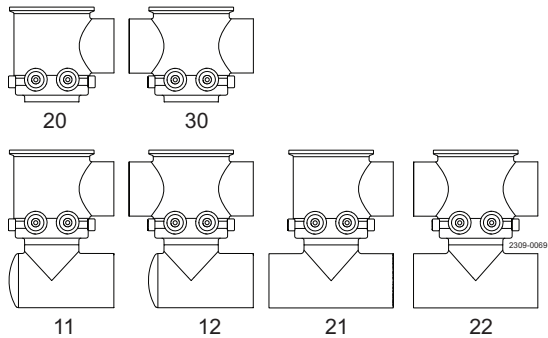
ATEX	
Classification	II 2 G D*

*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

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

Notel

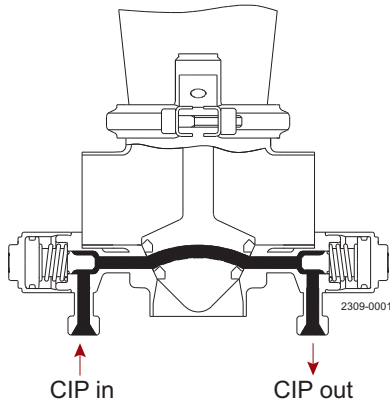
For further details, see also instruction manual ESE02255.

Air Consumption at 80 PSI

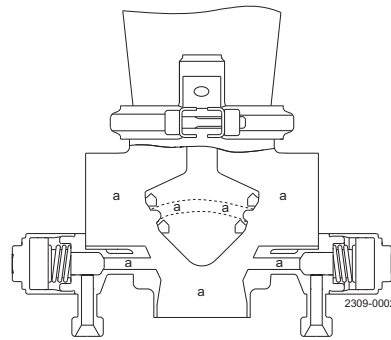
Size	1.5-inch - 2-inch	2.5-inch - 3-inch	5-inch - 6-inch	5-inch - 6-inch
Shut-off valve - Actuator function	67.1 in ³	235.0 in ³	503.4 in ³	738.4 in ³
Shut-off valve - Actuator function			1208.2 in ³	973.3 in ³

1.5

Operation/cleaning



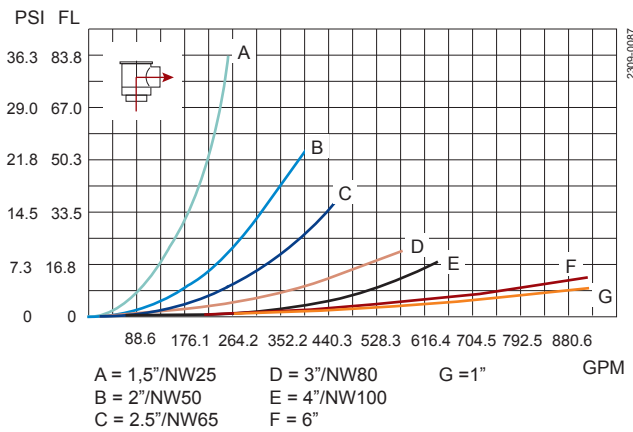
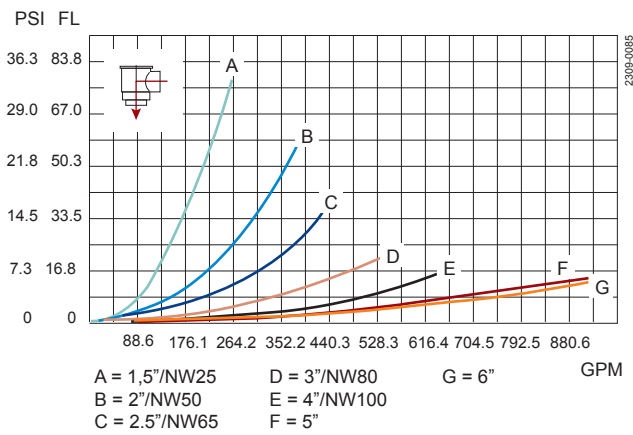
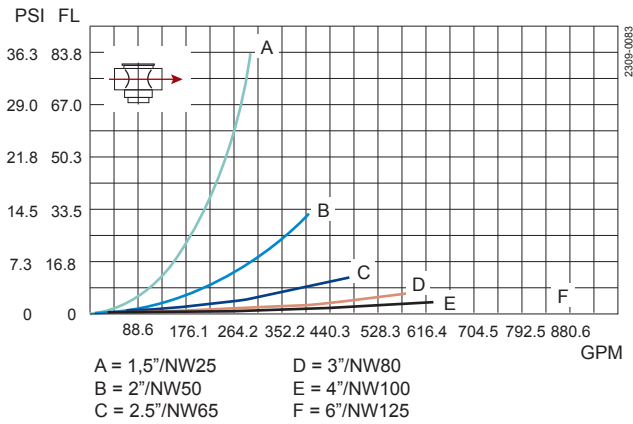
a. Closed shut-off valve:
Cleaning of the leakage chamber.



b. Open shut-off valve
a. Cleaning of the valve body and the leakage chamber.

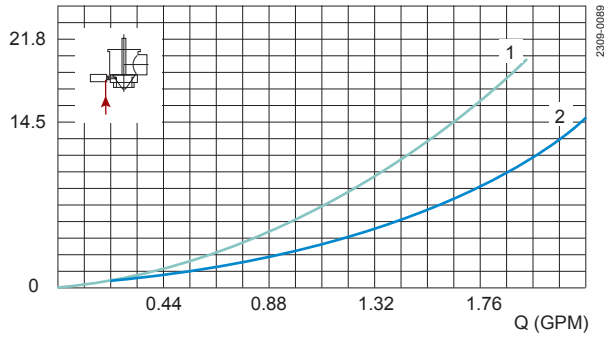
Pressure drop/capacity diagrams

Shut-off valve:



1.5

Leakage chamber, pressure drop and flow velocity.
 ΔP (PSI)



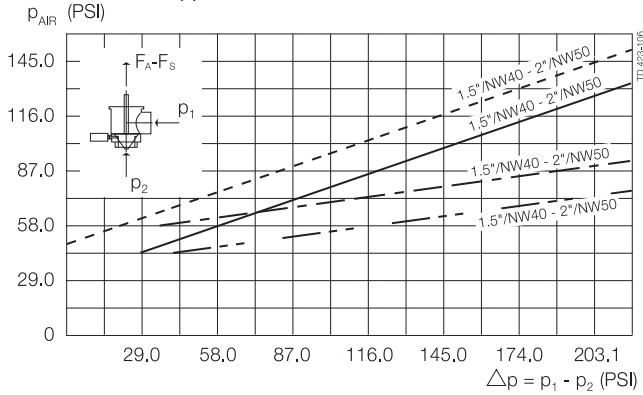
1 = CIP/detecting valve $\varnothing 27$
 2 = CIP/detecting valve $\varnothing 32$

Note! For the diagrams the following applies:
 Medium: Water (68°F).

Measurement: In accordance with VDI 2

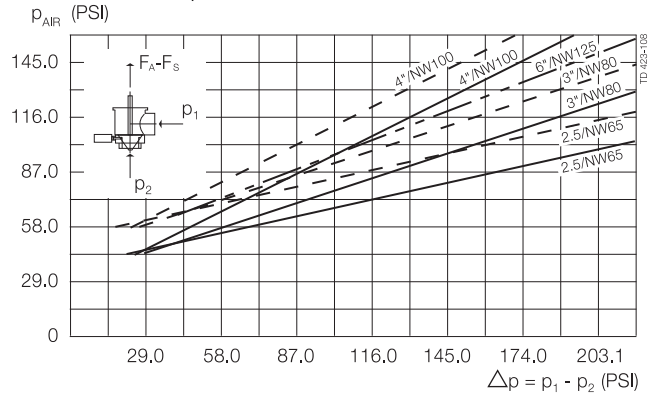
Max pressure difference/support air pressure diagrams

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



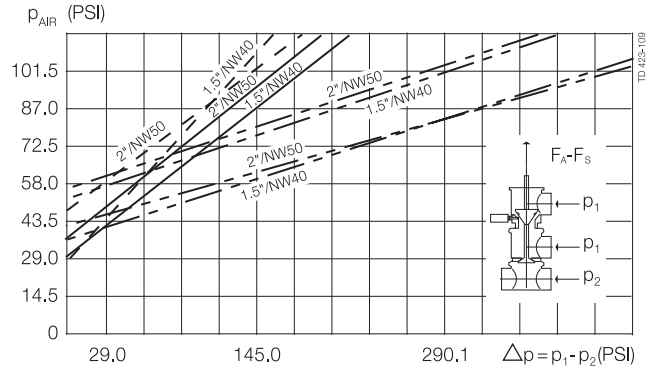
A: ———	B: - - -	D: - - - -	E: - - - -
∅89 Actuator: A	∅133 Actuator: D		
∅89 Actuator with extra strong spring: B	∅133 Actuator with extra strong spring: E		
∅199 Actuator: C			

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



A: ———	B: - - -	D: - - - -	E: - - - -
∅89 Actuator: A	∅133 Actuator: D		
∅89 Actuator with extra strong spring: B	∅133 Actuator with extra strong spring: E		

Lower plug (change over). Max. Product pressure without leakage, as a function of air pressure.

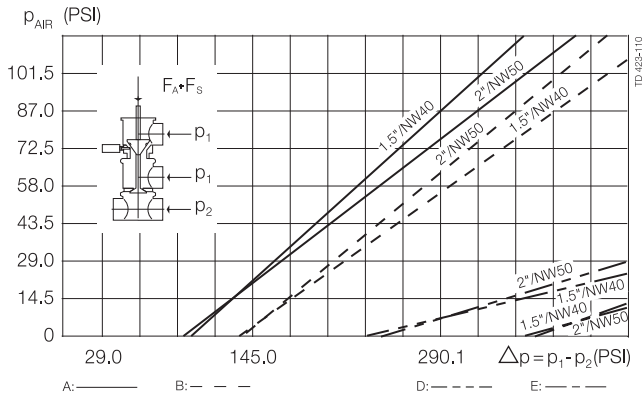


A: ———	B: - - -	D: - - - -	E: - - - -
∅89 Actuator: A	∅133 Actuator: D		
∅89 Actuator with extra strong spring: B	∅133 Actuator with extra strong spring: E		

Note! If actuator is supported by air on spring side: max. allowable pressure is 45 PSI (3 bar)

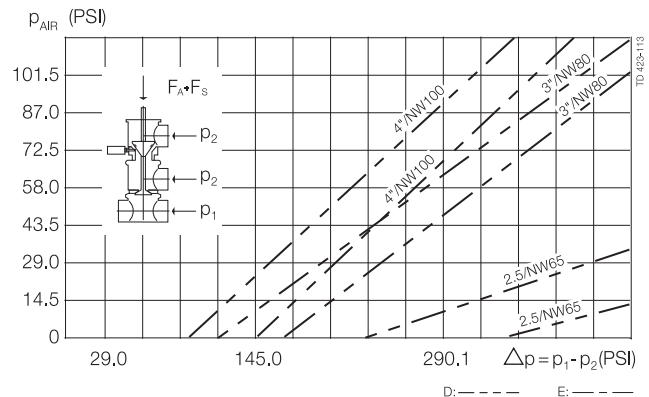
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Lower plug (change over) max. product pressure against which the valve can open by support air and spring.



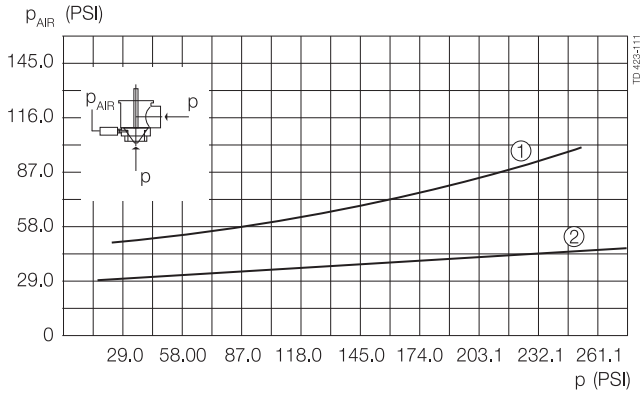
A: ——— B: - - - D: - - - E: - - -
 Ø89 Actuator: A Ø133 Actuator: D
 Ø89 Actuator with extra B Ø133 Actuator with extra E
 strong spring: strong spring:

Lower plug (change over) max. product pressure against which the valve can open by support air and spring.



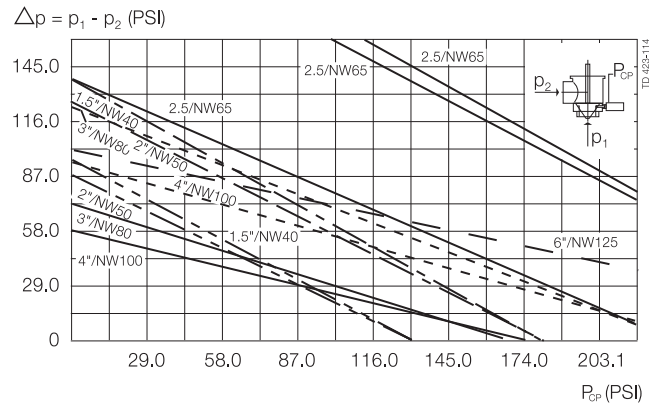
D: - - - E: - - -
 Ø133 Actuator: D
 Ø133 Actuator with extra E
 strong spring:

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



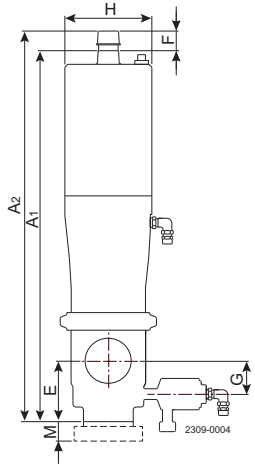
1 CIP/detecting valve Ø27 2 CIP/detecting valve Ø32

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

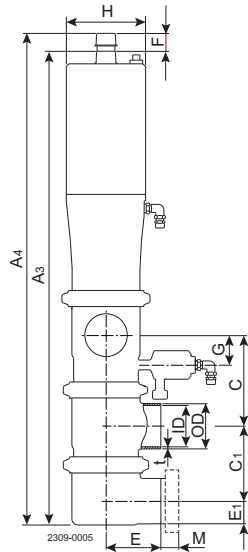


I: ——— K: - - - H: ——— F: - - - G: - - -
 Ø89 Actuator: I Ø133 Actuator: F
 Ø89 Actuator with extra K Ø133 Actuator with extra G
 strong spring: strong spring:
 Ø199 Actuator: H

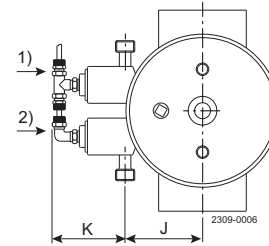
Dimensions (inch)



a. Shut-off valve.



b. Divert valve (obsolete products).



1) CIP valve
2) Detecting valve
1) CIP valve
2) Detecting valve
c. Top view

Size	1½"	2"	2½"	3"	4"
A1	13.58	13.98	17.05	17.91	20.75
A2	14.57	14.96	18.03	19.17	22.01
A3	19.13	19.91	24.26	25.63	29.60
A4	20.11	20.90	25.52	26.89	30.86
C	3.54	4.02	4.88	5.08	6.18
C1	3.15	3.31	4.25	4.53	5.91
OD	1.50	2.00	2.50	3.00	4.00
ID	1.37	1.87	2.37	2.84	3.84
t	0.06	0.06	0.06	0.08	0.08
E	1.95	2.42	3.24	3.44	5.26
E1	0.81	1.06	1.31	1.54	2.04
F	0.98	0.98	1.26	1.26	1.26
G	1.06	1.31	1.56	1.80	2.30
H	3.50	3.50	5.24	5.24	5.24
J	1.84	1.84	2.24	2.62	3.32
K	2.48	2.48	2.48	2.48	2.48
Tri-Clamp®	0.83	0.83	0.83	0.83	0.83
Weight (lb.) Shut-off valve	13.23	13.89	28.22	29.32	36.60
Weight (lb.) Divert valve	16.98	17.86	33.07	37.48	50.71

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

1.5

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

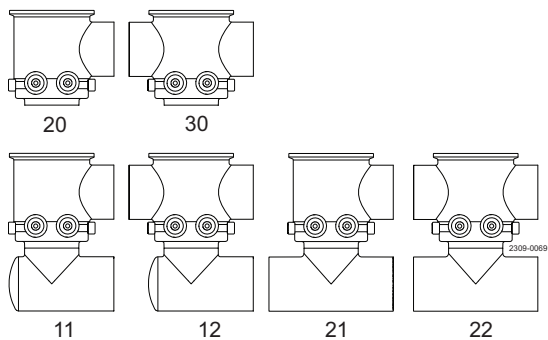
Temperature	
Temperature range:	>7.25 psi (0.5 bar), >68°F
Max. sterilization temperature (steam - short time)	302°F - 55 psi (3.8 bar)
Pressure	
Pressure range:	0-116 psi (0-8 bar)
Optimum process conditions:	>7.25 psi (0.5 bar), >68°F
Air pressure:	72.5-116 psi (5-8 bar)

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

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

Note!

For further details, see also ESE01563 and 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).

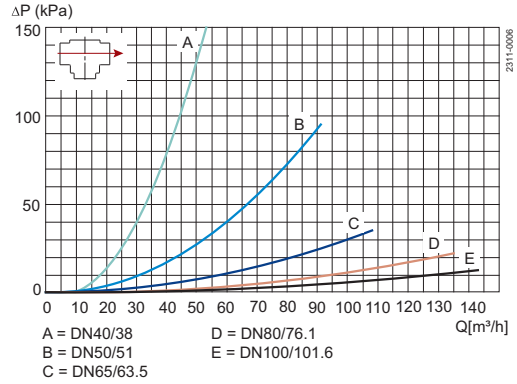
1.5

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

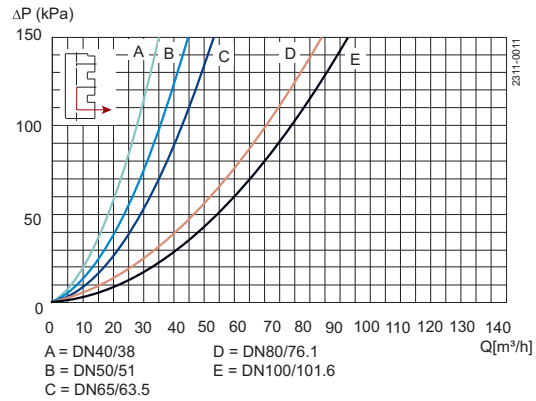
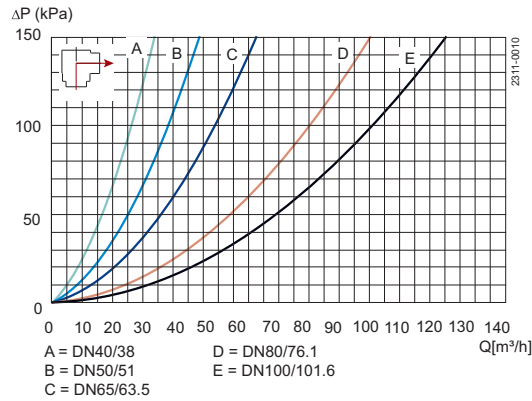
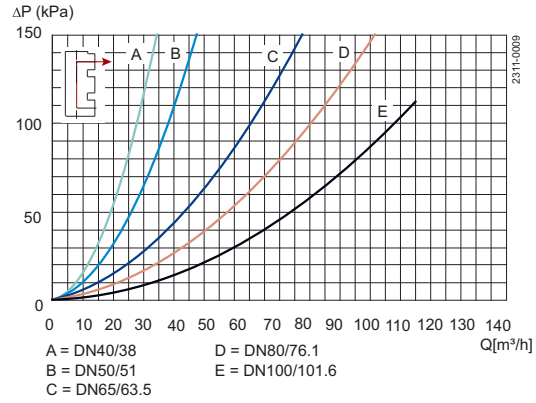
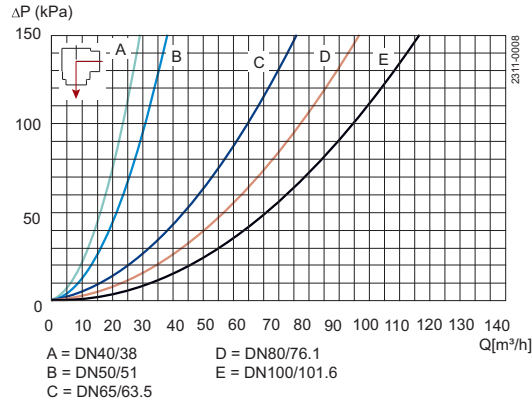
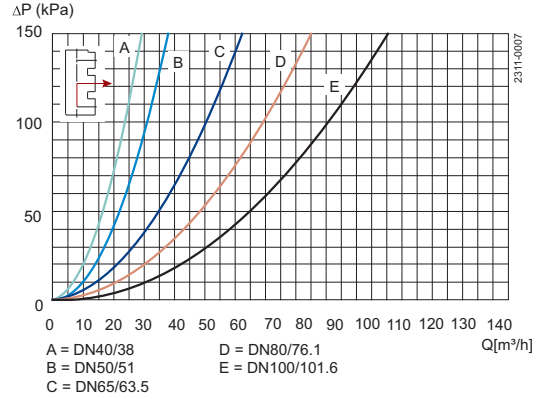
Note! Activating the valve without internal product pressure reduces lifetime of diaphragm unit.

Pressure drop/capacity diagrams

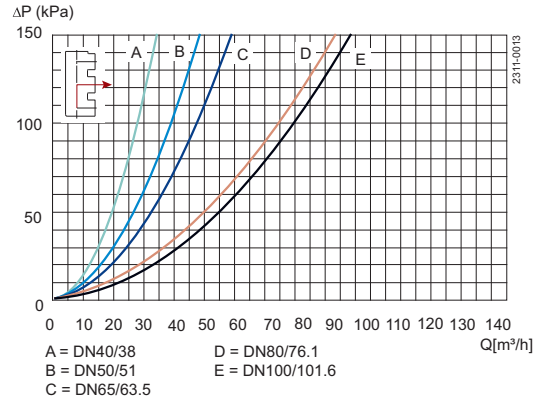
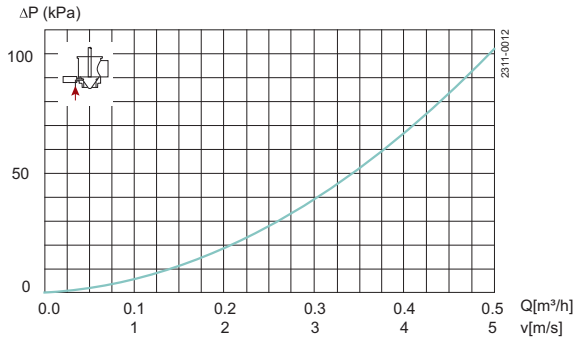
Stop valve:



Divert valve (obsolete product):



CIP chamber:



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 P_1 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

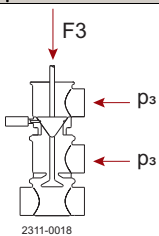
F1 = Spring + support Air

2. Upper plug. Max. product pressure P_2 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/ DN40	ø89	Normal	8.0	8.0
		ø89	Strong	-	8.0
		ø133	Normal	8.0	8.0
		ø133	Strong	-	8.0
	51mm/ DN50	ø89	Normal	8.0	8.0
		ø89	Strong	-	8.0
		ø133	Normal	8.0	8.0
		ø133	Strong	-	8.0
	63.5mm/ DN65	ø133	Normal	4.0	8.0
		ø133	Strong	-	1.4
	76.1mm/ DN80	ø133	Normal	2.8	7.0
		ø133	Strong	-	2.0
	101.6mm/ DN100	ø133	Normal	2.2	4.6
		ø133	Strong	-	1.6

1.5

3. Upper valve. Max. product pressure P_3 in upper valve body at which the valve can close.

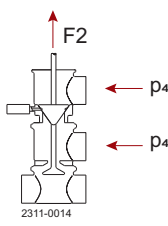
Direction of pressure	Valve size	Actuator size, spring type			
		ø89, Normal	ø89, Strong	ø133, Normal	ø133, Strong
 <p>2311-0018</p>	38mm/DN40	2.7	4.5	8.0	8.0
	51mm/DN50	2.4	4.0	6.0	8.0
	63.5mm/DN65	-	-	7.0	8.0
	76.1mm/DN80	-	-	7.0	8.0
	101.6mm/DN100	-	-	5.0	8.0

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.

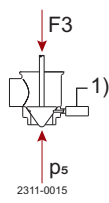
Pressure data for SMP-BCA

4. Lower valve, change-over. Max. product pressure P_4 without leakage, as a function of air pressure.

Direction of pressure	Valve size	Actuator size	Spring size	Air pressure (bar)
				3
 <p>2311-0014</p>	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 P_{CIP} without leakage to product area as a function of product pressure below plug.

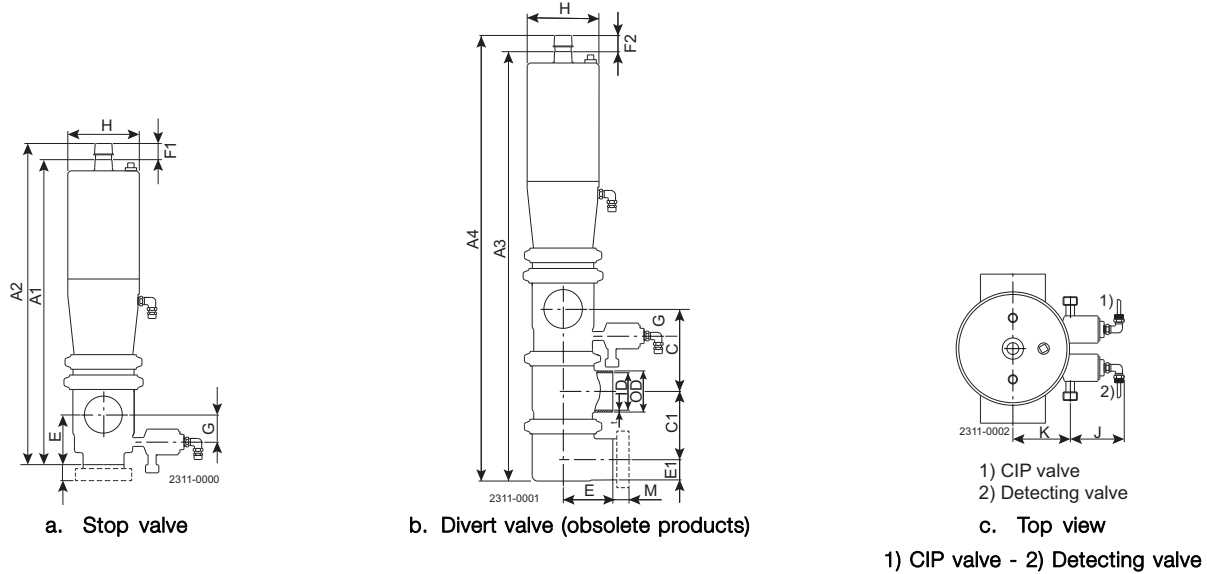
Direction of pressure	Valve size	Actuator size	Spring size	Product pressure P_5 below plug (bar)		
				0	2	4
				 <p>2311-0015</p>	38mm/	ø89
DN40	ø89	Strong	10.0		9.9	7.2
	ø133	Normal	10.0		10.0	10.0
	ø133	Strong	10.0		10.0	10.0
51mm/	ø89	Normal	9.0		6.3	3.5
DN50	ø89	Strong	10.0		9.6	6.7
	ø133	Normal	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)



Size	1½"	2"	2½"	3"	4"	40 DN	50 DN	65 DN	80 DN	100 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
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.

SMP-BC Mixproof

Double seal valves

Air-operated valves
Product code: 5252

Material: 1.4404 (316L)
Connection: ISO/DIN Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 63 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC

1.5

Item No.	LLP USD	Item No.	LLP USD	Size		Dimension (in)			Body combination	
				Inch	DIN	A ₁		E		
Inch tube		DN tube				Inch	DN		20	
9612364801		9612364806		1.5	40	13.6	13.5	1.9		
9612364802		9612364807		2	50	14.0	13.9	2.4		
9612364803		9612364808		2.5	65	17.0	16.9	3.2		
9612364804				3		17.9		3.4		
		9612364809			80		18.0	3.4		
9612364805		9612364810		4	100	20.7	20.7	5.3		
		9612465601			125		22.3	5.9		
		9612465603			150		22.8	5.9		
0										
9612364811		9612364816		1.5	40	13.6	13.5	1.9		
9612364812		9612364817		2	50	14.0	13.9	2.4		
9612364813		9612364818		2.5	65	17.0	16.9	3.2		
9612364814				3		17.9		3.4		
		9612364819			80		18.0	3.4		
9612364815		9612364820		4	100	20.7	20.7	5.3		
		9612465602			125		22.3	5.9		
		9612465604			150		22.8	5.9		

NOTE! Configurator available incl. body combination 11, 12, 21, 22 and other options.

For further information - please see PD-sheet.

CIP installation kits
 Product code: 5716

Item No.	LLP USD	Valve type	Options	
Installation kit A for CIP and leakage connections for parallel valve (PVDF tubes)				
9612417701		SMP-BC	Contents: 1 x Pos. 2 Fitting PVDF female 1 x Pos. 3 Tube PVDF OD/ID = 10/8, l = 1000 1 x Pos. 5 Fitting PVDF	
Installation kit B for single connection of CIP (PVDF/stainless steel tubes)				
9612417601		SMP-BC	Contents: 1 x Pos. 1 Welding male part 2 x Pos. 2 Fitting PVDF female 1 x Pos. 3 Tube PVDF OD/ID = 10/8, l = 1000 1 x Pos. 4 Leakage tube AISI 316L OD/ID = 12/10	
Installation kit C for CIP and leakage connection of a single valve (stainless steel tube)				
9612417801		SMP-BC	Contents: 1 x Pos. 1 Welding male part 3 x Pos. 4 CIP leakage tube AISI 316L OD/ID = 12/10	
Installation kit D for leakage connection (stainless steel tube)				
3135710013		SMP-BC	Contents: 1 x Pos. 4 Leakage tube AISI 316L OD/ID = 12/10	

SMP-BCA Mixproof

Double seal valves

Aseptic air-operated valve
 Product code: 5253

Material: 1.4404 (316L)
 Connection: ISO/DIN Welding ends
 Seals: PTFE/EPDM
 Inside surface finish: Ra ≤ 63 µm
 Outside surface finish: Blasted
 Actuation: Pneumatic NC

1.5

Item No.	LLP USD	Item No.	LLP USD	Size		Dimension (in)			Body combination	
				Inch	DN	A ₁		E		
Inch tube		DIN tube				Inch	DIN		20	
9612502501		9612502507		1.5	40	14.6	14.6	1.9		
9612502502			2	50	15.0	15.0	2.4			
9612502503			2.5	65	18.1	18.1	3.2			
9612502504			3	80	18.9	19.0	3.4			
9612502505		9612502509		4	100	21.8	21.8	5.3		
		9612502510								0
9612502511		9612502516		1.5	40	14.6	14.6	1.9		
9612502512		9612502517		2	50	15.0	15.0	2.4		
9612502513		9612502518		2.5	65	18.1	18.1	3.2		
9612502514				3	80	18.9	19.0	3.4		
		9612502519		4	100	21.8	21.8	5.3		
9612502515		9612502520								

Note!

Configurator available for options.

For further information - please see PD-sheet.

1.6 Double seat valves

Alfa Laval's Mixproof Valve concept offers you customized and modular solutions that exactly fit your applications demands.



Product leaflets

Aseptic Mixproof Valve Manifold	1.6.158
Unique Mixproof CP-3	1.6.163
Unique Mixproof	1.6.165
Unique Mixproof UltraPure	1.6.171
Unique Mixproof High Alloy	1.6.181
Unique Mixproof Large Particle Valve (Unique LP)	1.6.187
Unique Mixproof Large Particle (Unique LP-F)	1.6.193
Unique Mixproof Tank Outlet	1.6.197
Unique PMO Curd CP Mixproof Valve	1.6.201
Unique PMO Mixproof Horizontal Tank Plus® CP Valve	1.6.208
Unique PMO Plus® CP Mixproof Vertical Tank Valve	1.6.213

Description codes

Unique CP3 Mixproof Valve	1.6.222
Unique PMO Mixproof Valves	1.6.223

Ordering leaflets

Unique Mixproof LP Valve	1.6.224
Conversion Kit for Unique LP	1.6.225
Unique PMO Curd CP Mixproof Valve	1.6.226
Unique PMO Plus® CP Mixproof Horizontal Tank Valve	1.6.227
Unique PMO Plus CP Mixproof Vertical Tank valve	1.6.229

Alfa Laval Aseptic Mixproof

Double seat valves

1.6

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)

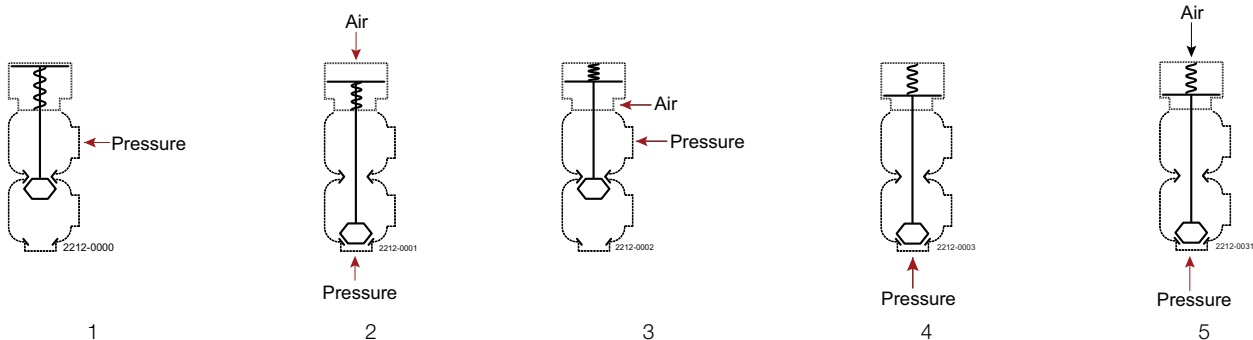
Surface finish	
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra <32 µin

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

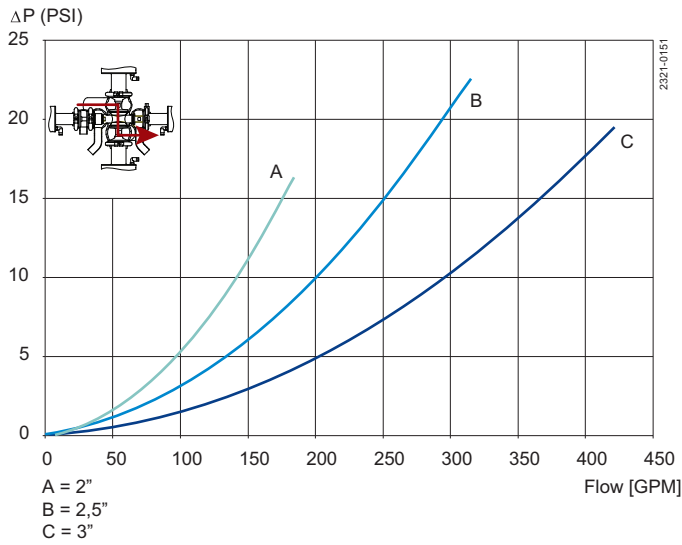


Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size			Leakage detection valve
			Main valve			
			2"	2.5"	3"	
1		NO				116.0 psi
2	87	NO				116.0 psi
3	87	NC				116.0 psi
4		NC	108.8 psi	65.3 psi	101.5 psi	116.0 psi
5*	43	NC	116.0 psi	116.0 psi	116.0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

* support air

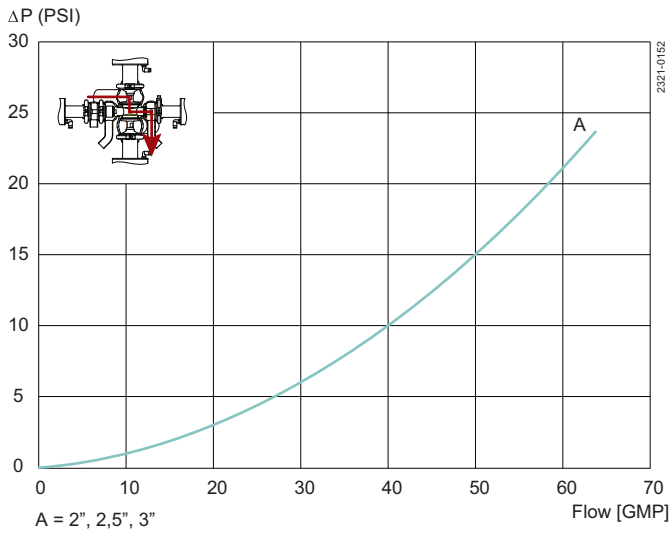
Pressure drop/capacity diagrams

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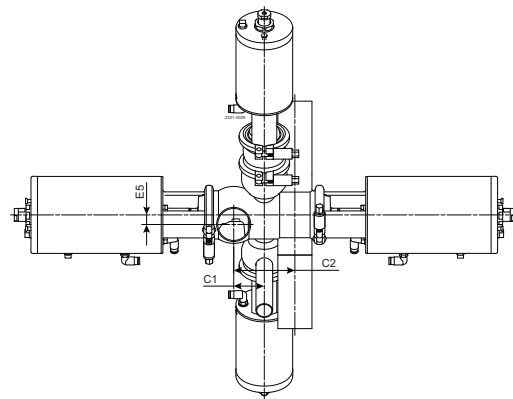
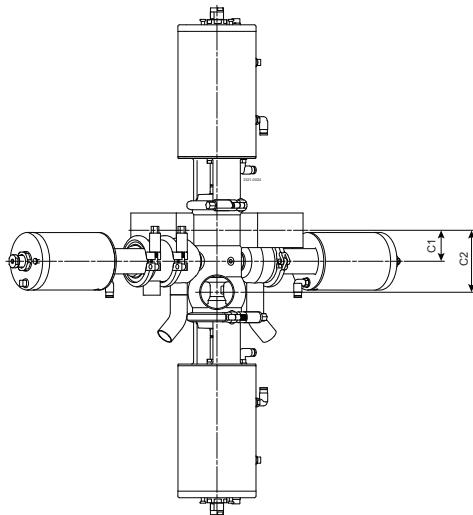
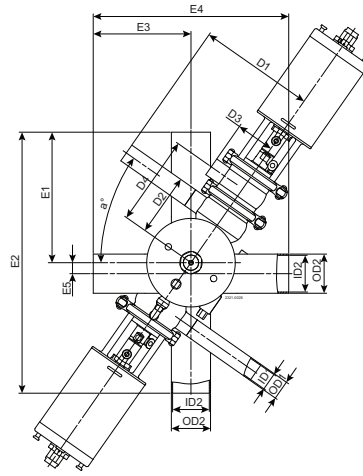
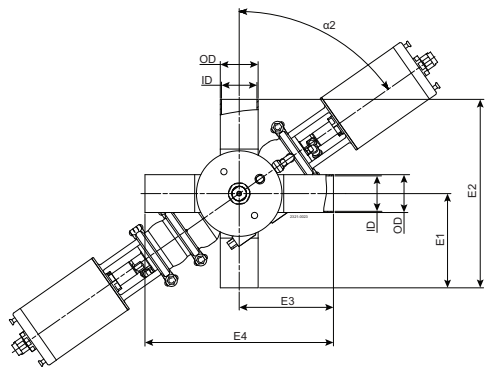
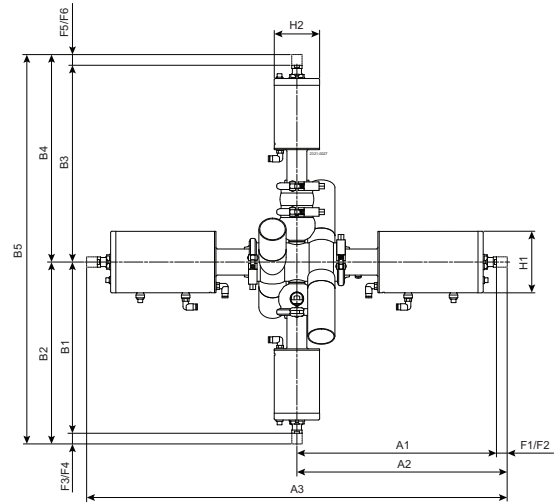
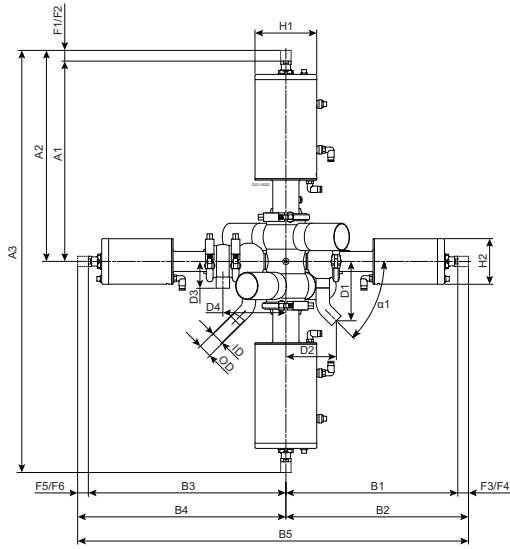
Seat lift

	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.



Vertical mount

Horizontal mount

Size	2	2.5	3	2	2.5	3
	inch	inch	inch	inch	inch	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

1.6

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



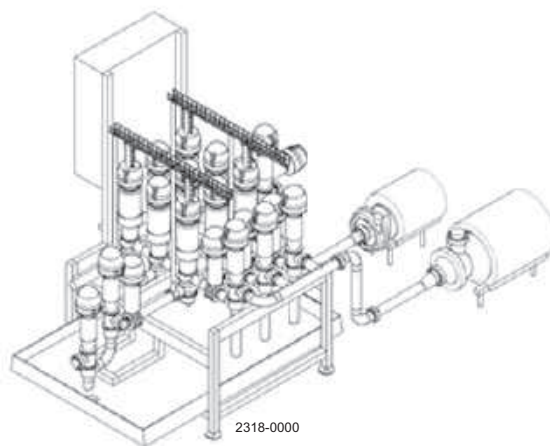
TECHNICAL DATA

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

1.6

**Dimensions (inch)**

According to customer specification.

Alfa Laval Unique Mixproof CP-3

Double seat valves

1.6

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 (for higher pressure, please ask Alfa Laval)
Min. product pressure:	Full vacuum
Air pressure:	116 psi

1.6

PHYSICAL DATA

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

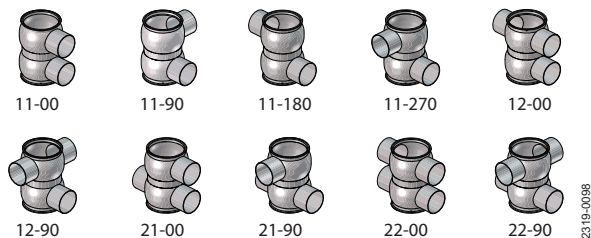
Surface finish choose from the following:	
Internal Bright (polished)/External semi-bright:	Ra<32 µin
Internal/external Bright (internal polished):	Ra<32 µin

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.

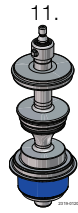
Balancing flexibility

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



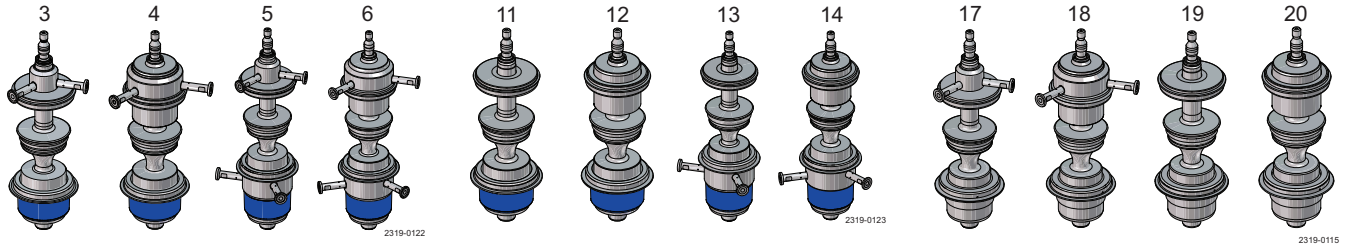
11 Upper: Unbalanced
Lower: Balanced (Blue bottom)



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.



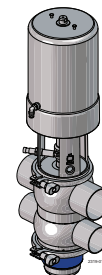
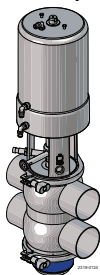
3 Upper: Unbalanced with SpiralClean OD spindle Lower: Balanced (blue bottom)	4 Upper: Balanced with SpiralClean OD balancer Lower: Balanced (blue bottom)	5 Upper: Unbalanced with SpiralClean OD spindle Lower: Balanced with SpiralClean OD balancer (blue bottom)	6 Upper: Balanced with SpiralClean OD balancer Lower: Balanced with SpiralClean OD balancer (blue bottom)	11 Upper: Unbalanced Lower: Balanced (blue bottom)	12 Upper: Balanced Lower: Balanced (blue bottom)	13 Upper: Unbalanced Lower: Balanced with SpiralClean OD balancer (blue bottom)	14 Upper: Balanced Lower: Balanced with SpiralClean OD balancer (blue bottom)	17 Upper: Unbalanced with SpiralClean OD spindle Lower: Flush OD Balancer (stainless steel bottom)	18 Upper: Balanced with SpiralClean OD balancer Lower: Flush OD Balancer (stainless steel bottom)	19 Upper: Unbalanced Lower: Flush OD Balancer (stainless steel bottom)	20 Upper: Balanced Lower: Flush OD Balancer (stainless steel bottom)
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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 1-1/2" through 6" 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

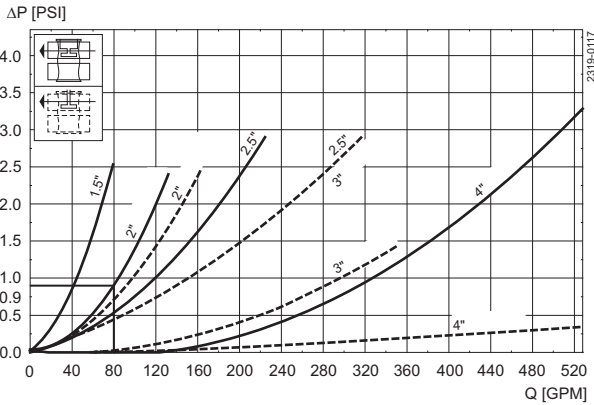


Fig. 3. Pressure drop/capacity diagram, upper body.
Full lines: Balanced upper plug.
Dotted lines: Unbalanced upper plug.

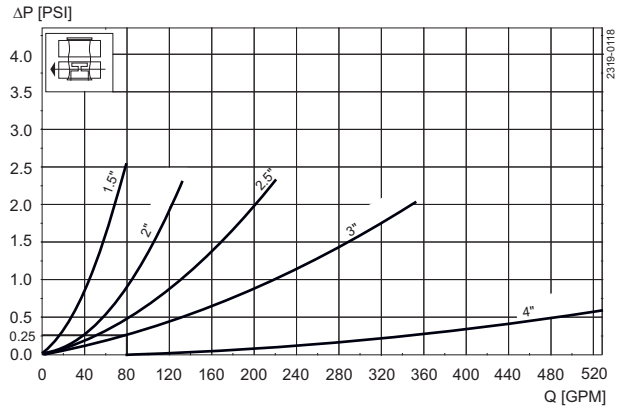


Fig. 4. Pressure drop/capacity diagram, lower body, balanced plugs.

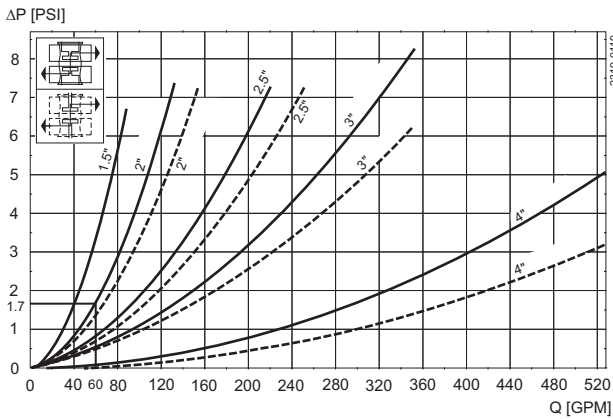


Fig. 5. Pressure drop/capacity diagram, between bodies.
Full lines: Balanced.
Dotted lines: Unbalanced upper plug only one period.

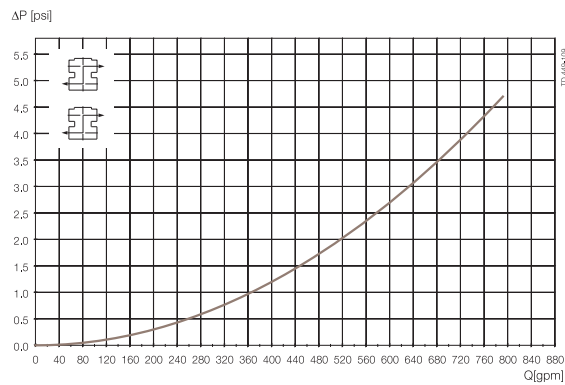


Fig. 6. Pressure drop/capacity diagram between bodies Balanced and unbalanced plugs 6"

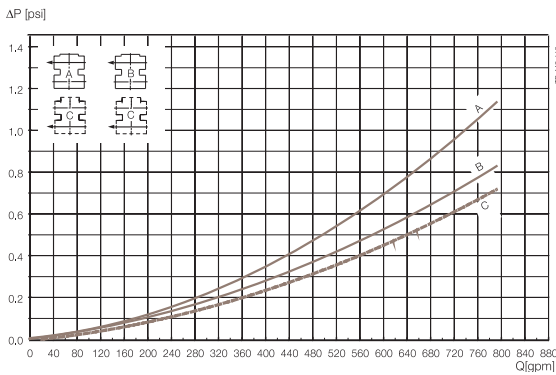


Fig. 7. Pressure drop/capacity diagram, through bodies 6"
A. Balanced upper plug
B. Unbalanced upper plug
C. Balanced lower plug

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	OD
ISO	1½"	2"	2½"	3"	4"	6"
Cv-value						
Upper Seat-lift [gpm/psi]	1.7	1.7	2.9	2.9	3.6	4.3
Lower Seat-lift [gpm/psi]	1.0	1.0	2.2	2.2	2.9	3.6
Air consumption						

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, $\Delta p = 0.9$ psi through upper body.

From fig. 4, $\Delta p = 0.25$ psi through lower body.

From fig. 5, $\Delta p = 1.7$ 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.

Upper Seat-lift * [cubic inches]	12	12	24	24	38	38
Lower Seat-lift * [cubic inches]	6.7	6.7	8	8	13	13
Main Movement * [cubic inches]	52	52	99	99	170	170
Cv-value SpiralClean						
External CIP of upper and lower plug [gpm/psi]	0.14	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	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):

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

$$Q = \text{CIP - flow (gpm)}$$

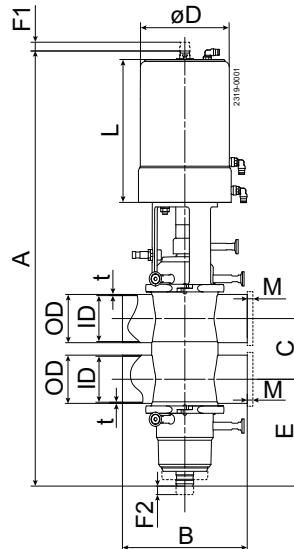
Cv = Cv value from the above table.

Δp = CIP pressure (psi).

Actuator

Tube OD	STD	
	Operating pressure (psi)	
1½"	145	
2"	145	
2½"	145	
3"	145	
4"	145	
6"	Fully balanced 145 / Upper unbalanced 138	

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"	6"
*A	24.055	25.827	29.921	29.921	36.299	40.394
B	6.693	8.661	8.661	8.661	11.811	11.811
**C	2.394	2.906	3.398	3.894	4.866	6.806
OD	1.5	2	2.5	3.0	4.0	6.0
ID	1.370	1.882	2.374	2.870	3.843	5.782
t	0.063	0.063	0.063	0.063	0.079	0.109
E	5.669	6.496	7.874	7.598	9.764	10.768
F1	1.240	1.240	1.496	1.496	2.323	2.323
F2	0.197	0.197	0.197	0.197	0.197	0.197
øD	4.724	4.724	6.181	6.181	7.323	7.323
L	9.055	9.055	9.921	9.921	11.063	11.063
M/Tri-clamp	0.827	0.827	0.827	0.827	0.827	1.518
Weight (lb)	32	35	60	60	84	115

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 $C = \frac{1}{2}ID\text{-upper} + \frac{1}{2}ID\text{-lower} + 1,02"$

Alfa Laval Unique Mixproof

Double seat valves

1.6

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



TECHNICAL DATA

Pressure	
Max. product pressure:	145 psi (for higher pressure, please ask Alfa Laval)
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*

*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)

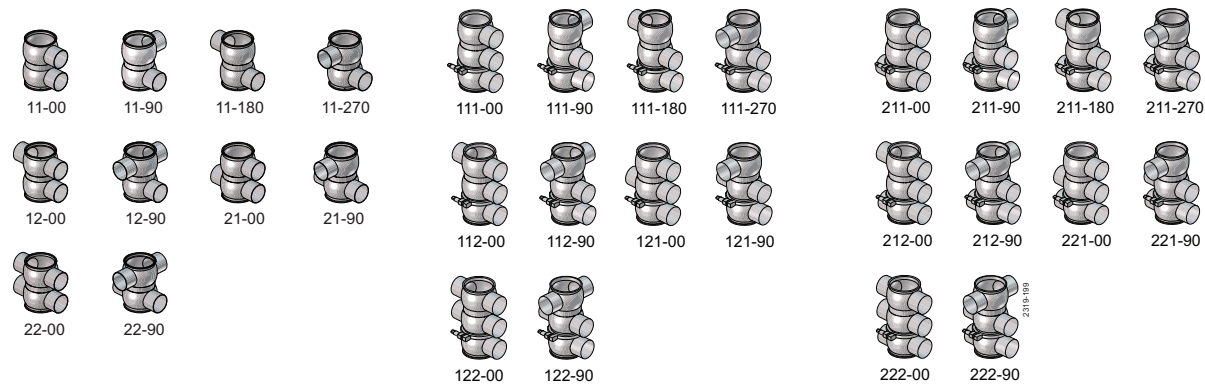
Surface finish choose from the following:	
Internal/external semi-bright	Ra<64µin
Internal Bright (polished)	Ra<32µin
Internal/external Bright (polished)	Ra<32µin

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

Product wetted seals:	EPDM
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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

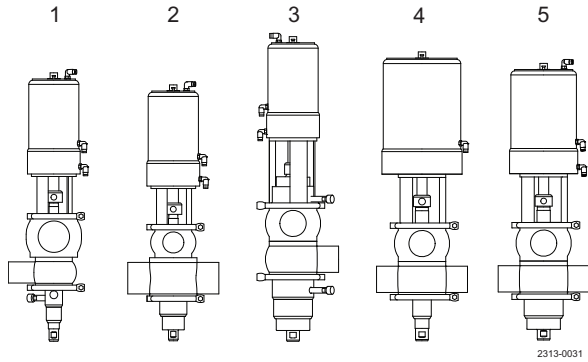
SpiralClean

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.

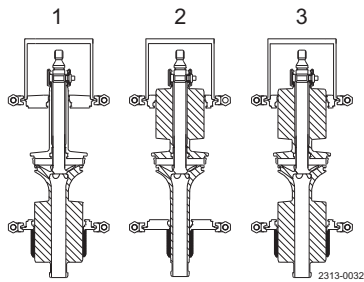
Size flexibility



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

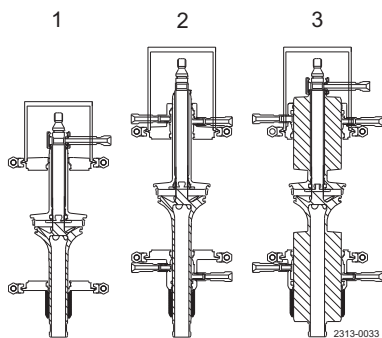
1. ISO 51 (2")/ISO 76.1 (3"), 11-90, with spiral clean on lower unbalanced plug, group 3 basic actuator incl. seat lift and seat push
2. ISO 76.1(3")/ISO 51 (2"), 22-90, with lower balanced plug, basic actuator incl. seat lift and seat push
3. ISO 63.5 (2½"), 12-90, with SpiralClean of upper, lower spindle 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, $\Delta p = 0.9$ psi through upper body.

From fig. 2, $\Delta p = 0.25$ psi through lower body.

From fig. 3, $\Delta p = 1.7$ 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.

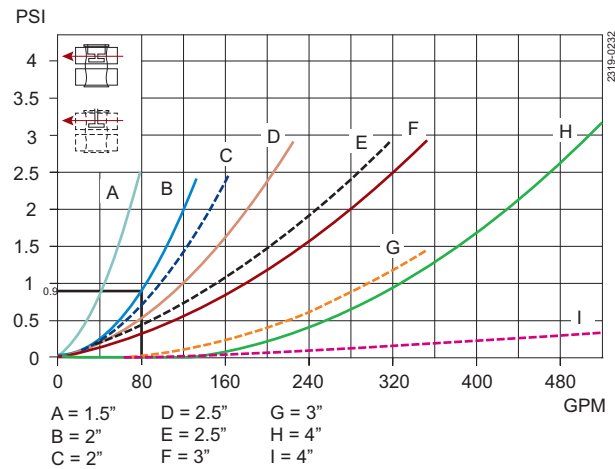


Fig. 1. Pressure drop/capacity diagram, upper body.

Full lines: Balanced upper plug.

Dotted lines: Unbalanced upper plug.

Note! For the diagrams the following applies:

Medium: Water (68°F).

Measurement: In accordance with VDI 2173.

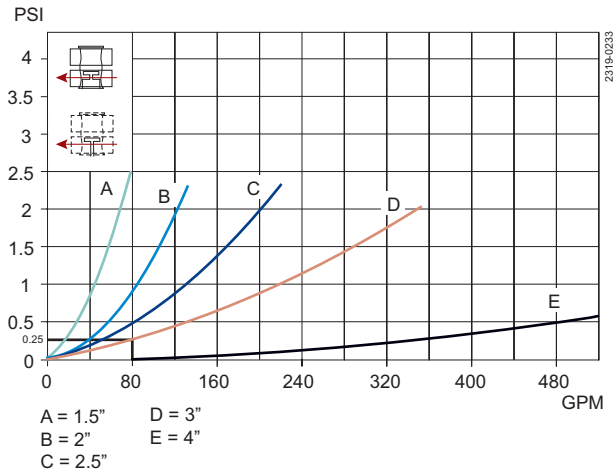


Fig. 2. Pressure drop/capacity diagram, lower body, balanced and unbalanced lower plugs.

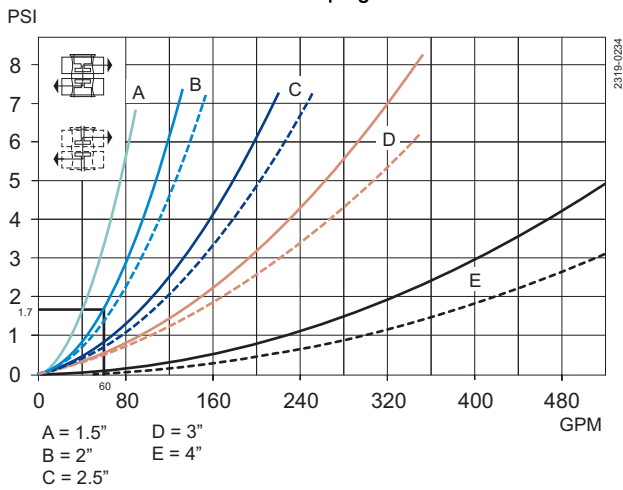


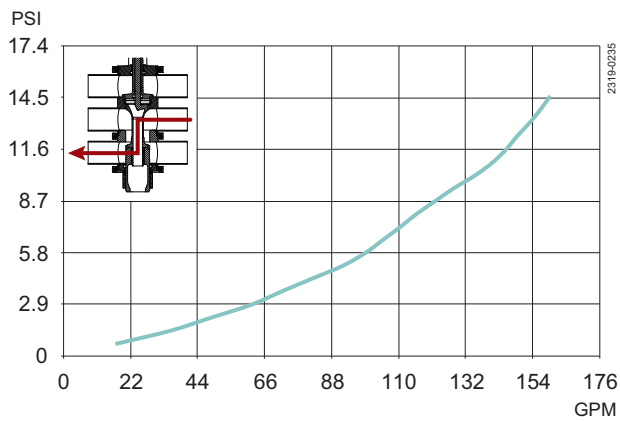
Fig. 3. Pressure drop/capacity diagram, between bodies.

Full lines: Balanced.

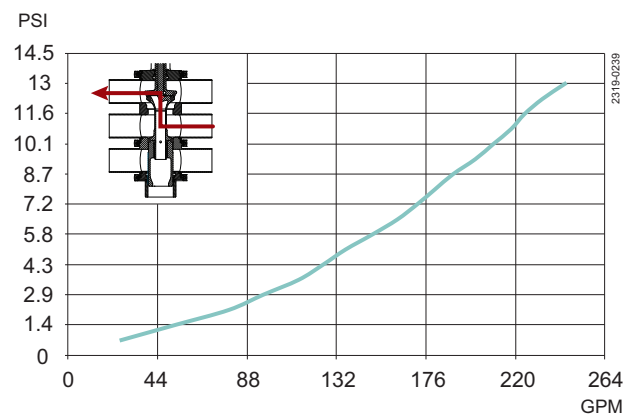
Dotted lines: Unbalanced.

Pressure drop/capacity diagrams for 3 body valve

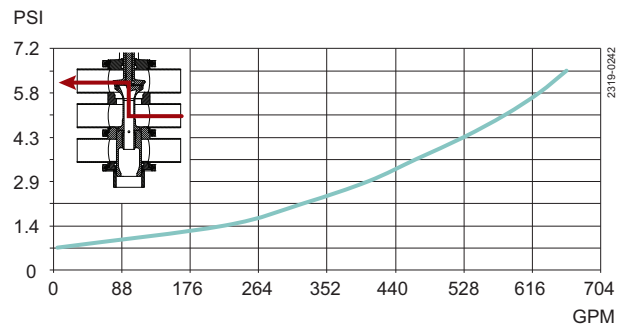
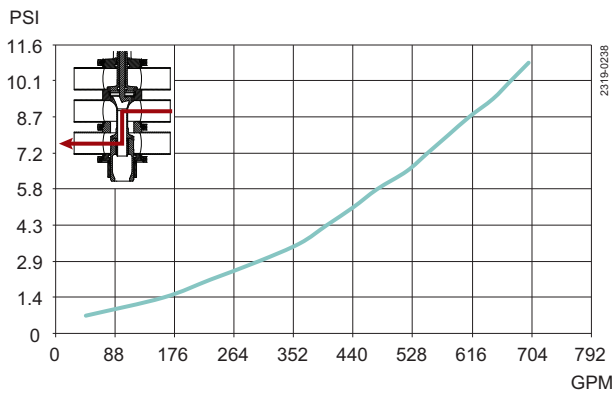
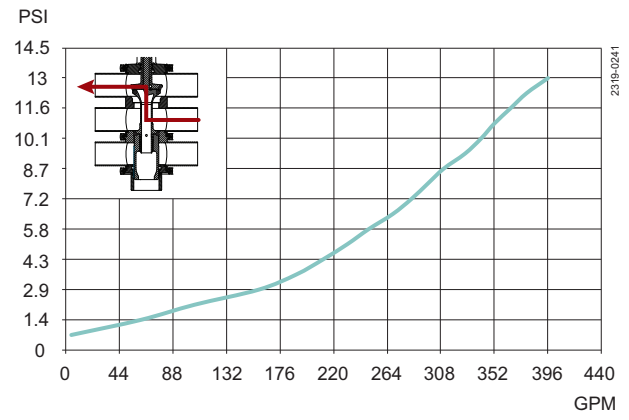
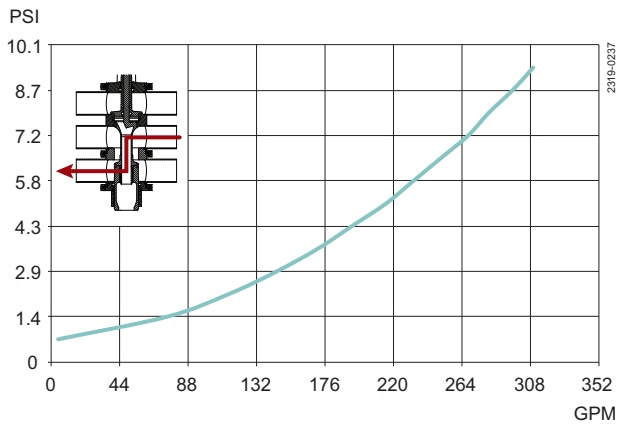
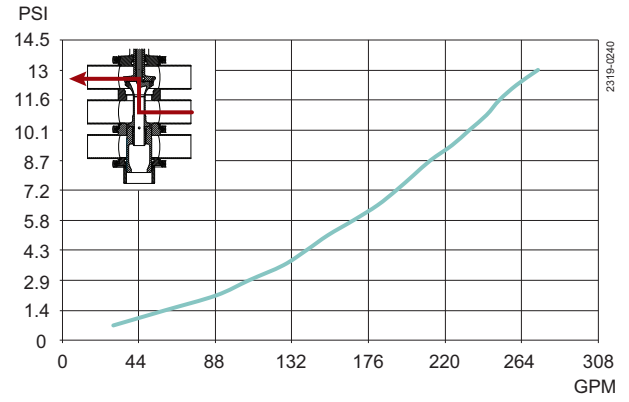
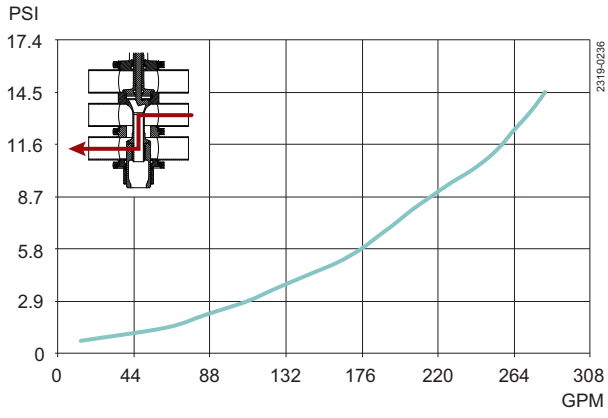
Between middle and lower body



Between middle and upper body

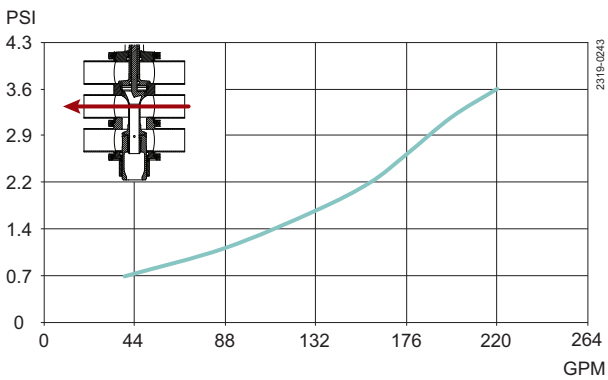


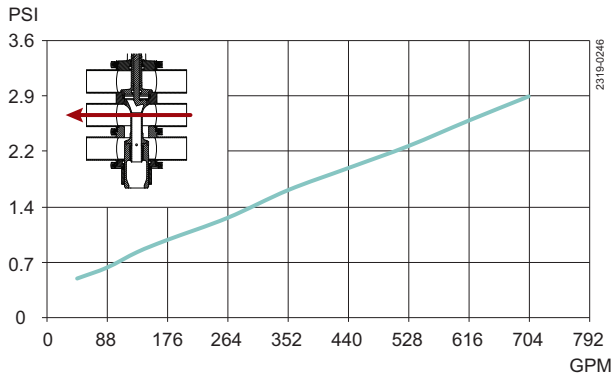
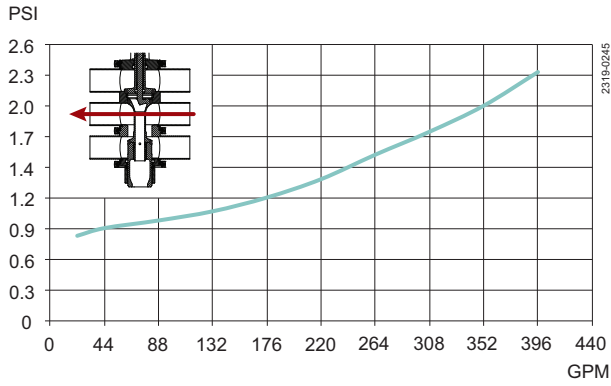
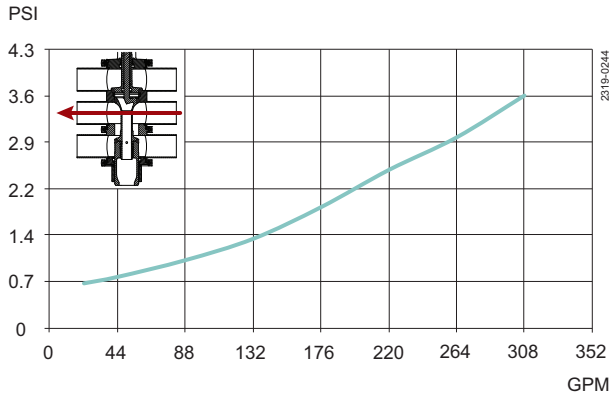
1.6



For the diagrams the following applies:

Middle body





Air and CIP consumption

Size ISO	OD 1½"	OD 2"	OD 2½"	OD 3"	OD 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 * [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					
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

1.6

Note!

* [n litre] = volume at atmospheric pressure

Recommended min. pressure for SpiralClean: 29 bar.

Formula to estimate CIP flow during seat lift:

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

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

Q = CIP - flow (m³/h).

Kv = Kv value from the above table.

Δ p = CIP pressure (bar).

Actuator

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

STD: Normal size of actuator

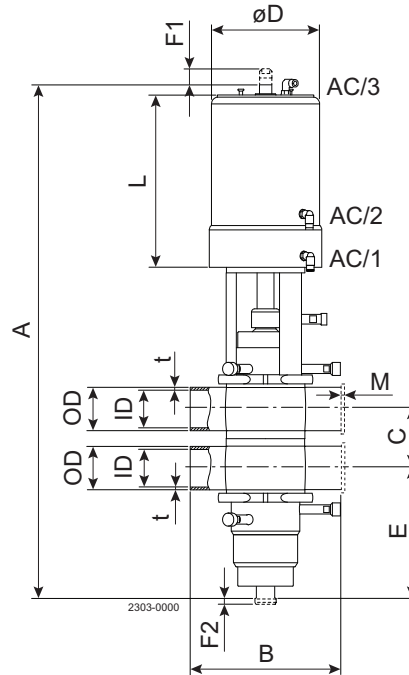
STD*: Normal size actuator if lower plug is UNBALANCED

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

1 BS = Basic spring

2 SS = Strong spring

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	20.88	22.66	27.54	27.54	35.03
*A Seat Clean	20.88	22.66	26.40	26.40	31.17
*A High Clean/UltraClean	24.07	25.85	29.94	29.94	36.33
B	6.70	8.67	8.67	8.67	11.82
**C	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

Note!

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

** The measure C can always be calculated by the formula $C = \frac{1}{2}ID_{upper} + \frac{1}{2}ID_{lower} + 1.02$ inch.

Dimension for 3-body version

Group Size ISO-DIN	3 DN/OD 2"	4 DN/OD 2.5"	4 DN/OD 3"	5 DN/OD 4"	3 DN 50	4 DN 65	4 DN 80	5 DN 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

1.6

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.

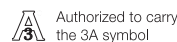


Working principle

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



TECHNICAL DATA

Pressure	
Max. product pressure:	145 psi (10 bar)
Min. product pressure:	Full vacuum

1.6

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*

*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)

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

Pressure drop/capacity diagrams

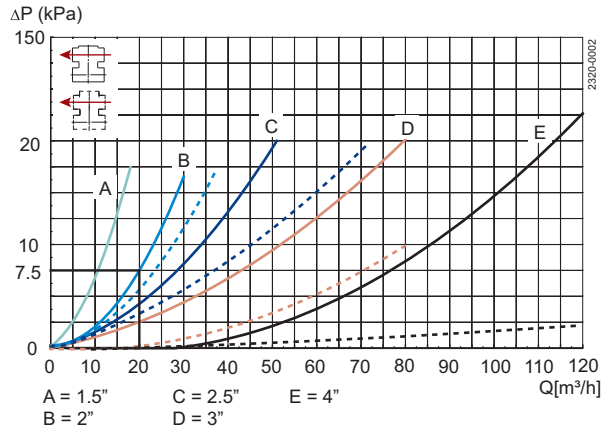


Fig. 3. Pressure drop/capacity diagram, upper body. Full lines: Balanced upper plug. Dotted lines: Unbalanced upper plug.

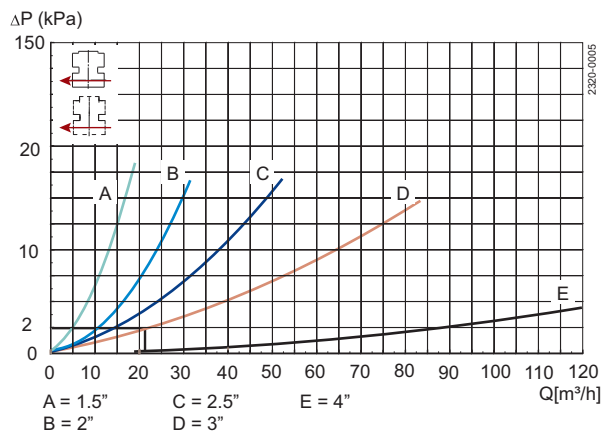


Fig. 4. Pressure drop/capacity diagram, lower body, balanced

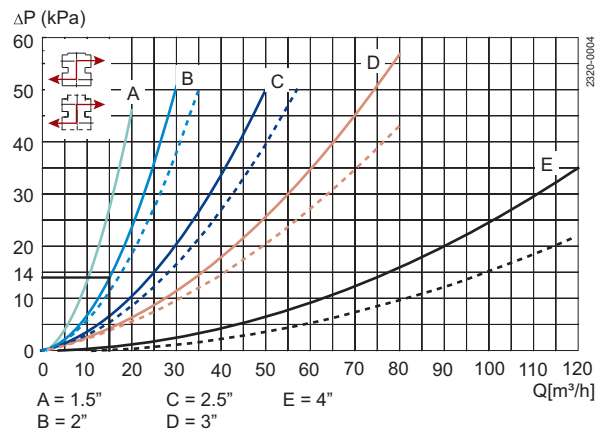
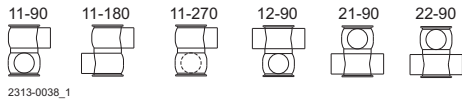


Fig. 5. Pressure drop/capacity diagram, between bodies.
Full lines: Balanced.
Dotted lines: Unbalanced.

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

Valve body combinations



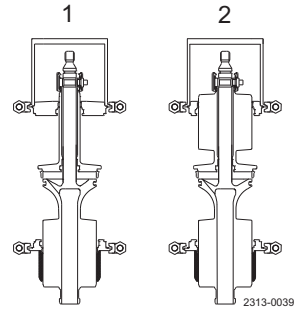
2313-0038_1

1.6

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:



2313-0039

- 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 [m³/h]	237.75	237.75	501.93	501.93	660.43
Air consumption					
Upper Seat-lift * [n gallon]	0.052	0.05	0.11	0.11	0.16
Lower Seat-lift * [n gallon]	0.29	0.29	0.03	0.03	0.06
Main Movement * [n gallon]	0.23	0.23	0.43	0.43	0.74

TD900074-1

Note * [n litre] = volume at atmospheric pressure. Formula to estimate CIP flow during seat lift: (for liquids with comparable viscosity and density to water):

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

$$Q = \text{CIP - flow (m}^3\text{/h)}$$

Kv = Kv value from the above table

p = CIP pressure (bar)

Actuator

						STD Operating pressure at 87 psi air pressure
Actuator Type	3	4BS1	4SS2	5BS	5SS	
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	OP				145 psi
2"	STD	OP	OP			145 psi
2½"	OP	STD	OP	OP	OP	145 psi
3"	OP	STD	OP	OP	OP	145 psi
4"		OP	OP	STD	OP	145 psi

STD: Normal size of actuator

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

1 BS = Basic spring

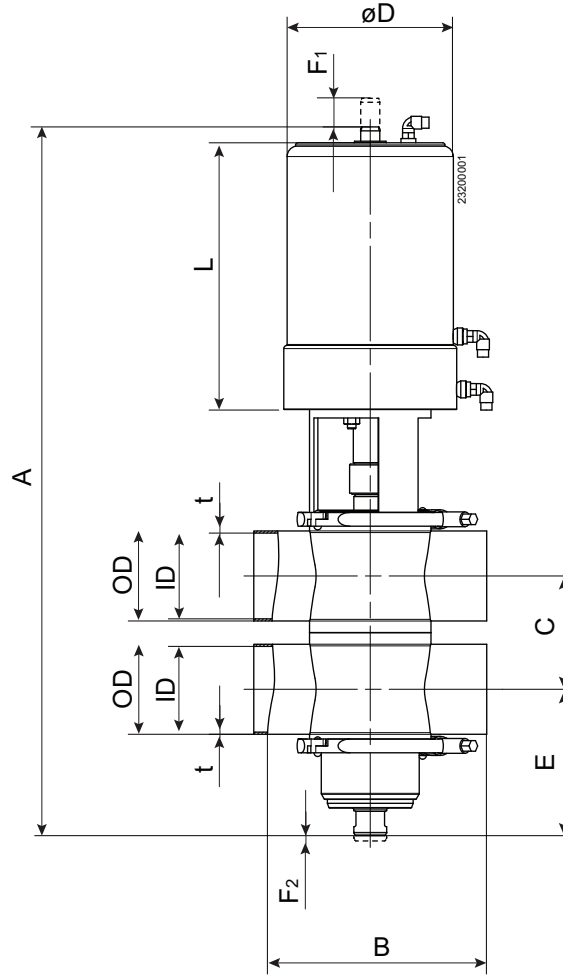
2 SS = Strong spring

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)

1.6



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	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

TD900074-1

* The measure C can always be calculated by the formula $C = \frac{1}{2}ID_{upper} + \frac{1}{2}ID_{lower} + 26 \text{ mm (1.02 in)}$.

Alfa Laval Unique Mixproof High Alloy

Double seat valves

1.6

Introduction

The Alfa Laval Unique Mixproof High-Alloy 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, such as greater resistance to highly corrosive products.

Application

The Alfa Laval Unique Mixproof High Alloy Valve is designed for continuous flow management and process safety that require high-grade alloys to improve corrosion resistance in the presence of abrasive products, high levels of chloride and chemicals, or low pH values across the dairy, food, beverage and many other industries.

Benefits

- Enhanced product safety
- Spillage-free operation
- Optimized plant efficiency and enhanced cleanability
- Leakage detection
- Fast seat lift
- Easy maintenance

Standard design

The Alfa Laval Unique Mixproof High Alloy 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.



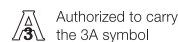
Working principle

The Alfa Laval Unique Mixproof High-Alloy 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 seal design of the valve ensures that virtually no product spillage occurs during valve operation. It is possible to adapt valve configuration to get optimum 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
Air pressure:	116 psi (8 bar)

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

ATEX	
Classification:	II 2 G D*

*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:	AL6XN or Hastelloy C22
Other steel parts:	1.4301 (304)

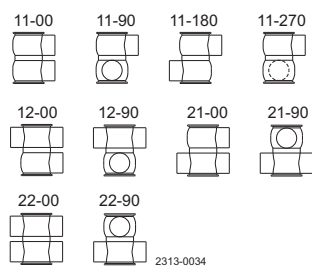
Surface finish choose from the following:	
Internal:	Ra<32µin
External semi-bright:	Ra<64µin
External Bright:	Ra<32µin

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

Product wetted seals:	EPDM
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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 - upper valve body
- 00 Angle between ports

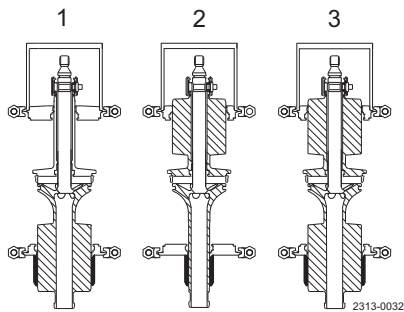
SpiralClean

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.

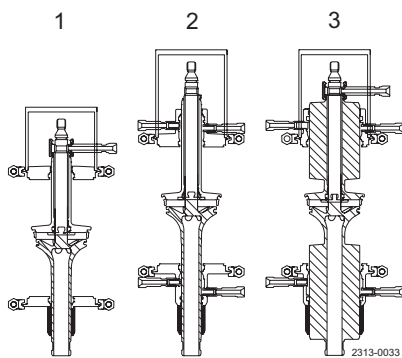
Selection guide

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.

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

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.

Unique SeatClean meets the typical demands of a process valve.

- 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.

- Actuator without seatlift integrated.
- Balanced lower and upper plug.
- SpiralClean of leakage chamber as well as of upper and lower plug.

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

- 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.
- Other sizes, options and configurations on request.

Pressure drop/capacity diagrams

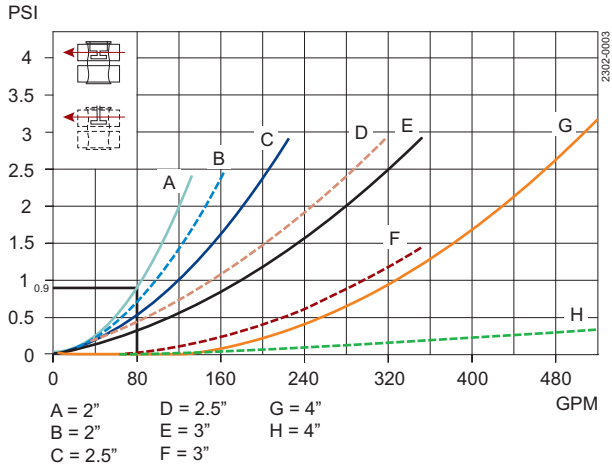


Fig. 3. Pressure drop/capacity diagram, upper body.
 Full lines: Balanced upper plug.
 Dotted lines: Unbalanced upper plug.

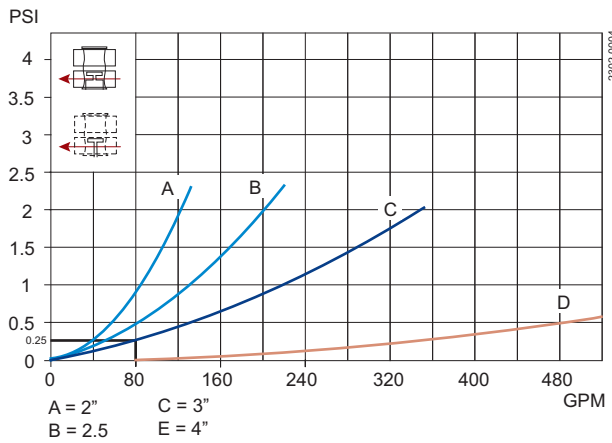


Fig. 4. Pressure drop/capacity diagram, lower body, balanced and unbalanced lower plugs.

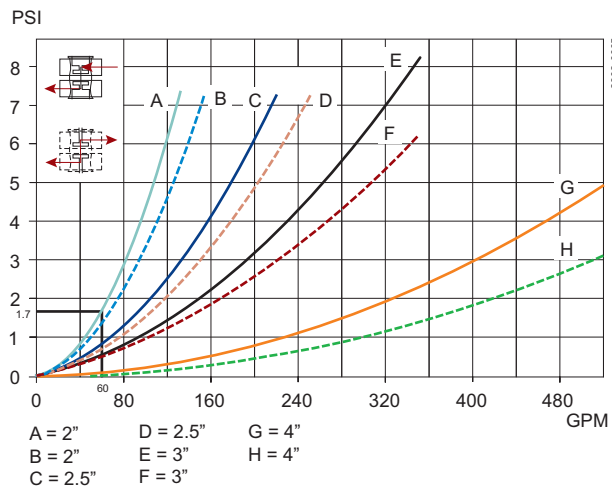


Fig. 5. Pressure drop/capacity diagram, between bodies.
 Full lines: Balanced.
 Dotted lines: Unbalanced.

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

Air and CIP consumption

Size ISO	OD 2"	OD 2½"	OD 3"	OD 4"
Kv-value				
Upper Seat-lift [gpm/psi]	2.9	4.3	4.3	5.3
Lower Seat-lift [gpm/psi]	2.2	3.6	3.6	4.9
Air consumption				
Upper Seat-lift * [cubic inches]	12	24	24	38
Lower Seat-lift * [cubic inches]	6.7	8	8	13
Main Movement * [cubic inches]	52	99	99	170
Cv-value SpiralClean				
Spindle CIP [gpm/psi]	0.14	0.14	0.14	0.14
External CIP of leakage chamber [gpm/psi]	0.29	0.34	0.34	0.34

Note!

* [n litre] = volume at atmospheric pressure

Recommended min. pressure for SpiralClean: 29 bar.

Formula to estimate CIP flow during seat lift:

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

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

$$Q = \text{CIP - flow (m}^3/\text{h)}$$

Kv = Kv value from the above table

 Δp = CIP pressure (bar)**Actuator**

Actuator Type	STD					STD/STD*
	Operating pressure for SeatClean, High Clean and Ultra Clean at 87 PSI air pressure					Operating pressure for Basic at 87 PSI air pressure
3	4BS ¹	4SS ²	5BS	5SS		
Actuator dimensions øD x L	4.72 x	6.18 x	7.32 x	7.32 x	7.32 x	
Tube OD						
2"	STD	OP	OP			140
2½"	OP	STD	STD*	OP	OP	140
3"	OP	STD	STD*	OP	OP	140
4"		OP	OP	STD	STD*	116

STD: Normal size of actuator

STD*: Normal size actuator if lower plug is UNBALANCED

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

1 BS = Basic spring

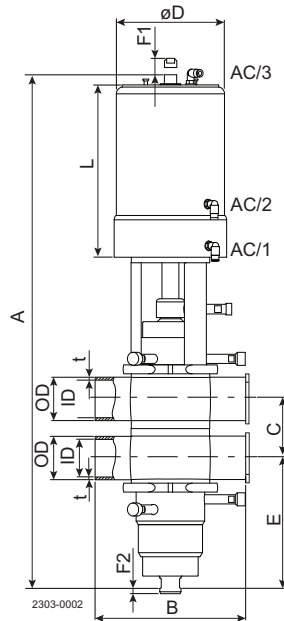
2 SS = Strong spring

Radial Seat Diameter

ISO (DN/OD)	DIN (DN)	Seat
2"	50	ø2.10"
2½"	65	ø3.20"
3"	80	ø3.20"
4"	100	ø3.95"

Dimensions (inch)

1.6



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

Alfa Laval Unique Mixproof Large Particle Valve (Unique LP)

Double seat valves

1.6

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*

*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:	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

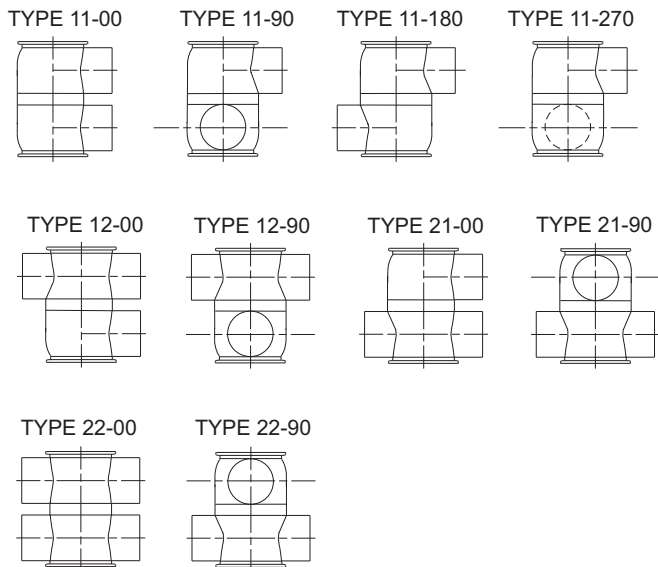
Availability

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



2314-0057

Pressure drop/capacity diagrams

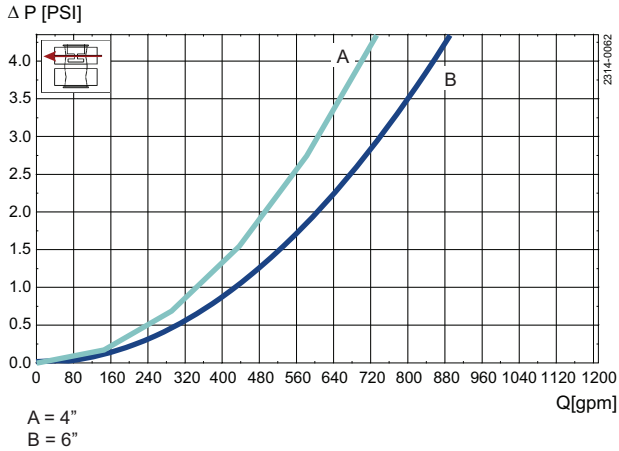


Fig. 2. Pressure drop/capacity diagram, upper bodies.

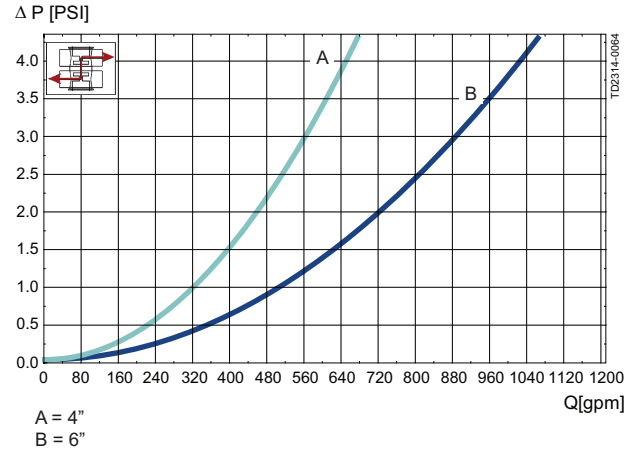


Fig. 3. Pressure drop/capacity diagram, between bodies.

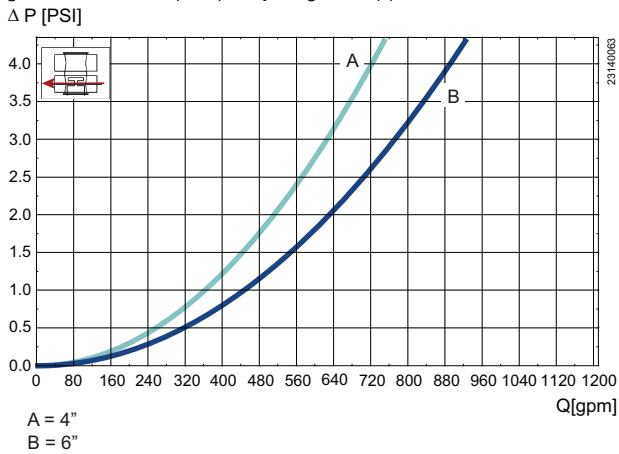


Fig. 4. Pressure drop/capacity diagram, lower body.

Note!

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

Air and CIP consumption

Size		OD	OD
		4"	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]	38	38
Air consumption Lower Seat-lift	* [cubic inches]	13	13
Air consumption Main Movement	* [cubic inches]	216	216

Formula to estimate CIP flow during seat lift:

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

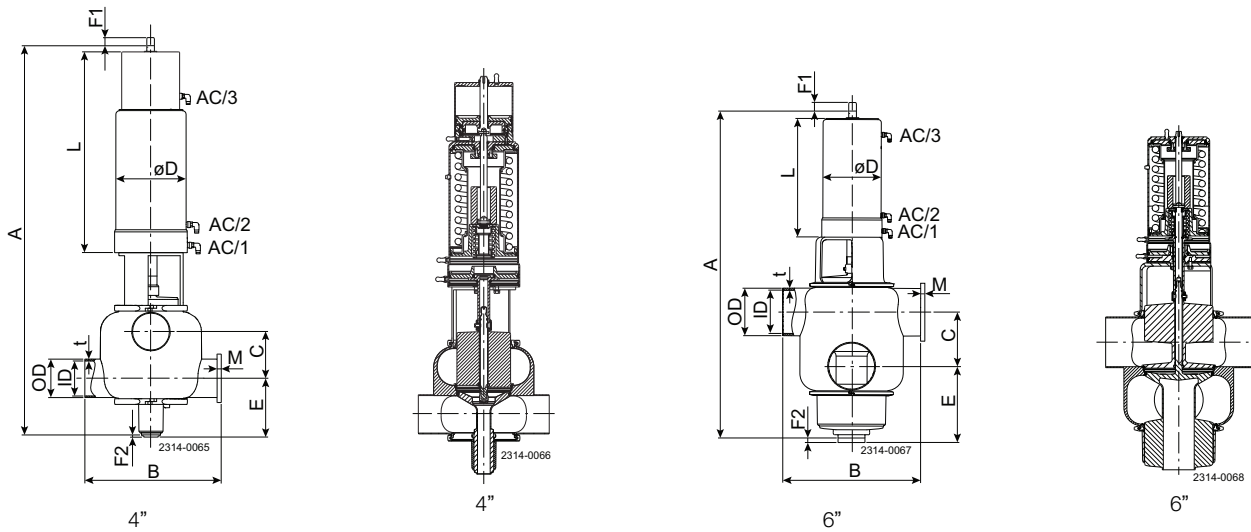
Q = water flow [gpm]

Cv = value from the above table

Δ p = water pressure [psi]

Dimensions (inch)

1.6



Size	4"	6"
A	40.87	39.45
A*	46.97	46.54
B	13.78	17.32
**C	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

NOTE!

**The measure C can always be calculated by the formula

$$C = \frac{1}{2}ID_{upper} + \frac{1}{2}ID_{lower} + 1"$$

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

Double seat valves

1.6

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 1¼" (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 1¼" (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-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



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) (For higher temperatures, please contact Alfa Laval)
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ATEX

Classification:	II 2 G D*
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*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:	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

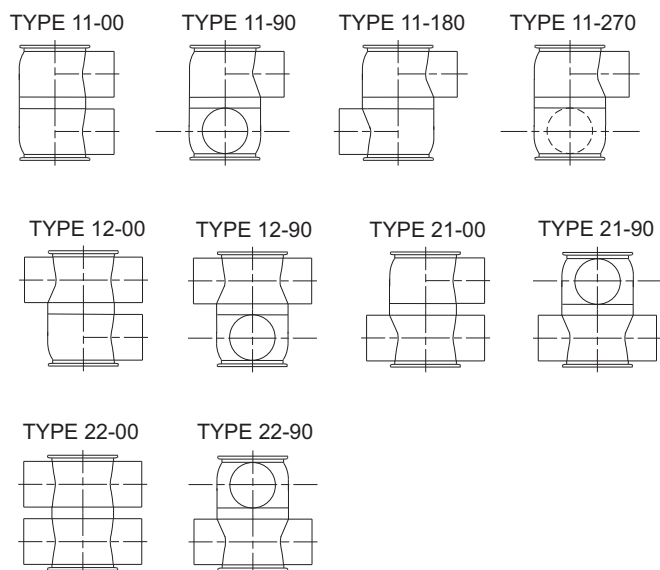
Availability

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



2314-0057

Pressure drop/capacity diagrams

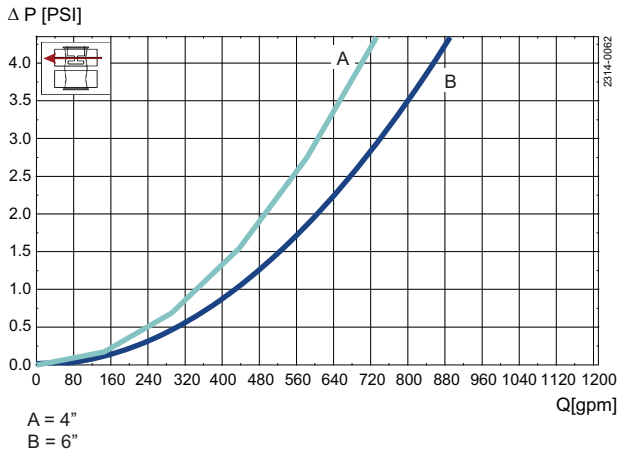


Fig. 2. Pressure drop/capacity diagram, upper bodies.

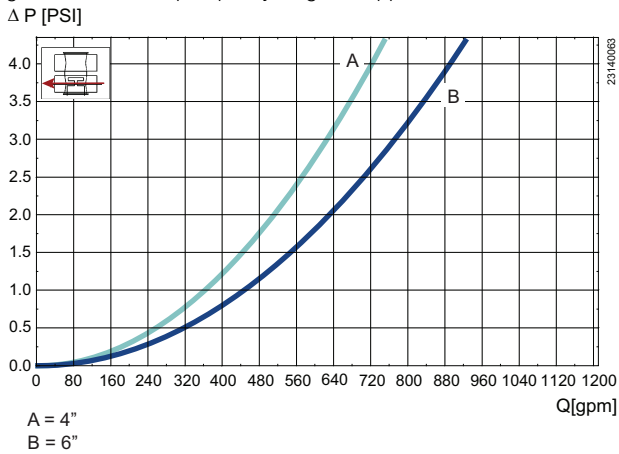


Fig. 4. Pressure drop/capacity diagram, lower body.

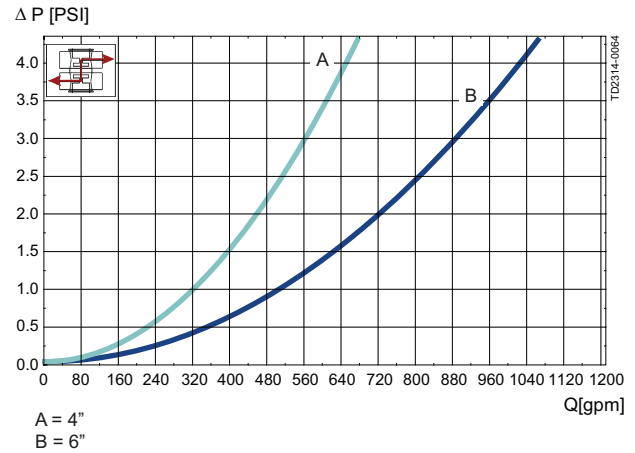


Fig. 3. Pressure drop/capacity diagram, between bodies.

Notel

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

Air and CIP consumption

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
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

Notel

* [n litre] = volume at atmospheric pressure

Formula to estimate CIP flow during seat lift:

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

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

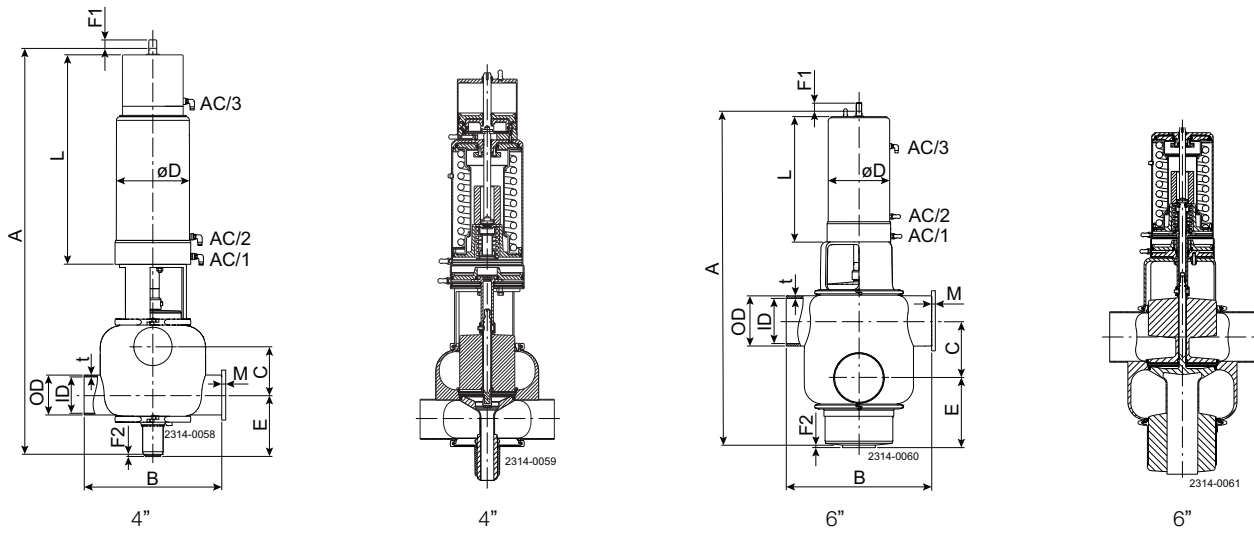
$$Q = CIP - \text{flow (ft}^3\text{/h)}$$

Kv = Kv value from the above table

Δp = CIP pressure (psi)

Dimensions (inch)

1.6



Size	4"	6"
A	40.87	39.45
B	13.78	17.32
**C	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

NOTE!

**The measure C can always be calculated by the formula

$$C = \frac{1}{2}ID_{\text{upper}} + \frac{1}{2}ID_{\text{lower}} + 1.02 \text{ in}$$

Alfa Laval Unique Mixproof Tank Outlet

Double seat valves

1.6

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*

*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)
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

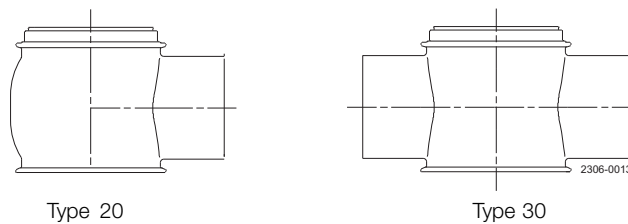
Note! The Ra values are only for the internal surface.

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

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

Valve Body Combinations



SpiralClean

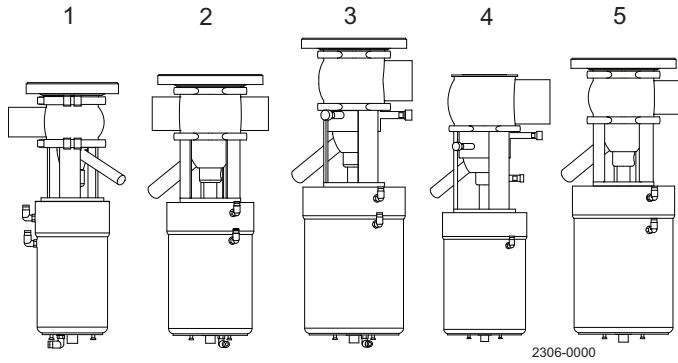
The Alfa Laval SpiralClean system to clean the balanced plug and leakage chamber.

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.

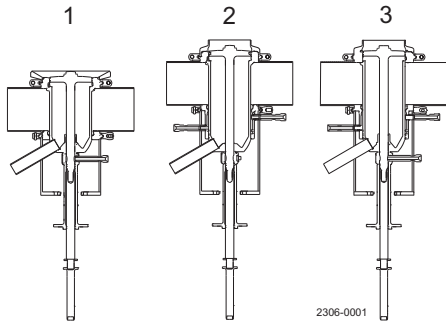
Selection guide

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.

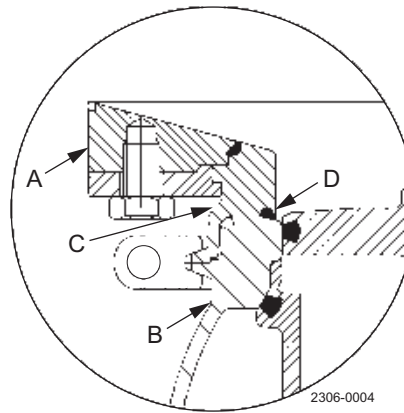
- Actuator with seat lift integrated.
- Standard balanced plug in pipeline.
- SpiralClean of leakage chamber and balanced plug

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

Fig. 1

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
	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

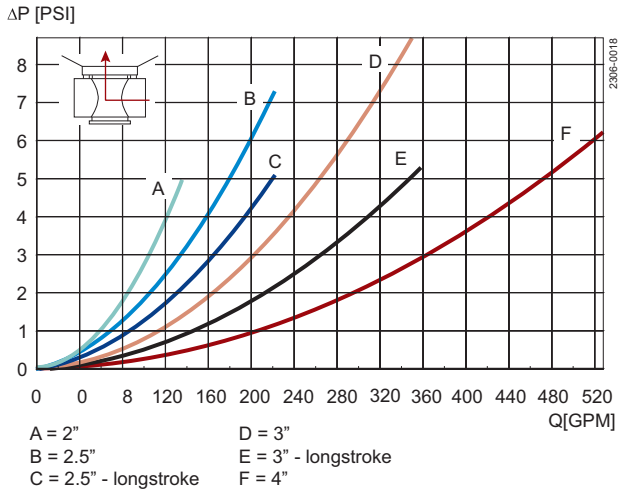
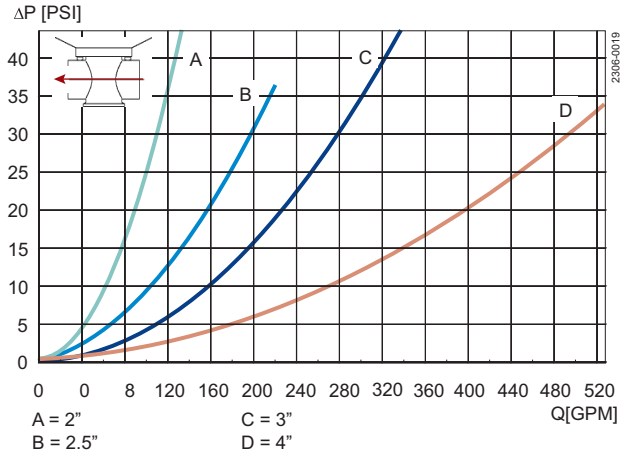
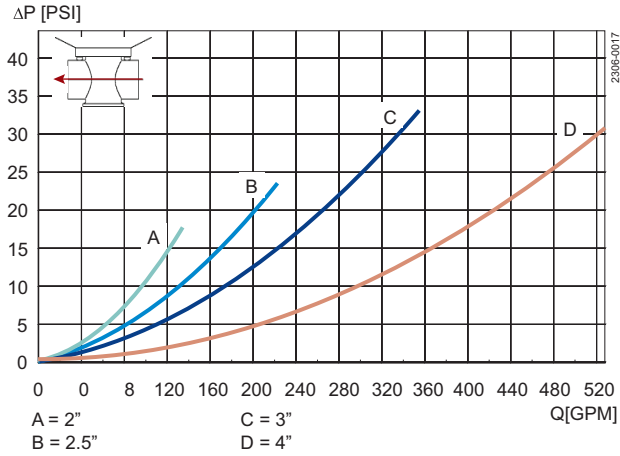
Notes:

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	
	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

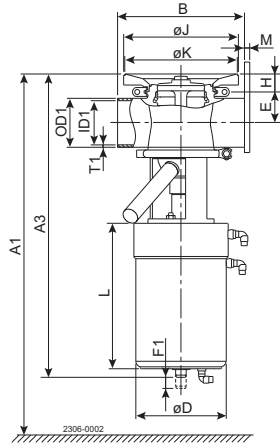
Δ p = CIP pressure (psi)

Cv = US gallons/min

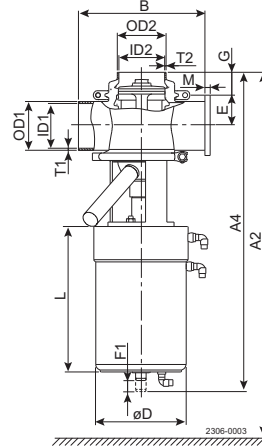
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Dimensions (inch)

Unique-TO connected to tank flange



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)* Unique TO	27.50	49.50	49.50	72.60	79.20	83.60	61.60	61.60
Weight (kg)* Unique TO with external cleaning	28.60	51.70	51.70	74.80	81.40	xxx	63.80	63.80

* = without tank flange

Alfa Laval Unique PMO Curd CP Mixproof Valve

Double seat valves

1.6

Introduction

The Alfa Laval Unique PMO Curd CP Mixproof 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 PMO Curd CP Mixproof 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 PMO Curd CP Mixproof 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 PMO Curd CP Mixproof 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 PMO Curd CP Mixproof 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



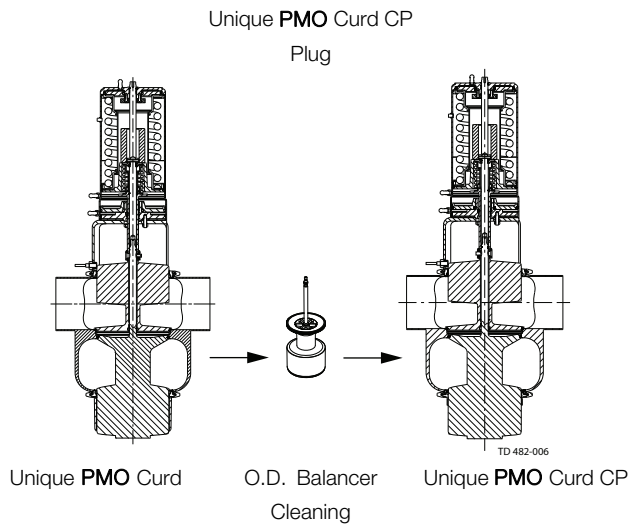
design of the valve ensures that virtually no product spillage occurs during valve operation. It is possible to adapt valve cleaning and water hammer protection to the requirements of individual process specifications.

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 **PMO** Curd CP Mixproof 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 **PMO** Curd CP Mixproof valve is available in 4" and 6" tube O.D. sizes.



TECHNICAL DATA

Temperature	
Temperature range:	23°F to +257°F (Depending on elastomer type) (For higher temperatures, please contact Alfa Laval)
Pressure	
Max. product pressure:	145 psi (for higher pressure, please ask Alfa Laval)
Min. product pressure:	Full vacuum
Air pressure:	Max. 116 psi

1.6

Air and CIP consumption

Size		OD 4"	OD 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]

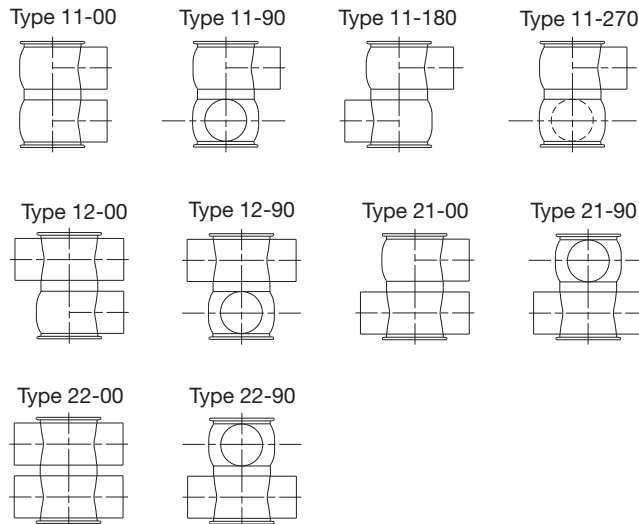
Cv = value from the above table.

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



TD 449-014_1

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 ESE00521 ENUS, ESE00299 ENUS and ESE00298 ENUS for further information.

Dimensions (inch)

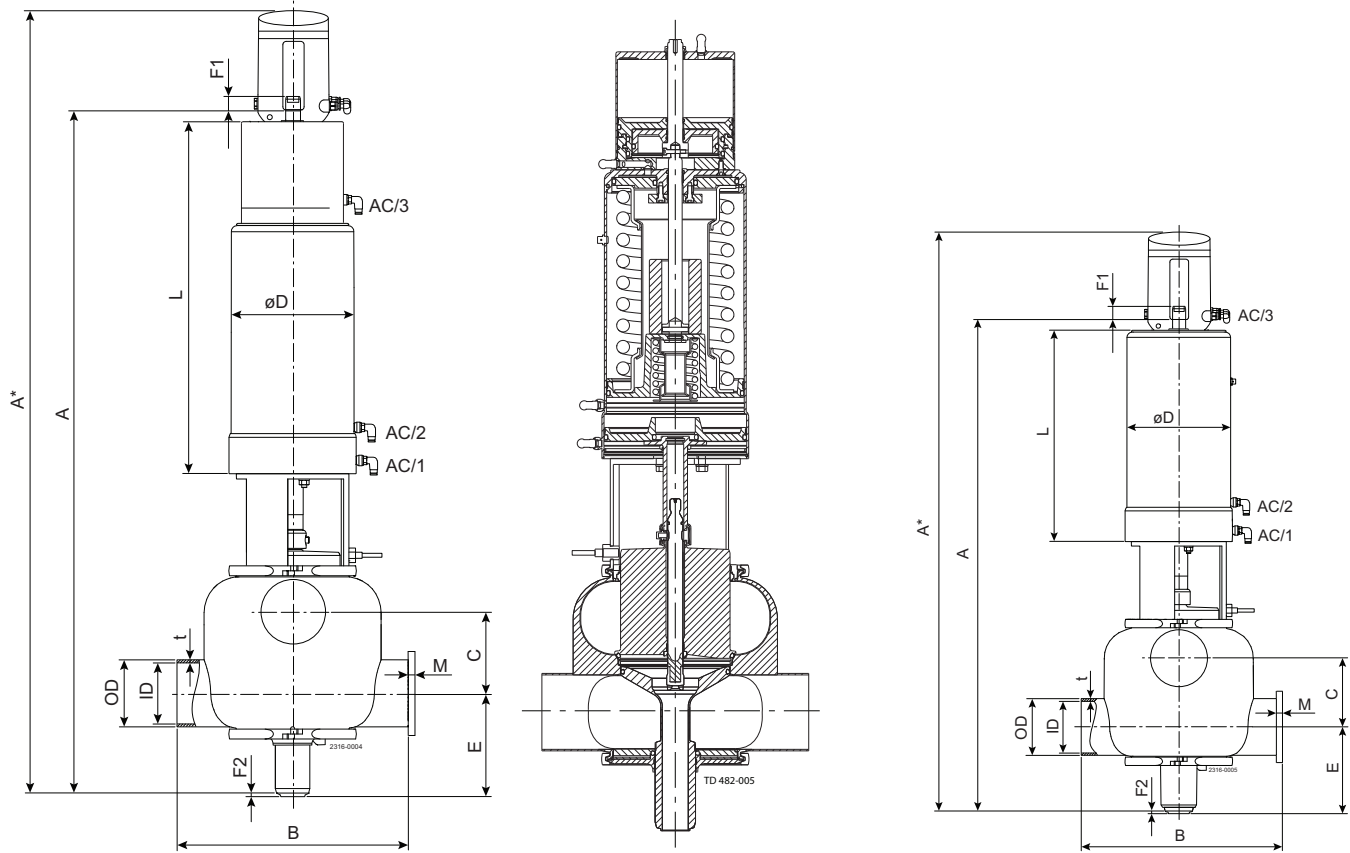


Fig. 1 Details of the Unique PMO Curd CP Mixproof valve 4"

Details of the Unique PMO Curd CP Mixproof valve 6"

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

$$C = \frac{1}{2}ID_{upper} + \frac{1}{2}ID_{lower} + 1"$$

Pressure drop/capacity diagrams

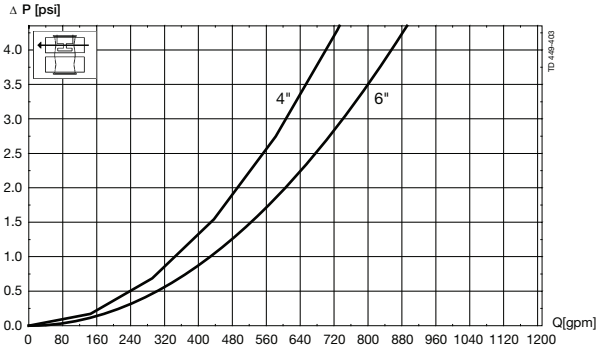


Fig. 2. Pressure drop/capacity diagram, upper bodies.

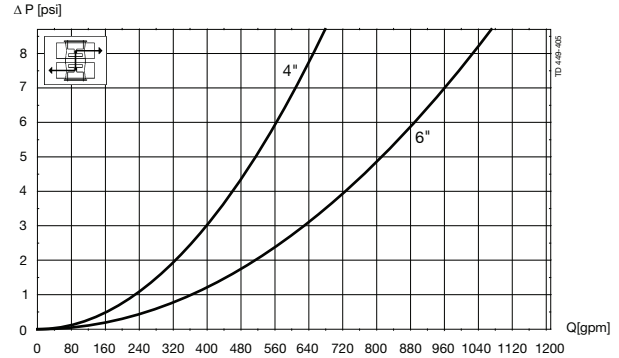


Fig. 3. Pressure drop/capacity diagram, between bodies.

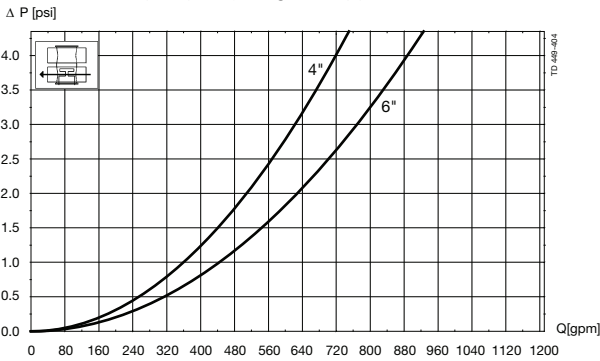


Fig. 4. Pressure drop/capacity diagram, lower body.

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, $\Delta p = 0.72$ psi through upper body.
- From fig. 3, $\Delta p = 1.1$ psi between bodies.
- From fig. 4, $\Delta p = 0.52$ psi through lower body

Note!

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

Alfa Laval Unique PMO Mixproof Horizontal Tank Plus® CP Valve

Double seat valves

1.6

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

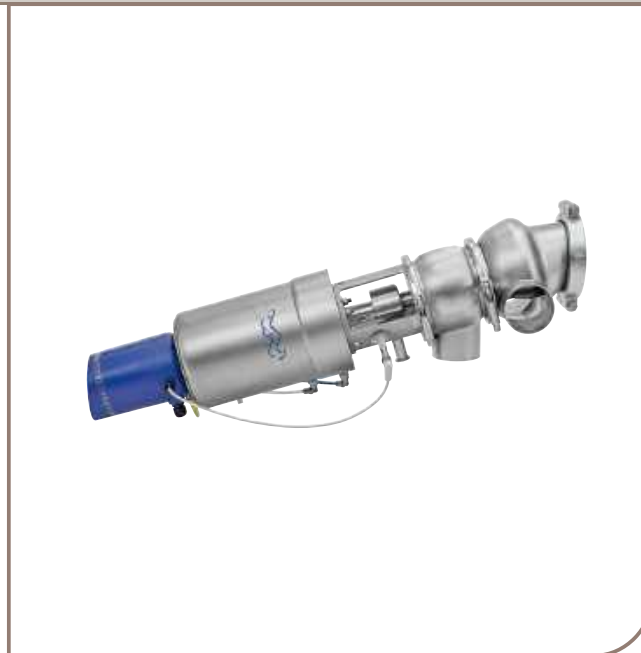
- Enhanced product safety, cleanability and operating efficiency
- Spillage-free operation with leakage detection and leakage chamber cleaning
- Easy maintenance and parts replacement
- Low total cost of ownership
- Capable of cleaning shadow areas in tank connections

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.

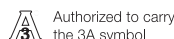
Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs.

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**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*

*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

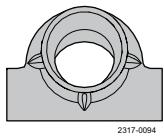
Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

PHYSICAL DATA

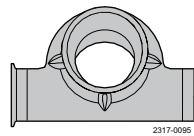
Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 32 µinch
Product wetted seals:	EPDM

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

Valve body combination



Welding ends



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

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)
2½"	1.26	85	Standard		1000
3"	1.26	85	Standard		1000
4"	1.77	85		Long stroke	1000

Notes:

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.

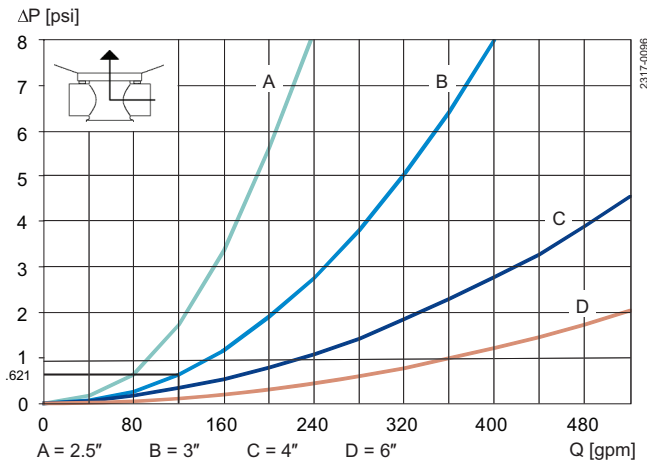
When closing the valve the pressure can not be higher than "Max. Tank pressure".

* Max. tank pressure seat push tank plug.

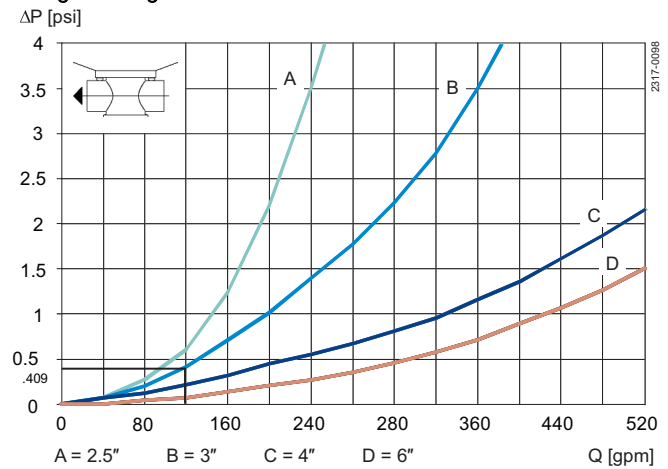
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Pressure drop/capacity diagrams

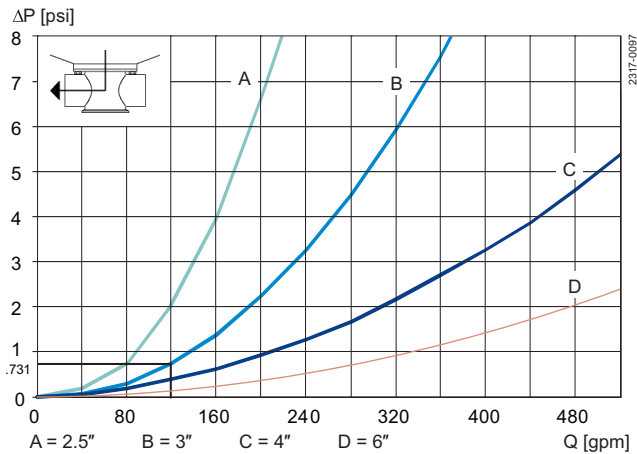
To tank



Straight through



From tank



Air and CIP consumption

Size ISO	DN/OD		
	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

Note!

* [n litre] = volume at atmospheric pressure

Recommended min. pressure for External CIP in leakage chamber 43.5 psi.

Formula to estimate CIP flow during seat lift:

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

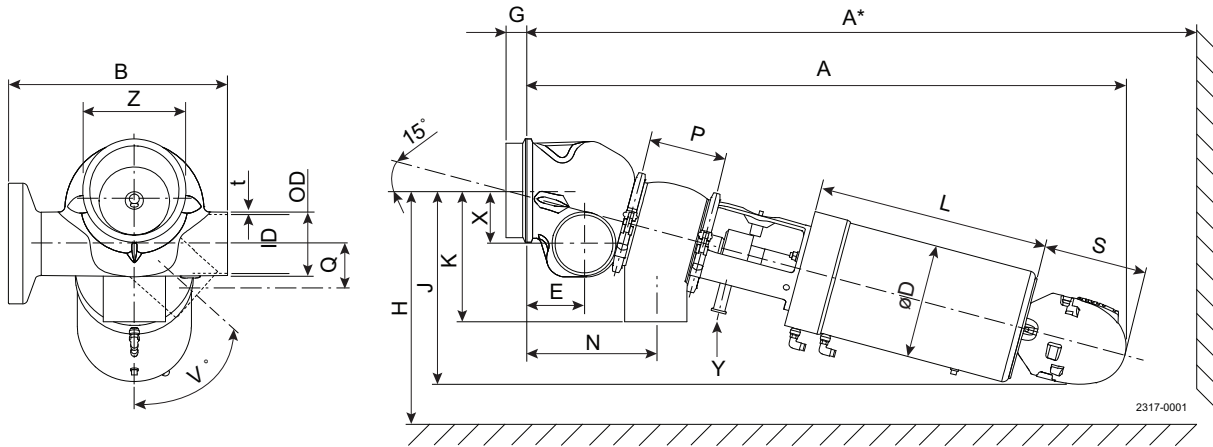
$$Q = K_v \cdot \sqrt{\Delta p}$$

$$Q = \text{CIP - flow (m}^3\text{/h)}$$

K_v = K_v value from the above table

Δp = CIP pressure (bar)

Dimensions (inch)



1.6

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 PMO Plus® CP Mixproof Vertical Tank Valve

Double seat valves

1.6

Introduction

The Alfa Laval Unique PMO Plus® CP Mixproof Vertical Tank Valve 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 PMO Plus CP Mixproof Vertical Tank Valve 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 PMO Plus CP Mixproof Vertical Tank 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 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)

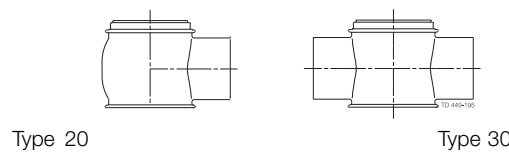
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PHYSICAL DATA

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



State of the art

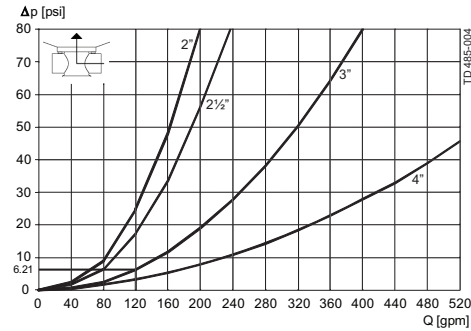
The Unique PMO Plus® CP Mixproof Vertical Tank Valve also provides a state of the art solution when there is no CIP pressure or flow from the tank side to clean the seat and plug. The valve is self-cleaning, thanks to two Clean-in-Place (CIP) nozzles. The first nozzle is designed specifically for plug 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.

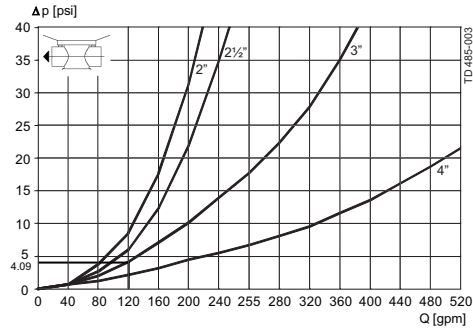
The 4" model feature a 1.77 inches opening, which enables the passage of very large particles or efficient handling of high viscosity fluids.

Pressure drop/capacity diagrams

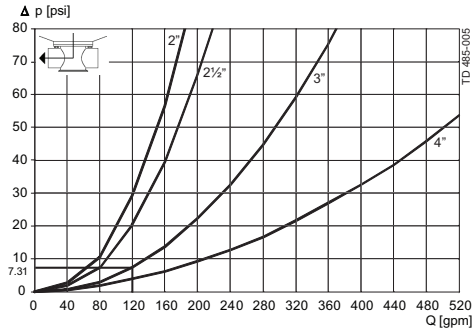
To tank (fig. 1)



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

Notes:

- 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 Inch	DN/OD			
	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!

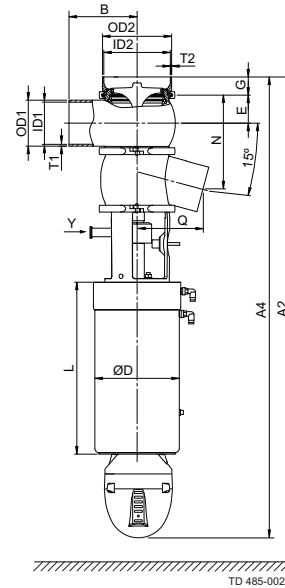
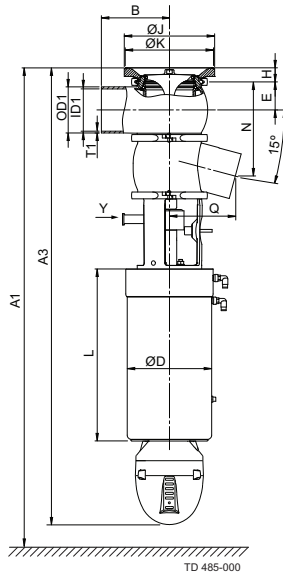
* [cubic inches] = volume at atmospheric pressure
 Recommended min. pressure for External CIP in leakage chamber: 44psi

Formula to estimate CIP flow during seat lift

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

- $Q = C_v \cdot \sqrt{\Delta p}$
- Q = CIP - flow (gpm).
- Cv = Cv value from the above table.
- Δp = CIP pressure (psi).

Dimensions (inch)



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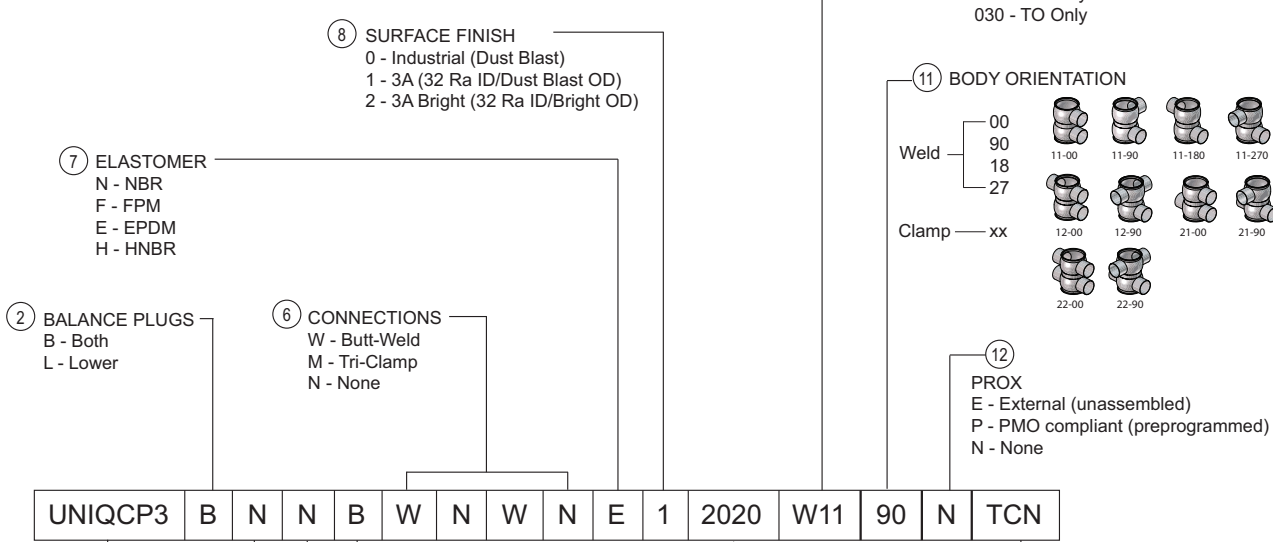
	2"	2.5"	3"	4"
A1	35.039	36.614	36.220	47.638
A2	35.433	37.008	36.614	48.031
A3	28.858	29.882	29.961	39.449
A4	29.252	30.276	30.354	39.843
B	4.331	4.331	4.331	5.906
OD1	2.008	2.500	2.996	4.000
ID1	1.882	2.374	2.870	3.843
t1	0.063	0.063	0.063	0.079
OD2	4.000	4.000	4.000	6.000
ID2	3.843	3.843	3.843	5.782
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

A1 + A2 = min. installation measure to allow that actuator and internal parts can be lifted out of the valve body.

Description codes

MODEL NUMBER															
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬			
UNIQCP3	B	N	N	B	W	N	W	N	E	1	2020	W11	90	N	TCN

1.6



LAST LETTER I S: * SEE BUILD CODE BELOW
N = CABLEGLAND
P = PIGTAIL or M12 ADDED TO THINKTOP
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

INTRINSICALLY SAFE NOT AVAILABLE WITH PIGTAIL

Description codes

1	2,3,4,5	6	7	8	9,10	11	12	13	14
PMOPLUS	- BNNB	- WWWW	- E	- 2	- 6060	- W22	090	- TD	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)

PMOUCQCC 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)

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"

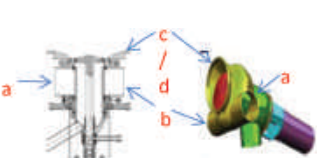
11 Body Combination

W11
 W12
 W21
 W22
 200 (VT only)
 300 (VT only)
 309 tangential cross* (HT only)



6 Connection
 W - Tri-Weld
 M - Tri-Clamp

For VT or HT valves only
 a b c d
 W W W O

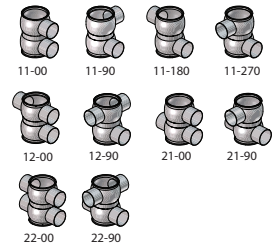


"a, b & c" = connection
 W - Tri-Weld
 M - Tri-Clamp
 D - Weld Flange
 N - None

"d" = tank connection fitting
 I - tank flange included
 O - tank flange omitted

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 Cableglend
 P M12 or Pigtail added

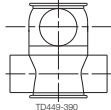
Unique Mixproof LP Valve

Double seat valves

Air-operated valves
 Upper and lower seat lift
 No SpiralClean
 Balanced upper
 Balanced lower (6" only)
 Product code: 5350

Material: 1.4404 (316L)
 Connection: Welding ends
 Seals: See below
 Finish: External bright/internal polished, Ra < 32 µm
 Automation: Pneumatic NC

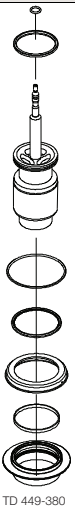
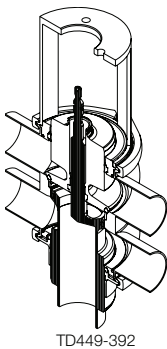
1.6

NBR	LLP USD	HNBR	LLP USD	EPDM	LLP USD	FPM	LLP USD	Size	Port Angle	Body combination
										22-4 Ports
9614096550				9614096530		9614096540 9614096580		4" 6"	90° 90°	

Product code: 5270

1.6

Item No. NBR	LLP USD	Item No. HNBR	LLP USD	Item No. EPDM	LLP USD	Item No. FPM	LLP USD	Size	Rebuilding Set
9614057401		9614057405		9614057403		9614057407		4"	Lower plug B
9614057402		9614057406		9614057404		9614057408		6"	

Lower Plug	PMO LP-F
 <p>TD 449-380</p>	 <p>TD449-392</p> <p>B</p>

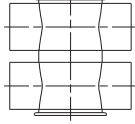
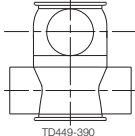
Unique PMO Curd CP Mixproof Valve

Double seat valves

Air-operated valves
 Upper and lower seat lift
 No SpiralClean
 Balanced upper and lower plug
 Product code: 5261

Connection: Welding ends
 Material: 316L
 Seals: See below
 Finish: External bright/internal polished, Ra < 32 µin

1.6

Item No.	LLP	Item No.	LLP	Item No.	LLP	Item No.	LLP	Size	Port Angle	Body combination
NBR	USD	HNBR	USD	EPDM	USD	FPM	USD			
22-4 Ports										
9614053109 9614053149		9614053119 9614053159		9614053129 9614053169		9614053139 9614053179		4" 6"	00° 00°	
9614053110 9614053150		9614053120 9614053160		9614053130 9614053170		9614053140 9614053180		4" 6"	90° 90°	

For further information - please see PD-sheet.

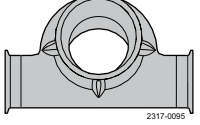
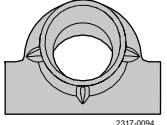
Double seat valves

Unique PMO Plus® CP Mixproof Horizontal Tank Valve

Air-operated valves
Upper and lower seat lift
Product code: 5225

Material: 1.4404 (316L)
Connection: Welding ends
Seals: See below
Tank connection: Tri-Clamp
Inside surface finish: Polished, Ra <32 µin
Outside surface finish: Polished
Automation: Pneumatic NC

1.6

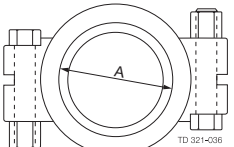
Item no.	LLP USD	Item no.	LLP USD	Item no.	LLP USD	Item no.	LLP USD		Valve type
NBR		HNBR		EPDM		FPM		Size	Cross with Clamp
9614097703 9614097706 9614097709		9614097718 9614097721 9614097724		9614097733 9614097736 9614097739		9614097748 9614097751 9614097754		2½" 3" 4"	
Cross with welding ends									
9614097803 9614097806 9614097809		9614097818 9614097821 9614097824		9614097833 9614097836 9614097839		9614097848 9614097851 9614097854		2½" 3" 4"	

Note: For the tank clamp connection use:

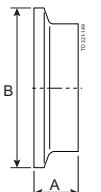
For 2½"-3" valves use 4" clamp, 4" short ferrule and 4" gasket.

For 4" valve use 6" clamp, 6" short ferrule and 6" gasket.

Product code: 5049

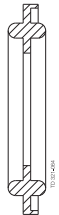
Material Item number	LLP USD	Size DN/OD		Dimension A		A13MHP Clamp ring
		Inch	mm	Inch	mm	
304						
9615265701 9634048982		4 6	101.60 152.40	4.73 6.63	120.30 168.40	

Product code: 5046

Material Item No.	LLP USD	Material Item No.	LLP USD	Size DN/OD		Dimension				14WMPS
				Inch	mm	A		B		
304		316L				Inch	mm	Inch	mm	
610859 660016		610373 9634049938		4 6	101.60 152.40	0.63 1.50	15.90 38.10	4.69 6.58	119.10 167.10	

1.6

Product code: 5046

Material Item No.	LLP USD	Material Item No.	LLP USD	Material Item No.	LLP USD	Size	
40MPF-E		40MPF-U		40MPF-SFY		Inch	40MPF/40MOF
290025 290131		298349 298220		290172 290182		4 6	

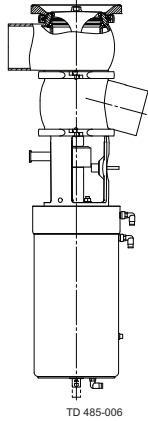
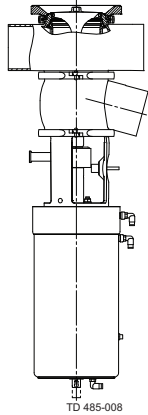
Double seat valves

Unique PMO Plus CP Mixproof Vertical Tank valve

Air-operated valves
 Upper and lower seat lift
 Product code: 5261

Material: 1.4404 (316L)
 Connection: Welding ends
 Seals: See below
 Inside surface finish: Polished, Ra <32 μ"
 Outside surface finish: Polished
 Automation: Pneumatic NC

1.6

Item No.	LLP USD	Item No.	LLP USD	Item No.	LLP USD	Item No.	LLP USD	Size	Body combination
20									
NBR		HNBR		EPDM		FPM			
9614080601		9614080609		9614080617		9614080625		2"	
9614080603		9614080611		9614080619		9614080627		2½"	
9614080605		9614080613		9614080621		9614080629		3"	
9614080607		9614080615		9614080623		9614080631		4"	
30									
9614080602		9614080610		9614080618		9614080626		2"	
9614080604		9614080612		9614080620		9614080628		2½"	
9614080606		9614080614		9614080622		9614080630		3"	
9614080608		9614080616		9614080624		9614080632		4"	

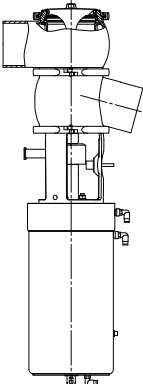
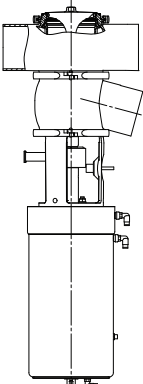
Unique PMO Plus CP Mixproof Vertical Tank valve

Double seat valves

Air-operated valves
 Upper and lower seat lift
 Product code: 5261

Material: 1.4404 (316L)
 Connection: Welding ends
 Seals: See below
 Inside surface finish: Polished, Ra <32 μ"
 Outside surface finish: Polished
 Automation: Pneumatic NC

1.6

Item No.	LLP USD	Item No.	LLP USD	Item No.	LLP USD	Item No.	LLP USD	Size	Body combination
NBR		HNBR		EPDM		FPM			20 - without tank flange
9614080665		9614080673		9614080681		9614080689		2"	 <p>TD 485-007</p>
9614080667		9614080675		9614080683		9614080691		2½"	
9614080669		9614080677		9614080685		9614080693		3"	
9614080671		9614080679		9614080687		9614080695		4"	
30 - without tank flange									
9614080666		9614080674		9614080682		9614080690		2"	 <p>TD 485-009</p>
9614080668		9614080676		9614080684		9614080692		2½"	
9614080670		9614080678		9614080686		9614080694		3"	
9614080672		9614080680		9614080688		9614080696		4"	

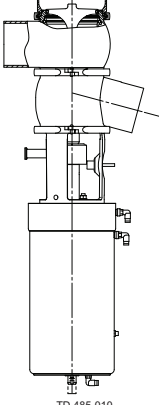
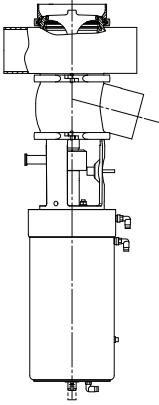
Double seat valves

Unique PMO Plus CP Mixproof Vertical Tank valve

Air-operated valves
 Upper and lower seat lift
 Product code: 5261

Material: 1.4404 (316L)
 Connection: Welding ends
 Seals: See below
 Inside surface finish: Polished, Ra <32 μ"
 Outside surface finish: Polished
 Automation: Pneumatic NC

1.6

Item No.	LLP USD	Item No.	LLP USD	Item No.	LLP USD	Item No.	LLP USD	Size	Body combination
NBR		HNBR		EPDM		FPM			20 - with pipe flange
9614080633		9614080641		9614080649		9614080657		2"	 <p>TD 485-010</p>
9614080635		9614080643		9614080651		9614080659		2½"	
9614080637		9614080645		9614080653		9614080661		3"	
9614080639		9614080647		9614080655		9614080663		4"	
30 - with pipe flange									
9614080634		9614080642		9614080650		9614080658		2"	 <p>TD 485-011</p>
9614080636		9614080644		9614080652		9614080660		2½"	
9614080638		9614080646		9614080654		9614080662		3"	
9614080640		9614080648		9614080656		9614080664		4"	

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1.7 Regulating valves

Regulating valves from Alfa Laval are the ideal choice whether you are looking for the perfect flow control or constant pressure.



Product leaflets

Unique RV-ST	1.7.234
Unique RV-P	1.7.241
CPM	1.7.246
SB Tank Pressure Regulator	1.7.251
SB Pressure Exhaust Valve	1.7.254
Manual Pressure Control Valve	1.7.259
Pneumatic Pressure Control Valve for Membrane Filtration Systems	1.7.262
Thermostatically Controlled Valve	1.7.266

Description codes

Unique 7710 / 7711 / 8710 Valve	1.7.269
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Ordering leaflets

Unique RV-ST Regulating Valve with electro pneumatic positioner	1.7.270
Unique RV-P Regulating Valve	1.7.271
Unique RV-P-A Regulating Valve	1.7.273
Unique SSV Regulating Valve with Moore Positioner	1.7.274
Unique SSV Throttling Valve	1.7.275
CPM Series	1.7.276
Tank Pressure Regulator	1.7.277
SB Accessories for Tank Pressure Regulator	1.7.278
Valves for Membrane Filtration Systems	1.7.282

Alfa Laval Unique RV-ST

Regulating valves

1.7

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.

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

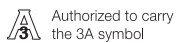
Standard design

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



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

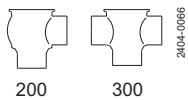
8692 Positioner – Top control with display	
Setpoint setting:	0/4 to 20mA and 0 to 5 5/10V
Output resistance:	0/4 to 20 mA: 180Ω 0 to 5/10V: 19Ω
Power consumption:	< 5W
Cable gland:	2xM16x1,5 (cable-Ø10mm), terminal screws (1.61 ft ²)
Max. wire diameter:	0.06 in ²

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
Other product wetted seals:	EPDM (standard)
Other seals:	NBR

Valve Body Combinations



Other valves in the same basic design

- Unique Single Seat
- Standard valve
- Reverse acting valve
- Long stroke valve
- Manually operated valve
- Aseptic valve

Options

- a. Male parts or clamp liners in accordance with required standard
- b. Product wetted seals in HNBR or FPM
- c. Maintainable actuator
- d. External surface finish blasted
- e. Optional plug seal: HNBR or FPM

Note!

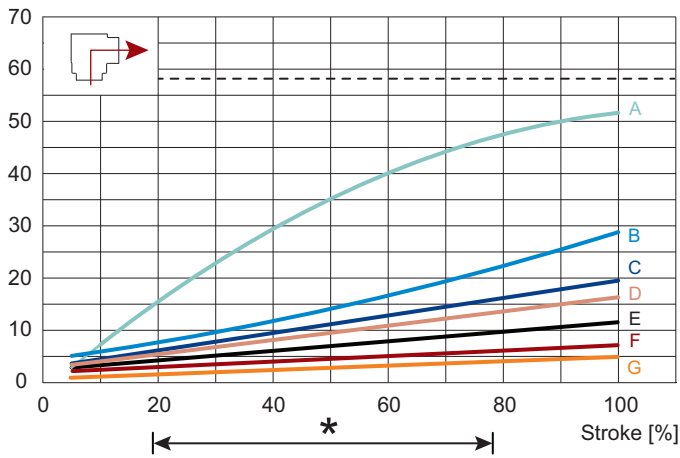
For further details, see instruction ESE02127

1.7

Pressure drop/capacity diagrams

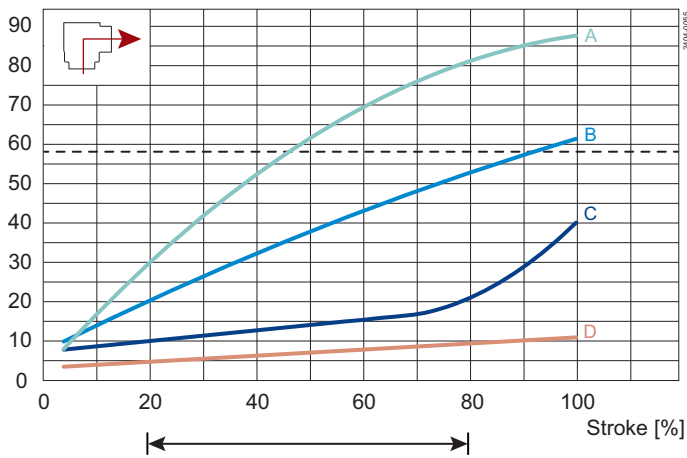
For $\Delta P = 100 \text{ kPa (1bar)}$

Q [Cv]

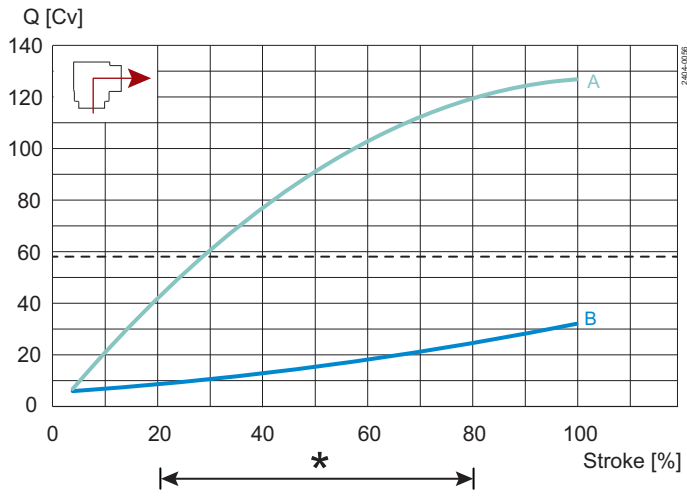


- A = Cv 52 E = Cv 11
- B = Cv 28 F = Cv 7
- C = Cv 19 G = Cv 5
- D = Cv 16

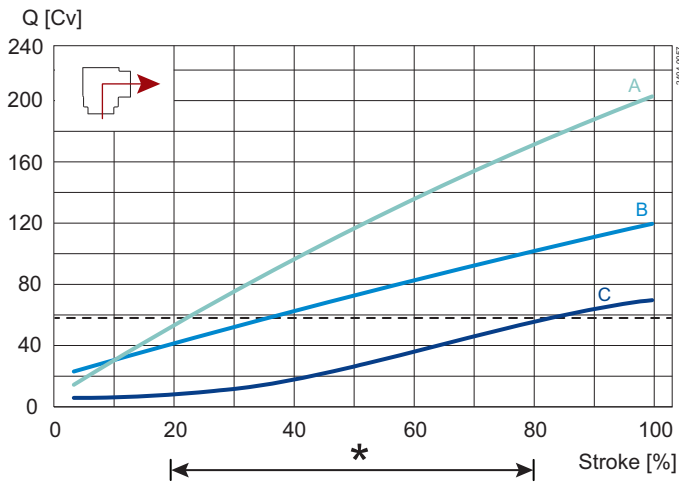
Q [Cv]



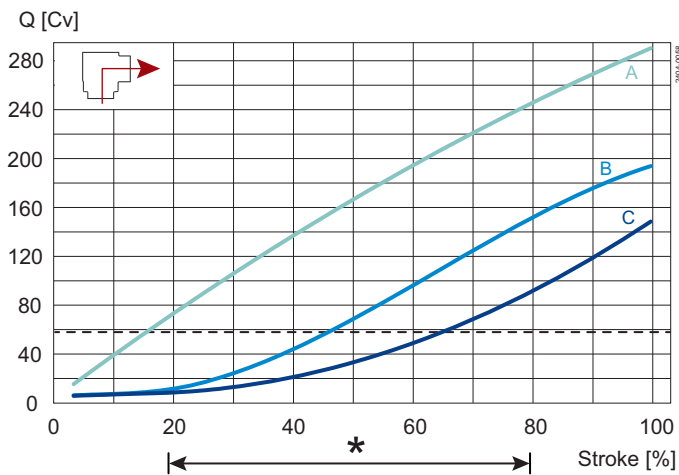
- A = Cv 88
- B = Cv 60
- C = Cv 35
- D = Cv 11



A = Cv 126
B = Cv 30



A = Cv 202
B = Cv 119
C = Cv 69



A = Cv 290
B = Cv 193
C = Cv 148

* Recommended working area

Note!

For the diagrams the following applies

Medium: Water (68° F)

Measurement: In accordance with VDI 2173:

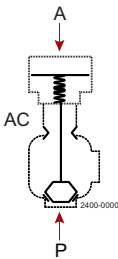
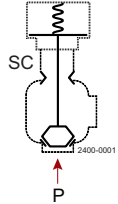
----- (dotted line) = Cv 58.3

Alfa Laval recommend max. flow velocity in tubing and valves to be 5 m/sec.

Pressure data

Table 1 - Shut-off 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 [mm]				
			DN40/38	DN50/51	DN65/63.5	DN80/76.1	DN100/101.6
 AC	87	NO	110.23	139.24	81.22	104.43	69.62
 SC		NC	91.23	104.43	60.92	63.82	60.92

- A = Air
- P = Product pressure
- AC = Air closes
- SC = Spring closes

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:

$$Kv = \frac{Q}{\sqrt{\Delta P}}$$

Formula for products with a specific gravity other than to 1.0:

$$Kv = \frac{Q}{\sqrt{\Delta P / SG}}$$

Where:

- Q =Product flow rate in m³ per hour
- SG =Specific gravity of product
- Δ P = Pressure drop across valve in bar (inlet pressure minus outlet pressure)

Example of Cv Calculation:

Determine the proper size valve for 175 GPM of water.

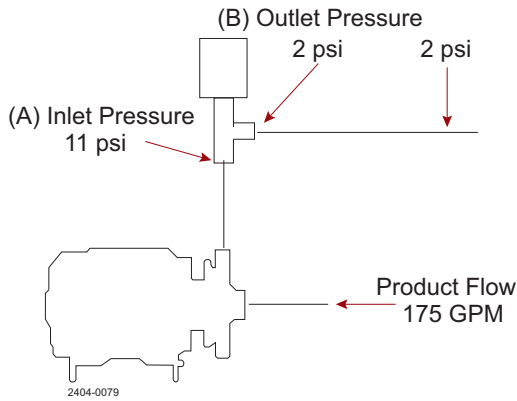
Inlet pressure of 11 psi

Outlet pressure of 2 psi

Solution: Inlet pressure (A) minus outlet pressure (B):

$$DP = 11 \text{ psi} - 2 \text{ psi} = 9 \text{ psi}$$

$$Cv = \frac{175}{\sqrt{9}} = \frac{175}{3} = 58.3$$

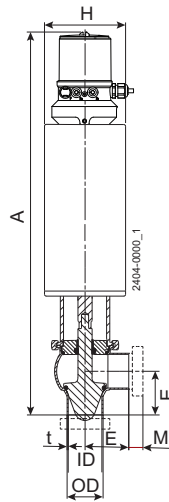


How to Use Data to Select Valve Size

After the Cv factor for a specific application has been calculated, locate the factor on the following page. Choose the curve closest to the 50% stroke.

Using the above example, refer to the chart on the previous page 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%.

Dimensions (inch)



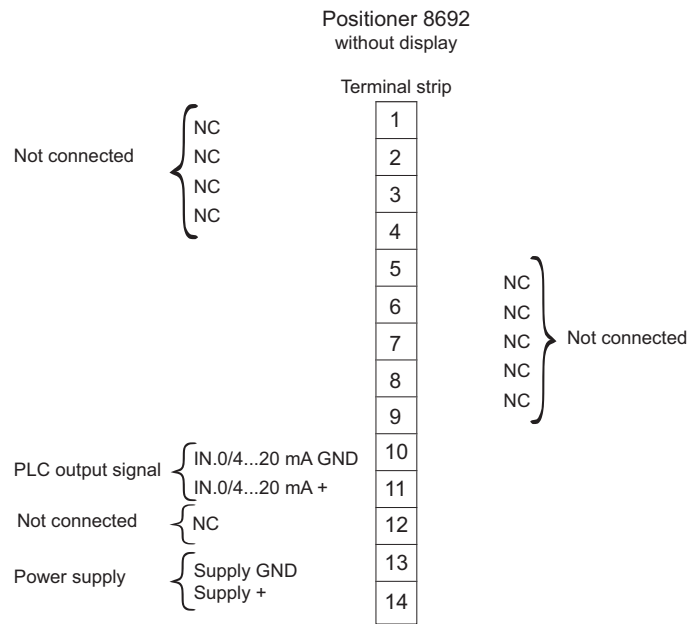
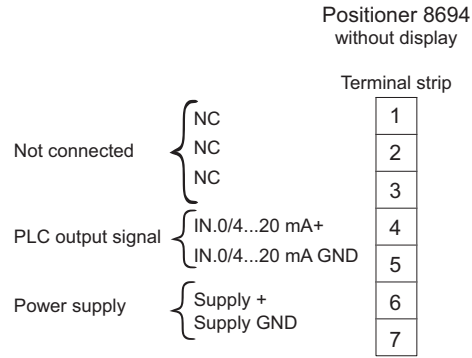
Size	1.5 inch	2 inch	2.5 inch	3 inch	4 inch
A (with positioner 8694)	17.70	19.63	20.66	21.97	23.76
A (with positioner 8692)	19.15	21.1	22.12	23.4	25.21
OD	1.5	2.0	2.5	3	4
ID	1.37	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.06	0.08
E1	1.95	2.40	3.19	3.39	4.69
H	3.35	4.53	4.53	6.20	6.20
M/ Clamp	0.5	0.5	0.5	0.5	0.63
Weight (lb)	16.09	20.94	23.15	36.16	41.01

Air Connections Compressed air:

R 1/8" (BSP) internal thread for actuator.

Electrical connections

1.7



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

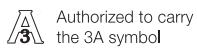
Standard design

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



TECHNICAL DATA

Valves

Max. product pressure:	1000 kPa (145 PSI)
Min. product pressure:	Full vacuum
Temperature range:	14°F to 284°F (EPDM)
Flow range Kv ($\Delta p = 1\text{bar} = 14.5\text{ PSI}$):	2.2 -484.32 US GPM
Max. pressure drop:	500 kPa (72.52 PSI)

Actuator**Air quality**

Air connection:	6/4 air tube with air fitting R1/8" (BSP)
Max. pressure:	600 kPa (87 PSI)
Working pressure:	400 kPa (58 PSI)
Max. size of particles:	0.0003936996 inch
Max. oil content:	0.08 ppm
Dew point:	50°F below ambient temp. or lower
Max. water content:	0.17 lbs/lbs

I/P converter

Signal range:	4 - 20 mA (standard)
Input resistance:	200 Ω
Inductivity/capacitance:	Negligible

PHYSICAL DATA

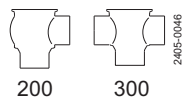
Materials, Valves

Product wetted steel parts:	Acid-resistant steel, AISI 316L (1.4404)
Other steel parts:	Stainless steel, AISI 304 (1.4301)
Product wetted seals:	EPDM
External finish:	Semi-bright (blasted)
Internal finish:	Bright (polished) RA<32 μm

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

**Accuracy**

Deviation:	$\leq 1.5\%$
Hysteresis:	$\leq 0.5\%$
Sensitivity:	$< 0.1\%$
Influence of air supply pressure:	$\leq 0.1\%$ between 20.3 and 87 bar
Air consumption at steady state condition:	With 8.7 PSI signal pressure and supply pressures up to 87 PSI $\leq 100\text{ l/h}$
Ambient temperature:	-13°F to +158°F
Protection class:	IP 66

Flow sizes/tube connections

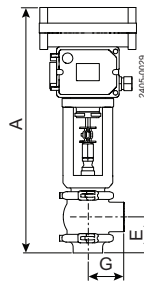
Kv	Seat diam.		Tube connections		Actuator (type no.)	
	(mm)	inch	ISO (mm)	Inch	NO	NC
	0.5 E	6	0.24	38	1½"	3277-5
1,0 E	10	0.39	38	1½"	3277-5	3277-5
2 E	12	0.47	38	1½"	3277-5	3277-5
4 E	14	0.55	38	1½"	3277-5	3277-5
8 E	23	0.91	38	1½"	3277-5	3277-5
16 E	29	1.14	38	1½"	3277-5	3277-5
25 E	38	1.50	51	2"	3277-5	3277-5
32 E	48.5	1.91	51	2"	3277-5	3277-5
40 E	42	1.65	63.5	2½"	3277-5	3277-5
64 L	51	2.01	63.5	2½"	3277-5	3277-5
75 L	51	2.01	76.1	3"	3277-5	3277-5
110 L	72	2.83	101.6	4"	3277-5	3277-5

1.7

Options

- A. Male parts or clamp liners in accordance with required standard.
- B. Product wetted seals of HNBR or Fluorinated rubber (FPM).
- C. Profibus communication
- D. Aseptic configuration Max 116 ps

Dimensions (inch)

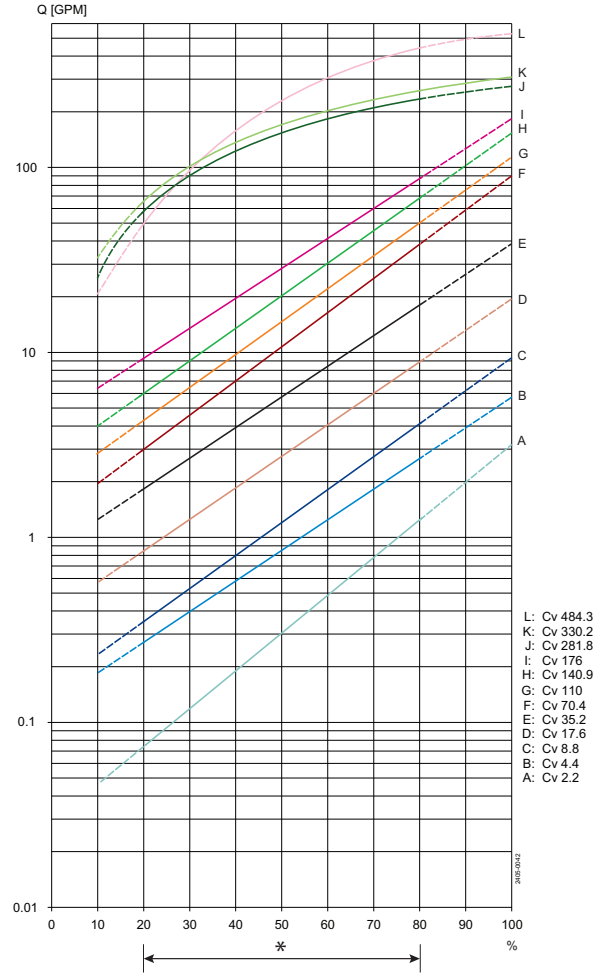


Size	1.5"	2"	2.5"	3"	4"		DN40	DN50	DN65	DN80	DN100	
	NO/NC	NO/NC	NO/NC	NO/NC	NO	NC	NO/NC	NO/NC	NO/NC	NO/NC	NO	NC
A- std	16.1	16.7	15.9	17.3	18.2	18.9	16.2	16.7	16.2	17.6	18.3	19
A- aseptic	16.2	16.8	16.2	17.6	18.5	19.2	16.3	16.8	16.5	17.9	18.6	19.3
E	2.2	2.5	2.6	3.3	3.8	3.8	2.2	2.5	2.8	3.5	3.9	3.9
G	1.9	2.4	3.2	3.4	4.7	4.7	1.9	2.4	3.1	3.4	4.7	4.7
H	6.6	6.6	6.6	6.6	6.6	11	6.6	6.6	6.6	6.6	6.6	11
OD	1.5	2	2.5	3	4	4	1.6	2.1	2.8	3.3	4.1	4.1
ID	1.4	1.9	2.4	2.9	3.8	3.8	1.5	2	2.6	3.2	3.9	3.9
t	0.1	0.1	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	0.8						
M/DIN clamp							0.8	0.8	1.1	1.1	1.1	1.1
M/DIN male							0.9	0.9	1	1	1.2	1.2
M/SMS male	0.8	0.8	0.9	0.9	1.4	1.4						
Weight lb	18.1	20.5	21.4	24.7	34.0	54.9	18.1	20.5	21.4	24.7	34.0	54.9

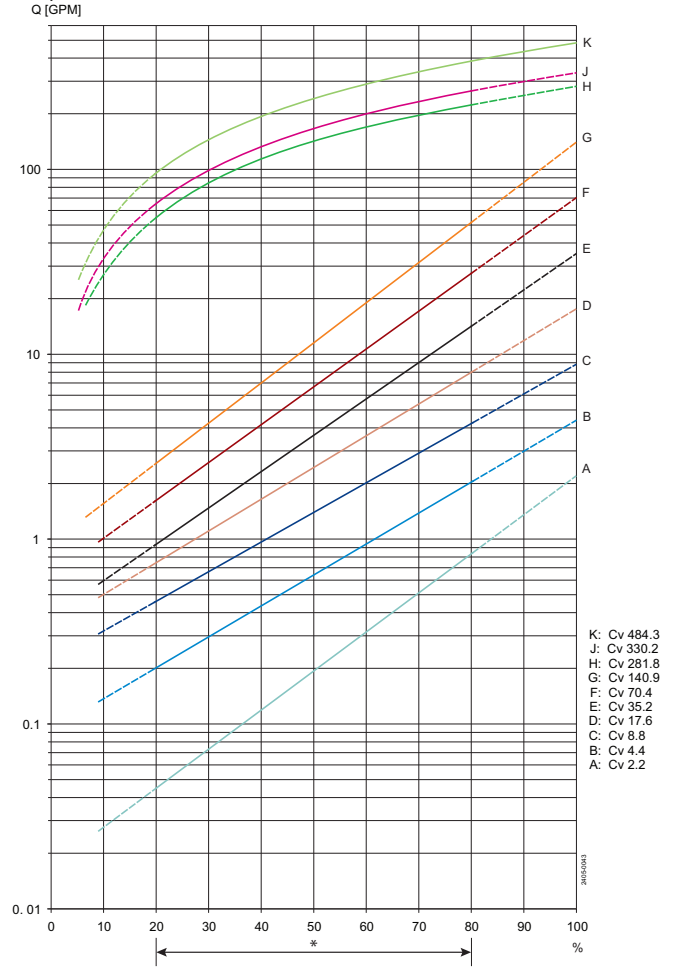
Capacity diagram

For Δ P= 100 kPa (1bar).

Standard



Aseptic



Conversion Table

100 kPa = 1 bar = 14.5 PSI

10 mm = 0.39 inch

10 m³/h = 44.03 US GPM

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 5 m/sec.

Pressure drop calculation

The Kv designation is the flow rate in m³/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:

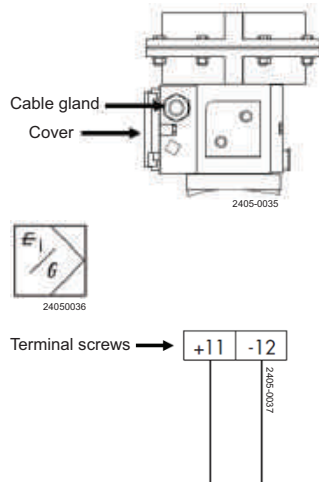
Kv_q = Kv value at specific flow and specific pressure drop

Q = Flow rate (m³/h)

Δ P = Pressure drop over valve (bar)

Electrical connection

Electrical connection - Analoug 4-20 mA

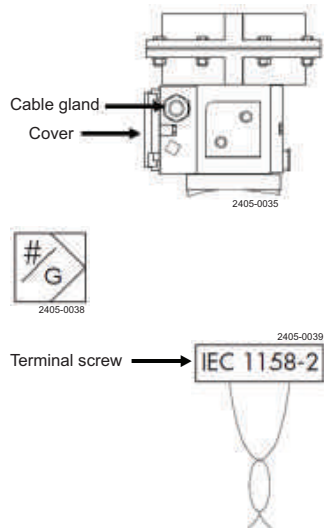
Positioner
3725

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

1.7

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

Standard design

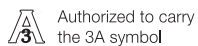
The CPM Constant-Pressure Modulating Valve is available in two versions: the CPMI-2, the CPMO-2. The CPMI-2 and the CPMO-2 consist of a valve body with valve seat, cover, valve plug with a special diaphragm, and clamp. The diaphragm consists of two flexible PTFE and EPDM diaphragms supported by 12 stainless 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

Temperature range:	14° F to 203° F
Temperature range with upper diaphragm in PTFE/EPDM:	14° F to 286° F (Higher on request)

ATEX

Classification	II 3 G D*
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*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 ($\Delta p = 14.5$ psi):	Approx 812 gpm
Flow Kv 7 ($\Delta p = 14.5$ psi):	Approx 247 gpm
Flow Kv 9 ($\Delta p = 14.5$ psi):	Approx 317.8 gpm
Flow Kv2/15, low capacity ($\Delta p = 14.5$ 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:	$Ra \leq 62 \mu\text{in}$
Optional	
Inside/outside	$Ra \leq 32 \mu\text{in}$ or $20 \mu\text{in}$

Air Connections

R 1/4" (BSP), internal thread

Options

- A. Male parts or clamp liners in accordance with required standard.
- B. Pressure gauge 0-87 PSI, 1.5-inch
Pressure gauge 0-145 PSI, 1.5-inch
- C. Air pressure regulating valve kit, 0-116 PSI (D).
- D. Air throttling valve for adjustment of regulating speed for the CPM-2 valve.
- E. Booster for product pressure exceeding the available air pressure. (Product pressure = 1.8 x air pressure).
- F. 3A (hygienic Standard) labelling on request for CPM-2 Valves.

Material grades CPM-2

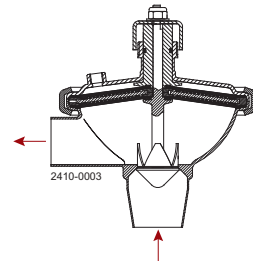
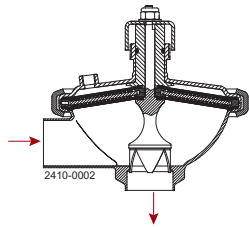
- G. Upper diaphragm of PTFE covered EPDM and O-ring of Fluorinated rubber (FPM) covered EPDM rubber, (for temperature 203 - 284°F).
- H. Both diaphragms of solid PTFE and O-ring of Fluorinated rubber (FPM) (for temperatures above 284°F).

Fig. 1. Principle



CPMI-2
a. Reduced product pressure.

CPMO-2



CPMI-2
b. Increased product pressure.

CPMO-2

CPMI-2 opens at increasing product pressure and vice versa.
CPMO-2 closes at increasing product pressure and vice versa.

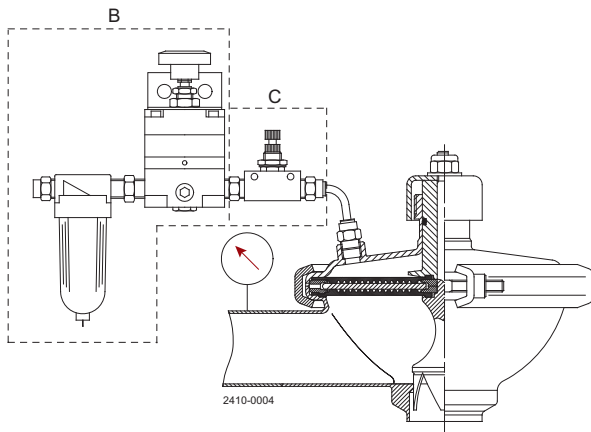
Diaphragm Unit

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

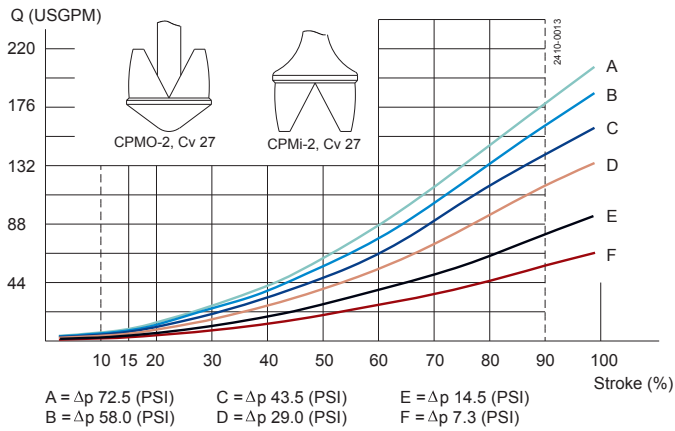
Fig. 2. CPMI-2 with pressure regulating valve and pressure gauge



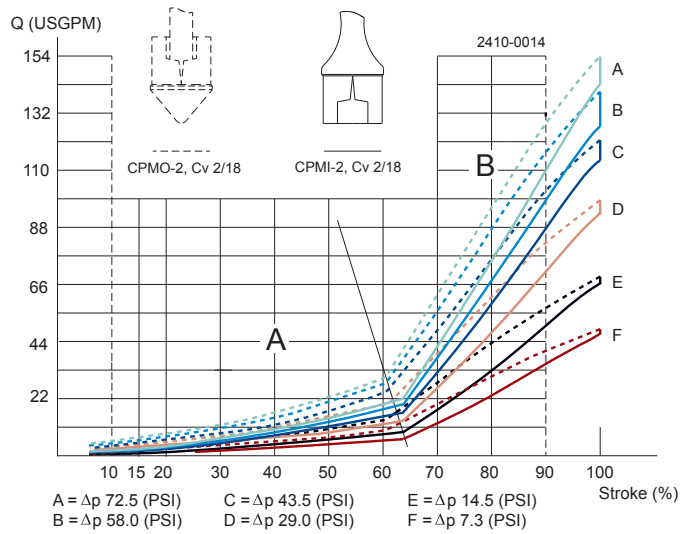
The valves operate without a transmitter in the product line and require only a pressure regulating valve for the compressed air and a pressure gauge in the product line.

Pressure drop/capacity diagrams

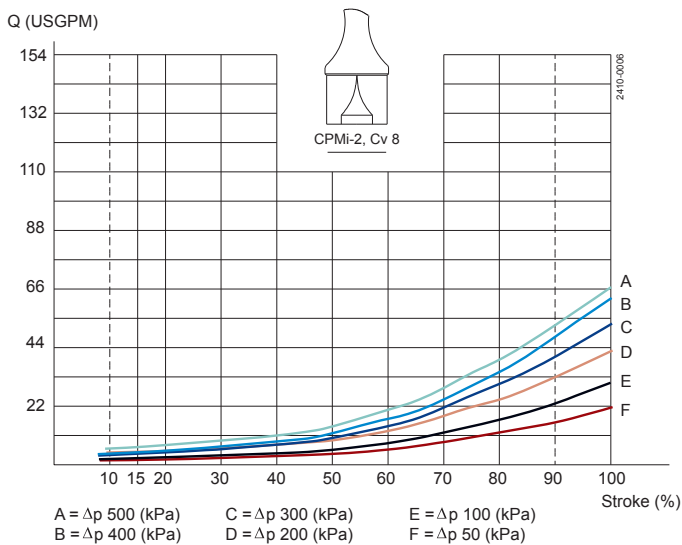
CPMO-2, Cv 27



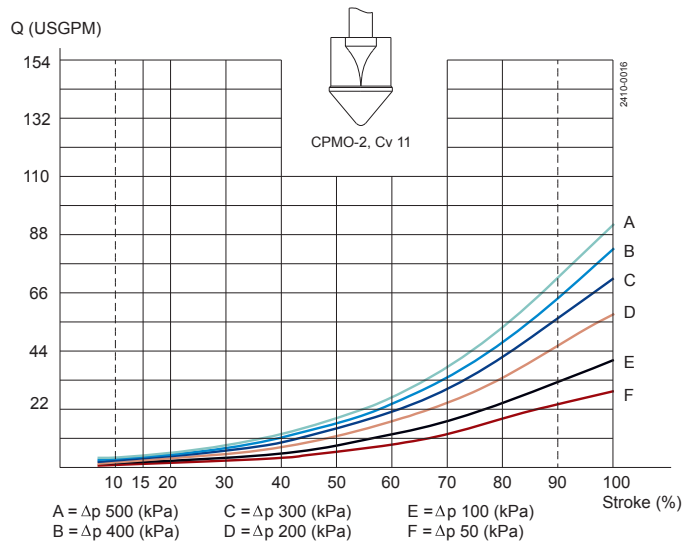
CPMI-2, Cv 2/18



CPMI-2, Cv 8



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: CPMO-2, Cv 27 which at working point will be 48% open.

Example 2:

CPMI-2:

Pressure drop Δp = 43.5 PSI

Flow Q = 4.4 GPM

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

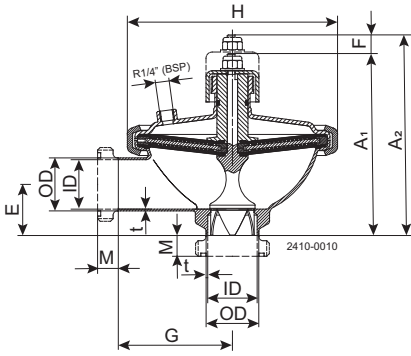
2. Flow = 220 GPM

The intersection is on the 50% curve.

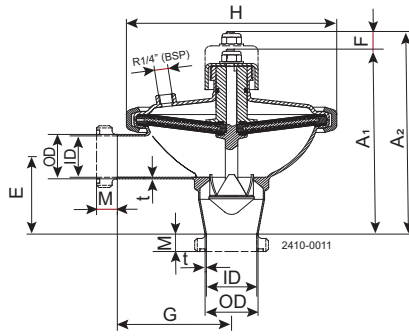
Note!

Always try to get as near as possible to the 50% open curve.

Dimensions (inch)



a. CPMI-2.



b. 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

1.7

Alfa Laval SB Tank Pressure Regulator

Regulating valves

1.7

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	Pressure range	Max. Filling/emptying speed	Working capacity of fermentation*
1"	3-58 PSI	110 GPM	3500 ft ³
1½"	3-58 PSI	220 GPM	7000 ft ³
2"	3-58 PSI	440 GPM	14000 ft ³
3"	3-58 PSI	800 GPM	28000 ft ³

* 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

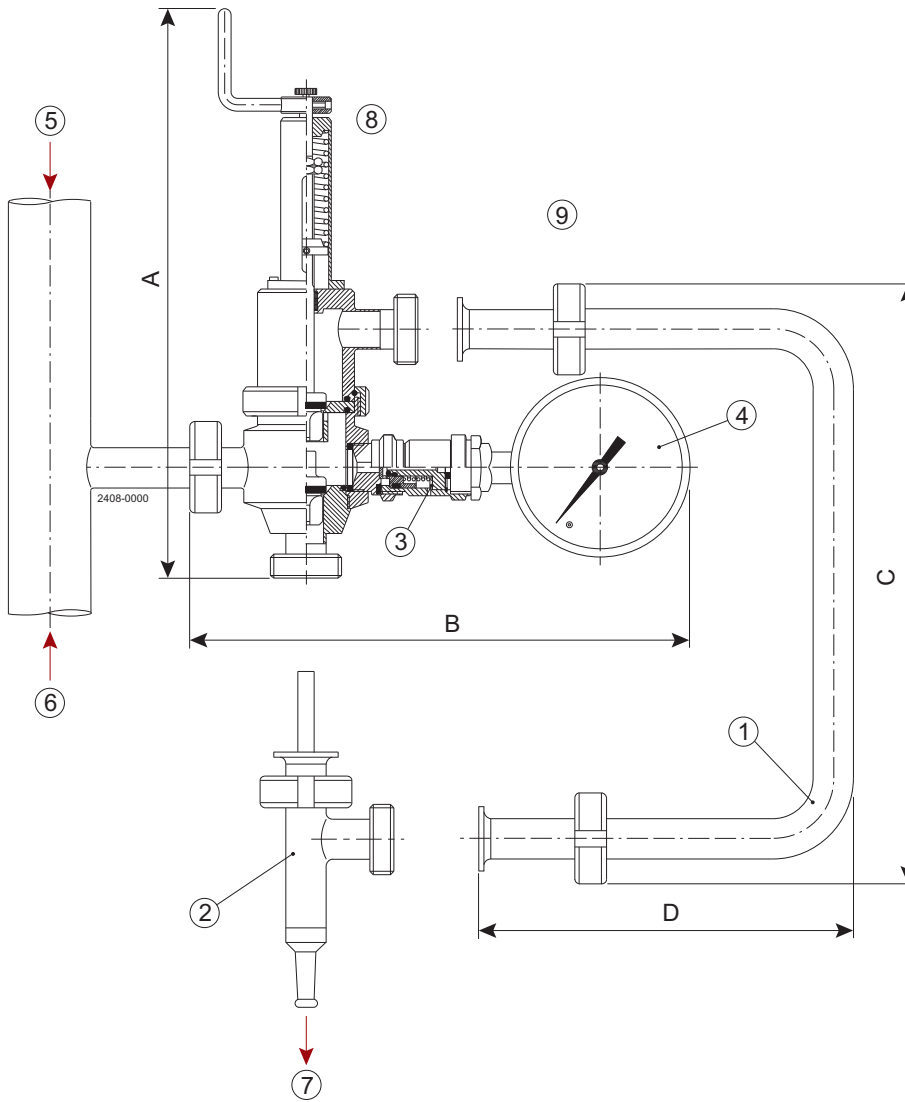
Cleaning in place (CIP)

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 - CO₂
- 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
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

1.7

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

1.7

Connection

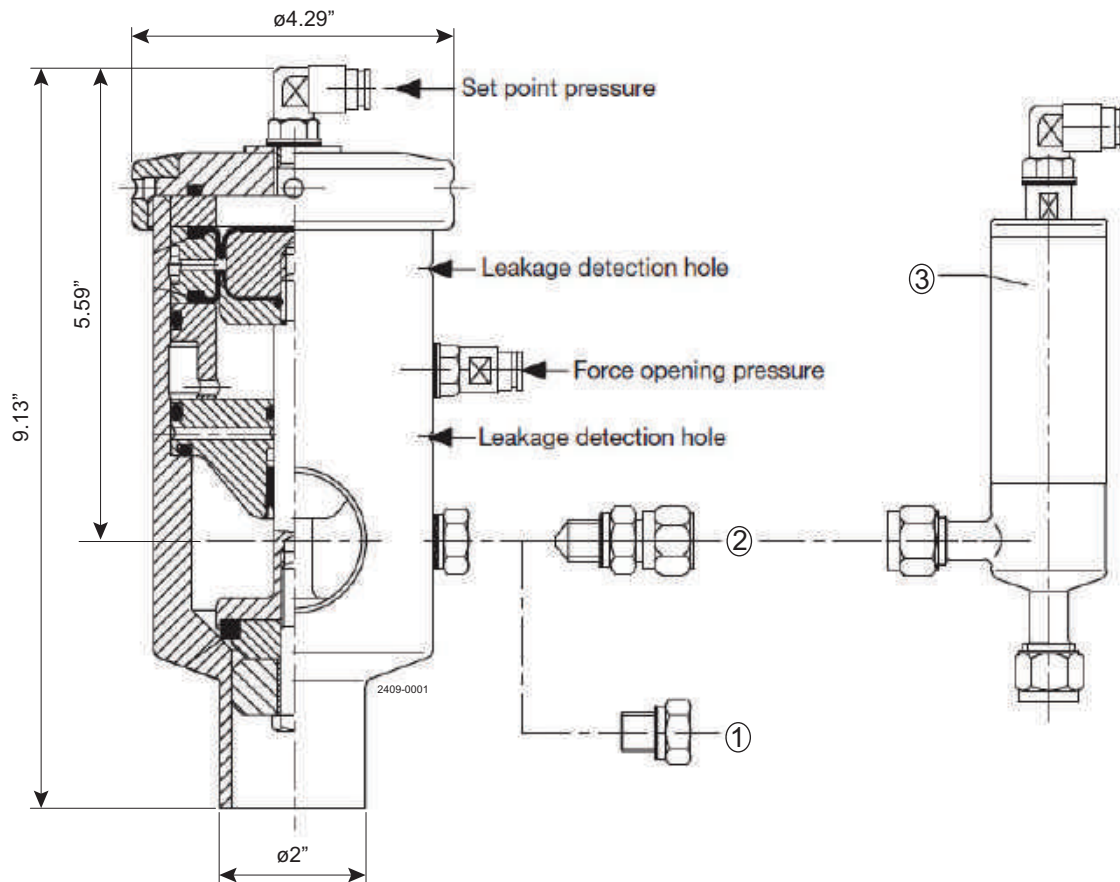
Weld End acc. ISO 2037

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

1.7

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
	(Higher on request)

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

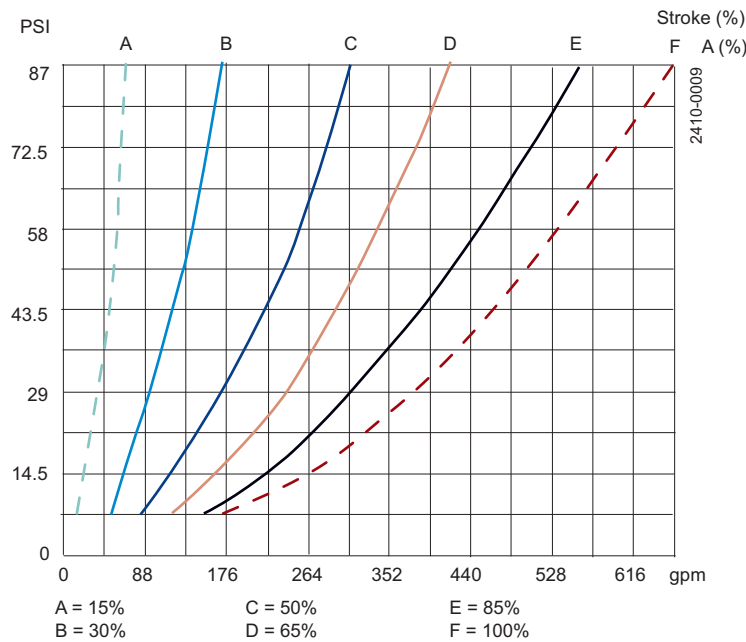
PHYSICAL DATA

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 $\Delta p = 36$ 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

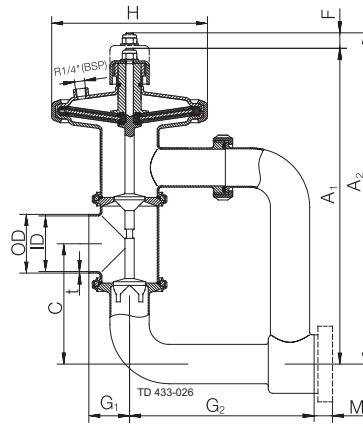
- Male parts or clamp liners in accordance with required standard
- Pressure gauge 0-87 PSI, 1.5-inch
- Pressure gauge 0-145 PSI, 1.5-inch
- Pressure gauge 0-145 PSI, 2-inch
- Air pressure regulating valve kit, 0-116 PSI
- Booster for product pressure exceeding the available air pressure. (Product pressure = 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)

1.7



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	2.09
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

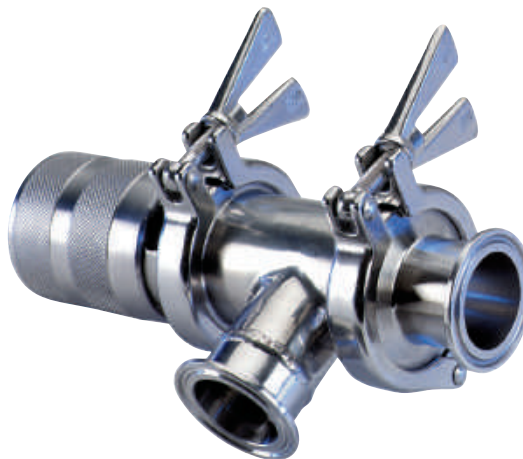
This pressure control valve is ideal for manual regulation of pressure and flow of the retentate in crossflow membrane filtration plants used in hygienic applications such as the dairy, food, beverage, brewery, personal care and many other industries.

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

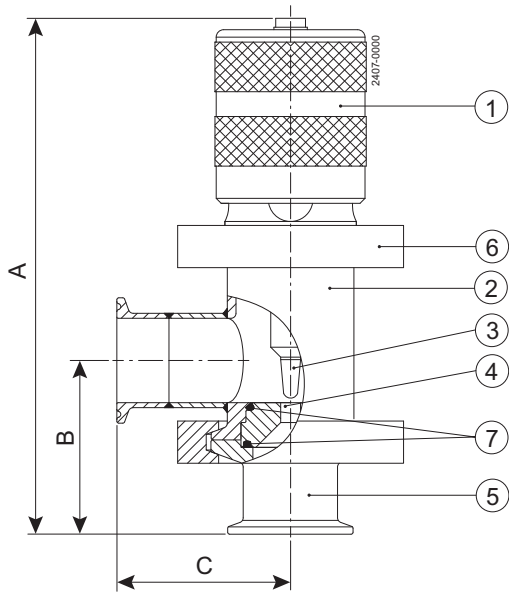
Max. flow rate:	88.06 gpm
Max. working pressure:	928 psi (6.4 MPa)
Kv:	0.02-20
Turn down:	10

1.7

PHYSICAL DATA

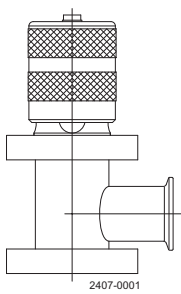
Inlet:	1½" clamp ISO 2852 or 2" clamp ISO 2852
Outlet:	1½" clamp ISO 2852
Weight:	8 lbs

Dimensions (inch)



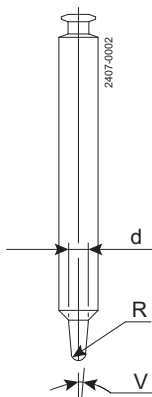
- 1. Control part
- 2. Valve housing
- 3. Spindle
- 4. Seat
- 5. Bottom piece
- 6. 51 mm clamp assembly
- 7. O-ring

A	B	C
9.06	2.76	2.76



Control part

Code no. 103263



Spindle

Code no. 103268

d = \varnothing 0.31 inch

V = 5°

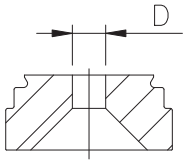
R = 0.12 inch

Code no. 103266

d = \varnothing inch

V = ° (angel)

R = inch

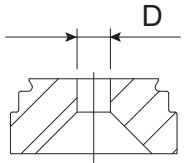
**Seat**

Code no. 103269

D = \varnothing 0.31 inch

Code no. 103267

D= mm

**Bottom piece**

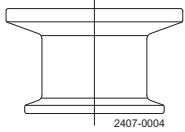
1½" - Code no. 103264

2" - Code no. 103265

Bottom piece with incorporated counter valve

1½" - Code no. 103274

2" - Code no. 103275

**Order example**Manually controlled valve with \varnothing 2" inlet.

Code numbers 103263, 103266, 103267, 103265. When ordering, please specify d, D, V and R.

Pneumatic Pressure Control Valve for Membrane Filtration Systems

Regulating valves

1.7

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

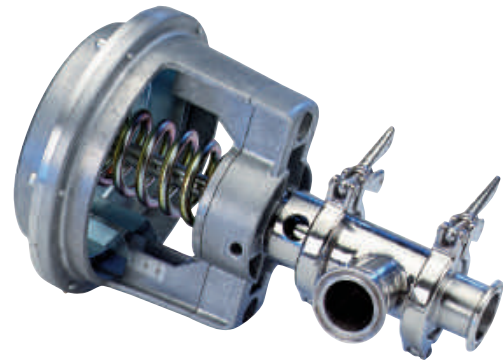
This pneumatic pressure control valve is ideal for automatic regulation of pressure and flow of the retentate in cross-flow membrane filtration plants used in hygienic applications such as dairy, food, beverage, brewery, personal care and many other industries.

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

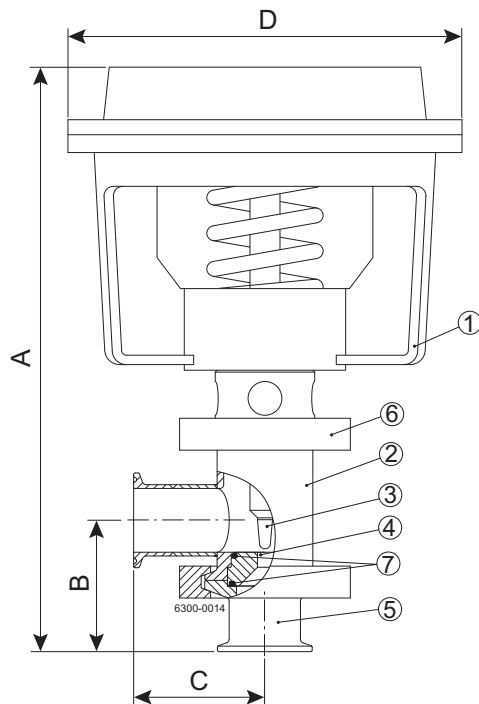
PHYSICAL DATA

Connections

Inlet:	1½" clamp ISO 2852 or 2" clamp ISO 2852
Outlet:	1½" clamp ISO 2852
Weight:	11.4 lbs

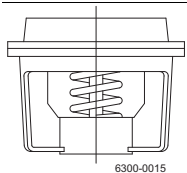
Options

- Reverse acting actuator
- Built-in electropneumatic positioner
- Samson actuator

Dimensions (inch)

1. Actuator
2. Valve housing
3. Spindle
4. Seat
5. Bottom piece
6. 2" clamp assembly
7. O-ring

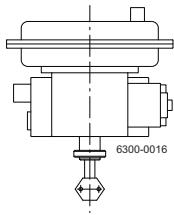
A	B	C	D
12.20	2.76	2.76	8.66

**Actuator**

8" Honeywell direct actuator
3 psi (0.21 bar) = open valve
Code no. 103278

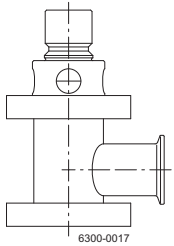
7" Honeywell reversed actuator
3 psi (0.21 bar) = closed valve
Code no. 103277 (option)

1.7



Samson actuator*

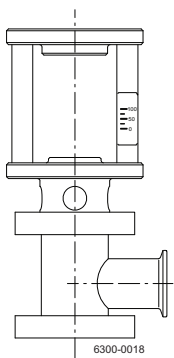
*Please contact Alfa Laval for calculation of type of Samson actuator



Valve housing

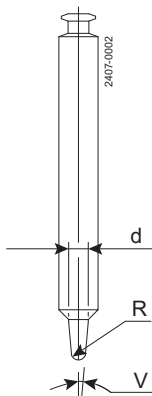
Regulation valve housing for Honeywell

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

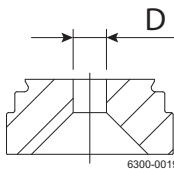
Spindle for Samson

Code no. 519744

d = mm

V = ° (angle)

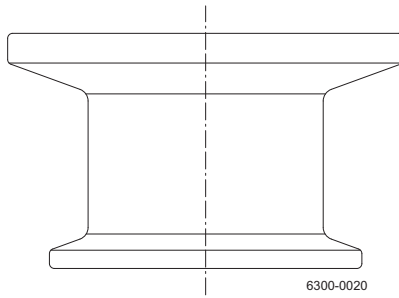
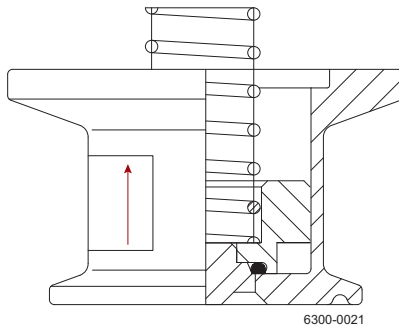
R = mm



Seat

Code no. 103267

D = mm

**Bottom piece**1.5"
Code no. 1032642"
Code no. 103265**Bottom piece with incorporated counter valve**1.5"
Code no. 1032742"
Code no. 103275

Order example

Pneumatically controlled valve, direct acting, with $\varnothing 2''$ inlet.

Code numbers 103278, 103270, 103271, 103267, 103265. When ordering, please specify d, D, V and R.

Alfa Laval Thermostatically Controlled Valve

Regulating valves

1.7

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

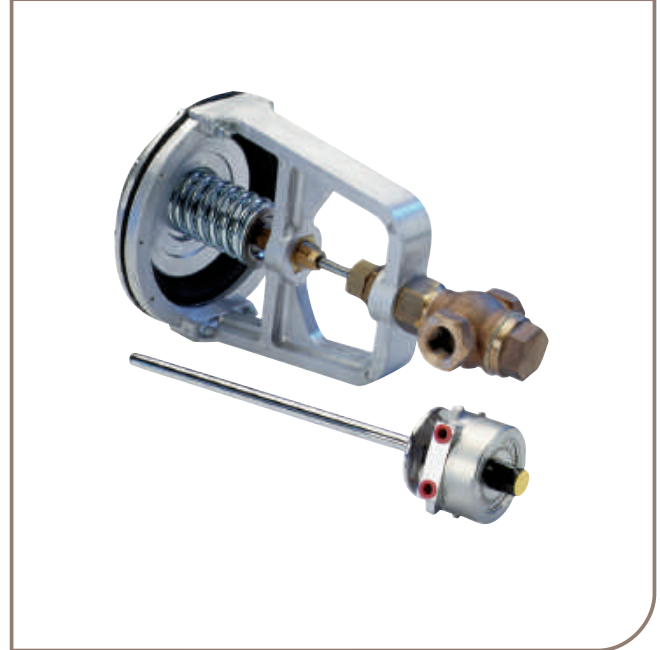
Standard design

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

Item	Code no.	Connection - G1	Connection - G2	Connection - G3	Connection - DN
Regulation Valve	106160	Cooling/heating medium:	Signal pressure:		
		¾" BSP female	½" BSP female		
Thermostat ¹	106161 ²			Air supply and signal pressure: ½" BSP female	Clamp, 76 mm (3" ISO 2852)
	106162 ²			Air supply and signal pressure: ½" BSP female	Clamp, 51 mm (2" ISO 2852)
	106163 ²			Air supply and signal pressure: ½" BSP female	Clamp, 38 mm (1½" ISO 2852)

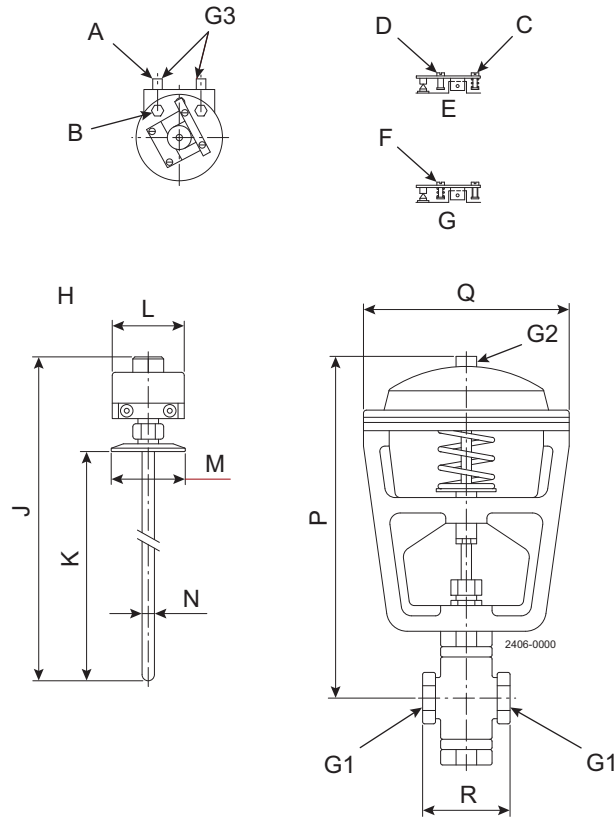
1 When ordering please specify: Clamp size and Cooling or heating

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)

1.7



- 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.

Description Codes

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

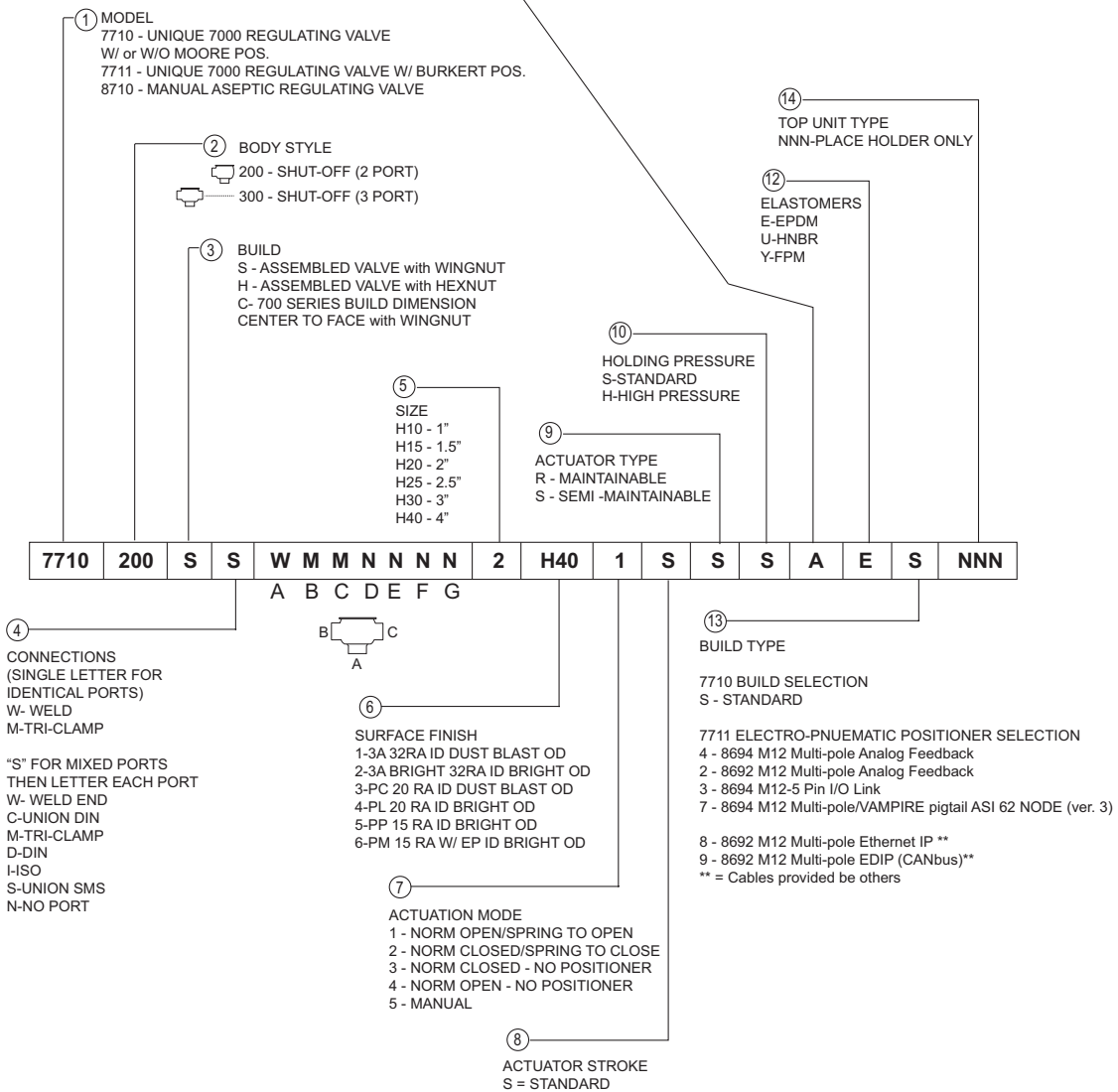
COMBINATION PORTS WELD AND TRI-CLAMP

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



Unique RV-ST

Regulating valves

Product code:: 5913

Material: 1.4404 (316L)
 Connection: ISO Welding ends
 Seals: EPDM
 Inside surface finish: Ra 32 µm
 Outside surface finish:3A Bright
 Actuator: Pneumatic NC

1.7

Item No.	LLP USD	Kv	Plug type	in	
Valve complete with positioner 8694 without display					
9634089401		1	1	1	
9634089402		1.5	2	1	
9634089403		1.9	3	1	
9634089404		2.5	4	1	
9634089405		2.9	5	1	
9613345458		6.6	6	1	
9613345457		13	7	1	
9613334686		14	A	1.5	
9613334939		16	H	1.5	
9613335077		25	I	1.5	
9613335078		44	B	1.5	
9613334685		9	G	2	
9613334757		34	K	2	
9613334682		52	L	2	
9613335228		75	C	2	
9613334684		27	J	2.5	
9613335306		106	D	2.5	
9613335020		59	M	3	
9613334700		100	N	3	
9613335729		171	E	3	
9613350450		125	O	4	
9613339978		164	P	4	
9613335227		250	F	4	
Valve complete with positioner 8692 with display					
9634089416		1	1	1	
9634089417		1.5	2	1	
9634089418		1.9	3	1	
9634089419		2.5	4	1	
9634089420		2.9	5	1	
9613345459		6.6	6	1	
9613345460		13	7	1	
9613335687		14	A	1.5	
9613340488		16	H	1.5	
9613336267		25	I	1.5	
9613338811		44	B	1.5	
9613338396		9	G	2	
9613338566		34	K	2	
9613336268		52	L	2	
9613338979		75	C	2	
9613339703		27	J	2.5	
9613339704		106	D	2.5	
9613339799		59	M	3	
9613341034		100	N	3	
9613339874		171	E	3	
9613345183		125	O	4	
9613343530		164	P	4	
9613345456		250	F	4	

Item numbers to be found in Anytime configurator.

Product code: 5370

Standard

AISI 316
 Connection: ISO/DIN Welding ends
 EPDM Elastomers
 Inside surface finish: Ra ≤ 0.8 μm
 Outside surface finish: Blasted
 Actuation: Pneumatic NC and NO

Item No. Inch tube	LLP USD	Item No. DIN Tube	LLP USD	Size		Flow Kv GPM	Dimension (inch)			Dimension (inch)			
				Inch	DN		A	E	G	A	E	G	
Normally Closed													
9615223111		9615223211		1.5	40	2	16.1	2.2	1.9	16.2	2.2	1.9	
9615223112		9615223212		1.5	40	4	16.1	2.2	1.9	16.2	2.2	1.9	
9615223113		9615223213		1.5	40	9	16.1	2.2	1.9	16.2	2.2	1.9	
9615223114		9615223214		1.5	40	18	16.1	2.2	1.9	16.2	2.2	1.9	
9615223115		9615223215		1.5	40	35	16.1	2.2	1.9	16.2	2.2	1.9	
9615223116		9615223216		1.5	40	70	16.1	2.2	1.9	16.2	2.2	1.9	
9615223117		9615223217		2	50	141	16.7	2.5	2.4	16.7	2.5	2.4	
8010001806		8010001809		2	50	176	16.7	2.5	2.4	16.7	2.5	2.4	
8010001811		8010001813		2.5	65	110	15.9	2.6	3.2	16.2	2.4	3.1	
9615223118		9615223218		2.5	65	282	15.9	2.6	3.2	16.2	2.4	3.1	
9615223119		9615223219		3	80	330	17.3	3.3	3.4	17.6	3.5	3.4	
9615223120		9615223220		4	100	484	18.9	3.8	4.7	18.3	3.9	4.7	
Normally open													
9615223101		9615223201		1.5	40	2	16.1	2.2	1.9	16.2	2.2	1.9	
9615223102		9615223202		1.5	40	4	16.1	2.2	1.9	16.2	2.2	1.9	
9615223103		9615223203		1.5	40	9	16.1	2.2	1.9	16.2	2.2	1.9	
9615223104		9615223204		1.5	40	18	16.1	2.2	1.9	16.2	2.2	1.9	
9615223105		9615223205		1.5	40	35	16.1	2.2	1.9	16.2	2.2	1.9	
9615223106		9615223206		1.5	40	70	16.1	2.2	1.9	16.2	2.2	1.9	
9615223107		9615223207		2	50	141	16.7	2.5	2.4	16.7	2.5	2.4	
8010001808		8010001810		2	50	176	16.7	2.5	2.4	16.7	2.5	2.4	
8010001812		8010001814		2.5	65	110	15.9	2.6	3.2	16.2	2.4	3.1	
9615223108		9615223208		2.5	65	282	15.9	2.6	3.2	16.2	2.4	3.1	
9615223109		9615223209		3	80	330	17.3	3.3	3.4	17.6	3.5	3.4	
9615223110		9615223210		4	100	484	18.2	3.8	4.7	18.3	3.9	4.7	

(*) E = equal percentage, L=linear

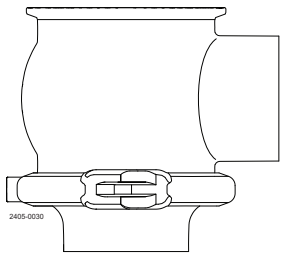
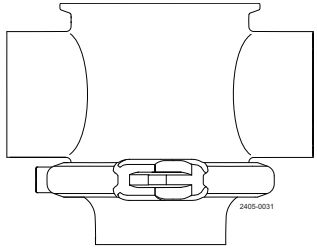
For further information - please see PD-sheet.

Unique RV-P Regulating Valve

The regulating valves not mentioned in the code number sheet, should be ordered as below:

Options

1.7

Item No.	LLP USD	Size			
		Inch	DN		
		1.5 2 2.5 3 4	40 50 65 80 100	Male part standards (included in the price) SMS, ISO/IDF, DS, BS, DIN, ISO clamp.	 <p>Please state which type of male part you want and to which outlet it should be connected.</p>
Type 300 Valve body					
		1.5 2 2.5 3 4	40 50 65 80 100		
Seals					
				Replacement to seals of HNBR, 316L Replacement to seals of Fluorinated rubber (FPM)	
Positioner					
				Profibus Type 3730-4	

Product code: 5370

Aseptic

AISI 316
 Connection: ISO/DIN Welding ends
 EPDM Elastomers
 Inside surface finish: Ra ≤ 0.8 μm
 Outside surface finish: Blasted
 Actuation: Pneumatic NC and NO

Item No. Inch tube	LLP USD	Item No. DIN Tube	LLP USD	Size		Gal- lon/min	Dimension (Inch)			Dimension (inch)			
				Inch	DN		A	E	G	A -DIN	E	G	
Normally Closed													
9615223311		9615223411		1.5	40	2	16.2	2.2	1.9	16.3	2.2	1.9	
9615223312		9615223412		1.5	40	4	16.2	2.2	1.9	16.3	2.2	1.9	
9615223313		9615223413		1.5	40	9	16.2	2.2	1.9	16.3	2.2	1.9	
9615223314		9615223414		1.5	40	18	16.2	2.2	1.9	16.3	2.2	1.9	
9615223315		9615223415		1.5	40	35	16.2	2.2	1.9	16.3	2.2	1.9	
9615223316		9615223416		1.5	40	70	16.2	2.2	1.9	16.3	2.2	1.9	
9615223317		9615223417		2	50	141	16.8	2.5	2.4	16.8	2.5	2.4	
9615223318		9615223418		2.5	65	282	16.2	2.2	3.2	16.5	2.4	3.1	
9615223319		9615223419		3	80	330	17.6	3.3	3.4	17.9	3.5	3.4	
9615223320		9615223420		4	100	484	18.5	3.8	4.7	18.6	3.9	4.7	
Normally open													
9615223301		9615223401		1.5	40	2	16.2	2.2	1.9	16.3	2.2	1.9	
9615223302		9615223402		1.5	40	4	16.2	2.2	1.9	16.3	2.2	1.9	
9615223303		9615223403		1.5	40	9	16.2	2.2	1.9	16.3	2.2	1.9	
9615223304		9615223404		1.5	40	18	16.2	2.2	1.9	16.3	2.2	1.9	
9615223305		9615223405		1.5	40	35	16.2	2.2	1.9	16.3	2.2	1.9	
9615223306		9615223406		1.5	40	70	16.2	2.2	1.9	16.3	2.2	1.9	
9615223307		9615223407		2	50	141	16.8	2.5	2.4	16.8	2.5	2.4	
9615223308		9615223408		2.5	65	282	16.2	2.2	3.2	16.5	2.4	3.1	
9615223309		9615223409		3	80	330	17.6	3.3	3.4	17.9	3.5	3.4	
9615223310		9615223410		4	100	484	18.5	3.8	4.7	18.6	3.9	4.7	

(*) E = equal percentage, L=linear

For further information - please see PD-sheet.

Unique SSV Regulating Valve with Moore Positioner

Regulating valves

Actuator: Short Stroke Piston
 Connection: Welded or Clamp
 Material: AISI 316
 Elastomers: EPDM

1.7

Normally closed	LLP USD	Kv	Description	Size	Connection
Item No.				Inch	Welded- 3A Bright
9613363158		14	Unique 7000	1½	
9613363159		16	Unique 7000	1½	
9613363160		25	Unique 7000	1½	
9613363161		44	Unique 7000	1½	
9613363162		9	Unique 7000	2	
9613363163		30	Unique 7000	2	
9613363164		51	Unique 7000	2	
9613363165		75	Unique 7000	2	
9613363166		27	Unique 7000	2½	
9613363167		106	Unique 7000	2½	
9613363168		59	Unique 7000	3	
9613363169		101	Unique 7000	3	
9613363170		172	Unique 7000	3	
9613363171		125	Unique 7000	4	
9613363172		164	Unique 7000	4	
9613363173		250	Unique 7000	4	
					Clamp - 3A Bright
9613333226		14	Unique 7000	1½	
9613333227		16	Unique 7000	1½	
9613333228		25	Unique 7000	1½	
9613333229		44	Unique 7000	1½	
9613333230		9	Unique 7000	2	
9613333231		30	Unique 7000	2	
9613333232		51	Unique 7000	2	
9613333233		75	Unique 7000	2	
9613333234		26	Unique 7000	2½	
9613333236		107	Unique 7000	2½	
9613333237		59	Unique 7000	3	
9613333239		101	Unique 7000	3	
9613333240		172	Unique 7000	3	
9613333241		125	Unique 7000	4	
9613333242		164	Unique 7000	4	
9613333243		250	Unique 7000	4	

Note: Cv = Kv * 1.16

Actuator: Short Stroke Piston
 Connection: Tri-Clamp
 Material: AISI 316
 Elastomers: Buna

1.7

Normally Open (10)	LLP USD	Normally Closed (20)	LLP USD	Size	Body Combination
Item No.		Item No.		Inch	Lower Tee 10
743143		740719		1	
740751		740472		1½	
742080		740446		2	
743188		741329		2½	
743049		741829		3	
9634048856		742972		4	
Lower Cross 30					
9634073676		741656		1	
744181		744348		1½	
318653		743096		2	
741330		740727		2½	
9634073677		9634073679		3	
Upper Tee/Lower Tee 21					
740749		740750		1½	
742487		742123		2	
318416		743020		2½	
9634073678		9634053034		3	
Upper Tee Reverse Acting 27					
		742735		1½	
		741828		2	
		742736		2½	
		9634073680		3	

* = Please contact your Alfa Laval contact person for further information.

Actuator Style	Available On	Type	Adder LLP USD
Actuator Adders			
15	Unique SSV Normally Open	Diaphragm	
25	Unique SSV Reverse Acting Only	Diaphragm	
14D	Unique SSV Normally Open	Diaphragm with Positioner	
24D	Unique SSV Reverse Acting Only	Diaphragm with Positioner	
14P	Unique SSV	Piston with Positioner	
24P	Unique SSV	Piston with Positioner	
80**	Unique SSV	Three Positioner	

* = Please contact your Alfa Laval contact person for further information.

** Available as normally open only

Note: "P" on Reverse Acting only

	LLP USD		
	1 - 1½"	2 - 2½"	3"
	Special Taper Adder		
Single Seat			

* The Unique SSV Series prices are with standard taper. Special taper price adders above.

AISI 316

1.7

Item No. GC	LLP USD	Item No. Weld	LLP USD	Description	Size Inches	Flow Kv (m3/h)	CPM-I2-POL CPM-I2*
9612305548		9612305511		Constant Pressure	2	2/15	
9612305546		9612305509		Modulating Valve Polished	2	23	
							CPM-I2-IND CPM-I2
9612305542		9612305515		Constant Pressure	2	2/15	
9612305540		9612305513		Modulating Valve Industrial	2	23	
							CPM-O2-POL CPM-O2*
9612305549		9612305512		Constant Pressure	2	2/15	
9612305547		9612305599		Modulating Valve Polished	2	23	
							CPM-O2-IND CPM-O2
9612305543		9612305516		Constant Pressure	2	2/15	
9612305541		9612305514		Modulating Valve Industrial	2	23	
Item No.	LLP USD	Size Inch	Description	CPM-D-60			
882303760		3	Polished Finish				

Product code: 5914

Material: 1.4307 (304L)
 Seals: EPDM
 Connections: Clamp Ferrule, DIN, IDF, SMS

LLP USD	Size inch	Opening Pressure	Manome- ter Position	Dimensions (in)		SCANDI BREW
				H	W	
	1	2.9-58.0	3	15.35	13.58'	
	1.5	2.9-58.0	3	17.32	15.35	
	2	2.9-58.0	3	21.26	15.35	
	3	2.9-58.0	3	24.41	14.96	
	1	2.9-58.0	9	15.35	13.58'	
	1.5	2.9-58.0	9	17.32	15.35	
	2	2.9-58.0	9	21.26	15.35	
	3	2.9-58.0	9	24.41	14.96	
	1	2.9-58.0	12	15.35	12.20	
	1.5	2.9-58.0	12	17.32	13.78	
	2	2.9-58.0	12	21.26	13.78	
	3	2.9-58.0	12	24.41	13.39	

1.7

Note: Configurator Available

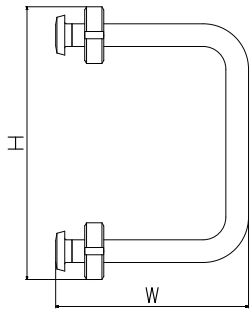
SB Accessories for Tank Pressure Regulator

Regulating valves

Product code: 5933

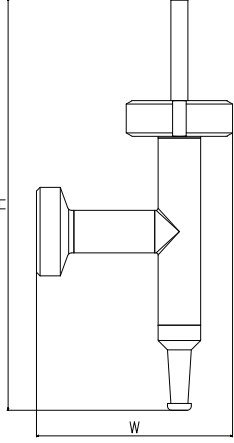
Material: 1.4404 (316L)
 Seals: EPDM
 Inside surface finish: Ra ≤ 32 μm
 Shoot blasted
 Connections: DIN 11851, Clamp Ferrule, SMS, IDF

1.7

Item No.	LLP USD	Size inch	Connection	Dimension (in)		CIP Bend
				H	W	
9615107202		1,00	DIN	12.01	8.46	
9615102902		1.57	DIN	13.98	8.66	
9615104002		1.97	DIN	17.13	9.06	
9615113502		3.15	DIN	19.68	9.06	
9615107204		1,00	SMS	11.42	8.07	
9615102904		1.5	SMS	13.98	8.27	
9615104004		2.00	SMS	16.73	8.46	
9615113504		3.00	SMS	18.9	8.46	
9615107201		1,00	Clamp	13.58	8.66	
9615102901		1.5	Clamp	15.16	8.86	
9615104001		2.00	Clamp	18.11	9.06	
9615113501		3.00	Clamp	19.68	9.06	
9615107203		1,00	IDF	11.81	8.27	
9615102903		1.5	IDF	13.98	8.46	
9615104003		2.00	IDF	16.93	8.66	
9615113503		3.00	IDF	18.7	8.66	

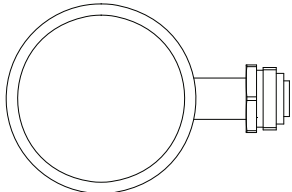
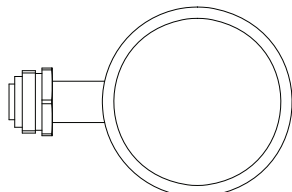
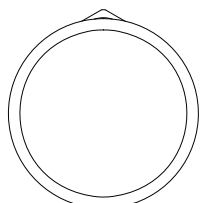
Product code: 5933

Material: 1.4404 (316L)
 Seals: EPDM
 Inside surface finish: Ra ≤ 32 µin
 Outside: RA ≤ 63 µin
 Connections: Clamp Ferrule, DIN, IDF, SMS

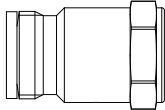
Item No.	LLP USD	Size inch	Connection	Dimension (in)		CIP T-Piece
				H	W	
9615148302		1,00	DIN	9.65	4.72	
9615148402		1.57	DIN	10.63	6.1	
9615148502		1.97	DIN	12.01	6.89	
9615148602		3.15	DIN	12.40	6.69	
9615148304		1,00	SMS	9.45	4.53	
9615148404		1.5	SMS	10.83	6.5	
9615148504		2.00	SMS	12.2	7.09	
9615148604		3.00	SMS	12.4	6.69	
9615148301		1,00	Clamp	10.24	5.51	
9615148401		1.5	Clamp	11.42	6.69	
9615148501		2.00	Clamp	12.8	7.28	
9615148601		3.00	Clamp	12.8	7.09	
9615148303		1,00	IDF	10.04	4.92	
9615148403		1.5	IDF	11.22	6.3	
9615148503		2.00	IDF	12.4	6.89	
9615148603		3.00	IDF	12.4	6.69	

Product code: 5933

1.7

Item No.	LLP USD	Pressure PSI	Inlet	Dimension (in)		Pressure gauge
				H	W	
9615142201 9615142202 9615142203 9615142204		0-23.2 psi 0-36.3 psi 0-58.0 psi 0-87.0 psi	3 O'Clock 3 O'Clock 3 O'Clock 3 O'Clock	5.91 5.91 5.91 5.91	2.2 2.2 2.2 2.2	
9615142205 9615142206 9615142207 9615142208		0-23.2 psi 0-36.3 psi 0-58.0 psi 0-87.0 psi	9 O'Clock 9 O'Clock 9 O'Clock 9 O'Clock	5.91 5.91 5.91 5.91	2.2 2.2 2.2 2.2	
9615142209 9615142210 9615142211 9615142212		0-23.2 psi 0-36.3 psi 0-58.0 psi 0-87.0 psi	12 O'Clock 12 O'Clock 12 O'Clock 12 O'Clock	4.17 4.21 4.25 4.29	3.66 3.66 3.66 3.66	

Product code: 5933

Item No.	LLP USD	Pressure PSI	Dimension (in)		Safety valve for pressure gauge
			H	W	
9615096001		0-23.2 psi	1.77	2.36	
9615096002		0-36.3 psi	1.77	2.36	
9615096003		0-58.0 psi	1.77	2.36	
9615096004		0-87.0 psi	1.77	2.36	

Product code: See below

1.7

Item No.	PPL USD	Description
Product code: 6501		Pressure control valve
103263		Pressure control valve $\varnothing 1\frac{1}{2}$ " 316L
103270		Pressure control valve $\varnothing 1\frac{1}{2}$ " for Honeywell
103278		Actuator Honeywell 8" direct actuator
103277		Actuator Honeywell 7" Reverse acting
Product code: 6501		Pressure control valve Fittings
103264		Valve fitting, bottom piece $1\frac{1}{2}$ " clamp
103266		Valve fitting, Spindle D= V= R=
103267		Valve fitting, seat $1\frac{1}{2}$ " D=
103268		Valve fitting, Spindle D=0.31 inch V=5° R=0.12 inch
103269		Valve fitting, Seat D=8
103271		Valve fitting, spindle for Honeywell D= V= R=
Product code: 6506		
103272		Valve fitting, O-ring $\varnothing 1.18$ inch, 2*3 Nitrile
102937		Valve fitting, O-ring $\varnothing 0.16$ inch 1.5*3 Nitrile
102936		Valve fitting, O-ring $\varnothing 0.63$ inch.3*2.4 Nitrile
Product code: 6501		
102933		Valve fitting, Spindle seal for $\varnothing 1.5"/2$ " regulation valve

1.8 Safety valves

Safety valves are used for overpressure or vacuum protection in tank and pipelines. Protects against implosion due to vacuum caused by cold rinsing after hot cleaning; against implosion due to caustic absorbed in CO2 atmosphere/temperature fluctuations or against implosion due to blocking of gas supply during emptying



Product leaflets

SB Anti Vacuum Valve	1.8.284
SB Anti Vacuum House	1.8.290
SB Pressure Relief Valve	1.8.293

Ordering leaflets

SB Anti Vacuum Valve	1.8.297
SB Anti Vacuum House	1.8.299
SB Accessories for Anti Vacuum House	1.8.301
Alfa Laval SB Pressure Exhaust Valve	1.8.305
SB Pressure Relief Valve	1.8.306
SB Pressure Relief Valve Accessories	1.8.308

Alfa Laval SB Anti Vacuum Valve

Safety valves

1.8

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 CO₂ 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

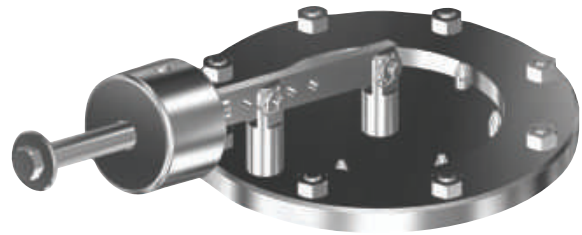
- Greater process safety
- Low initial cost of investment
- Compact design
- Superior hygiene
- Easy installation

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

Nominal size	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 μ m
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

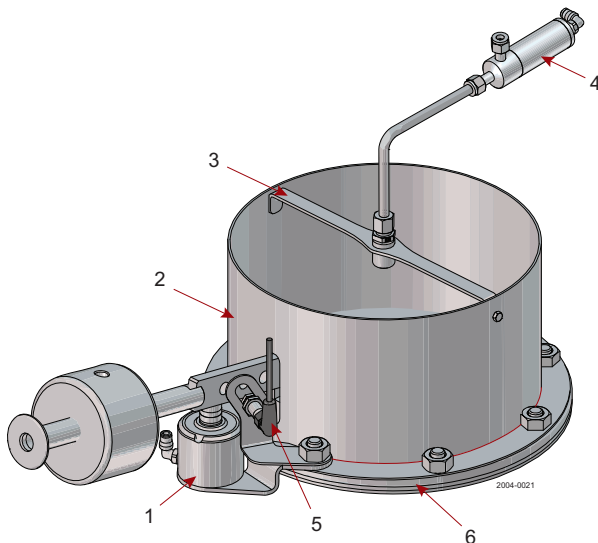
The valve is force-opened during tank CIP. The cleaning of valve seat is dependent on cleaning jets from the tank cleaning head. Any CIP liquid escaping the tank is contained by the splash guard and drains back in to the tank.

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.

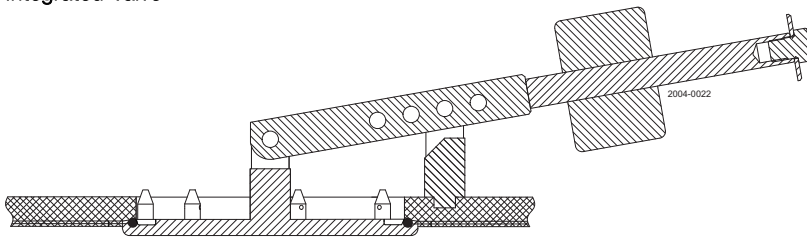
Options



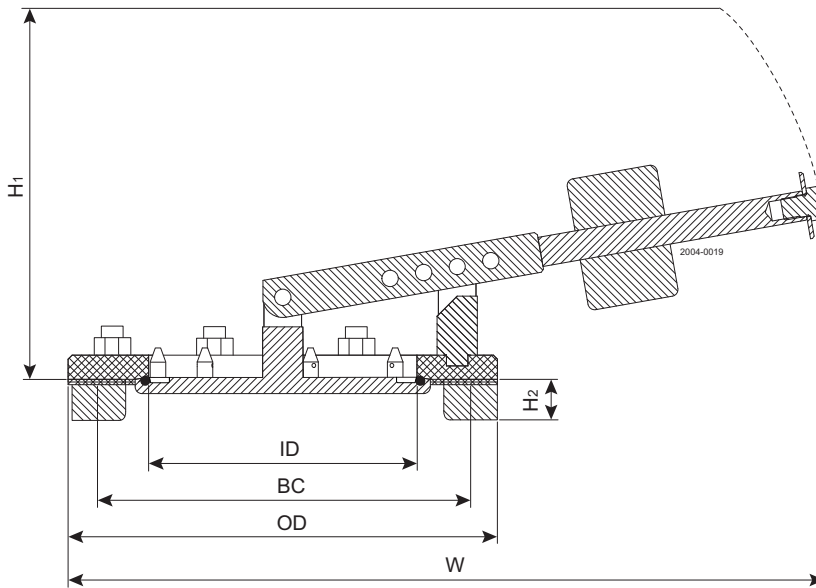
- Pos. 1: Force opener: force-opening during valve seat cleaning
- Pos. 2: Splash guard: containing CIP liquid during valve seat cleaning
- Pos. 3: CIP Nozzle: for cleaning valve seat
- Pos. 4: CIP closing valve: applying CIP liquid
- Pos. 5: Proximity sensor: for operation detection
- Pos. 6: Welding flange: for installation
- Heating elements: for valves exposed to sub-zero temperatures

Dimensions (inch)

Integrated Valve



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

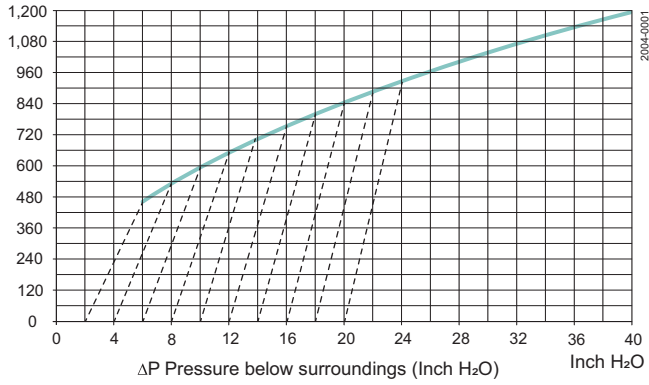
Nominal size : 4"

Volumetric Flow Capacity

Medium: Air

- - - Preset opening pressure to fully open valve

CFM



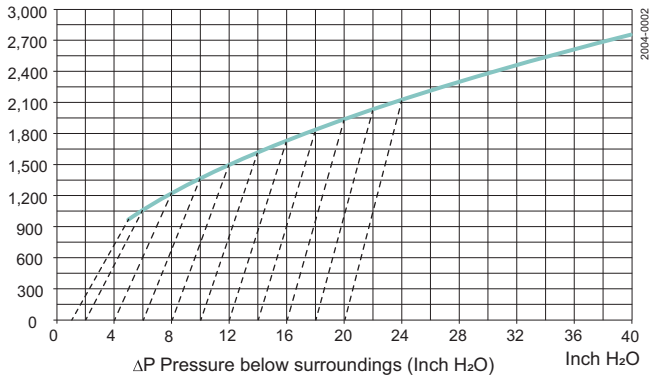
Nominal size : 6"

Volumetric Flow Capacity

Medium: Air

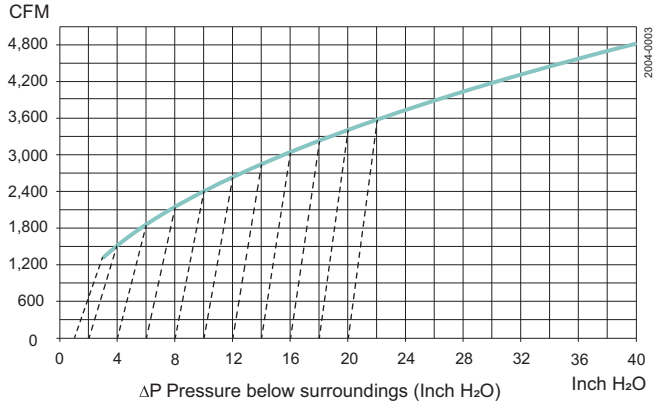
- - - Preset opening pressure to fully open valve

CFM

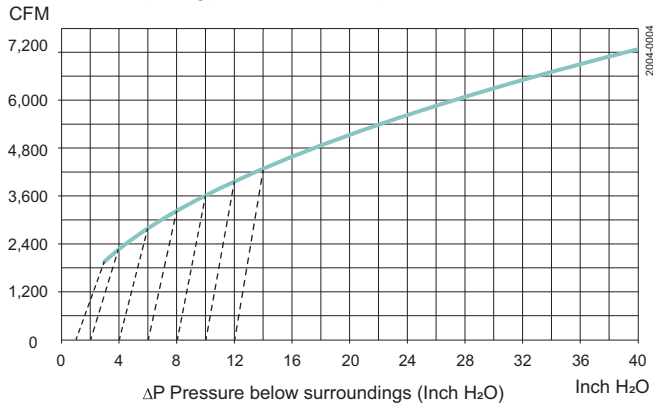


1.8

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



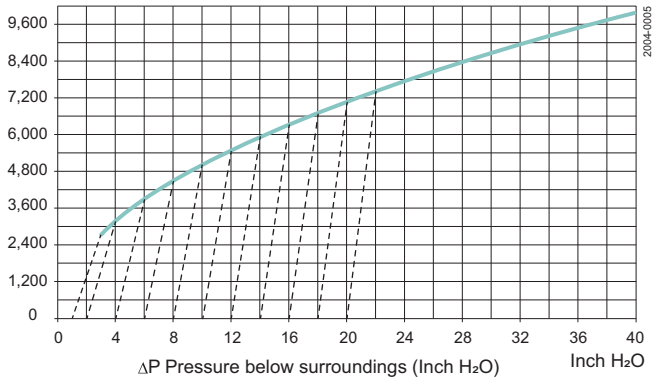
Nominal size : 12"

Volumetric Flow Capacity

Medium: Air

- - - Preset opening pressure to fully open valve

CFM



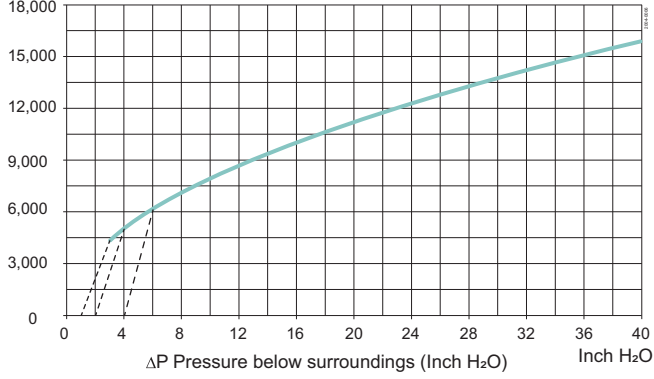
Nominal size : 16"

Volumetric Flow Capacity

Medium: Air

- - - Preset opening pressure to fully open valve

CFM



Alfa Laval SB Anti Vacuum House

Safety valves

1.8

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 CO₂ 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

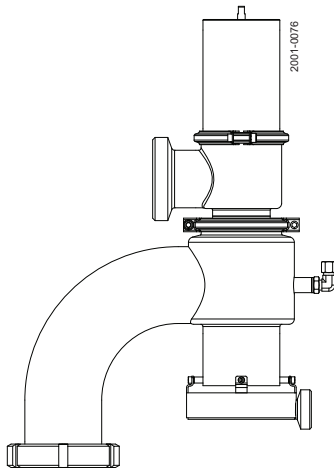
The Anti Vacuum House provides vacuum protection and can be combined with other valves to provide following functions:

- Safety valves for tank overpressure protection
- Regulating valves for process protection

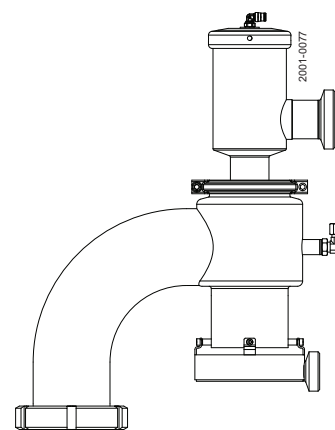
Available combinations

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

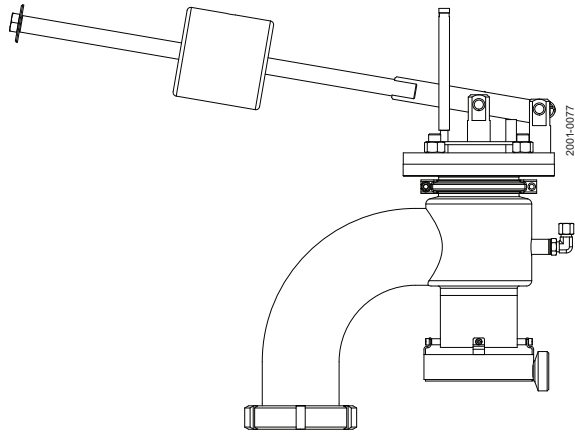
Anti Vacuum House with CO2 House



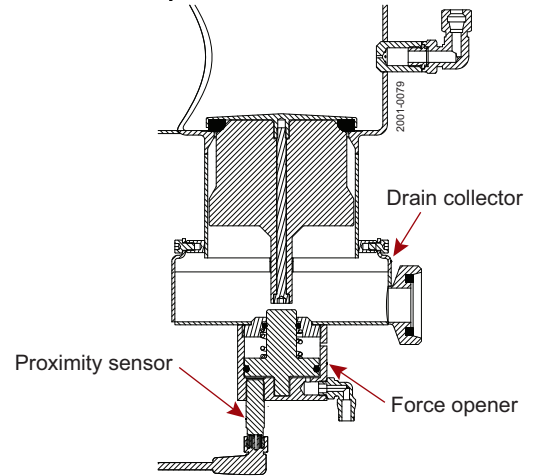
Anti Vacuum House with Pressure Exhaust



Anti Vacuum House with Pressure Relief Valve

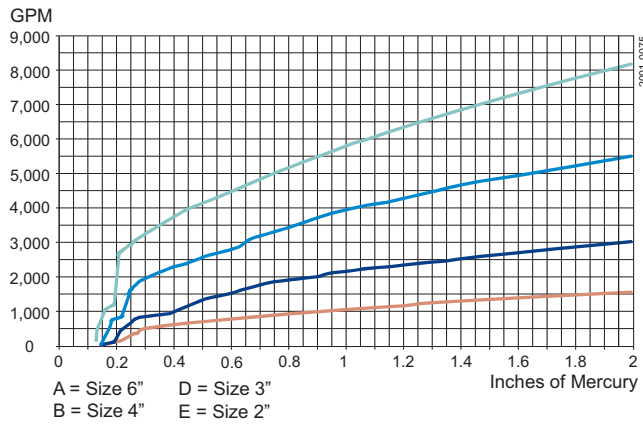


Cross section of Anti Vacuum House with Force opener, Proximity sensor and Drain collector



1.8

Volumetric Flow Capacity
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 \geq 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

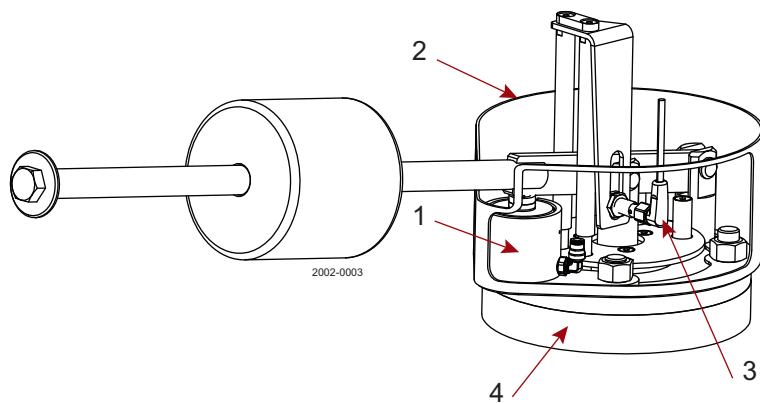
Materials	
Product wetted steel parts:	EN 1.4404 (AISI 316L) with 3.1 cert.
Product wetted steel surfaces:	Surface roughness Ra < 32 µin"
Product wetted seals:	EPDM

1.8

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

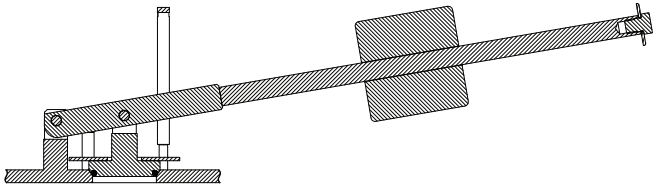


Options:

- 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

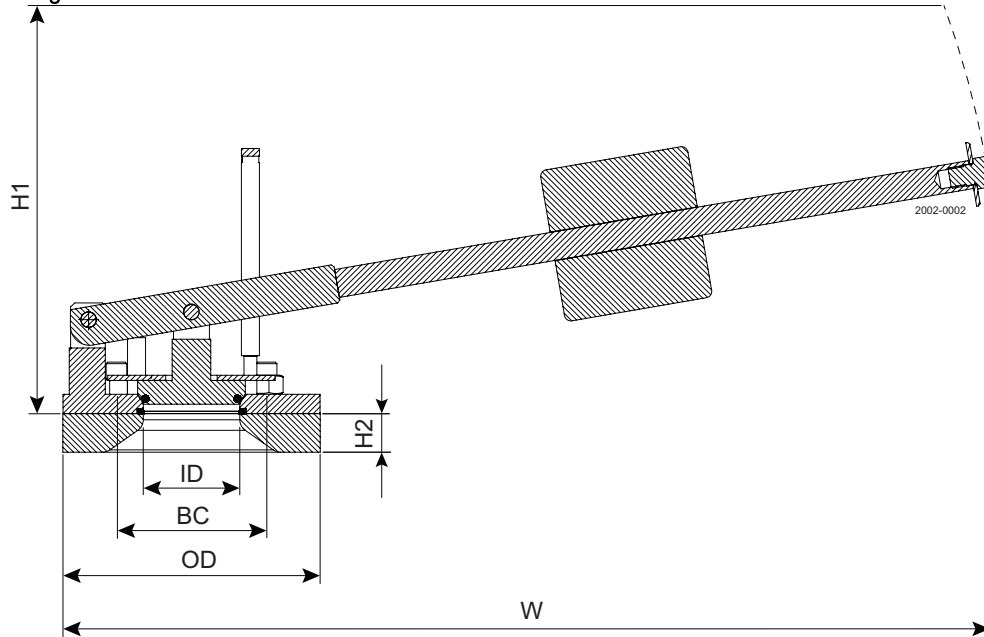
Dimensions (inch)

Integrated Valve



1.8

Flange Mounted Valve

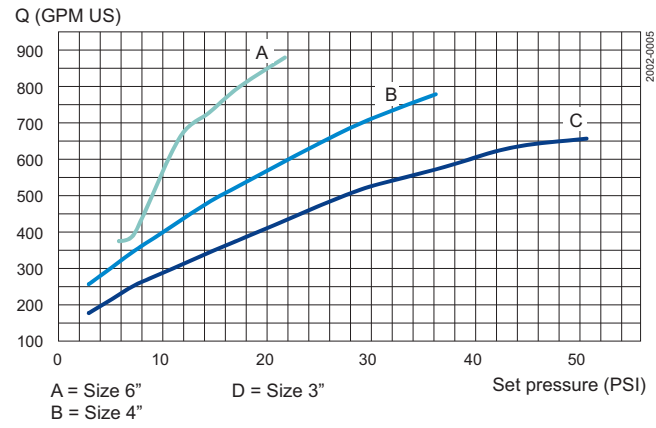


ID = Active diameter
 BC = Bolt circle
 OD = Outside diameter

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



1.8

In accordance with EN 4126-1

Capacity measured at:

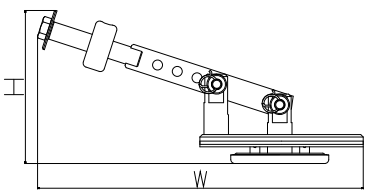
$\Delta P = 10\%$ Set pressure ≥ 14.5 PSI

$\Delta P = 1.45$ Set pressure < 14.5 PSI

Medium: water (68°F)

Safety Valve
Product code: 5916

Material: 1.4404
Seals: NBR
Inside surface finish: Ra ≤ 32 µin
Outside surface finish: Ra ≤ 63 µin

Item No.	LLP USD	Size	Opening Pressure inch H2O	Fully open at inch H2O	Flow (Gallon/h) fully open	Dimension (in)		SCANDI BREW
						H	W	
9615053901		3.94	1.97	5.91	203676.69	12.2	20.08	
9615053902		3.94	3.94	7.87	235113.17	12.2	20.08	
9615053903		3.94	5.91	9.84	262851.24	12.2	20.08	
9615053904		3.94	7.87	11.81	287947.59	12.2	20.08	
9615053905		3.94	9.84	13.78	310930.56	12.2	20.08	
9615053906		3.94	11.81	15.75	332592.67	12.2	20.08	
9615053907		3.94	13.78	17.72	352669.75	12.2	20.08	
9615053908		3.94	15.75	19.68	371690.14	12.2	20.08	
9615053909		3.94	17.72	21.65	389918.02	12.2	20.08	
9615053910		3.94	19.68	23.62	407353.38	12.2	20.08	
9615055001		5.91	0.98	4.92	429015.49	12.8	21.65	
9615055002		5.91	1.97	5.91	469962.17	12.8	21.26	
9615055003		5.91	3.94	7.87	542609.49	12.8	21.26	
9615055004		5.91	5.91	9.84	606803.31	12.8	21.26	
9615055005		5.91	7.87	11.81	664657	12.8	21.26	
9615055006		5.91	9.84	13.78	718019.77	12.8	21.26	
9615055007		5.91	11.81	15.75	767419.95	12.8	21.26	
9615055008		5.91	13.78	17.72	814178.41	12.8	21.26	
9615055009		5.91	15.75	19.68	858030.98	12.8	21.26	
9615055010		5.91	17.72	21.65	900034.34	12.8	21.26	
9615055011		5.91	19.68	23.62	939924.33	12.8	21.26	

For specific flow (Gallon/h) please see the PD leaflet in Anytime

SB Anti Vacuum Valve

Safety valves

Safety Valve
Product code: 5916

Material: 1.4404
Seals: NBR
Inside surface finish: Ra ≤ 32 µin
Outside surface finish: Ra ≤ 63 µin

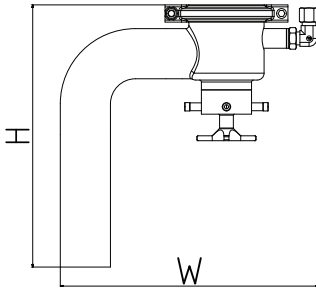
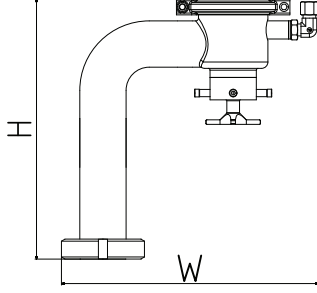
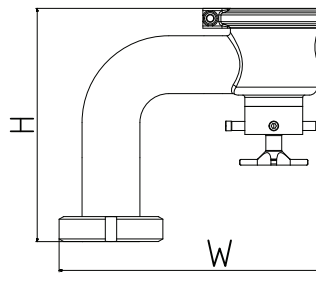
1.8

Item No.	LLP USD	Size	Opening Pressure inch H2O	Fully open at inch H2O	Flow (Gallon/h) fully open	Dimension (in)		SCANDI BREW
						H	W	
9615064301		7.87	0.98	2.95	581971.14	12.2	22.44	
9615064302		7.87	1.97	3.94	672053.82	12.2	22.44	
9615064303		7.87	3.94	5.91	823160.26	12.2	22.44	
9615064304		7.87	5.91	7.87	950491.22	12.2	22.44	
9615064305		7.87	7.87	9.84	1062764.36	12.2	22.44	
9615064306		7.87	9.84	11.81	1164206.44	12.2	22.44	
9615064307		7.87	11.81	13.78	1257459.2	12.2	22.44	
9615064308		7.87	13.78	15.75	1344107.64	12.2	22.44	
9615064309		7.87	15.75	17.72	1425736.82	12.2	22.44	
9615064310		7.87	17.72	19.68	1502875.08	12.2	22.44	
9615064311		7.87	19.68	21.65	1576314.92	12.2	22.44	
9615064501		9.84	0.98	2.95	877843.89	12.8	23.62	
9615064502		9.84	1.97	3.94	1013892.52	12.8	23.62	
9615064503		9.84	3.94	5.91	1241608.87	12.8	23.62	
9615064504		9.84	5.91	7.87	1433661.99	12.8	23.62	
9615064505		9.84	7.87	9.84	1602996.3	12.8	23.62	
9615064506		9.84	9.84	11.81	1755951.95	12.8	23.62	
9615064507		9.84	11.81	13.78	1896755.68	12.8	23.62	
9615064701		11.81	0.98	2.95	1206209.81	19.68	37.01	
9615064702		11.81	1.97	3.94	1392715.31	19.68	37.01	
9615064703		11.81	3.94	5.91	1705759.25	19.68	37.01	
9615064704		11.81	5.91	7.87	1969667.18	19.68	37.01	
9615064705		11.81	7.87	9.84	2202138.63	19.68	37.01	
9615064706		11.81	9.84	11.81	2412419.62	19.68	37.01	
9615064707		11.81	11.81	13.78	2605793.59	19.68	37.01	
9615064708		11.81	13.78	15.75	2785694.79	19.68	37.01	
9615064709		11.81	15.75	17.72	2954500.77	19.68	37.01	
9615064710		11.81	17.72	19.68	3114324.89	19.68	37.01	
9615064711		11.81	19.68	21.65	3266488.02	19.68	37.01	
9615064901		15.75	0.98	2.95	1917625.27	19.29	39.76	
9615064902		15.75	1.97	3.94	2214290.54	19.29	39.76	
9615064903		15.75	3.94	5.91	2711990.78	19.29	39.76	
Item No.	PPL EUR	Size DN				Dimension (mm)		
						H	W	
AWW Counter Flange								
9615085401		3.94				2.76	7.87	
9615085402		5.91				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	

For specific flow (Gallon/h) please see the PD leaflet in Anytime

Safety Valve
Product code: 5916

Material: 1.4404
Seals: EPDM
Inside and outside surface finish: Blasted

Item No.	LLP USD	Size DN	Operating range	Flow	Dimension (in)		SCANDI BREW
					H	W	
Anti Vacuum House Weld End							
9615110503		2"	2 - 20 in WG	0 - 79251.63 gallon/h	10.51	10.35	
9615070503		3"	2 - 20 in WG	0 - 153219.82 gallon/h	12.44	12.05	
9615070903		4"	2 - 20 in WG	0 - 285305.87 gallon/h	14.88	16.22	
9615071303		DN150	2 - 20 in WG	0 - 488718.39 gallon/h	15.71	21.14	
Anti Vacuum House Standard DIN Nut & Liner acc. DIN11851							
9615110501		2"	2 - 20 in WG	0 - 79251.63 gallon/h	11.3	11.18	
9615070501		3"	2 - 20 in WG	0 - 153219.82 gallon/h	13.23	14.57	
9615070901		4"	2 - 20 in WG	0 - 285305.87 gallon/h	15.79	17.17	
9615071305		DN150	2 - 20 in WG	0 - 488718.39 gallon/h	16.89	22.32	
Anti Vacuum House Short DIN Nut & Liner acc. DIN11851							
9615110502		2"	2 - 20 in WG	0 - 79251.63 gallon/h	8.11	11.18	
9615070502		3"	2 - 20 in WG	0 - 153219.82 gallon/h	10.16	14.57	
9615070902		4"	2 - 20 in WG	0 - 285305.87 gallon/h	12.56	17.17	
9615071306		DN150	2 - 20 in WG	0 - 488718.39 gallon/h	14.29	22.32	

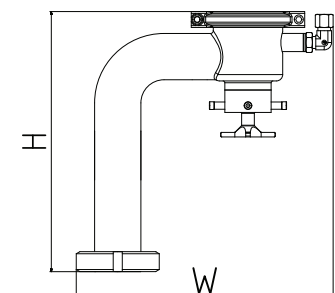
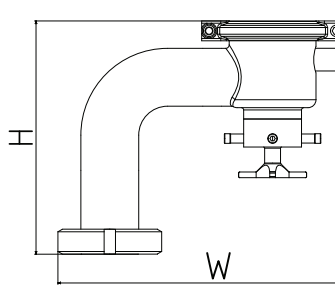
SB Anti Vacuum House

Safety valves

Safety Valve
Product code: 5916


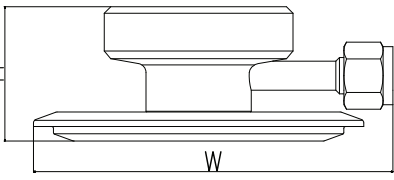
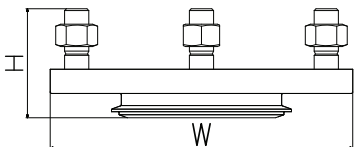
Material: 1.4404
Seals: EPDM
Inside and outside surface finish: Blasted

1.8

Item No.	LLP USD	Size DN	Operating range	Flow	Dimension (in)		SCANDI BREW
					H	W	
Anti Vacuum House Standard SMS Nut & Liner							
9615110504		2"	2 - 20 in WG	0 - 79251.63 gallon/h	11.3	11.18	
9615070504		3"	2 - 20 in WG	0 - 153219.82 gallon/h	13.23	14.57	
9615070904		4"	2 - 20 in WG	0 - 285305.87 gallon/h	15.79	17.17	
Anti Vacuum House Short SMS Nut & Liner							
9615110505		2"	2 - 20 in WG	0 - 79251.63 gallon/h	8.11	11.18	
9615070505		3"	2 - 20 in WG	0 - 153219.82 gallon/h	10.16	14.57	
9615070905		4"	2 - 20 in WG	0 - 285305.87 gallon/h	12.56	17.17	

Safety Valve
Product code: 5919

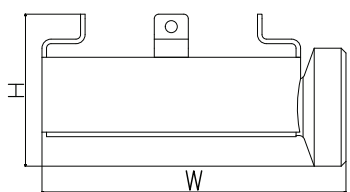
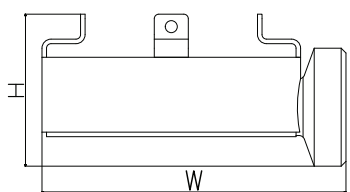
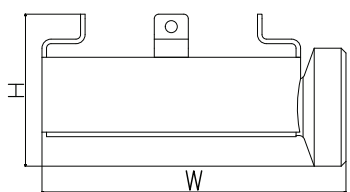
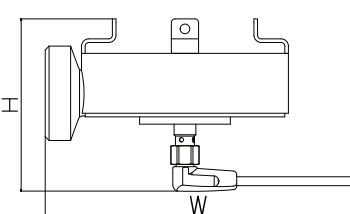
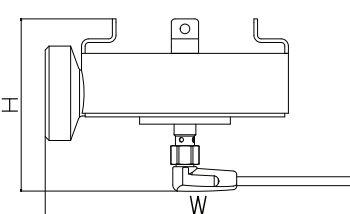
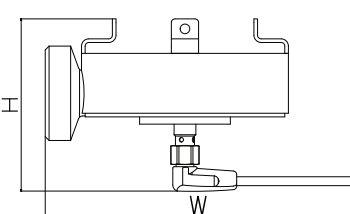
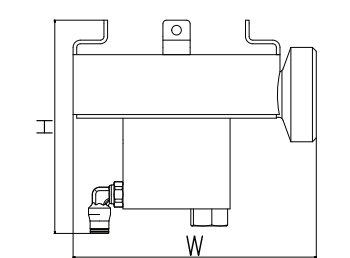
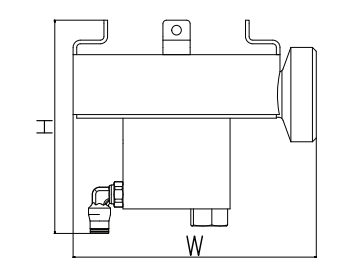
Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 63 µin
Outside surface finish: Ra ≤ 63 µin

Item No.	LLP USD	Size	Connection	Dimension (in)		SCANDI BREW
				H	W	
AVH Blindplate						
9615121101		2"	Blind plate	0.31	3.58	
9615121401		3" - 4"	Blind plate	0.31	4.69	
9615074801		DN150	Blind plate	1.10	7.20	
AVH Blindplate - With Connection & CIP						
9615147101		2"	DIN 25 Male Part	1.46	3.94	
9615147102		2"	DIN 40 Male Part	1.61	4.17	
9615147103		3" - 4"	DIN 25 Male Part	1.46	4.49	
9615147104		3" - 4"	DIN 40 Male Part	1.61	4.72	
9615147105		3" - 4"	DIN 50 Male Part	1.69	4.96	
9615147106		3" - 4"	DIN 65 Male Part	1.89	5.28	
9615147107		3" - 4"	DIN 80 Male Part	2.09	5.55	
9615147108		DN150	DIN 40 Male Part	2.40	7.20	
9615147109		DN150	DIN 50 Male Part	2.48	7.20	
9615147110		DN150	DIN 65 Male Part	2.68	7.20	
9615147111		DN150	DIN 80 Male Part	2.87	7.20	
9615140801		2"	DIN 25 Male Part	1.46	3.58	
9615140802		2"	DIN 40 Male Part	1.61	3.58	
9615140803		3" - 4"	DIN 25 Male Part	1.46	4.69	
9615140804		3" - 4"	DIN 40 Male Part	1.61	4.69	
9615140805		3" - 4"	DIN 50 Male Part	1.69	4.69	
9615140806		3" - 4"	DIN 65 Male Part	1.89	4.69	
9615140807		3" - 4"	DIN 80 Male Part	2.09	4.69	
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	
9615121901		3" - 4"	Pressure Relief Valve Ø3"	2.87	7.87	
9615121902		3" - 4"	Pressure Relief Valve Ø4"	2.87	7.87	
9615122001		DN150	Pressure Relief Valve Ø3"	3.70	7.87	
9615122002		DN150	Pressure Relief Valve Ø4"	3.70	7.87	

Safety Valve
 OProduct code: 5919

Material: 1.4307 (304L)
 Seals: EPDM
 Inside & outside surface finish: Blasted

1.8

Item No.	LLP USD	Size	Connection	Dimension (in)		SCANDI BREW
				H	W	
AVH Drain Collector						
9615072801		2"	DIN 25 Male Part	2.64	5.28	
9615072803		3"	DIN 25 Male Part	3.15	6.50	
9615072805		4"	DIN 25 Male Part	2.76	6.50	
9615072807		DN150	DIN 25 Male Part	2.76	9.84	
9615072809		2"	SMS Ø1"	2.40	5.00	
9615072810		3"	SMS Ø1"	2.91	6.34	
9615072811		4"	SMS Ø1"	2.52	6.22	
9615072812		DN150	SMS Ø1"	2.52	9.57	
9615072802		2"	Weld end	2.13	4.49	
9615072804		3"	Weld end	2.64	5.71	
9615072806		4"	Weld end	2.64	5.71	
9615072808		DN150	Weld end	2.64	9.06	
AVH Drain Collector with Prox Switch						
9615074501		2"	DIN 25	3.74	5.28	
9615074503		3"	DIN 25	4.25	6.50	
9615074505		4"	DIN 25	3.86	6.50	
9615074507		DN150	DIN 25	3.86	9.84	
9615074509		2"	SMS Ø1"	3.74	5.28	
9615074510		3"	SMS Ø1"	4.25	6.50	
9615074511		4"	SMS Ø1"	3.86	6.50	
9615074512		DN150	SMS Ø1"	3.86	9.84	
9615074502		2"	Weld end	3.74	4.49	
9615074504		3"	Weld end	4.25	5.71	
9615074506		4"	Weld end	3.86	5.71	
9615074508		DN150	Weld end	3.86	9.06	
AVH Drain Collector with Force Opener						
9615073909		2"	DIN 25	4.65	5.28	
9615073911		3"	DIN 25	5.16	6.50	
9615073913		4"	DIN 25	4.76	6.50	
9615073915		DN150	DIN 25	4.76	9.84	
9615073917		2"	SMS Ø1"	4.65	5.00	
9615073918		3"	SMS Ø1"	5.16	6.22	
9615073919		4"	SMS Ø1"	4.76	6.22	
9615073920		DN150	SMS Ø1"	4.76	9.57	

Safety Valve
 Product code: 5919

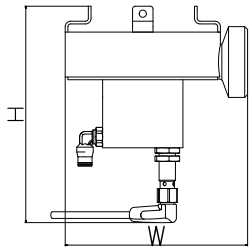
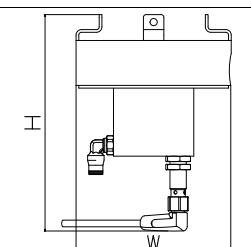

Material: 1.4307 (304L)
 Seals: EPDM
 Inside & outside surface finish: Blasted

Item No.	LLP USD	Size	Connection	Dimension (in)		SCANDI BREW
				H	W	
9615073910		2"	Weld end	4.65	4.49	
9615073912		3"	Weld end	5.16	5.71	
9615073914		4"	Weld end	4.76	5.71	
9615073916		DN150	Weld end	4.76	9.06	

Safety Valve
 OProduct code: 5919

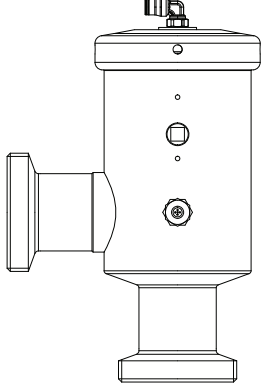
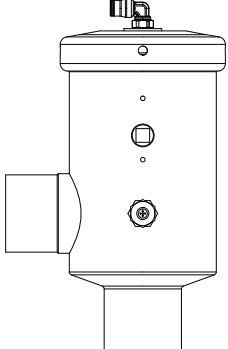
Material: 1.4307 (304L)
 Seals: EPDM
 Inside & outside surface finish: Blasted

1.8

Item No.	LLP USD	Size	Connection	Dimension (in)		SCANDI BREW
				H	W	
AVH Drain collector with Prox Switch & Force Opener						
9615073901		2"	DIN 25	6.26	5.28	
9615073903		3"	DIN 25	6.77	6.50	
9615073905		4"	DIN 25	6.38	6.50	
9615073907		DN150	DIN 25	6.38	9.84	
9615073921		2"	SMS Ø1"	6.26	5.00	
9615073922		3"	SMS Ø1"	6.77	6.22	
9615073923		4"	SMS Ø1"	6.38	6.22	
9615073924		DN150	SMS Ø1"	6.38	9.57	
9615073902		2"	Weld end	6.26	4.49	
9615073904		3"	Weld end	6.77	5.71	
9615073906		4"	Weld end	6.38	5.71	
9615073908		DN150	Weld end	6.38	9.06	

Regulating Valve
 Product code: 5920

Material: 1.4404 (316L)
 Seals: EPDM
 Inside surface finish: $Ra \leq 0.8 \mu m$
 Outside surface finish: $Ra \leq 1.6 \mu m$

Item No.	LLP USD	Size	Dimension (in)		
			H	W	
Connection: MALE PART ACC. DIN 11851					
9615091301 9615088501		DN40 DN50	8.46 10.04	5.31 6.69	
Connection: Welding Ends Acc. ISO 2037					
9615091302 9615088502		1.5" 2"	7.68 9.25	4.53 5.71	

1.8

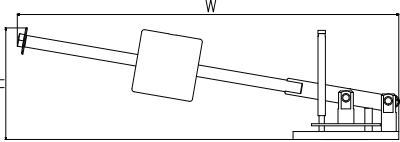
SB Pressure Relief Valve

Safety valves

Safety Valve
Product code: 5916

Material: 1.4404
Seals: EPDM
Inside surface finish: Ra ≤ 32 µin

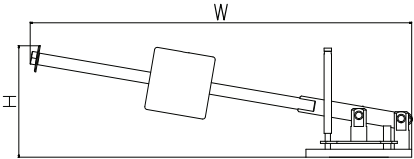
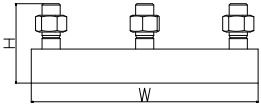
1.8

Item No.	LLP USD	Size	Opening Pressure psi	Flow gallon/h	Dimensions (in)		SCANDI BREW
					H	W	
9615062801		3"	2.90	10672.55	14.76	29.13	
9615062802		3"	4.35	12099.08	14.76	29.13	
9615062803		3"	5.80	13631.28	14.76	29.13	
9615062804		3"	7.25	15216.31	14.76	29.13	
9615062805		3"	8.70	16299.42	14.76	29.13	
9615062806		3"	10.15	17382.52	14.76	29.13	
9615062807		3"	11.60	18492.05	14.76	29.13	
9615062808		3"	13.05	19575.15	14.76	29.13	
9615062809		3"	14.50	20684.68	14.76	29.13	
9615062810		3"	15.95	21714.95	14.76	29.13	
9615062811		3"	17.40	22771.64	14.76	29.13	
9615062812		3"	18.85	23828.32	14.76	29.13	
9615062813		3"	20.31	24858.59	14.76	29.13	
9615062814		3"	21.76	25915.28	14.76	29.13	
9615062815		3"	23.21	26945.55	14.76	29.13	
9615062816		3"	24.66	27949.41	14.76	29.13	
9615062817		3"	26.11	28979.68	14.76	29.13	
9615062818		3"	27.56	30009.95	14.76	29.13	
9615062819		3"	29.01	31013.8	14.76	29.13	
9615062820		3"	30.46	31674.23	14.76	29.13	
9615062821		3"	31.91	32334.67	14.76	29.13	
9615062822		3"	33.36	33021.51	14.76	29.13	
9615062823		3"	34.81	33681.94	14.76	29.13	
9615062824		3"	36.26	34342.37	14.76	29.13	
9615062825		3"	37.71	35055.64	14.76	29.13	
9615062826		3"	39.16	35768.9	14.76	29.13	
9615062827		3"	40.61	36508.58	14.76	29.13	
9615062828		3"	42.06	37221.85	14.76	29.13	
9615062829		3"	43.51	37935.11	14.76	29.13	
9615062830		3"	44.96	38252.12	14.76	29.13	
9615062831		3"	46.41	38542.71	14.76	29.13	
9615062832		3"	47.86	38833.3	14.76	29.13	
9615062833		3"	49.31	39150.31	14.76	29.13	
9615062834		3"	50.76	39440.89	14.76	29.13	

Safety Valve
Product code: 5916

Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 32 µin

1.8

Item No.	LLP USD	Size	Opening Pressure psi	Flow gallon/h	Dimensions (in)		SCANDI BREW	
					H	W		
9615064201		4"	2.90	15427.65	14.76	29.13		
9615064202		4"	4.35	17250.44	14.76	29.13		
9615064203		4"	5.80	19073.23	14.76	29.13		
9615064204		4"	7.25	20896.01	14.76	29.13		
9615064205		4"	8.70	22533.88	14.76	29.13		
9615064206		4"	10.15	24145.33	14.76	29.13		
9615064207		4"	11.60	25783.2	14.76	29.13		
9615064208		4"	13.05	27421.06	14.76	29.13		
9615064209		4"	14.50	29032.51	14.76	29.13		
9615064210		4"	15.95	30379.79	14.76	29.13		
9615064211		4"	17.40	31700.65	14.76	29.13		
9615064212		4"	18.85	33047.93	14.76	29.13		
9615064213		4"	20.31	34368.79	14.76	29.13		
9615064214		4"	21.76	35716.07	14.76	29.13		
9615064215		4"	23.21	36931.26	14.76	29.13		
9615064216		4"	24.66	38146.45	14.76	29.13		
9615064217		4"	26.11	39361.64	14.76	29.13		
9615064218		4"	27.56	40603.25	14.76	29.13		
9615064219		4"	29.01	41818.44	14.76	29.13		
9615064220		4"	30.46	42901.55	14.76	29.13		
9615064221		4"	31.91	43878.99	14.76	29.13		
9615064222		4"	33.36	44830.01	14.76	29.13		
9615064223		4"	34.81	45807.44	14.76	29.13		
9615064224		4"	36.26	46969.8	14.76	29.13		
9615064601		6"	5.80	22507.46	16.93	41.34		
9615064602		6"	7.25	35214.14	16.93	41.34		
9615064603		6"	8.70	36640.67	16.93	41.34		
9615064604		6"	10.15	38093.62	16.93	41.34		
9615064605		6"	11.60	39520.15	16.93	41.34		
9615064606		6"	13.05	41633.52	16.93	41.34		
9615064607		6"	14.50	43773.32	16.93	41.34		
9615064608		6"	15.95	45886.69	16.93	41.34		
9615064609		6"	17.40	48026.49	16.93	41.34		
9615064610		6"	18.85	49611.52	16.93	41.34		
9615064611		6"	20.31	51222.97	16.93	41.34		
9615064612		6"	21.76	52834.42	16.93	41.34		
Item No.	PPL EUR	Size			Dimensions (mm)			PRV Counter Flange
					H	W		
9615052001		3"			2.76	7.87		
9615070601		4"			2.76	7.87		
9615066801		6"			2.76	7.87		

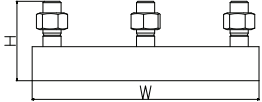
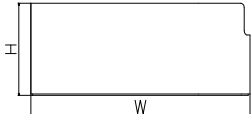
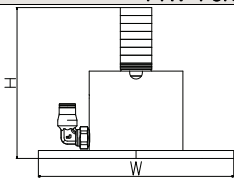
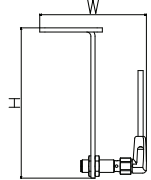
SB Pressure Relief Valve Accessories

Safety valves

Safety Valve
Product code: 5919

Material: 1.4404
Inside surface finish: $Ra \leq 32 \mu\text{in}$
Outside surface finish: $Ra \leq 63 \mu\text{in}$

1.8

Item No.	LLP USD	Size DN	Dimension (in)		SCANDI BREW
			H	W	
PRV Counter Flange					
9615052001		3"	2.76	7.87	
9615070601		4"	2.76	7.87	
9615066801		6"	2.76	10.63	
PRV Splash Guard					
9615054401		3" - 4"	4.02	9.53	
9615050201		6"	4.02	11.89	
PRV Force Opener					
9615066201		6"	3.74	4.88	
9615065701		3" - 4"	3.74	5.98	
PRV Proximity Switch					
9615063501		6"	5.71	3.94	
9615063301		3" - 4"	6.10	3.94	

1.9 Sampling valves

Our sampling equipment ranges from basic sampling valves to premium quality valves, providing the ultimate in sterile and aseptic sampling.



Product leaflets

Unique Sampling Valve - Double Seat Valve	1.9.310
Unique Sampling Valve - Single Seat Valve	1.9.314
Accessories - Pressure Relief Valve	1.9.319
Accessories - Non Return Valve	1.9.321
Accessories - Quick Connection	1.9.324
SB Membrane Sample Valve	1.9.326
SB Micro Sample Port	1.9.329
SB Micro Sample Port Type M	1.9.331
SB Carlsberg Flask	1.9.333

Ordering leaflets

Unique Sampling Valve - Double Seat	1.9.335
Unique Sampling Valve - Single Seat	1.9.337
Unique Sampling Valve - Accessories	1.9.339
SB Membrane Sample Valve	1.9.341
SB Membrane Sample Valve Accessories	1.9.342
SB Micro Sample Port	1.9.344
SB Micro Sample Port, Type M	1.9.345
SB Carlsberg Flask	1.9.346
Micro port	1.9.347
Sampling Valves Type 20	1.9.348

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.

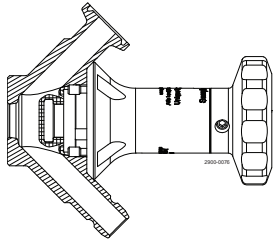
The valve is available in three sizes: Type 4, Type 10 and Type 25. A collared pipe, tank or Tri-Clamp connection is available. The valve handles and actuators are interchangeable (see page 2).



Working principle

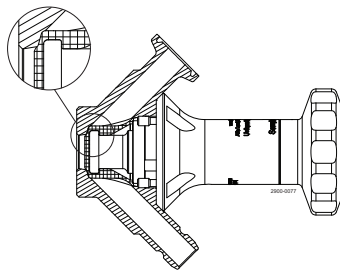
The Alfa Laval Unique Sampling Valve (Double Seat), with its patented technology, is designed for truly sterile sampling and ensures higher cleanability and sterilization of the valve seat and pipe connections. The double-seat sampling valve has three positions: open, shut and sterilization. It can be operated manually or automatically using a pneumatic actuator.

- **Open position: To start the sampling process**



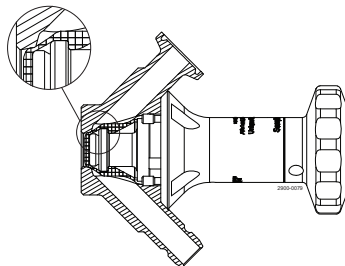
Manual valve: rotate the handle in a counterclockwise direction to open the valve. Pneumatic valve: open the valve by activating the actuator. This retracts the valve stem and membrane seal, which enables the product to flow freely through the open valve.

- **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:	1000 kPa (145 PSI)
Min. working pressure:	0 kPa (0 PSI)

ATEX	
Classification	II 2 G D*

*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)

1.9

Valve bodies:

- Tank (welding)
- Collared tube (welding)
- Clamp

Valve heads:

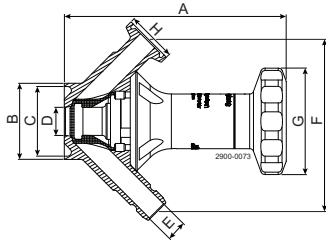
- Handle
- Pneumatic actuator (air supply 5-8 bar)

Accessories:

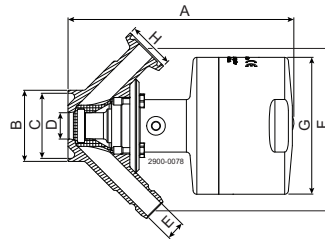
- See ordering leaflet

Dimensions (inch)

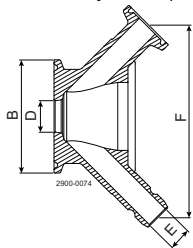
Handle with valve body: Collared pipe welding



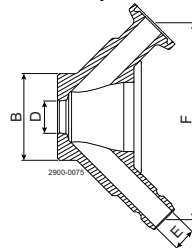
Pneumatic with valve body: Collared pipe welding



Valve body: Clamp



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
Weigth (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

1.9

Valve size		Size 25						
Valve Head		Pneumatic Double Seat					Collarded pipe	
Valve body		Tank	Tri-clamp					
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
Weigth (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).

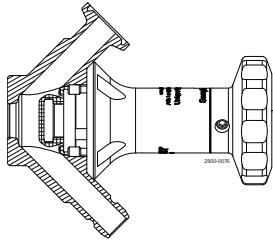
The Unique Sampling Valve (Single Seat) can be upgraded to the Alfa Laval Unique Sampling Valve (Double Seat) by replacing the handle or actuator with an upgrade kit.



Working principle

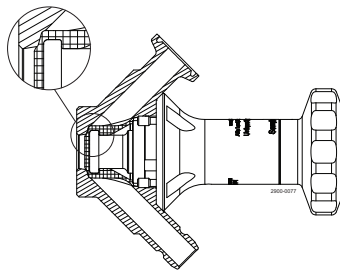
The Alfa Laval Unique Sampling Valve (Single Seat) is designed for standard hygienic sampling. The single-seat sampling valve has two positions: open and shut.

- **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*

*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)

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Valve bodies:

- Tank (welding)
- Collared tube (welding)
- Tri-clamp

Valve heads:

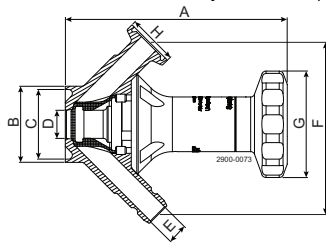
- Handle
- Pneumatic actuator (air supply 5-8 bar)

Accessories:

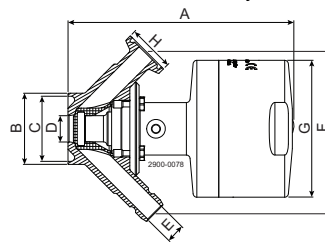
- See ordering leaflet

Dimensions (inch)

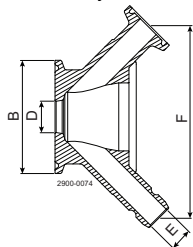
Handle with valve body: Collared pipe welding



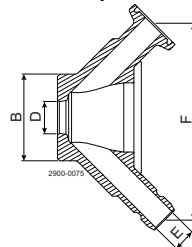
Pneumatic with valve body: Collared pipe welding



Valve body: Tri-clamp



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

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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	

1.9

Alfa Laval 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.



1.9

TECHNICAL DATA

Temperature	
Temperature range:	33.8°F - 266°F
Max. sterilisation temperature, dry steam:	266°F

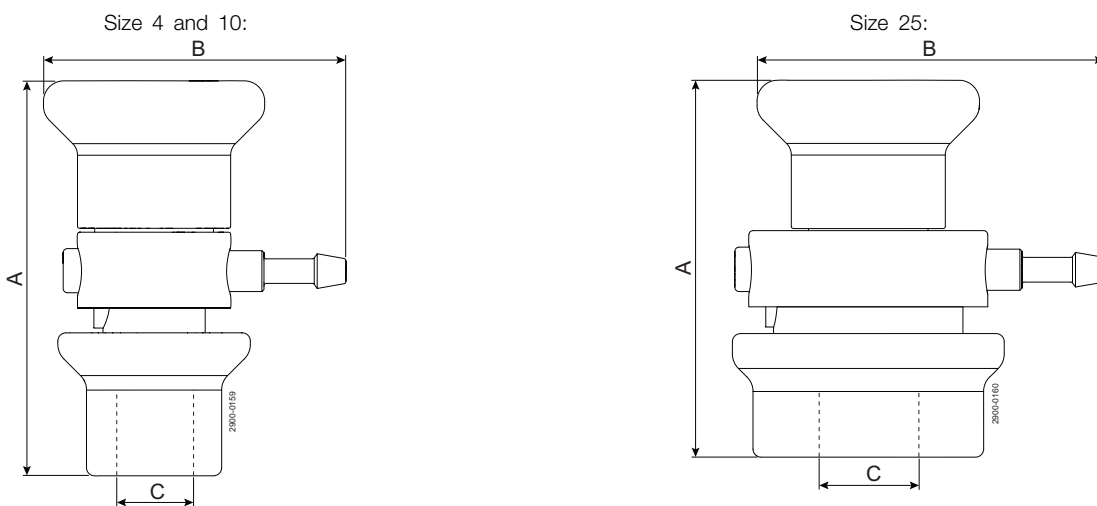
Pressure	
Max. working pressure:	87 psi (6 bar)
Min. working pressure:	0 psi (0 bar)

1.9

PHYSICAL DATA

Materials	
Steel parts:	1.4301 (304)
Other parts:	PA 6.6 30% GF
Membrane seal:	EPDM

Dimensions (inch)



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 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
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Max. sterilisation temperature, dry steam:	266°F
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Pressure

Max. working pressure:	87 psi (6 bar)
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Min. working pressure:	0 psi (0 bar)
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PHYSICAL DATA

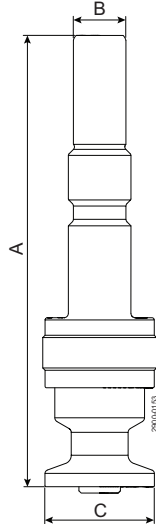
Materials

Product wetted parts:	1.4404 (316L), PVDF
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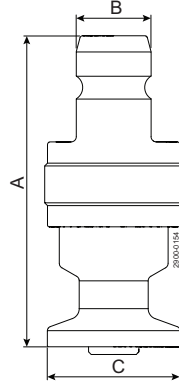
Other parts:	1.4301 (304)
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Dimensions (inch)

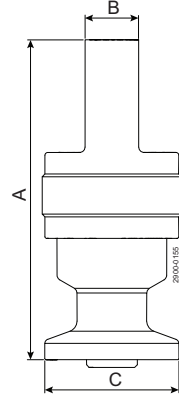
Size 4 and 10:
For steam generator



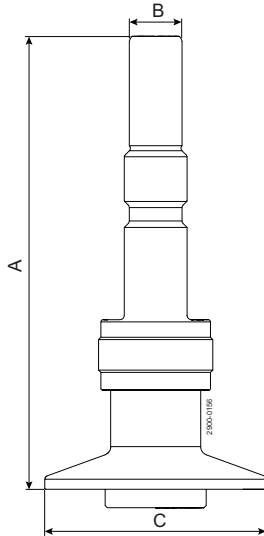
For Quick connection



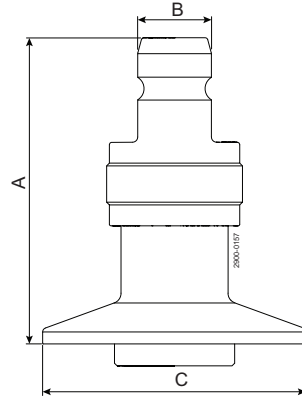
For tube welding



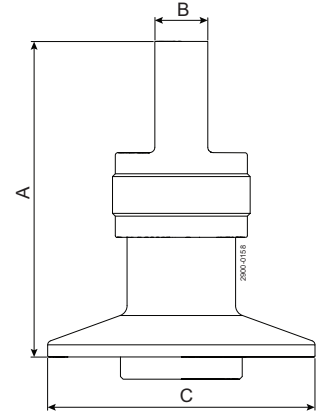
Size 25:
For steam generator



For Quick connection



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 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

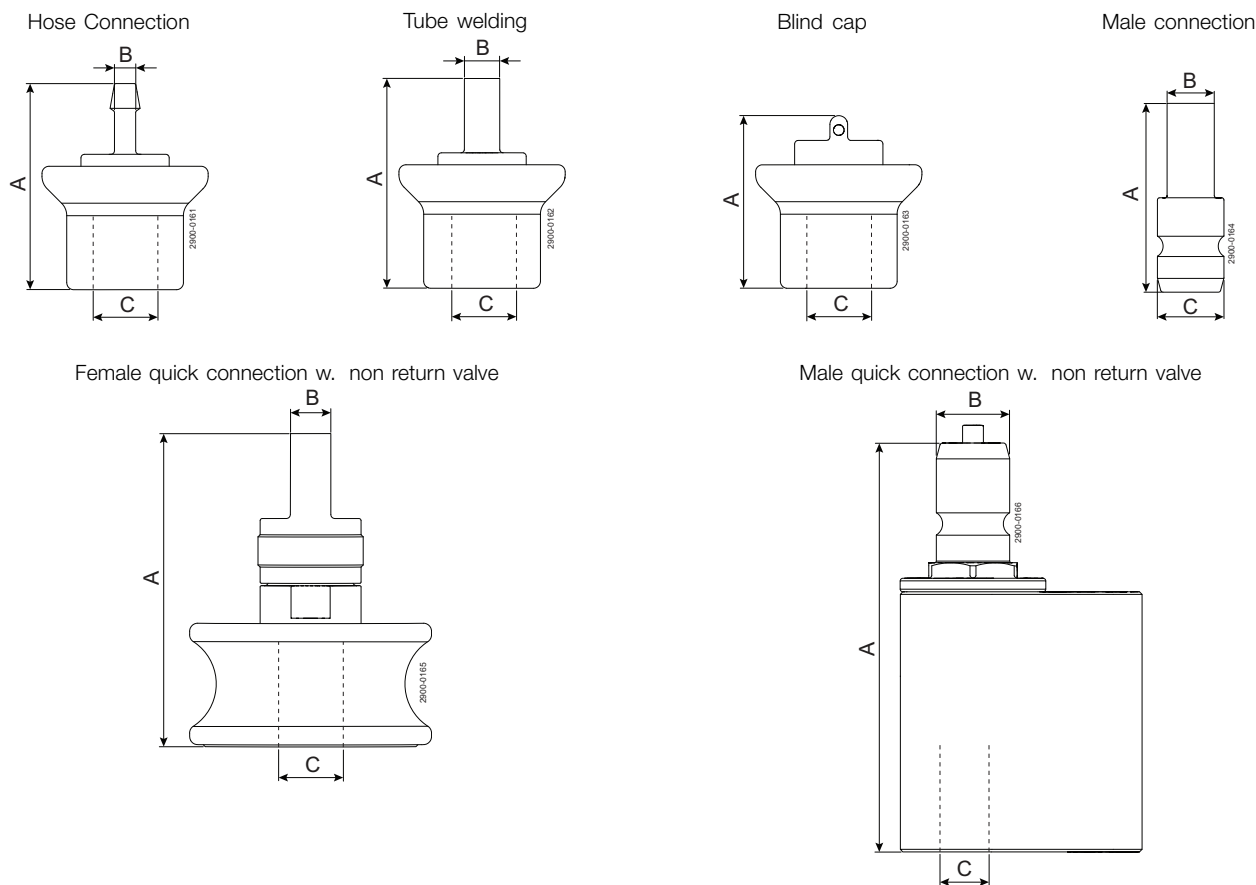
Pressure	
Max. working pressure:	87 psi (6 bar)
Min. working pressure:	0 psi (0 bar)

PHYSICAL DATA

Materials	
Product wetted parts:	1.4404 (316L)
Other parts:	1.4301 (304), PA 6.6 30% GF

1.9

Dimensions (inch)



Type	A	B	C
Quick connection w. hose connection \varnothing 0.24	2.28	0.24	0.55
Quick connection w. hose connection \varnothing 0.31	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 Sample Valve

Sampling valves

Introduction

The Alfa Laval SB Membrane Sample 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 sample contamination risk due to effective Sterilization-in-Place before and after each sample
- Flexible sampling methods: manual activation, manual with micro port for hypodermic needle, or pneumatic versions
- Safe, reliable sampling procedures

Standard design

The membrane sample 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 Sample 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 (2bar)	249.8 F°

Steam must be dry, since condensate will damage the membrane seal.

Pressure	
Product pressure:	145 psi (10 bar)

1.9

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

Options

- Handle for operating the valve
- Assembling tool
- Membrane remover
- Sampling coil with clip-on
- Isobaric hand bottling device with clip-on
- Hypodermic needle
- Silicone hose with clip-on

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.

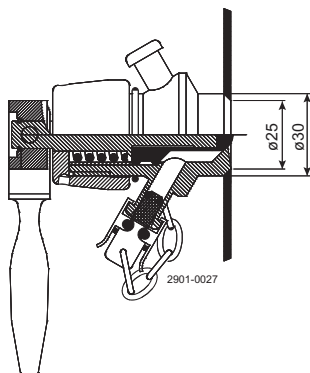
The pneumatic valve can alternatively be supplied in a combined manual - pneumatic execution.

Please ask for separate information on the SCANDI BREW® Sampling system.

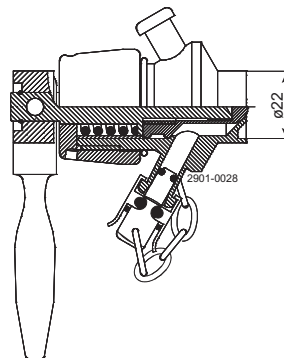
The valve body is available in the following constructions:

- 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.

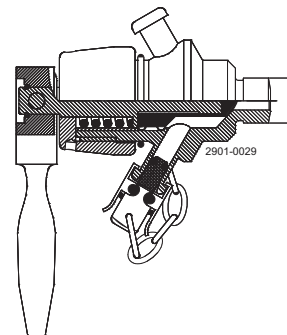
Type T



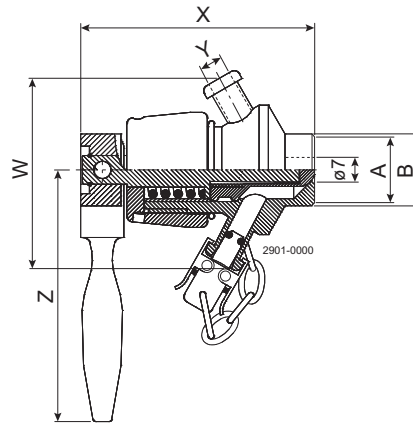
Type P



Type S



Dimensions (inch)



1.9

	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 Sample Port

Sampling valves

Introduction

The Alfa SB Laval Micro Sample 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 sample port features a straightforward hygienic design with minimal components to make collecting samples mid-stream easy, convenient and accurate.

Application

The SB Micro Sample 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 sample 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.



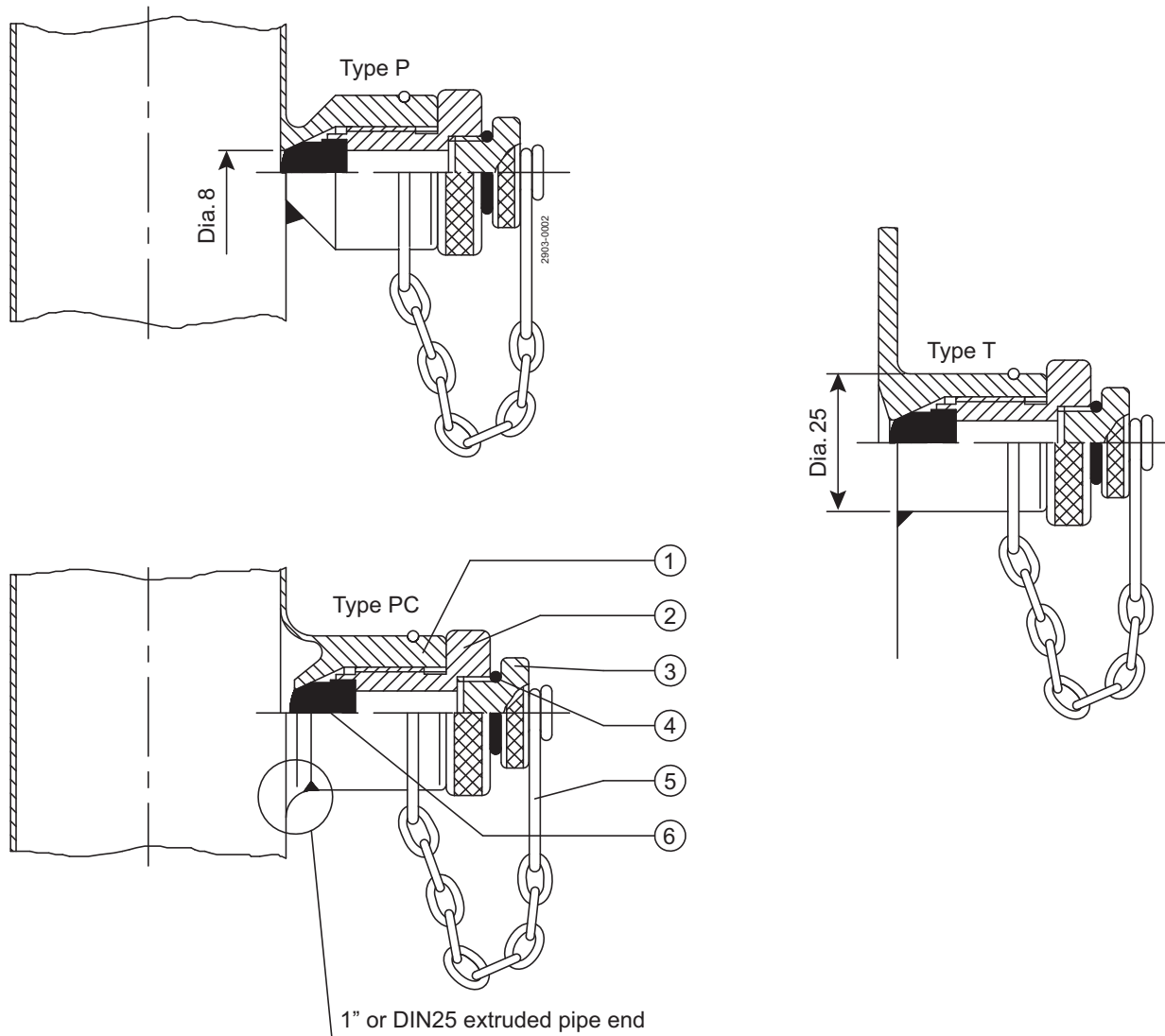
TECHNICAL DATA

Temperature	
Temperature range, silicone:	33°F - 230°F
Temperature range, natural rubber:	33°F - 194°F
Pressure	
87 PSI	87 PSI

PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4404 (AISI 316L) 3.1 available
Membrane seals:	Silicone or natural rubber

1.9



- 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

Alfa Laval SB Micro Sample Port Type M

Sampling valves

Introduction

The Alfa Laval SB Micro Sample 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 sample port features a straightforward hygienic design with minimal components to make collecting samples easy, convenient and accurate.

Application

The sample 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 Sample 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

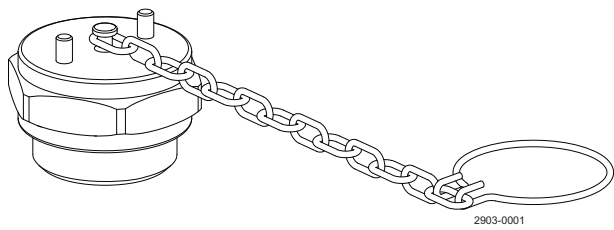
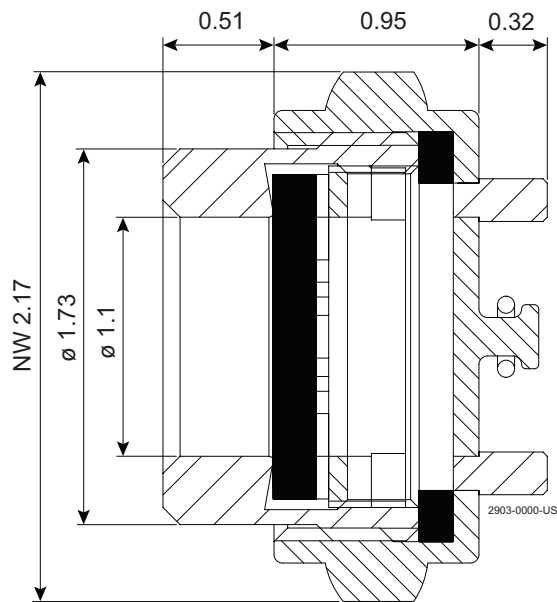
Pressure	
Max. product pressure:	145 PSI

PHYSICAL DATA

Materials	
Product wetted steel parts	EN 1.4404 (AISI 316L) 3.1 available
Membrane seal	NBR

1.9

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.



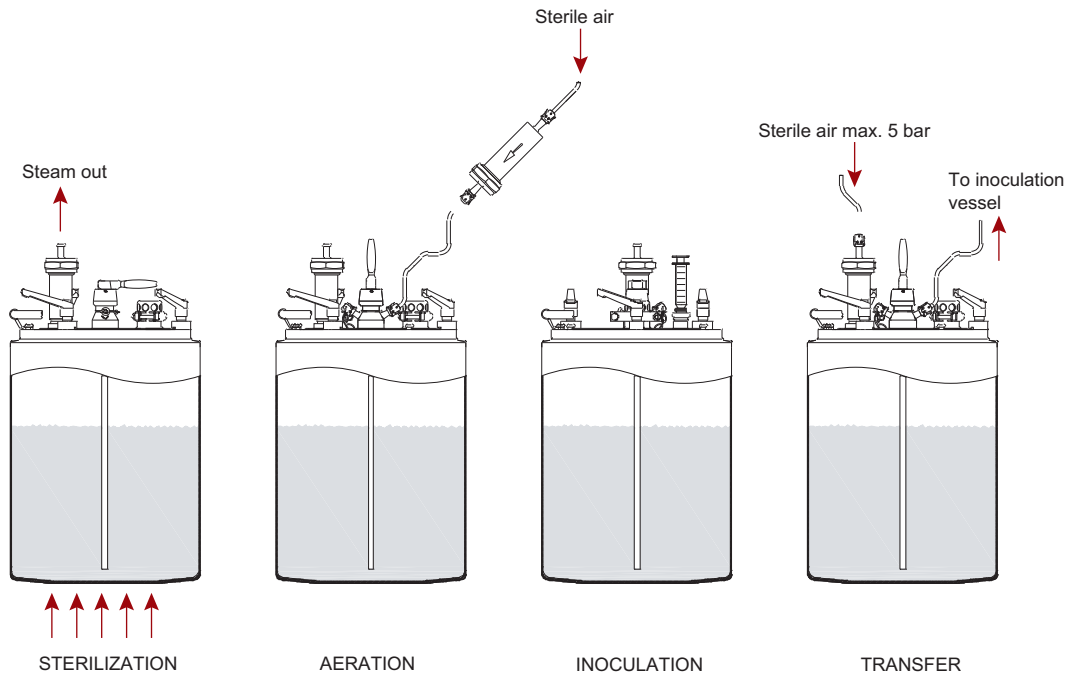
TECHNICAL DATA

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

1.9



Sampling valves

Unique Sampling Valve - Double Seat

Product code: 5349
Valve Ports: Tri-Clamp/Quick

Material: 1.4404 (316L)
Inside surface finish: Ra ≤ 0.32 µin
Outside surface finish: Polished

Diaphragm Item No.		LLP USD	Max. working pressure (psi)	Connection	Dimension (in)		Double Seat
EPDM	Q				A	B	
Size 4							Handle
9614094901	9614094937		0-87	Tri-Clamp	3.46	1.99	
9614094902	9614094938		0-87	Tank mounted	3.45	1.14	
9614094903	9614094939		0-87	Collared pipe - ISO 25mm	3.45	0.98	
9614094904	9614094940		0-87	Collared pipe - DN25	3.45	1.14	
9614094905	9614094941		0-87	Collared pipe - ISO 38mm	3.45	1.50	
9614094906	9614094942		0-87	Collared pipe - DN40	3.45	1.61	
9614094907	9614094943		0-87	Collared pipe - ISO 51mm	3.45	2.01	
9614094908	9614094944		0-87	Collared pipe - DN50	3.45	2.09	
Size 10							
9614095201	9614095237		0-87	Tri-Clamp	4.37	1.99	
9614095202	9614095238		0-87	Tank mounted	4.39	1.50	
9614095203	9614095239		0-87	Collared pipe - ISO 25mm	4.43	0.98	
9614095204	9614095240		0-87	Collared pipe - DN25	4.35	1.14	
9614095205	9614095241		0-87	Collared pipe - ISO 38mm	4.35	1.50	
9614095206	9614095242		0-87	Collared pipe - DN40	4.35	1.61	
9614095207	9614095243		0-87	Collared pipe - ISO 51mm	4.35	2.01	
9614095208	9614095244		0-87	Collared pipe - DN50	4.35	2.09	
Size 4							
9614095001	9614095037		0-87	Tri-Clamp	5.56	1.99	
9614095002	9614095038		0-87	Tank mounted	5.57	1.14	
9614095003	9614095039		0-87	Collared pipe - ISO 25mm	5.56	0.98	
9614095004	9614095040		0-87	Collared pipe - DN25	5.56	1.14	
9614095005	9614095041		0-87	Collared pipe - ISO 38mm	5.56	1.50	
9614095006	9614095042		0-87	Collared pipe - DN40	5.56	1.61	
9614095007	9614095043		0-87	Collared pipe - ISO 51mm	5.56	2.01	
9614095008	9614095044		0-87	Collared pipe - DN50	5.56	2.09	
Size 10							
9614095401	9614095437		0-87	Tri-Clamp	7.06	1.99	
9614095402	9614095438		0-87	Tank mounted	7.08	1.50	
9614095403	9614095439		0-87	Collared pipe - ISO 25mm	7.09	0.98	
9614095404	9614095440		0-87	Collared pipe - DN25	7.05	1.14	
9614095405	9614095441		0-87	Collared pipe - ISO 38mm	7.05	1.50	
9614095406	9614095442		0-87	Collared pipe - DN40	7.05	1.61	
9614095407	9614095443		0-87	Collared pipe - ISO 51mm	7.05	2.01	
9614095408	9614095444		0-87	Collared pipe - DN50	7.05	2.09	
Size 25							
9614095501	9614095522		0-87	Tri-Clamp	14.33	3.05	
9614095502	9614095523		0-87	Tank mounted	14.33	2.76	
9614095503	9614095524		0-87	Collared pipe - ISO 51 mm	14.48	2.01	
9614095504	9614095525		0-87	Collared pipe - DN50	14.48	2.09	
9614095505	9614095526		0-87	Collared pipe - ISO 63.5 mm	14.44	2.50	
9614095506	9614095527		0-87	Collared pipe - DN65	14.44	2.76	

1.9

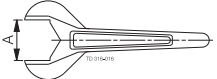
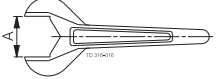
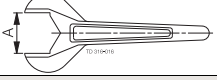
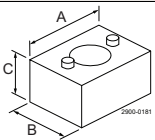
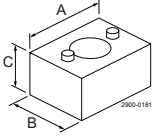
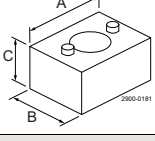
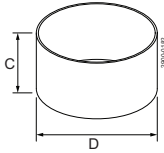
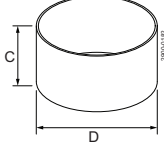
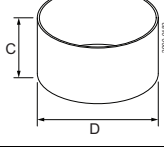
Unique Sampling Valve - Double Seat

Sampling valves

Product code: 5349
Valve Ports: Tri-Clamp/Quick

Material: 1.4404 (316L)
Inside surface finish: Ra ≤ 0.32 μm
Outside surface finish: Polished

1.9

Diaphragm Item No.	LLP USD	Max. working pressure (bar)	Connection	Dimension (in)				Double Seat
				A	B	C	D	
Size 4								
9611980111		-	Spanner wrench	1.85	-	-	-	
9611980141		-	Spanner wrench	2.6	-	-	-	
9611980115		-	Spanner wrench	4.25	-	-	-	
Size 4								
9614023901		-	Hold tool	1.57	1.18	0.79	-	
Size 10								
9614023902		-	Hold tool	2.36	1.38	0.79	-	
Size 25								
9614023903		-	Hold tool	4.92	3.54	1.18	-	
Size 4								
9614025801		-	Mount tool	-	-	1.18	1.44	
Size 10								
9614025802		-	Mount tool	-	-	1.18	2.22	
Size 25								
9614025803		-	Mount tool	-	-	1.18	4.33	

Product code: 5349
 Valve Ports: Tri-Clamp/Quick

Material: 1.4404 (316L)
 Inside surface finish: Ra ≤ 32 µin
 Outside surface finish: Polished

Diaphragm		LLP USD	Max. working pressure (psi)	Connection	Dimension (in)		Single Seat	
Item No.	Q				A	B		
EPDM								
Q								
Size 4							Handle	
9614094801	9614094837		0-87	Tri-Clamp	3.46	1.99		
9614094802	9614094838		0-87	Tank mounted	3.45	1.14		
9614094803	9614094839		0-87	Collared pipe - ISO 1"	3.45	0.98		
9614094804	9614094840		0-87	Collared pipe - DN25	3.45	1.14		
9614094805	9614094841		0-87	Collared pipe - ISO 1½"	3.45	1.5		
9614094806	9614094842		0-87	Collared pipe - DN40	3.45	1.61		
9614094807	9614094843		0-87	Collared pipe - ISO 2"	3.45	2.01		
9614094808	9614094844		0-87	Collared pipe - DN50	3.45	2.09		
9614095101	9614095137		0-87	Tri-Clamp	4.37	1.99		
9614095102	9614095138		0-87	Tank mounted	4.39	1.5		
9614095103	9614095139		0-87	Collared pipe - ISO 1"	4.43	0.98		
9614095104	9614095140		0-87	Collared pipe - DN25	4.35	1.14		
9614095105	9614095141		0-87	Collared pipe - ISO 1½"	4.35	1.5		
9614095106	9614095142		0-87	Collared pipe - DN40	4.35	1.61		
9614095107	9614095143		0-87	Collared pipe - ISO 2"	4.35	2.01		
9614095108	9614095144		0-87	Collared pipe - DN50	4.35	2.09		
								Actuator
9614030901	9614030937		0-87	Tri-Clamp	3.64	1.99		
9614030902	9614030938		0-87	Tank mounted	3.65	1.14		
9614030903	9614030939		0-87	Collared pipe - ISO 1"	3.64	0.98		
9614030904	9614030940		0-87	Collared pipe - DN25	3.64	1.14		
9614030905	9614030941		0-87	Collared pipe - ISO 1½"	3.65	1.5		
9614030906	9614030942		0-87	Collared pipe - DN40	3.64	1.61		
9614030907	9614030943		0-87	Collared pipe - ISO 2"	3.64	2.01		
9614030908	9614030944		0-87	Collared pipe - DN50	3.64	2.09		
9614095301	9614095337		0-87	Tri-Clamp	4.78	1.99		
9614095302	9614095338		0-87	Tank mounted	4.8	1.5		
9614095303	9614095339		0-87	Collared pipe - ISO 1"	4.81	0.98		
9614095304	9614095340		0-87	Collared pipe - DN25	4.79	1.14		
9614095305	9614095341		0-87	Collared pipe - ISO 1½"	4.77	1.5		
9614095306	9614095342		0-87	Collared pipe - DN40	4.79	1.61		
9614095307	9614095343		0-87	Collared pipe - ISO 2"	4.79	2.01		
9614095308	9614095344		0-87	Collared pipe - DN50	4.79	2.09		
9614095601	9614095622		0-87	Tri-Clamp	10.83	3.05		
9614095602	9614095623		0-87	Tank Mounted	10.83	2.76		
9614095603	9614095624		0-87	Collared pipe - ISO 2"	10.99	2.01		
9614095604	9614095625		0-87	Collared pipe - DN50	10.99	2.09		
9614095605	9614095626		0-87	Collared pipe - ISO 2½"	10.95	2.50		
9614095606	9614095627		0-87	Collared pipe - DN65	10.91	2.76		

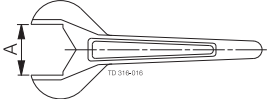
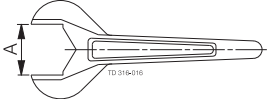
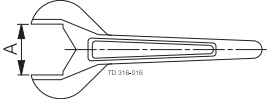
Unique Sampling Valve - Single Seat

Sampling valves

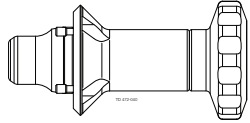
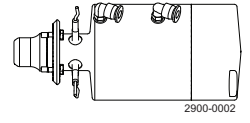
Product code: 5349
 Valve Ports: Tri-Clamp/Quick


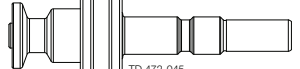
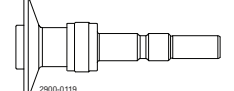
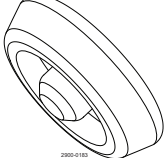
Material: 1.4404 (316L)
 Inside surface finish: $Ra \leq 32 \mu\text{in}$
 Outside surface finish: Polished

1.9

Diaphragm Item No.		LLP USD	Max. working pressure (bar)	Connection	Dimension (in)		Single Seat
EPDM	Q				A	B	
Size 4							Spanner wrench
9611980111	9611980111		-	Spanner wrench	1.85	-	
Size 10							Spanner wrench
9611980141	9611980141		-	Spanner wrench	2.60	-	
Size 25							Spanner wrench
9611980115	9611980115		-	Spanner wrench	4.25	-	

Product code: 5349

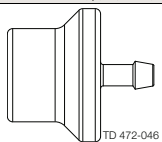
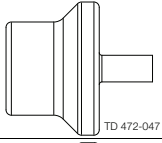
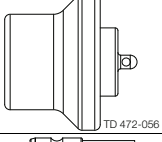


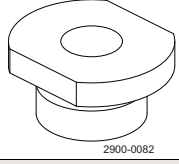
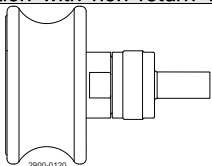
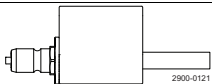
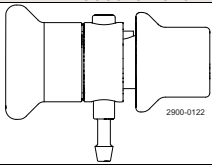
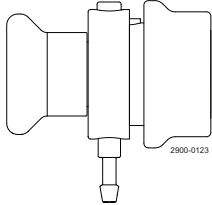
Item No.	LLP USD	Description	Upgrade Kit	
Size 4			Handle	
9614095701		Upgrade to manual double seat - incl. EPDM seal		
9614095702		Upgrade to manual double seat - incl. Q seal		
Size 10				
9614095801		Upgrade to manual double seat - incl. EPDM seal		
9614095802		Upgrade to manual double seat - incl. Q seal		
Size 4			Actuator	
9614095901		Upgrade to pneumatic double seat - incl. EPDM seal		
9614095902		Upgrade to pneumatic double seat - incl. Q seal		
9614095903		Upgrade to pneumatic single seat - incl. EPDM seal		
9614095904		Upgrade to pneumatic single seat - incl. Q seal		
Size 10				
9614096001		Upgrade to pneumatic double seat - incl. EPDM seal		
9614096002		Upgrade to pneumatic double seat - incl. Q seal		
9614096003		Upgrade to pneumatic single seat - incl. EPDM seal		
9614096004		Upgrade to pneumatic single seat - incl. Q seal		
Size 25				
9614096101		Upgrade to pneumatic double seat - incl. EPDM seal		
9614096102		Upgrade to pneumatic double seat - incl. Q seal		

Item No.	LLP USD	Description	Accessories
Size 4			Membrane Seal
9614016501		EPDM (10 pieces)	
9614016551		Q (Silicone) (10 pieces)	
Size 10			
9614018801		EPDM (10 pieces)	
9614018851		Q (Silicone) (10 pieces)	
Size 25			
9614019001		EPDM (10 pieces)	
9614019051		Q (Silicone) (10 pieces)	
Size 4 / 10			Non-return valve
9614195501		For steam generator	
9614195502		For quick coupling	
9614195503		For tube - welding	
Size 25			Non-return valve
9614195504		For steam generator	
9614195505		For quick coupling	
9614195506		For tube - welding	
Size 4 / 10			Plug
9614290501		Plug for upper connection EPDM	

* On request.

Product code: 5349

1.9

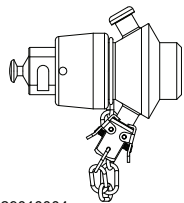
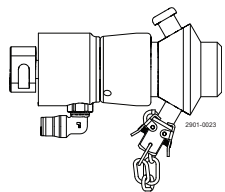
Item No.	LLP USD	Description	Accessories
Size 4 / 10			Quick Coupling
9614195601 9614195602		Female - Hose connection ID 0.24 in hose Female - Hose connection ID 8 mm hose	 TD 472-046
9614195603		Female - Tube for welding ODØ 0.39 - IDØ 0.31	 TD 472-047
9614195604		Blind cap	 TD 472-056
9614195605		Male - Tube for welding ODØ 0.39 - IDØ 0.31	 TD 472-048
			Proximity switch
9611995020		M5 Proximity switch 0.059 in	 TD 472-052
9614017401 9614257901		Adaptor for proximity switch (open position only) - Size 4 and 10 Adaptor for proximity switch (open position only) - Size 25	 2900-0082
			Quick connection with non return valve
9614195606		Female quick connect with non return valve	 2900-0120
9614195607		Male quick connect with non return valve	 2900-0121
Size 4 / 10			Pressure relief valve
9614195701		Pressure relief valve	 2900-0122
Size 25			Pressure relief valve
9614195702		Pressure relief valve	 2900-0123

* On request.

Product code: 5349

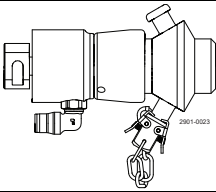
Product code: 5917


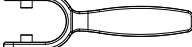

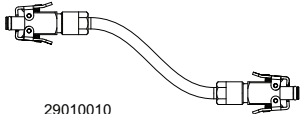
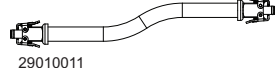
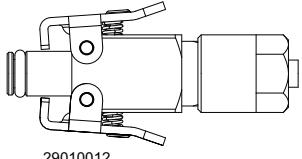
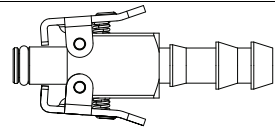
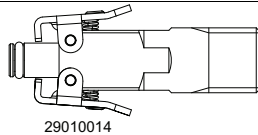
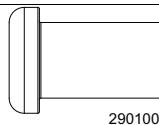
Product wetted steel parts: EN 1.4404
Product wetted surface finish: Ra ≤ 32 µinch

Item No.	LLP USD	Specification	
			Membrane Sample Valve
9615094107		MSV Manuel Type T 0-10bar	 <p>29010004</p>
9615094108		MSV Manuel Type P (DN25) 0-10bar	
9615094109		MSV Manuel Type P (Ø25/1") 0-10bar	
9615094110		MSV Manuel Type P (Ø12-10mm) 0-10bar	
9615094111		MSV Manuel Type S (3/8"BSP) 0-10bar	
9615094112		MSV Manuel Type CB Flask 0-10bar	
9615094406		MSV Manuel+Micro port Type T 6.1-10bar	
9615094407		MSV Manuel+Micro port Type P (DN25) 6.1-10bar	
9615094408		MSV Manuel+Micro port Type P (Ø25/1") 6.1-10bar	
9615094409		MSV Manuel+Micro port Type P (Ø12-10mm) 6.1-10bar	
9615094410		MSV Manuel+Micro port Type S (3/8"BSP) 6.1-10bar	
			Pneumatic membrane sample valve
9615094606		MSV Pneumatic Type T 0-10bar	 <p>2901-0023</p>
9615094607		MSV Pneumatic Type P (DN25) 0-10bar	
9615094608		MSV Pneumatic Type P (Ø25/1") 0-10bar	
9615094609		MSV Pneumatic Type P (Ø12-10mm) 0-10bar	
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 Pneumatic Type P (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	

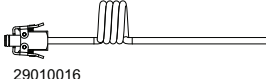
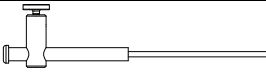
Product code: 5935

1.9

Item No.	LLP USD	Specification	
			Pneumatic membrane sample valve
9615146501 9615146401		Actuator Pneumatic Actuator Manual W. Micro Port	
9615146301		Actuator Manual	

Item No.	LLP USD	Specification	
			Accessories for membrane sample
9615119001		Quick opening key	
9615119301		Quick opening key, twin step	 29010008
9615119801		Assembling tool	 29010009
9615118801		9.84 ft. silicone sealing hose w. clip-on on ends 316L (Max 356 °F, max 43.5 psi)	 29010010
9615132502 9615132501		3.28 ft. high pressure hose w. clip-on on ends 316L 9.84 ft. high pressure hose w. clip-on on ends 316L (Max 176 °F, max 246.6 psi)	 29010011
9615132401		Clip-on 316L for Ø0.12/Ø0.24 inch silicone hose	 29010012
9615132402		Clip-on 316L for CIP hose	 29010013
9615132403		Clip-on cap with 1/4" BSP male 316L	 29010014
9615085601		Hose piece for clip-on	 29010015

Product code: 5935

Item No.	LLP USD	Specification	
Accessories for membrane sample			
9615118501		Coil outlet with clip-on	 <p style="text-align: center;">29010016</p>
9615132601		Isobaric hand bottling device	 <p style="text-align: center;">29010017</p>
9615101201		Clip on Closing cap	

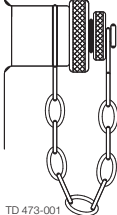
SB Micro Sample Port

Sampling valves

Product code: 5917

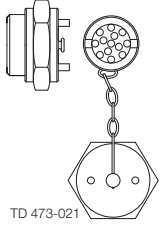
Material: 1.4404
Product wetted surface finish: Ra ≤ 32 μm

1.9

Item. No	LLP USD	Specification	
Micro Sample Port			
9615122501 9615122502 9615122701 9615122702 9615123301 9615123302 9615126501 9615126502		Type T w/red silicone plug Type T w/green rubber plug Type P w/red silicone plug Type P w/green rubber plug Type PC 1" w/red silicone plug Type PC 1" w/green rubber plug Type PC DN 25 w/red silicone plug Type PC DN 25 w/green rubber plug	 <p style="text-align: right; font-size: small;">TD 473-001</p>

Product code: 5917

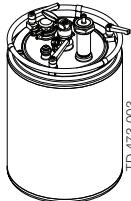
Material: 1.4404
 Product wetted surface finish: Ra ≤ 32µin

Item No.	LLP USD	Specification	SCANDI BREW
9615139401		Micro Sample Port, Type M (max. 10 bar)(max. 145 psi)	<p>Micro Sample Port, Type M</p>  <p>TD 473-021</p>

1.9

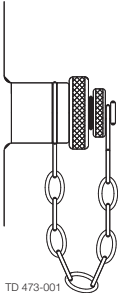

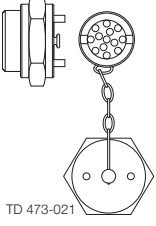
Product code: 5915

1.9

Item No.	LLP USD	Specification	SCANDI BREW
9615126101		Carlsberg Flask, Complete with two 118 inchsilicone hoses with clip-on and extra aeration filter	<p style="text-align: right;">Carlsberg Flask</p> 

Product code: 5935

1.9

Item No.	LLP USD	Specification	
			Micro Sample Port
9615122501		Type T w/red silicone plug	 <p style="text-align: center;">TD 473-001</p>
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		TypePC DN 25 w/green rubber plug	
			Rubber plugs for micro sample port
9680125521		Green natural rubber (max. 90°C). In bags of 100 pcs.	 <p style="text-align: center;">TD 473-012</p>
9680125522		Red silicone rubber mix. 150°C). In bags of 100 pcs.	
			0.
9680124366		Micro Sample Port, Type M (max. 10 bar)	 <p style="text-align: center;">TD 473-021</p>
9680123394		White NBR membrane for type M (max 95°C, 1 piece)	

Sampling cocks/valves/plug
 Product code: 5278

1.9

Item No.	LLP USD	Size	Dimension in			Sampling valve Type 20
			A	B	E	
1.4404 (316L) 3135000201		Inch (BSP) 3/4"	3.19	1.97	0.39	

1.10 Shutter Valves

The Shutter Valve is a self-draining valve that allows for multi-directional flow of product.



Product leaflets

Koltek Valves	1.10.350
D10 and D11 Plug Valves	1.10.355

Ordering leaflets

Shutter Valve with Handle	1.10.359
Shutter valve with Actuator and Bracket	1.10.362
Plug Valves	1.10.365

Alfa Laval Kolttek Valves

Shutter valves

Introduction

The Alfa Laval Kolttek 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 kolttek 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 kolttek 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 Kolttek 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*

*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

1.10

Air Connections

Compressed air:

R 1/8" (BSP), internal thread

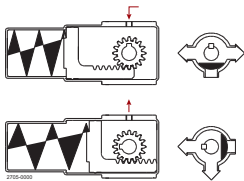
PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L.)
Finish:	Semi-bright (Ra = 32 µin)
Product wetted seals:	Shutter in PTFE
	EPDM
Actuator seals:	NBR

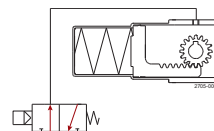
Actuator functions

- for 1" to 3" (25 mm to 76.1 mm) valves only
- two positions
- spring/air
- turning angle 1x90°

Sizes 1" to 2":

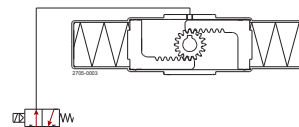
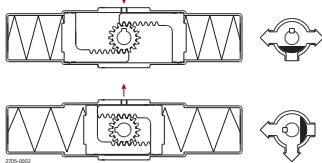


Pneumatic connections



Sizes 2½" - 3":

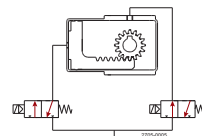
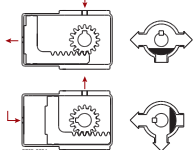
Double acting actuator



Actuator type 631:

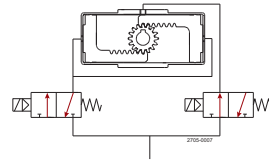
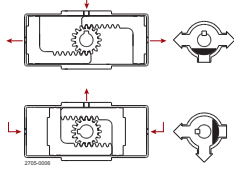
- two positions
- air/air
- turning angle 1x90°

Sizes 1" - 3":



Sizes 4":

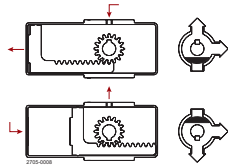
Double acting actuator



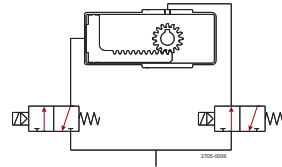
Actuator type 632:

- two positions
- air/air
- turning angle 1x180°

Sizes 1" - 3":

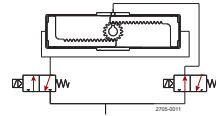
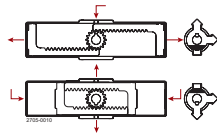


Pneumatic connections



Sizes 4":

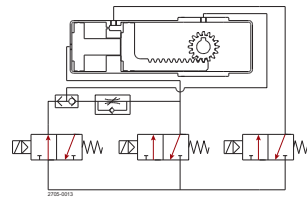
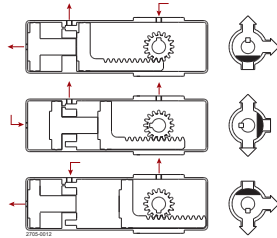
Double acting actuator



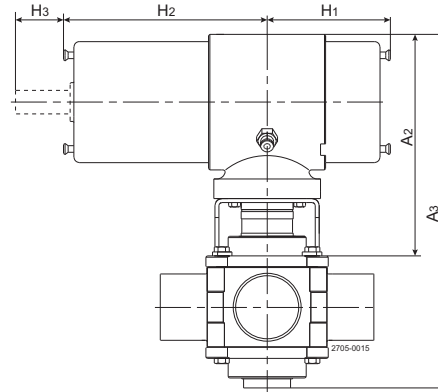
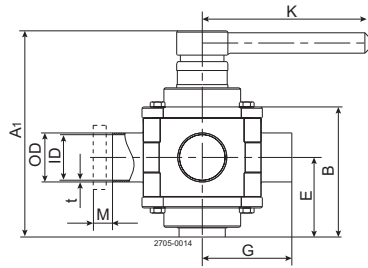
Actuator type 633:

- three positions
- air/air
- turning angles 2x90°

Sizes 1" - 3":



Dimensions (inch)



a. AH53 with handle.

b. AH53 with actuator, type KH631.

Fig. 1. Dimensions.

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

- A. Male parts or clamp liners in accordance with required standard.
- B. Control and Indication: IndiTop, ThinkTop V50 or ThinkTop V70 .
- C. Bottom fitted indication unit.
- D. Pilot valve, type L or T (for actuator type 633). Type L is used when two ThinkTop units are used.
- E. Rebuilding to double acting valve for high viscosity product or quick operation.

Note!

For further details, see also instruction IM 70735.

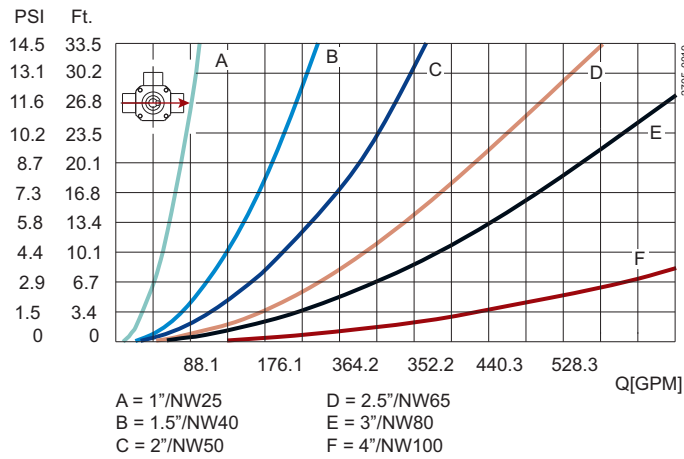
Bottom fitted indication units (together with bracket for indication unit)

Actuator type	KH630	KH631	KH632	KH633
Indication unit				
LKLA	1 pcs.	1 pcs.	2 pcs.	2 pcs.
(lateral indication unit)				

1.10

Note! For all manually operated valves: Use LKLA indication units.

Pressure drop/capacity diagrams



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 $Ra \leq 32$.

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.



1.10

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

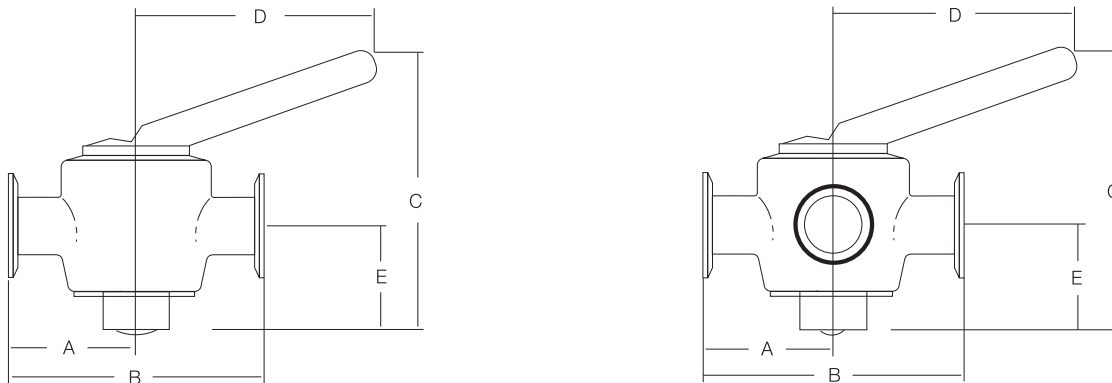
Materials	
Steel parts:	AISI 304
Finish:	≤ Ra 32 μin
Rubber parts:	Buna (N)

Ordering

Please state the following when ordering:

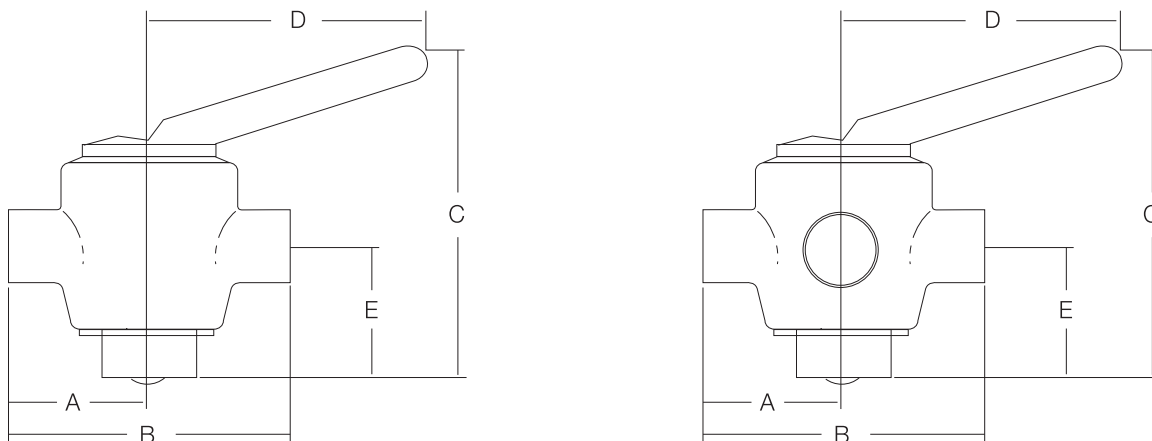
- Connections
Tri-Clamp®, Bevel Seat, weld
- Type
Straight-through valve D10, three-way valve D11, tank outlet valve D10F and D10FL legal tank pasteurization valve
- Plug
Bonded rubber (Buna) or stainless steel. D10FL only available with stainless steel plug
- Size
Following sizes are available: 1-inch, 1.5-inch, 2-inch, 2.5-inch, 3-inch

Dimensions (inch)



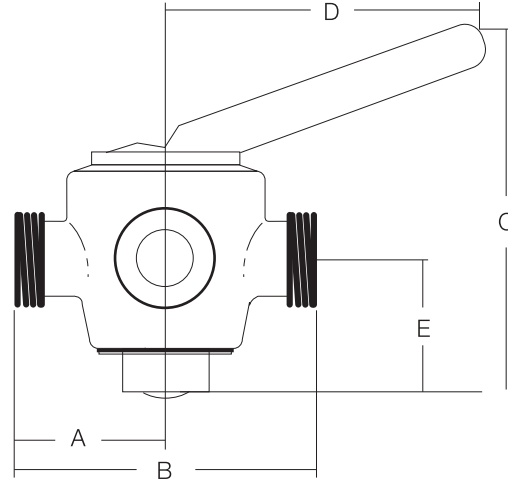
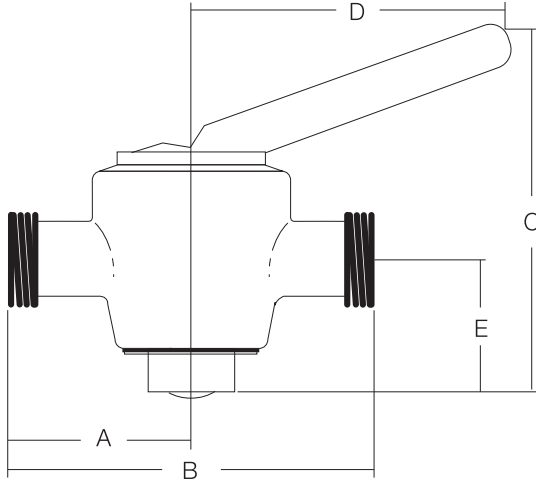
Dimensions Tri-Clamp® connections

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 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	8¾	222.3	6¼	158.8	3½	88.9	25.50	11.56
3	76.2	42 ⁹ / ₃₂	119.9	9 ⁷ / ₁₆	239.7	9¾	247.7	7¼	184.2	3¾	95.3	36.00	16.32



Dimensions Weld connections

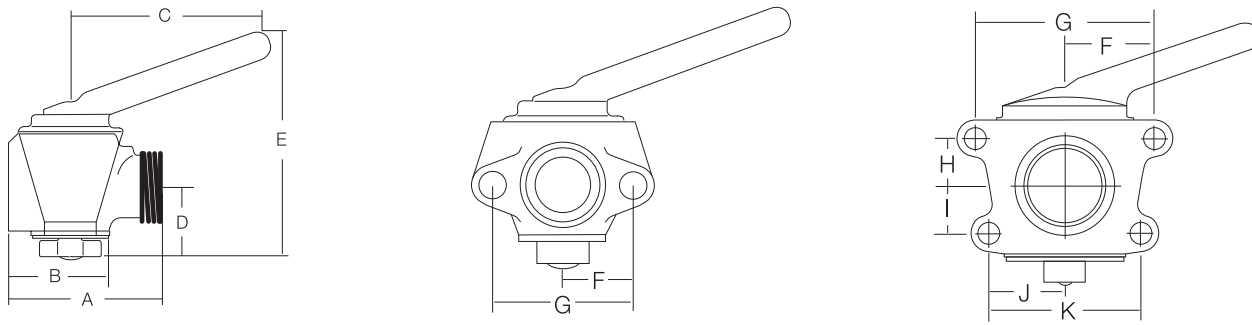
Size (Tube OD)		A		B		C		D		E		Approx. Wt.	
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lb	kg
1½	38.1	2 ²³ / ₃₂	69.1	5 ⁷ / ₁₆	138.1	6 ⁷ / ₈	177.8	5 ⁵ / ₈	142.9	2½	63.5	9.50	4.30
2	50.8	3 ³ / ₁₆	81.0	6 ³ / ₈	161.9	7 ⁵ / ₈	193.7	5 ⁵ / ₈	142.9	2 ⁷ / ₈	73.0	15.50	7.03
2½	63.5	4 ¹ / ₈	123.8	7¾	196.9	8 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	9¼	247.7	7¼	184.2	3¾	95.3	36.00	16.32



1.10

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	8¾	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	9¼	247.3	7¼	184.2	3¾	93.7	36.00	16.33



1.10

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}	6 ^{3/4}	1 ^{23/32}	3 ^{7/16}	--	--	--	--	9/16	9.50 4.30
2	5 ^{7/16}	4 ^{1/8}	5 ^{5/8}	2 ^{3/4}	7 ^{1/2}	2 ^{1/8}	4 ^{1/4}	--	--	--	--	9/16	15.50 7.03
2½	6 ^{3/4}	4 ^{5/8}	6 ^{3/4}	3 ^{1/2}	8 ^{3/4}	2 ^{5/8}	5 ^{1/4}	1 ^{5/16}	1 ^{1/2}	2 ^{1/2}	5	9/16	25.50 11.56
3	8	4 ^{3/4}	7 ^{1/4}	3 ^{3/4}	9 ^{3/4}	3 ^{5/16}	6 ^{5/8}	1 ^{3/4}	1 ^{3/4}	2 ^{13/16}	5 ^{5/8}	1 ^{1/16}	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

Valve with Handle
 Product Code: 5276

Connection: Weld ends
 Material: 316L
 Seal: EPDM

Item No.	LLP USD	Size		Dimension						AH11 - 3 Way - Weld
				A ¹		E		G		
		inch	mm	inch	mm	inch	mm	inch	DIN	
9634069584		1"	25.4	4.57	116.0	1.65	42.0	55.0	64.5	
9634079812		1 1/2"	38.1	5.87	149.0	2.20	56.0	70.0	80.0	
9634067501		2"	50.8	6.34	161.0	2.44	62.0	82.0	82.5	
9634077337		2 1/2"	63.5	7.05	179.0	2.76	70.0	105.0		
9634078082		3"	76.2	8.03	204.0	3.15	80.0	110.0	110.5	
9634079814		4"	101.6	11.50	292.0	4.61	117.0	155.0	130.5	

1.10

Shutter Valve with Handle

Shutter Valves

Valve with Handle
Product Code: 5276

Connection: Clamp ends
Material: 316L
Seal: EPDM

1.10

Item No.	LLP USD	Size		Dimension						AH11 - 3 Way - Clamp Ends
				A ¹		E		G		
		inch	mm	inch	mm	inch	mm	inch	mm	
9634067471		½"	12.7	4.57	116.0	1.65	42.0	48.5		
9634079811		¾"	19.0	4.57	116.0	1.65	42.0	48.5		
9634067546		1"	25.4	4.57	116.0	1.65	42.0	58.0		
9634067545		1 ½"	38.1	5.87	149.0	2.20	56.0	74.5		
9634067500		2"	50.8	6.34	161.0	2.44	62.0	87.0		
9634067543		2 ½"	63.5							
9634067499		3"	76.2							
9634067472		4"	101.6							

* = Please contact your Alfa Laval contact person for further information.

Shutter Valves

Shutter Valve with Handle

Valve with Handle
 Product Code: 5276

Connection: Bevel Seat
 Material: 316L
 Seal: EPDM

Item No.	LLP USD	Size		AH11 - 3 Way - Bevel Seat
		inch	mm	
9634079815		1 ½"	38.1	
9634067547		2"	50.8	
9634079828		2 ½"	63.5	
9634079829		3"	76.2	
9634079833		4"	101.6	

1.10

Shutter valve with Actuator and Bracket

Product Code:
 Note: Pricing below does not include ThinkTop® Unit.
 Refer to section 3.6 for ThinkTop® pricing.

Actuator: KH630 - 2 pos. 90° Spring Return Actuator

1.10

Item No. AH11-W	LLP USD	Item No. AH11-GC	LLP USD	Item No. AH11-BS	LLP USD	Size in	
AH11 valve with KH630 - 2 pos. 90° Spring Return Actuator							
9634079893		9634069340		9634079898		1"	
9634079894		9634079897		9634079899		1 ½"	
9634079895		9634069136		9634079900		2"	
9634079896		9634068414		9634079901		2 ½"	
9634070544		9634068118		9634079902		3"	
AH11 valve with KH630T - 2 pos. 90° Spring Return Actuator for Think Top							
9634079916		9634079907		9634079921		1"	
9634079917		9634079908		9634079922		1 ½"	
9634079918		9634071960		9634079923		2"	
9634079919		9634079914		9634079924		2 ½"	
9634079920		9634079915		9634079925		3"	

* = Please contact your Alfa Laval contact person for further information.

Product Code:

Actuator: KH631 - 2 pos. 90° Air-to-Air Actuator

Note: Pricing below does not include ThinkTop® Unit.
Refer to section 3.6 for ThinkTop® pricing.

Item No. AH11-W	LLP USD	Item No. AH11-GC	LLP USD	Item No. AH11-BS	LLP USD	Size in	
AH11 valve with KH631 - 2 pos. 90° Air-to-Air Actuator							
9634079973		9634067770		9634079975		1"	
9634079974		9634067772		9634079976		1 1/2"	
9634070510		9634067553		9634079977		2"	
9634067615		9634067773		9634079978		2 1/2"	
9634070511		9634067745		9634079979		3"	
9634076699		9634067473		9634079980		4"	
AH11 valve with KH631T - 2 pos. 90° Air-to-Air Actuator for Think Top							
9634079981		9634079986		9634079990		1"	
9634079982		9634079987		9634079991		1 1/2"	
9634079983		9634067553		9634079992		2"	
9634079984		9634079988		9634079993		2 1/2"	
9634079985		9634079989		9634079994		3"	

* = Please contact your Alfa Laval contact person for further information.

Shutter valve with Actuator and Bracket

Shutter Valves

Product Code:
 Note: Pricing below does not include ThinkTop® Unit.
 Refer to section 3.6 for ThinkTop® pricing.

Actuator: KH632 - 2 pos. 180° Air-to-Air Actuator
 Actuator: KH633 - 2 x 90° Air-to-Air Actuator

1.10

Item No. AH11-W	LLP USD	Item No. AH11-GC	LLP USD	Item No. AH11-BS	LLP USD	Size		
						in	mm	
AH11 valve with KH632 - 2 pos. 180° Air-to-Air Actuator								
9634080025		9634080031		9634080033		1"		
9634080026		9634068741		9634080034		1 ½"		
9634080027		9634068743		9634080035		2"		
9634080028		9634068744		9634080036		2 ½"		
9634080029		9634072428		9634080037		3"		
9634080030		9634080032		9634080038		4"		
AH11 valve with KH632T - 2 pos. 180° Air-to-Air Actuator for Think Top								
9634080039		9634080044		9634080049		1"		
9634080040		9634080045		9634080050		1 ½"		
9634080041		9634080046		9634080051		2"		
9634080042		9634080047		9634080052		2 ½"		
9634080043		9634080048		9634080053		3"		
AH11 valve with KH633 - 2 x 90° Air-to-Air Actuator								
9634080054		9634080059		9634080063		1"		
9634080055		9634080060		9634080064		1 ½"		
9634080056		9634080061		9634080065		2"		
9634080057		9634080062		9634080066		2 1/2"		
9634080058		9634068664		9634080067		3"		

* = Please contact your Alfa Laval contact person for further information.

Tri-Clamp® End Connection
304 Stainless Steel

Item No. Type 304	LLP USD	Size (Tube OD)		Part # D10MP-Size-Type
		in	mm	
Two-Way Plug Valve with Metal Plug*				
201207		1½	38.1	
202185		2	50.8	
203183		2½	63.5	
204169		3	76.2	
Two-Way Plug Valve with Rubber Plug*				
201206		1½	38.1	
202188		2	50.8	
203185		2½	63.5	
204155		3	76.2	
Three-Way Plug Valve with Metal Plug*				
201359		1½	38.1	
202340		2	50.8	
203289		2½	63.5	
204283		3	76.2	
Three-Way Plug Valve with Rubber Plug*				
201361		1½	38.1	
202342		2	50.8	
203291		2½	63.5	
204285		3	76.2	

Note: All Plug Valves have a maximum limit of 100 °F and 25 PSIG

Rubber Plugs - Buna Only

* Authorized to carry the 3A symbol.

1.10

Item No. Type 304	LLP USD	Size (Tube OD)		
		in	mm	
Part # D10C-Size-Type				
Two-Way Plug Valve with Metal Plug**				
021047		1½	38.1	
022036		2	50.8	
023093		2½	63.5	
024082		3	76.2	
Part # D10CR-Size-Type				
Two-Way Plug Valve with Rubber Plug**				
021053		1½	38.1	
022035		2	50.8	
023114		2½	63.5	
024101		3	76.2	
Part # D11C-Size-Type				
Three-Way Plug Valve with Metal Plug**				
021221		1½	38.1	
022197		2	50.8	
023227		2½	63.5	
024207		3	76.2	
Part # D11CR-Size-Type				
Three-Way Plug Valve with Rubber Plug**				
021219		1½	38.1	
022199		2	50.8	
023229		2½	63.5	
024243		3	76.2	

* = Please contact your Alfa Laval contact person for further information.

Note: All Plug Valves have a maximum limit of 100 °F and 25 PSIG

Rubber Plugs - Buna Only

** Authorized to carry the 3A symbol.

Plug Valves
Welded End Connection
304 Stainless Steel

Item No.	LLP USD	Size (Tube OD)		
		in	mm	
Part # DL10WW-Size-Type				
Two-Way Plug Valve with Metal Plug**				
433000		1½	38.1	
433002		2	50.8	
433658		2½	63.5	
Contact AL		3	76.2	
Part # DL10WWR-Size-Type				
Two-Way Plug Valve with Rubber Plug**				
433001		1½	38.1	
433003		2	50.8	
430041		2½	63.5	
433007		3	76.2	
Part # DL11WWW-Size-Type				
Three-Way Plug Valve with Metal Plug**				
433045		1½	38.1	
433047		2	50.8	
433049		2½	63.5	
430274		3	76.2	
Part # DL11WWR-Size-Type				
Three-Way Plug Valve with Rubber Plug**				
433046		1½	38.1	
433048		2	50.8	
433050		2½	63.5	
430624		3	76.2	

* = Please contact your Alfa Laval contact person for further information.

Note: All Plug Valves have a maximum limit of 100 °F and 25 PSIG

Rubber Plugs - Buna Only

** Authorized to carry the 3A symbol.

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1.11 Single Seat Valves

Alfa Laval's Single Seat Valve is an extremely reliable and hygienic design for stopping or diverting flow in single or multi-directional systems.



Product leaflets

Unique SSV Standard	1.11.371
Unique SSV Reverse Acting	1.11.378
Unique SSV Long Stroke	1.11.383
Unique SSV Aseptic	1.11.388
Unique SSV Two Step	1.11.394
Unique SSV Tangential	1.11.400
Unique SSV Tank Outlet	1.11.405
Unique SSV Y-body	1.11.410
Unique SSV Manually Operated/Manually Regulating Valve	1.11.414
Unique SSV Aseptic Manually Operated	1.11.418
Unique SSSV	1.11.425
SB Mini Flow Valve	1.11.431

Description codes

Unique 7610/8610 Valve	1.11.434
Unique 7620/7630/7635/8620 Valve	1.11.435
Unique 7710 / 7711 / 8710 Valve	1.11.436
Unique 7000 Fractional (SSSV) Valve	1.11.437

Ordering leaflets

Unique SSV Standard	1.11.438
Unique SSV Series 6-inch	1.11.440
Unique SSV Reverse Acting	1.11.443

1.11 Single Seat Valves

Alfa Laval's Single Seat Valve is an extremely reliable and hygienic design for stopping or diverting flow in single or multi-directional systems.

Unique SSV Long Stroke	1.11.445
Unique SSV Aseptic	1.11.447
Unique SSV Two Step	1.11.449
Unique SSV Tangential	1.11.451
Unique SSV Tank Outlet Valve	1.11.452
Unique SSV Y-body	1.11.453
Unique SSV Manually Operating Valve	1.11.454
Unique SSV Manually Regulating	1.11.455
Unique SSV Aseptic Manually Operating Valve	1.11.456
Unique SSV Aseptic Manually Regulating Valve	1.11.457
Unique SSV Aseptic Manually Tank Outlet Valve	1.11.458
Unique SSSV Small Single Seat Valve	1.11.459
SB Mini Flow Valve	1.11.460
761 Series Shut-Off	1.11.462
761 Series Divert	1.11.466
660 Series	1.11.470

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.

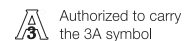


1.11

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

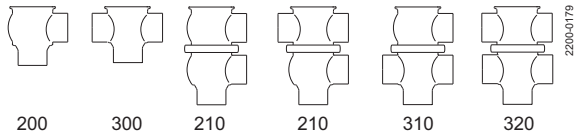


TECHNICAL DATA

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

1.11



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)
	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

- A. Replaceable elastomer plug seals.
- B. Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- C. Product wetted seals in HNBR or FPM.
- D. Plug seals HNBR, FPM or TR2 plug (floating PTFE design).
- E. External surface finish blasted.

Note!

For further details, see instruction ESE00213.

Other valves in the same basic design

- Reverse acting valve.
- Long stroke valve.
- Manually operated valve.

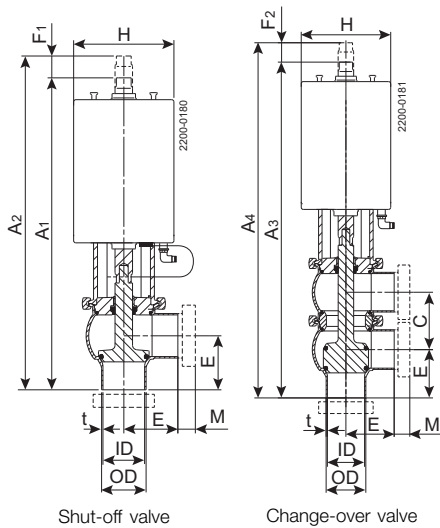
Semi-Maintainable actuator comes with 5 year warranty

Dimensions (inch)

	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	23.46	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



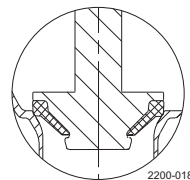
Please note!

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.

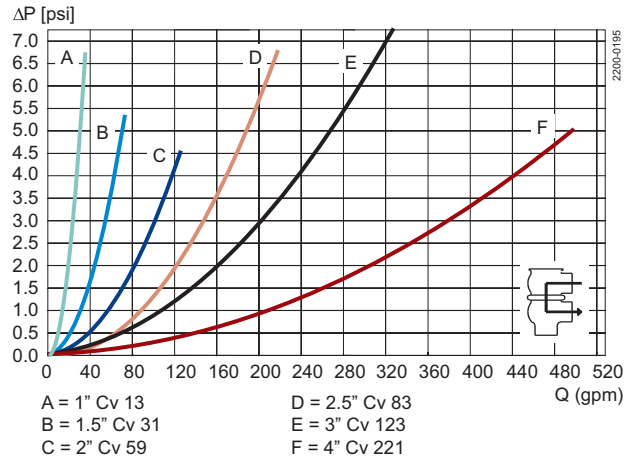
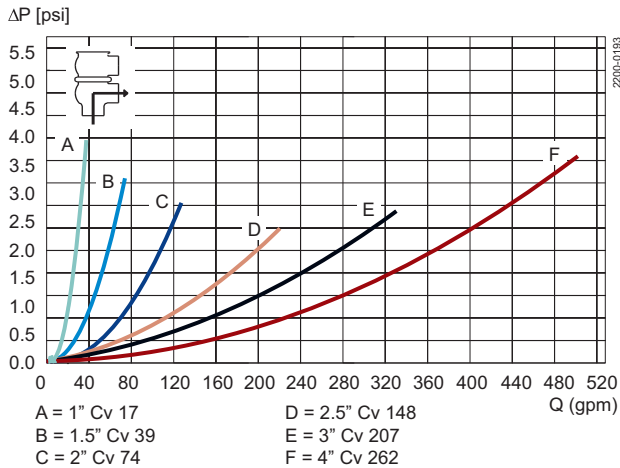
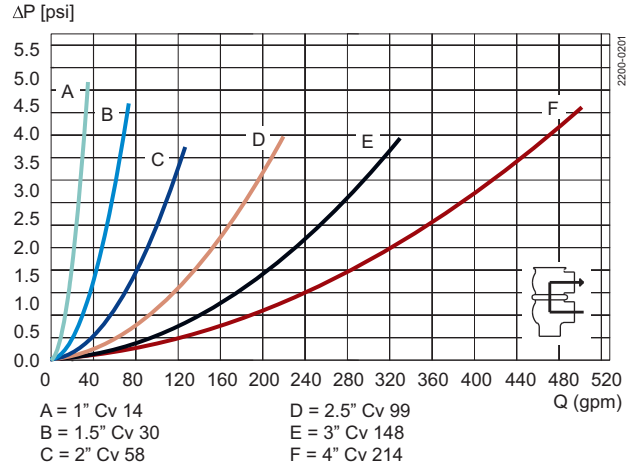
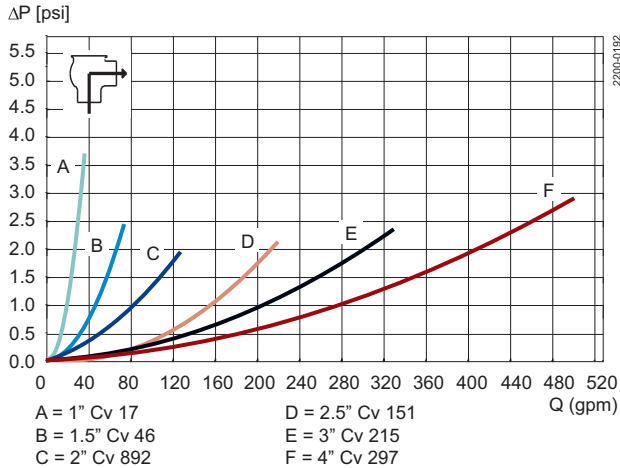
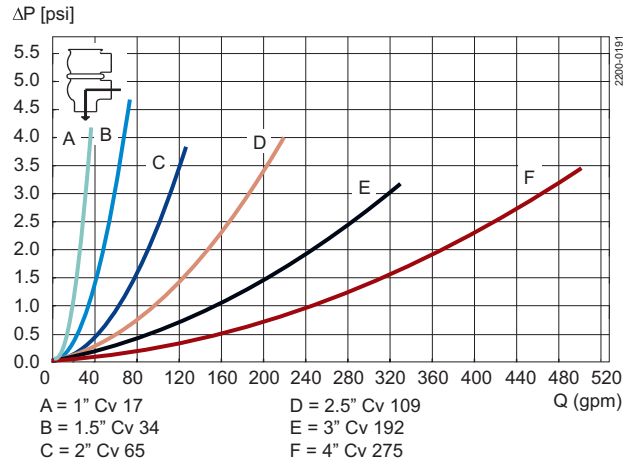
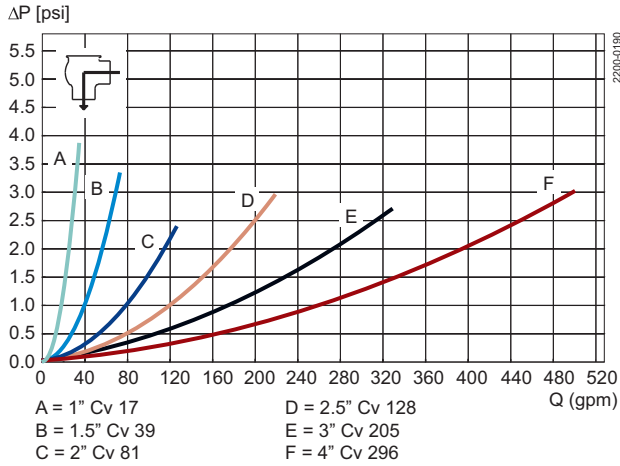


Replaceable elastomer plug seal

Air Consumption (ln 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

1.11



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).

Δp = 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).

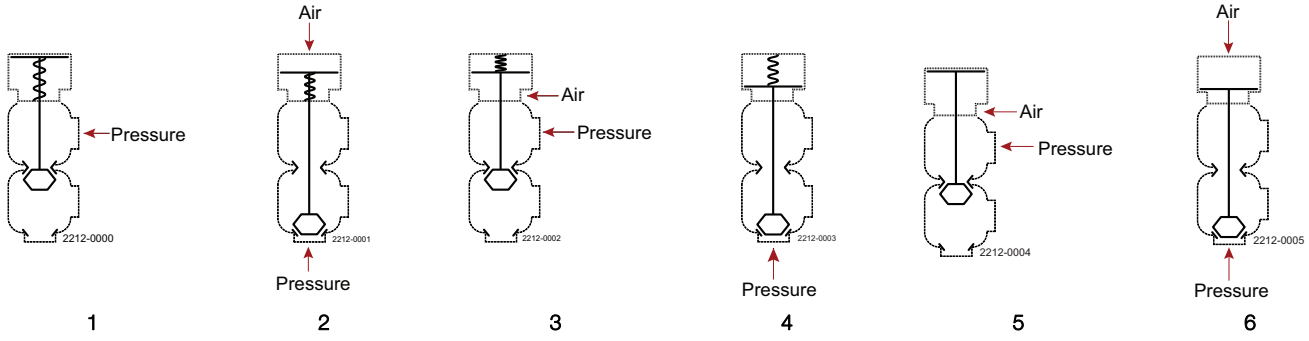
$$Q = Kv \times \sqrt{\Delta p}$$

$$160 = 128 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1,6 \text{ psi}$$

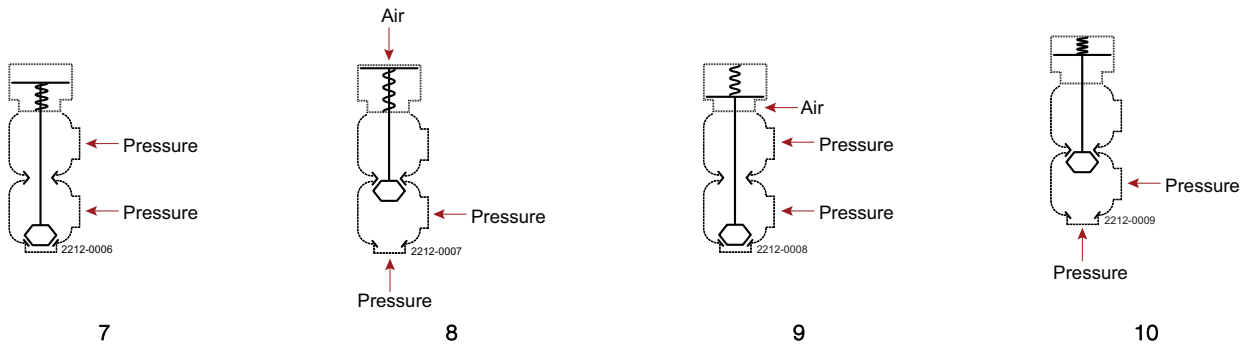
(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve standard



1.11

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					
			1"	1½"	2"	2½"	3"	4"
1	72.5	NO	145.0	119.0	122.0	65.0	99.0	64.0
	101.5		133.0	64.0	86.0	49.0	64.0	42.0
2	72.5	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
3	72.5	NC	145.0	83.0	99.0	54.0	68.0	44.0
	101.5		145.0	142.0	145.0	88.0	112.0	73.0
4	72.5	NC	145.0	91.0	104.0	61.0	93.0	61.0
	101.5		145.0	145.0	145.0	123.0	145.0	100.0
5	72.5	A/A	145.0	145.0	145.0	145.0	145.0	136.0
	101.5		145.0	145.0	145.0	145.0	145.0	145.0
6	72.5	A/A	145.0	145.0	145.0	145.0	145.0	132.0
	101.5		145.0	145.0	145.0	145.0	145.0	145.0



Actuator / Valve body combination and direction of pressure	Air pressure (psi)	Plug position	Max. pressure in psi against which the valve can open					
			Valve size					
			1"	1½"	2"	2½"	3"	4"
7	72.5	NO	145	145.0	145.0	107.3	140.7	91.4
	101.5		145	113.1	145.0	88.5	103.0	68.2
8	72.5	NO	145	145.0	145.0	120.4	143.6	95.7
	101.5		145	145	145.0	145.0	145.0	123.3
9	72.5	NC	145	145.0	145.0	95.7	108.8	71.1
	101.5		145	145.0	145.0	130.5	145.0	100.1
10		NC	145	140.7	145.0	98.6	132.0	88.5

Table 3 - 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	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD
			1"	1½"	2"	2½"	3"	4"
1		NO	145.0	145.0	145.0	145.0	-	-
2	87.0	NO	145.0	145.0	145.0	145.0	-	-
3	87.0	NC	145.0	145.0	145.0	145.0	72.5	43.5
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

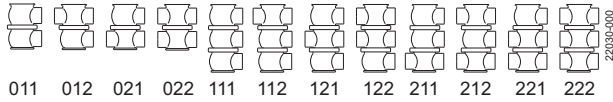
Temperature

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

- A. Male parts or clamp liners in accordance with required standard.
- B. Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- C. Product wetted seals in HNBR or FPM
- D. Plug seals HNBR, FPM or TR2 plug (floating PTFE design)
- E. High pressure actuator
- F. Maintainable actuator
- G. 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

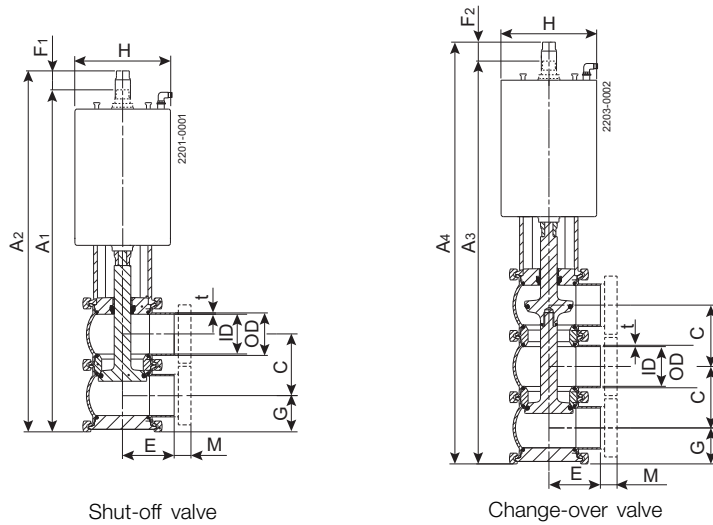
Dimensions (inch)

	Nominal size						Shut-off
	1"	1½"	2"	2½"	3"	4"	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	20.14	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
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	2.44	3.23	3.43	4.72	4.72
H	∅3.34	∅3.34	∅4.53	∅4.53	∅6.18	∅6.18	6.00
H (high pressure)	∅3.34	∅4.53	∅6.18	∅6.18	∅6.18	∅6.18	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

* To top of stem protector

** Internal stem 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.

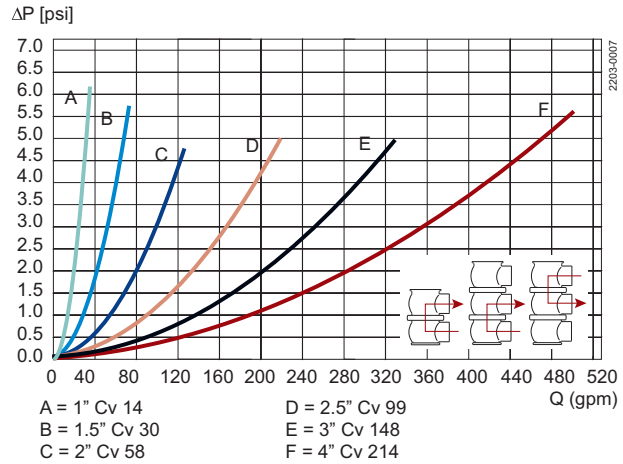
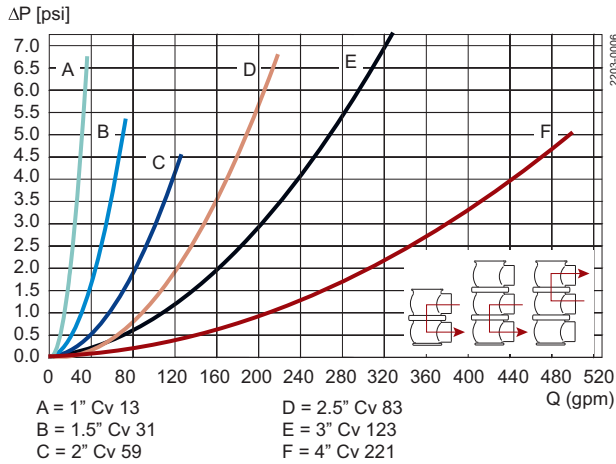
Air Connections Compressed air:

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

Replaceable elastomer plug seal

Size	Air Consumption (in ³ free air) for one stroke		
	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



1.11

Note!

For the diagrams the following applies:

Medium: Water (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:

$$Q = K_v \times \sqrt{\Delta p}$$

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δp = 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).

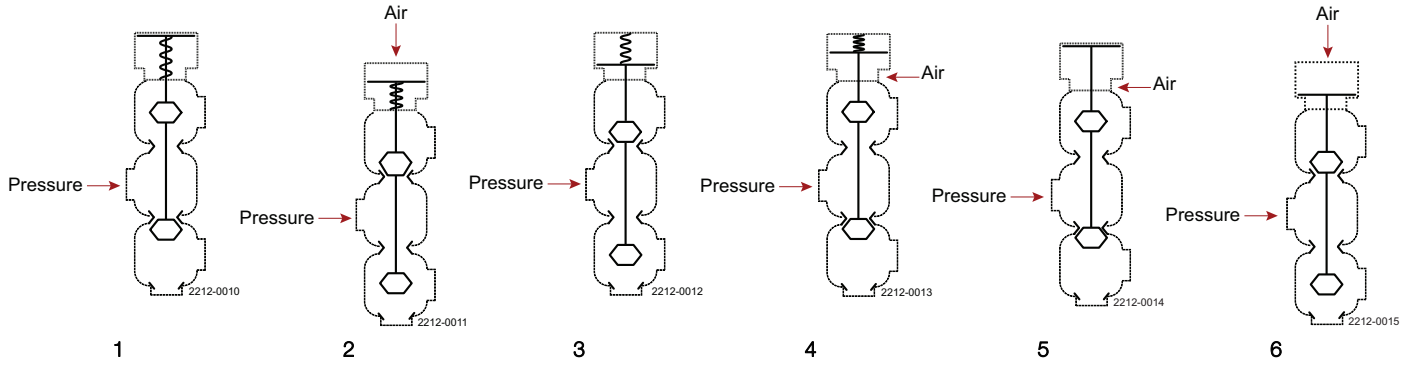
$$Q = K_v \times \sqrt{\Delta p}$$

$$160 = 128 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1,6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Reverse Acting



1.11

Table 1 - 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					
			DN25 DN/OD	DN40 DN/OD	DN50 DN/OD	DN65 DN/OD	DN80 DN/OD	DN100 DN/OD
Change-over valve			1"	1½"	2"	2½"	3"	4"
1		NC	145	119	122	65	99	64
2	87	NC	145	110	139	81	104	70
3		NO	145	91	104	61	93	61
4	87	NO	145	145	145	88	112	5.0
5	87	A/A	145	145	145	145	131	84
6	87	A/A	145	145	145	145	123	81

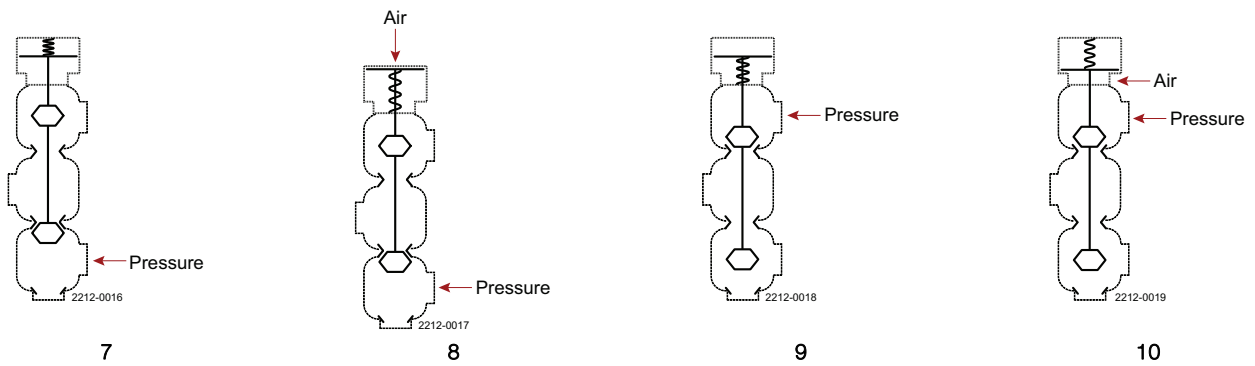


Table 2 - Shut-off and Change-over valves. Max. pressure in bar against which the valve can open

Actuator/valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size					
			DN25 DN/OD	DN40 DN/OD	DN50 DN/OD	DN65 DN/OD	DN80 DN/OD	DN100 DN/OD
Change-over valve			1"	1½"	2"	2½"	3"	4"
7		NO	145	141	145	99	67	45
8	87	NC	145	145	145	120	144	96
9		NC	145	145	145	107	71	46
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

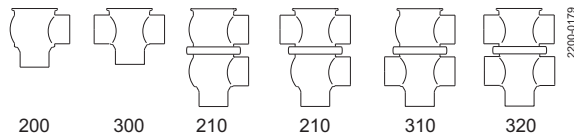


1.11

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



1.11

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

- A. Weld ends or connection types other than Tri-Clamp.
- B. Control and Indication: ThinkTop and ThinkTop Basic
- C. Product wetted seals in HNBR or FPM
- D. Replaceable elastomer plug seals.
- E. 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.

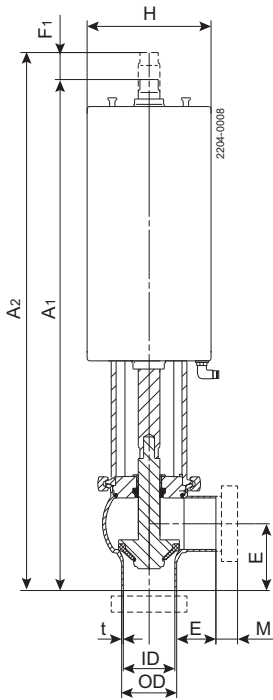
Semi-Maintainable actuator comes with 5 year warranty

Dimensions (inch)

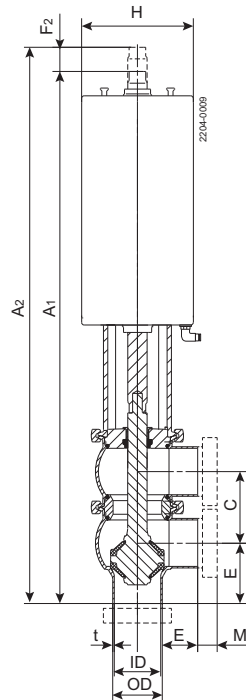
Nominal Size	1½"	2"	Inch 2½"	3"	4"
A ₁	16.37	16.76	17.36	21.23	23.32
A ₂	17.31	18.06	19.09	23.5	25.84
A ₃	17.8	19.02	20.55	24.76	28.07
A ₄	18.75	20.32	22.32	27	30.59
C	2.39	2.91	3.4	3.89	4.87
OD	1.5	2	2.5	3	4
ID	1.37	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.06	0.08
E ₁	1.95	2.44	3.23	3.43	4.72
E ₂	0.94	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

1.11

For exact high pressure actuator dimension (A and F) - please refer to information in Anytime



Shut-off valve.



Change-over valve.

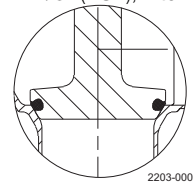
Please note!

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.



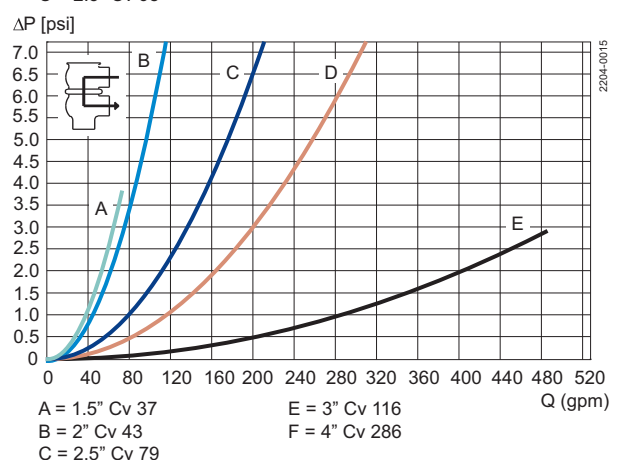
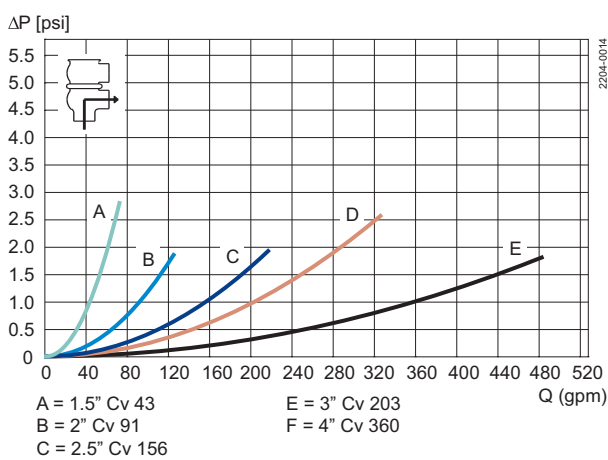
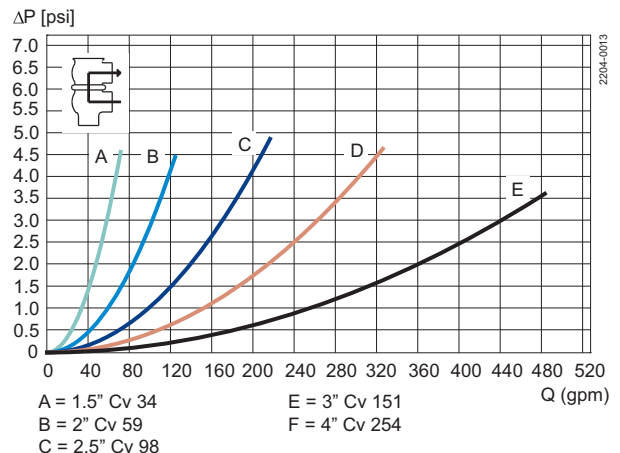
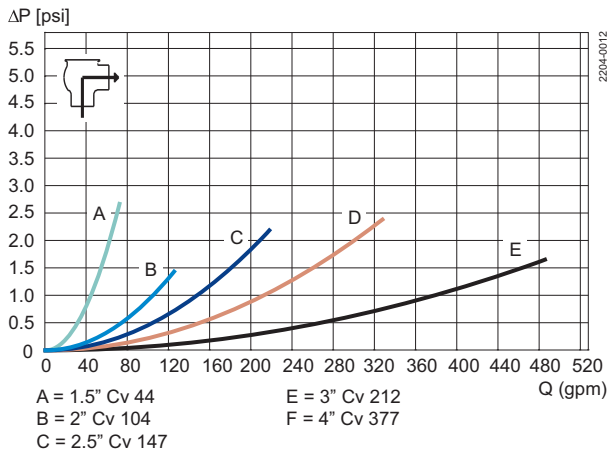
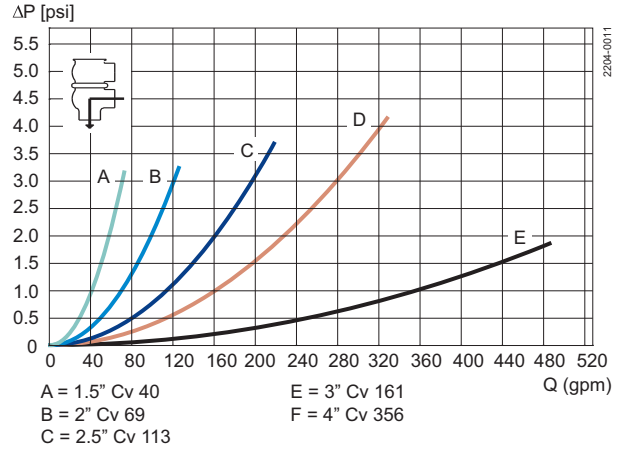
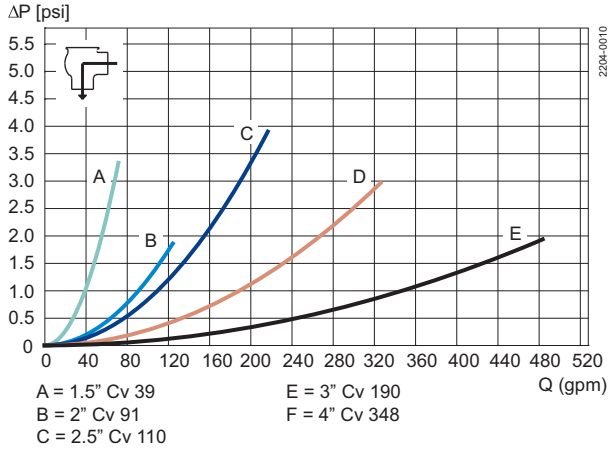
Replaceable elastomer plug seal

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)	0.47	0.59	0.91	1.18	1.57

Air consumption (In ³ 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

1.11



For the diagrams the following applies:

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 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).

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

$$160 = 128 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1,6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Long Stroke

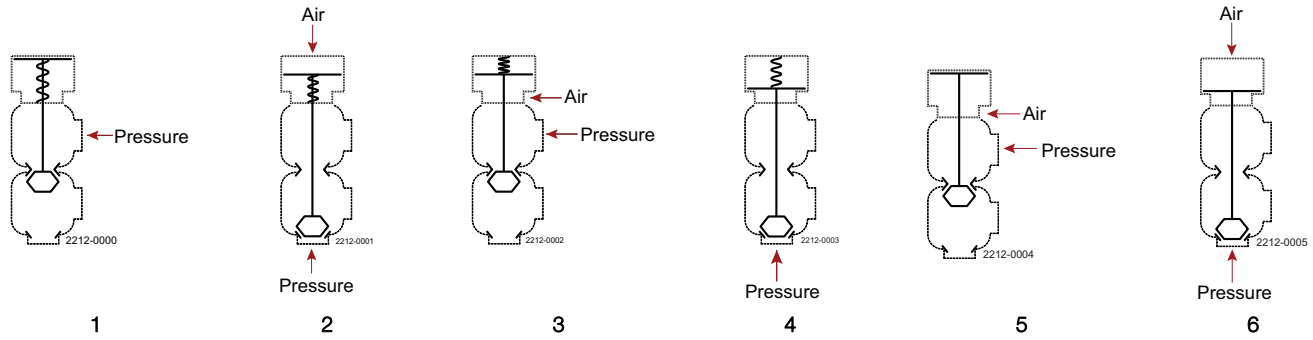


Table 1 - Shut-off and Change-over valves Max. pressure in PSI without leakage at the valve seat

Actuator / Valve body combination and direction of pressure	Air pressure (psi)	Plug position	Valve size				
			DN 40 DN/OD	DN50 DN/OD	DN 65 DN/OD	DN 80 DN/OD	DN 100 DN/OD
			1½"	2"	2½"	3"	4"
1		NO	145	129	70	103	67
2	87	NO	145	125	73	99	64
3	87	NC	145	144	78	104	67
4		NC	145	110	64	97	64
5	87	A/A	145	145	145	145	145
6	87	A/A	145	145	145	145	145

1.11

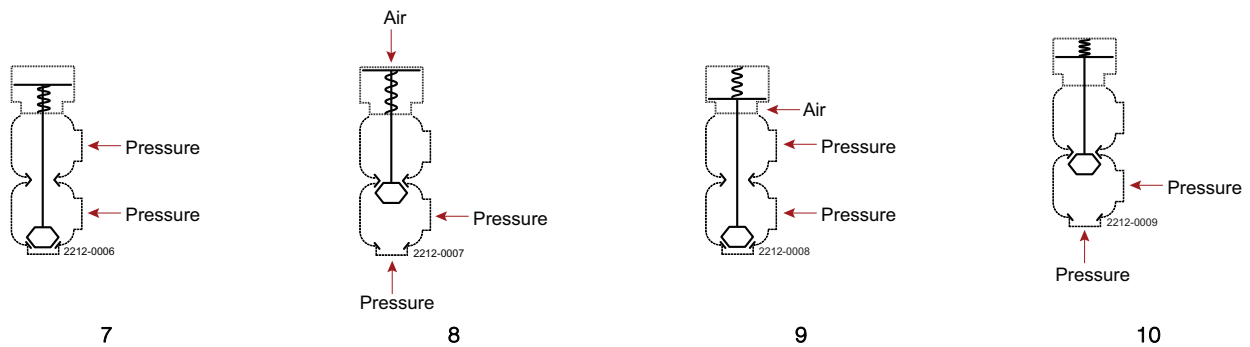


Table 2 Shut-off and Change-over valves Max. pressure in PSI against which the valve can open

Actuator / Valve body combination and direction of pressure	Air pressure (psi)	Plug position	Valve size				
			DN 40 DN/OD	DN50 DN/OD	DN 65 DN/OD	DN 80 DN/OD	DN 100 DN/OD
			1½"	2"	2½"	3"	4"
7		NO	145	145	117	145	97
8	87	NO	145	145	116	141	94
9	87	NC	145	145	126	145	97
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

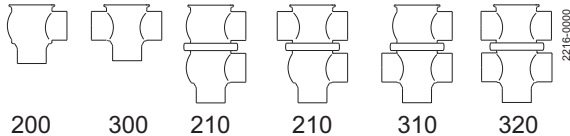
 Authorized to carry the 3A symbol

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 μ inch
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

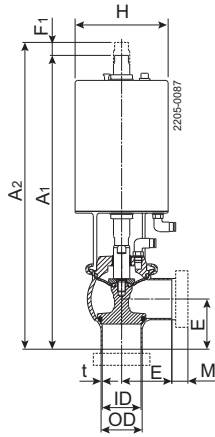
- Shut-off valve
- Change-over valve
- Reverse acting valve
- Long stroke version
- Manual operated valve
- Small Single Seat Valve (SSSV)

Semi-Maintainable actuator comes with 5 year warranty

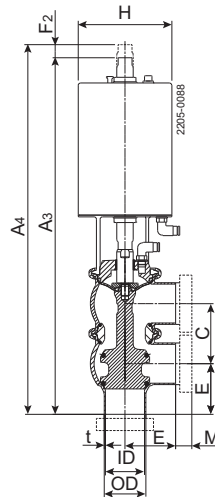
Dimensions (inch)

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	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	0.43	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

1.11



Shut-off valve



Change-over valve

Please note!

Opening/closing time will be affected by the following:

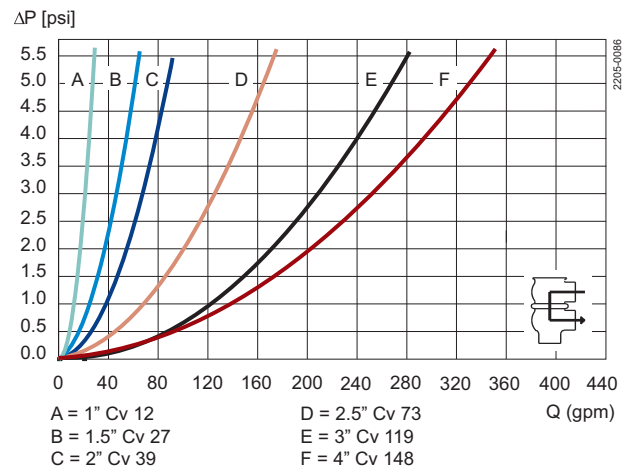
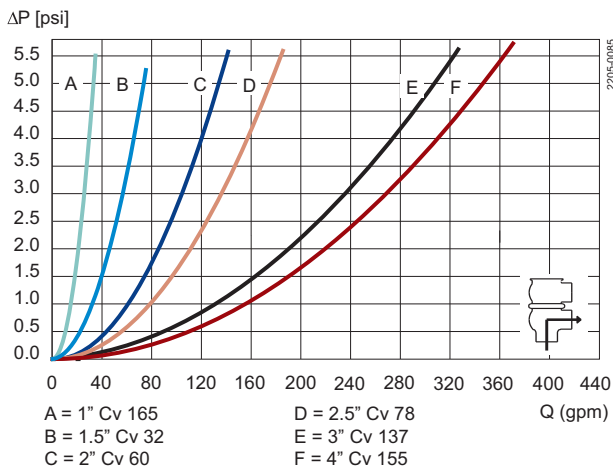
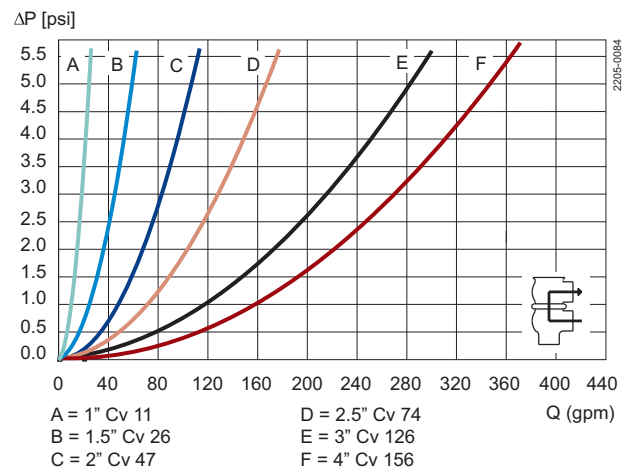
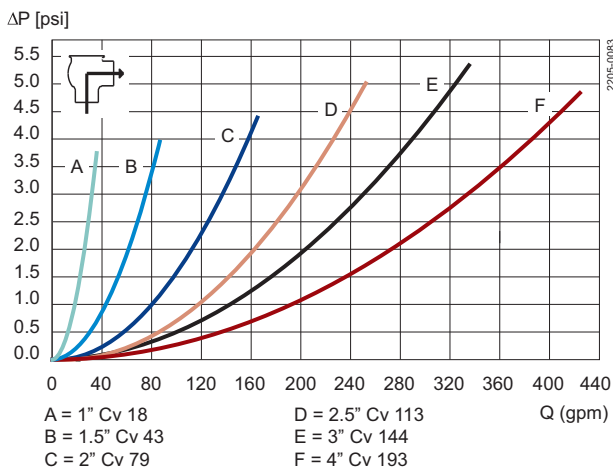
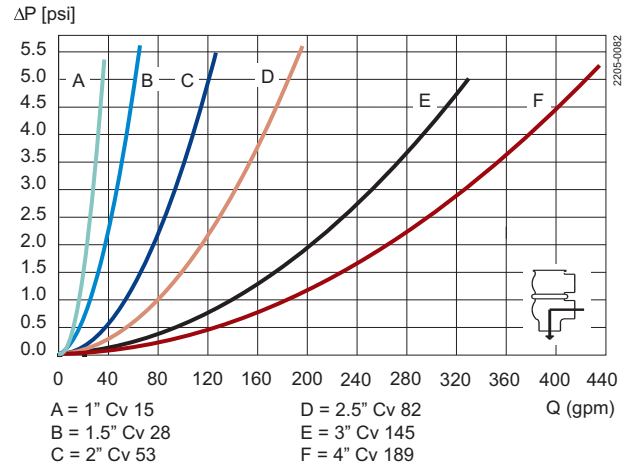
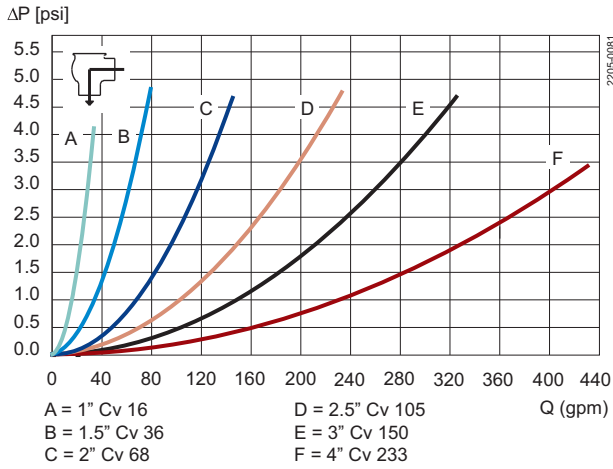
- The air supply (air pressure).
- The length and dimensions of the air hoses.
- Number of valves connected to the same air hose.
- Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.

Air Connections Compressed air:

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

Size	Air Consumption (ln ³ free air) for one stroke		
	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



Notel

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).

Δp = 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

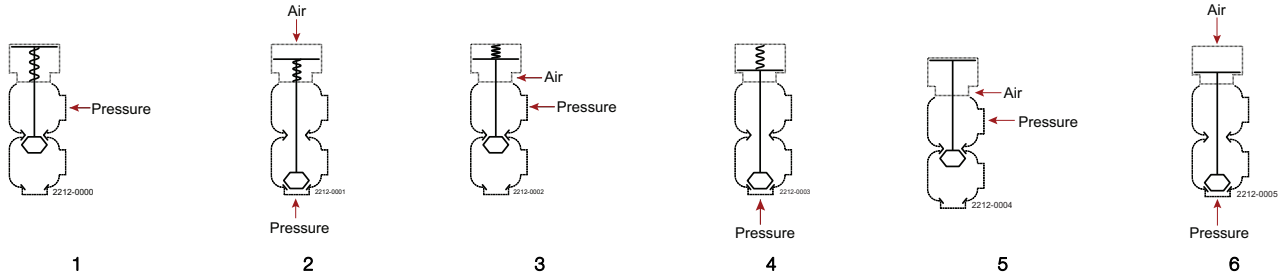


Table 1 - Shut fully closed. Max. static pressure without leakage

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size					
			DN 25 - DN/OD	DN 40 - DN/OD	DN 50 - DN/OD	DN 65 - DN/OD	DN 80 - DN/OD	DN 100 - DN/OD
			1"	1½"	2"	2½"	3"	4"
1		NO	116	87	116	64	109	78
2	87	NO	116	110	116	81	104	70
3	87	NC	116	116	116	6.8	109	73
4		NC	116	91	104	61	93	61
5	87	A/A	116	116	116	116	116	116
6	87	A/A	116	116	116	116	116	116

1.11

Table 2- 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	DN 40 - DN/OD	DN 50 - DN/OD	DN 65 - DN/OD	DN 80 - DN/OD	DN 100 - DN/OD
			1"	1½"	2"	2½"	3"	4"
1		NO	116	116	116	116	-	-
2	87	NO	116	116	116	116	-	-
3	87	NC	116	116	116	116	116	59
4		NC	116	116	116	116	116	102

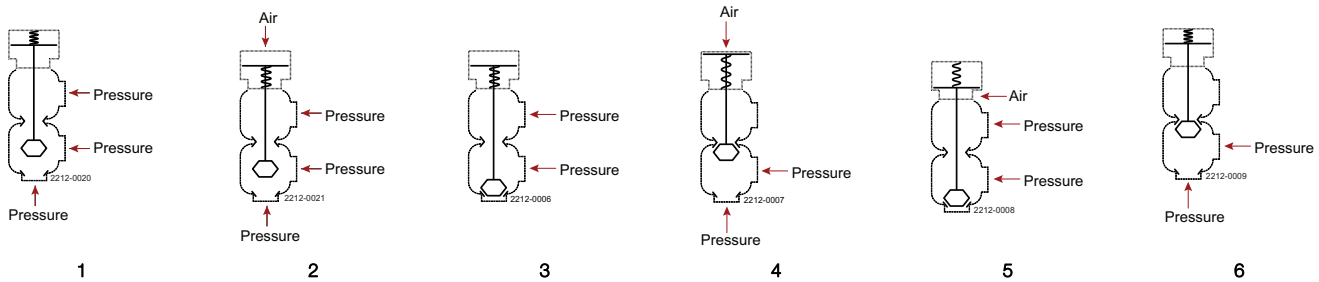


Table 3- Valve is closing. Approximately max. pressure in bar at which the valve can close by means of the spring or air pressure

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Valve size					
			DN 25 - DN/OD	DN 40 - DN/OD	DN 50 - DN/OD	DN 65 - DN/OD	DN 80 - DN/OD	DN 100 - DN/OD
			1"	1½"	2"	2½"	3"	4"
1		NC	94	94	116	116	106	110
2	87	NO	116	116	116	116	115	116

Table 4- 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	DN 40 - DN/OD	DN 50 - DN/OD	DN 65 - DN/OD	DN 80 - DN/OD	DN 100 - DN/OD
			1"	1½"	2"	2½"	3"	4"
3		NO	116	116	116	116	116	116
4	87	NO	116	116	116	116	116	116
5	87	NC	116	116	116	116	116	116
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

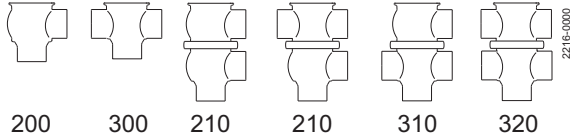
Temperature

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

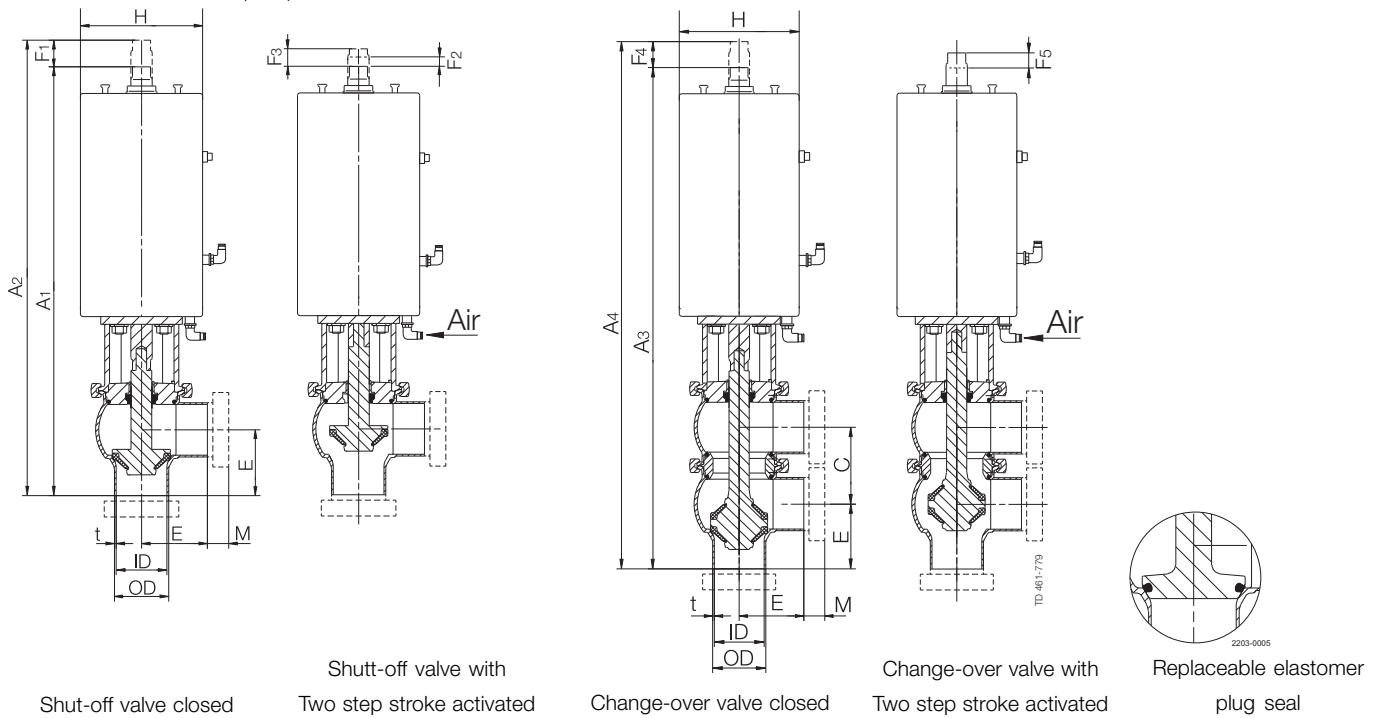
Semi-Maintainable actuator comes with 5 year warranty

Dimensions (inch)

Nominal size	Inch tubes					High pressure	
	DN/OD					2"	2.5"
	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
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

1.11

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



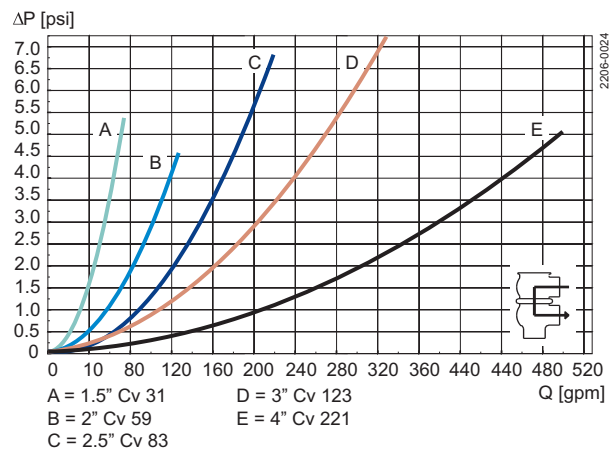
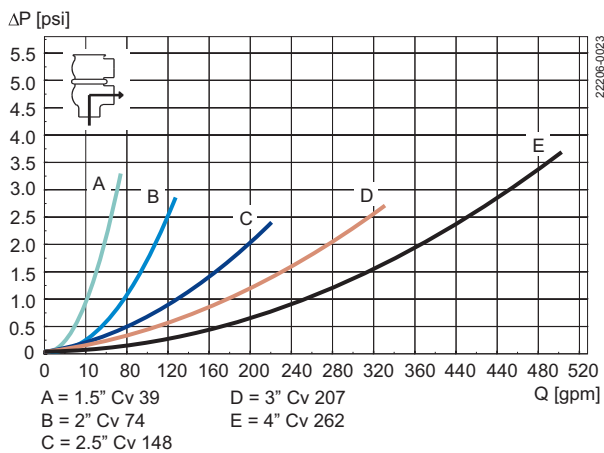
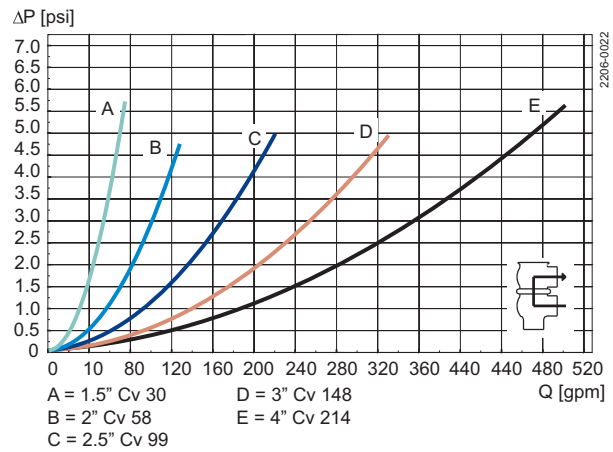
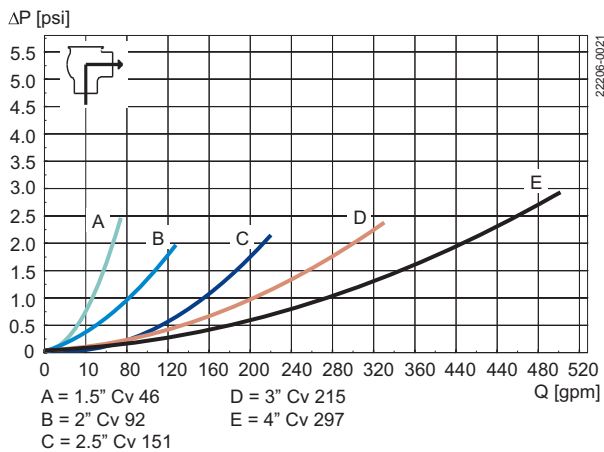
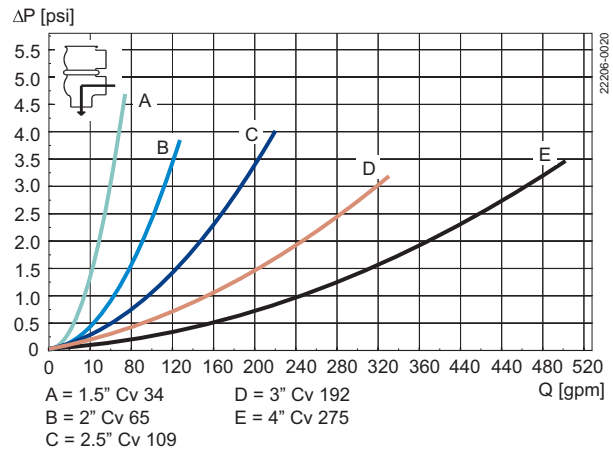
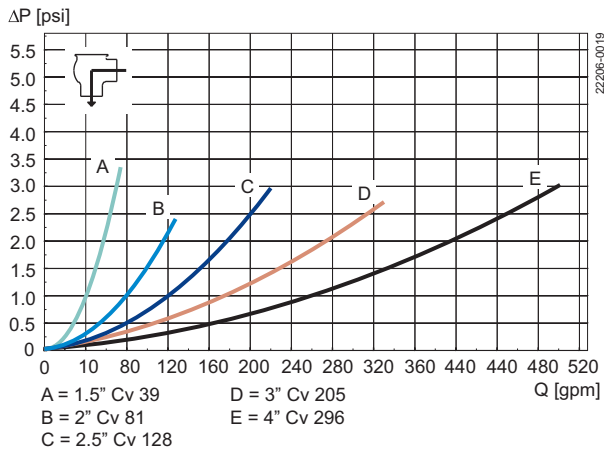
Air Consumption (In ³ free air) for one stroke			
Size	1.5"	2 - 2.5"	3" - 4"
NO and NC	2.17 x air pressure [psi]	2.17 x air pressure [psi]	5.51 x air pressure [psi]

Please note!

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



Notel

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" shut-off valve if the flow is 160 gallon/minute.

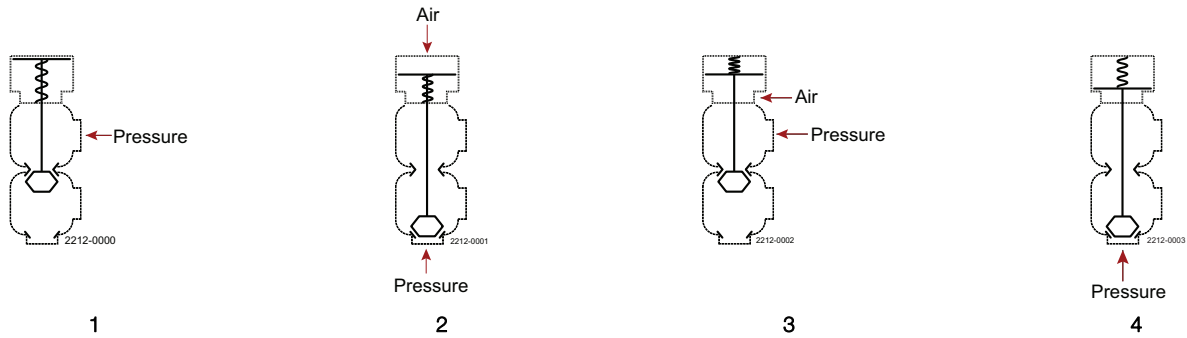
2.5" shut-off valve, where Cv = 128 (See table above).

$$Q = Kv \times \sqrt{\Delta p}$$
$$160 = 128 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1,6 \text{ psi}$$

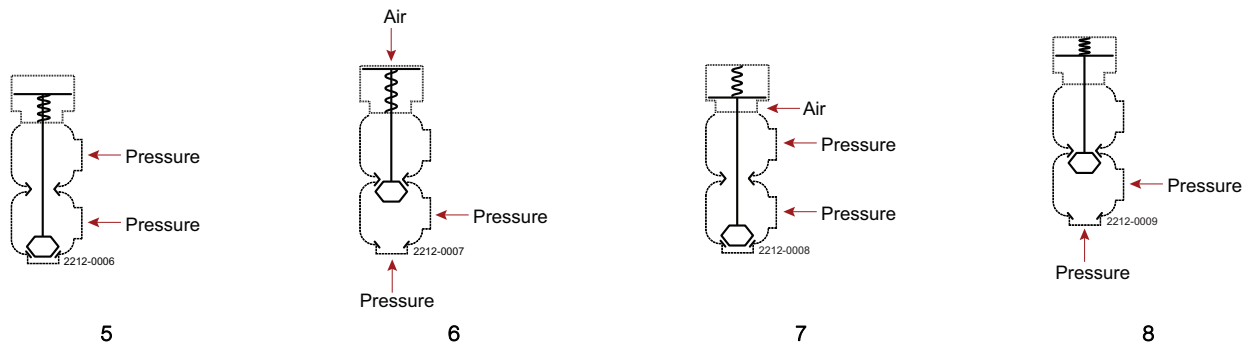
(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Two Step



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

1.11



Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Max. pressure in PSI against which the valve can open				
			Valve size				
			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

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 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

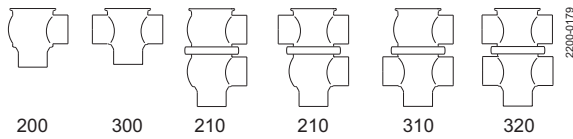
Temperature

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

- A. Weld ends or connection types other than Tri-Clamp.
- B. Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- C. Aseptic version.
- D. Product wetted seals in HNBR or FPM.
- E. Replaceable elastomer plug seals.
- F. High pressure actuator.
- G. Manually operated.
- H. NO or A/A actuator.
- I. Long stroke actuator.
- J. Maintainable actuator.
- K. External surface finish blasted.
- L. 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.

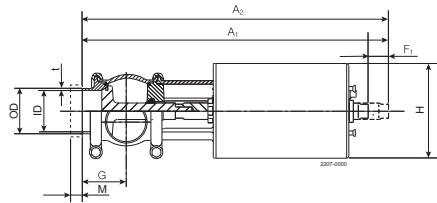
- Reverse acting valve.
- Long stroke valve.
- Manually operated valve.
- Aseptic valve.

Semi-Maintainable actuator comes with 5 year warranty

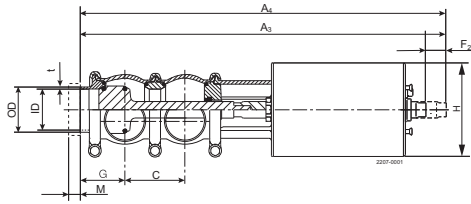
Dimensions (inch)

	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

Note: M*/Tri Clamp (Inlet) is designed for use with 13 MHP clamp.



Shut-off valve



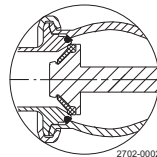
Change-over valve

Please note!

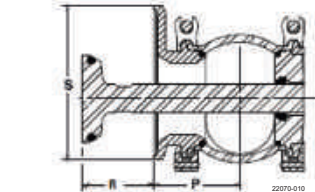
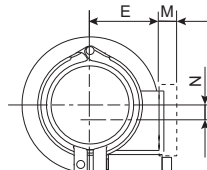
Opening/closing time will be effected by the following:

- 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.



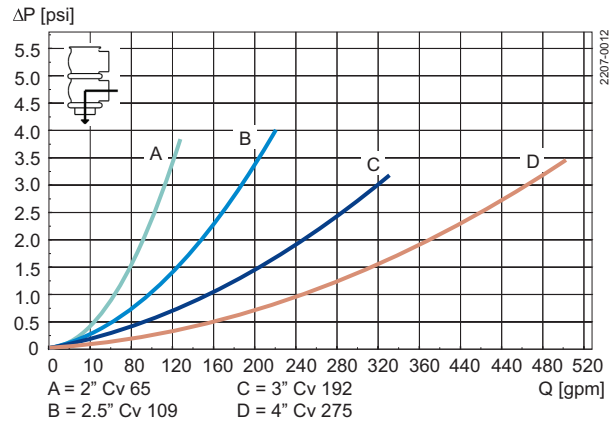
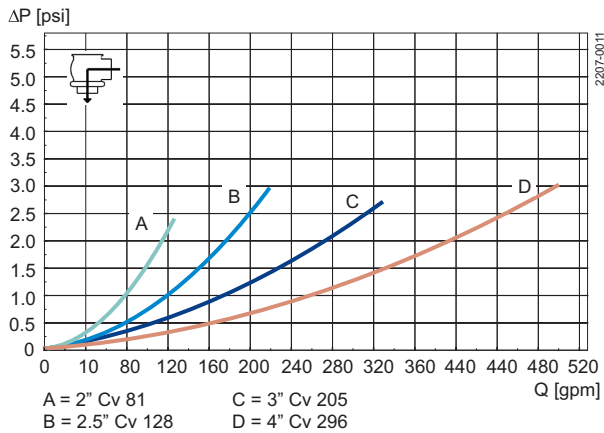
Replaceable elastomer plug seal



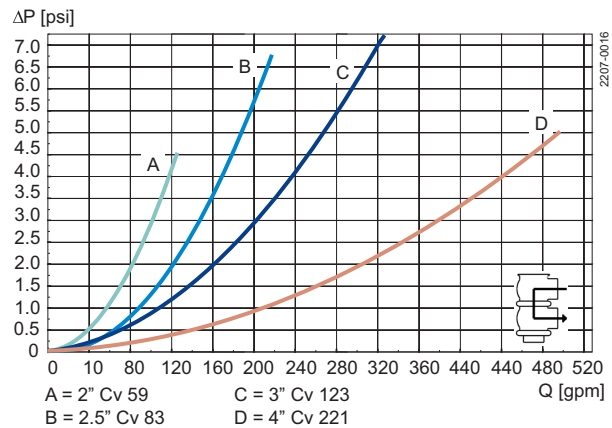
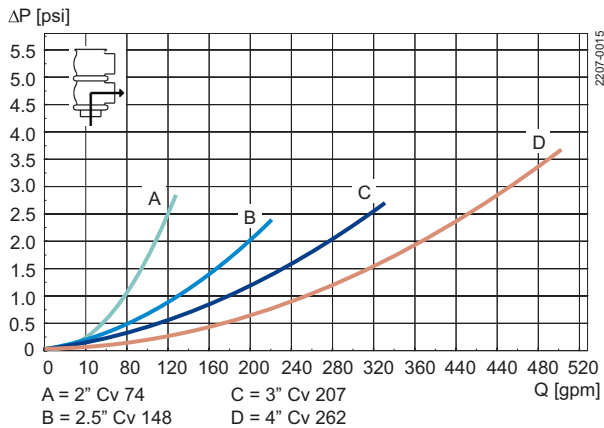
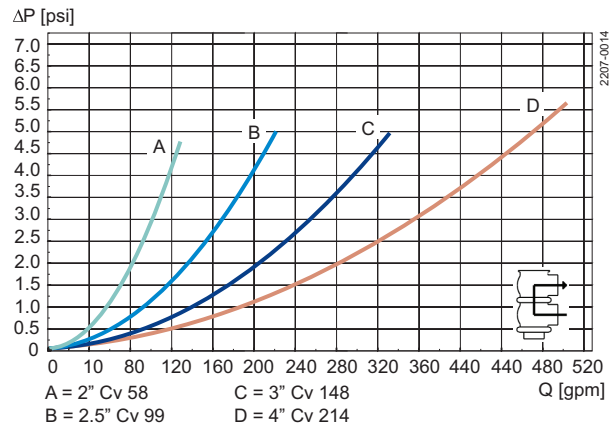
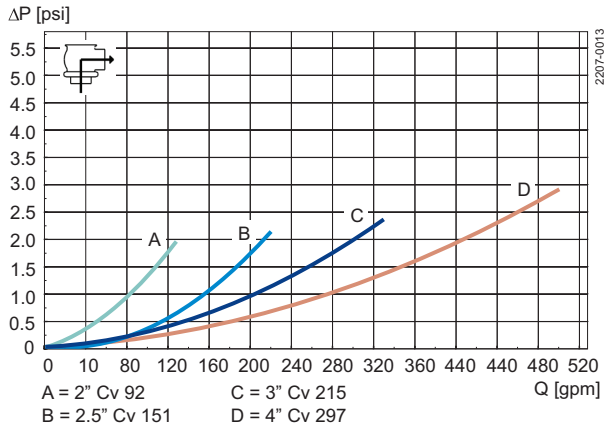
flange adapter

Size	Air Consumption (ln ³ free air) for one stroke	
	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



1.11



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).

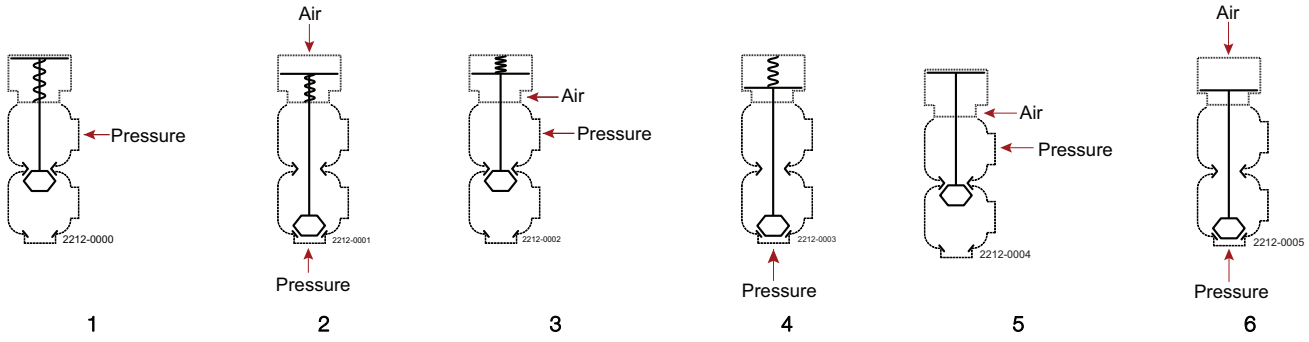
$$160 = 128 \times \sqrt{\Delta p}$$

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

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1,6 \text{ psi}$$

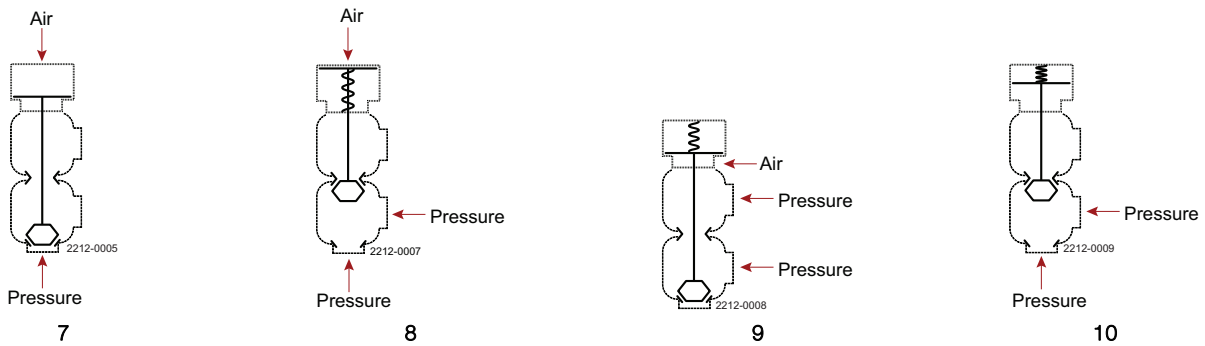
(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Tangential body/Tank valve



1.11

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"
1		NO	122	65	99	64
2	87	NO	139	81	104	70
3	87	NC	145	88	112	73
4		NC	104	61	93	61
5	87	A/A	145	145	145	145
6	87	A/A	145	145	145	145



Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Max. pressure in PSI against which the valve can open			
			Valve size			
			2"	2½"	3"	4"
7		NO	145	107	141	91
8	87	NO	145	120	144	95
9	87	NC	145	131	145	100
10		NC	145	99	132	88

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Plug position	Max. pressure in PSI against which the valve can open			
			Valve size			
			2"	2½"	3"	4"
1		NO	145	145	-	-
2	87	NO	145	145	-	-
3	87	NC	145	145	73	44
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



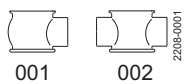
1.11

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)

1.11

Valve Body Combinations



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

- A. Weld ends or connection types other than Tri-Clamp
- B. Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- C. Aseptic version
- D. Product wetted seals in HNBR or FPM.
- E. Replaceable elastomer plug seals
- F. Manually operated
- G. NO or A/A actuator
- H. High pressure actuator.
- I. Long stroke actuator
- J. Maintainable actuator.
- K. External surface finish bright.
- L. 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.

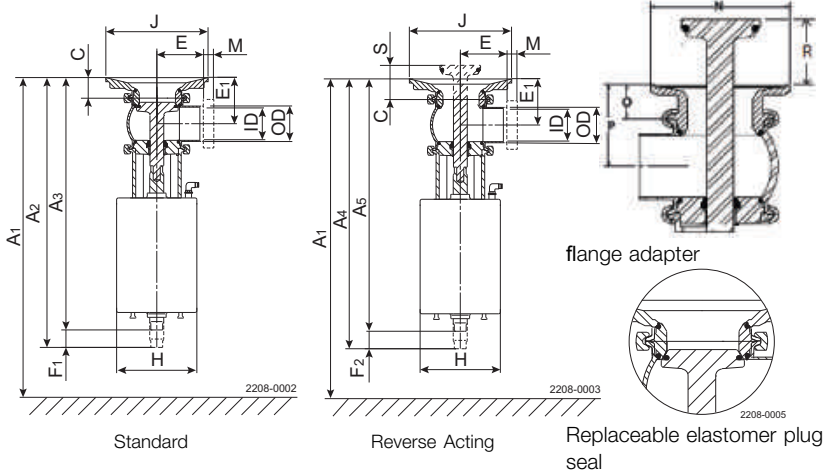
Semi-Maintainable actuator comes with 5 year warranty

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
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

1.11

A1= 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)



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:

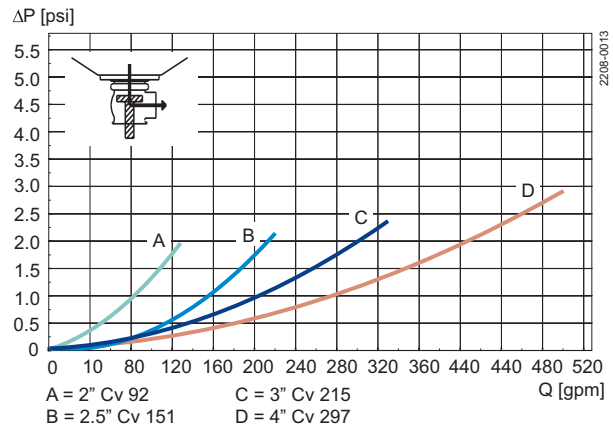
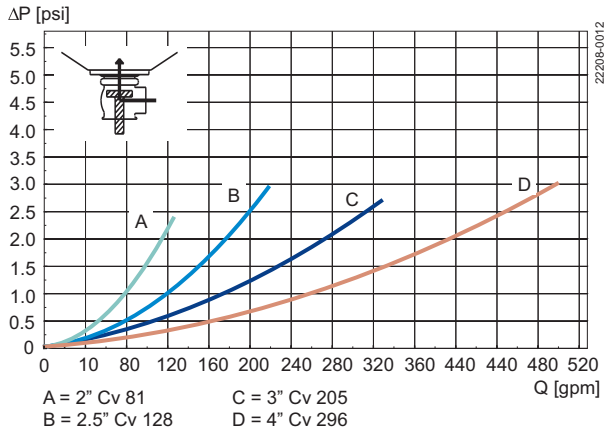
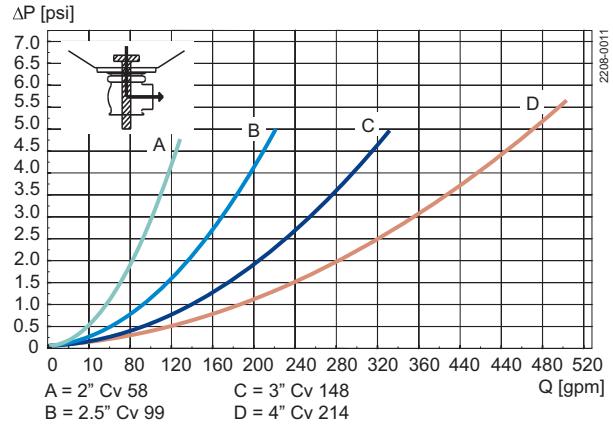
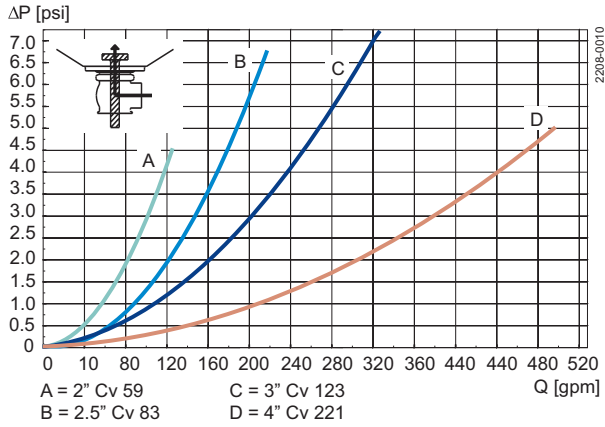
R 1/8" (BSP), internal thread.

Actuator function

Air consumption (ln³ 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

1.11



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).

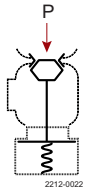
$$Q = Kv \times \sqrt{\Delta p}$$

$$160 = 128 \times \sqrt{\Delta p}$$

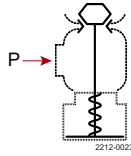
$$\Delta p = \left(\frac{160}{128}\right)^2 = 1,6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)

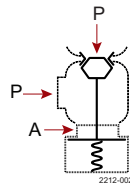
Pressure data for Unique Single Seat Valve Tank Outlet



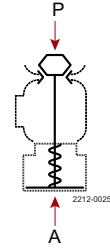
1



2



3



4

A = Air

P= Product pressure

Table 1 - 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

Table 2 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).

1.11

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

- A. Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
 B. Product wetted seals in HNBR/NBR or FPM.

Note!

For further details, see instruction ESE00583.

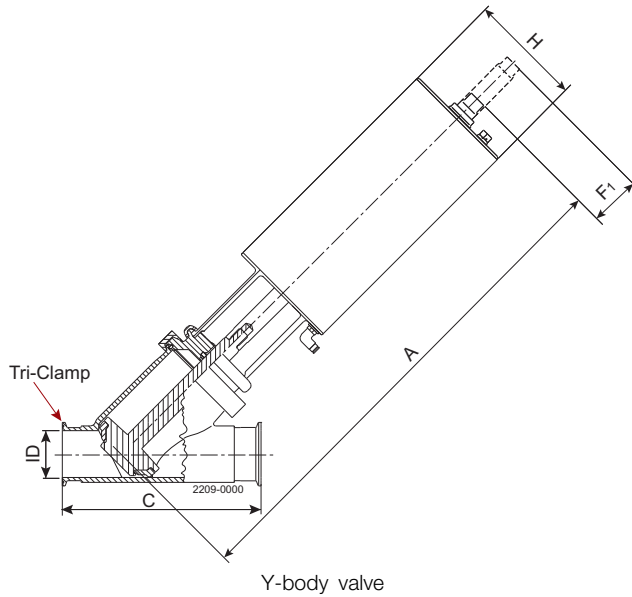
Other valves in the same basic design

- 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



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.

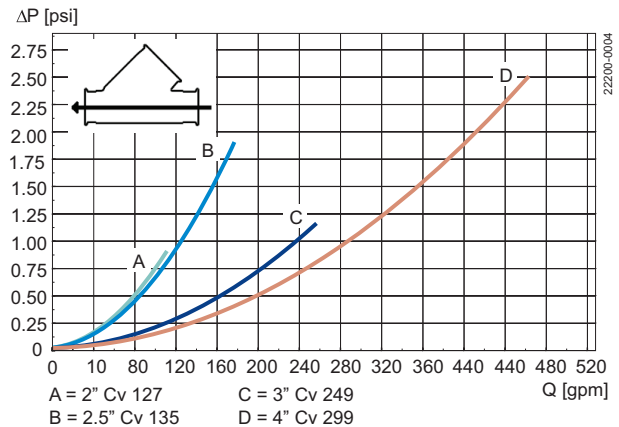
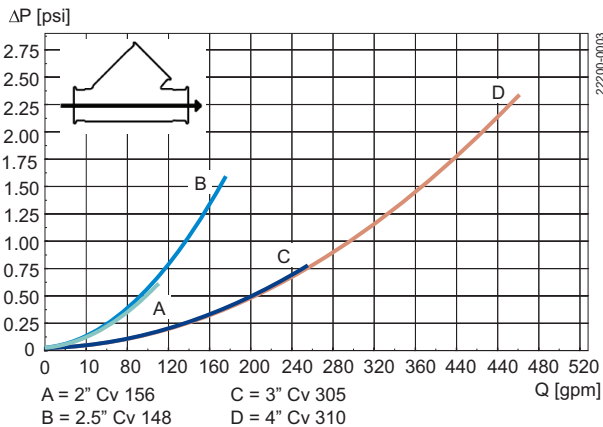
Air Connections Compressed air:

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

1.11

	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).

Δp = Pressure drop in psi over the valve.

2.5" shut-off valve, where Cv = 128 (See table above).

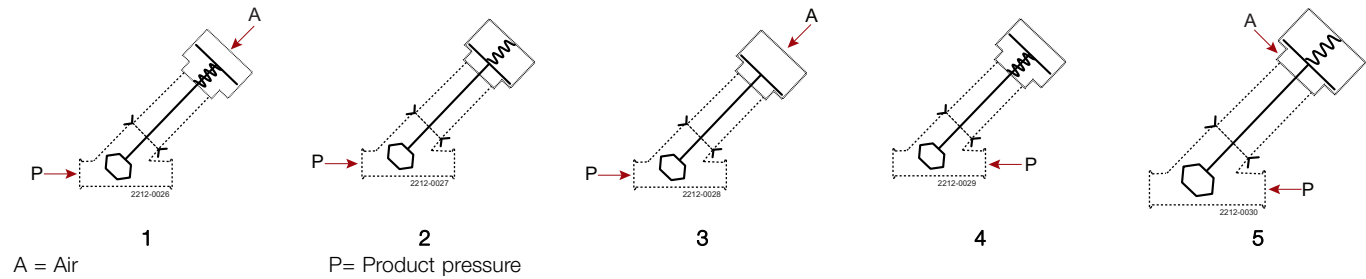
$$Q = K_v \times \sqrt{\Delta p}$$

$$160 = 128 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1,6 \text{ psi}$$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat Valve Y-body



1.11

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"
1	87	NO	71	40	55	31
2		NC	64	35	55	31
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"
4		NO	133	74	94	54
5	87	NC	142	79	95	54

Alfa Laval Unique SSV Manually Operated/Manually Regulating Valve

Single seat valves

Introduction

The Alfa Laval Unique SSV Manually Operated/Manually Regulating 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/Manually Regulating 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/Manually Regulating 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

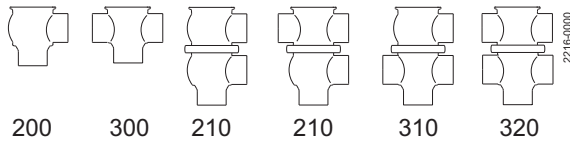
ATEX

Classification	II 2 G D*
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*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

1.11

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

- A. Weld ends or connection types other than Tri-Clamp.
- B. Product wetted seals in HNBR or FPM.
- C. Replacable elastomer plug seals (only for Manual Operated Valve).
- D. External surface finish blasted.

Note!

For further details, see instruction ESE00504ENUS.

Other valves in the same basic design

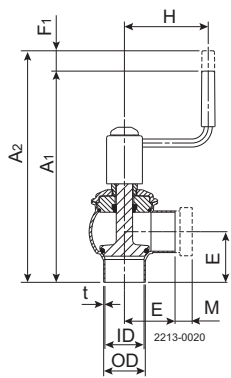
The valve range includes several purpose built valves. Below listed are some of the valve models available, though please use the Alfa Laval Anytime configurator for full access to all models and options.

- Standard valve.
- Reverse acting valve.
- Aseptic valve.
- Long Stroke valve.
- Tank Outlet valve.

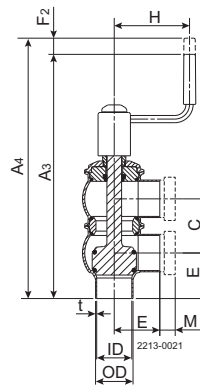
Dimensions (inch)

Size	1 inch	1.5 inch	2 inch	2.5 inch	3 inch	4 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

1.11



a. Shut off valve.



b. Change-over valve.

Fig. 2. Dimensions.

Kv-Factors

Valve size	Kv
1.5"	14*/44
2.0"	75
2.5"	106
3.0"	171
4.0"	250

* optional

Kv = m³/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 m³/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:

$$Q = 75 \times \sqrt{2} = 106 \text{ m}^3/\text{h}$$

or at 50% stroke:

$$Q = 0.5 \times 75 \times \sqrt{2} = 53 \text{ m}^3/\text{h}$$

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.

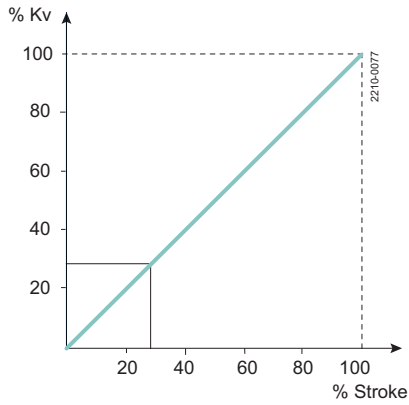


Fig. 3. The flow in % of the total flow at a pressure drop of 1 bar.

1.11

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

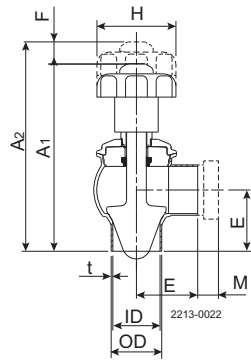


Fig. 4. Dimensions

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.

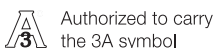
The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

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

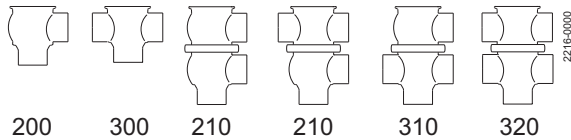


TECHNICAL DATA

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



1.11

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

- A. Male parts or clamp liners in accordance with required standard
- B. Product wetted seals in HNBR or FPM
(only for Unique SSV aseptic manually tank outlet valve)
- C. Plug seal HNBR, FPM
- D. Tangential bodys
(only for Unique SSV aseptic manually tank outlet valve and for Unique SSV aseptic manually operated valve)
- E. External surface bright

Note!

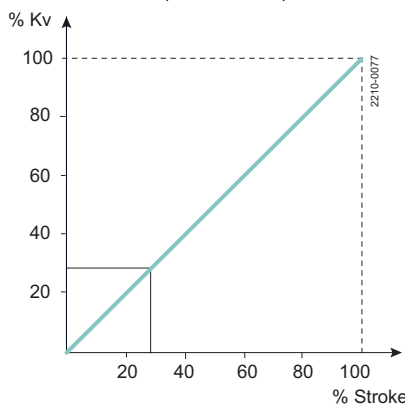
For further details, see instruction ESE02421.

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:

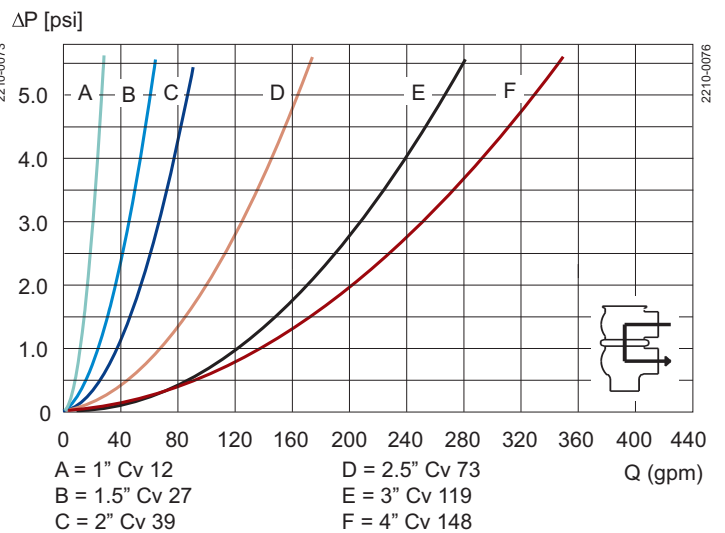
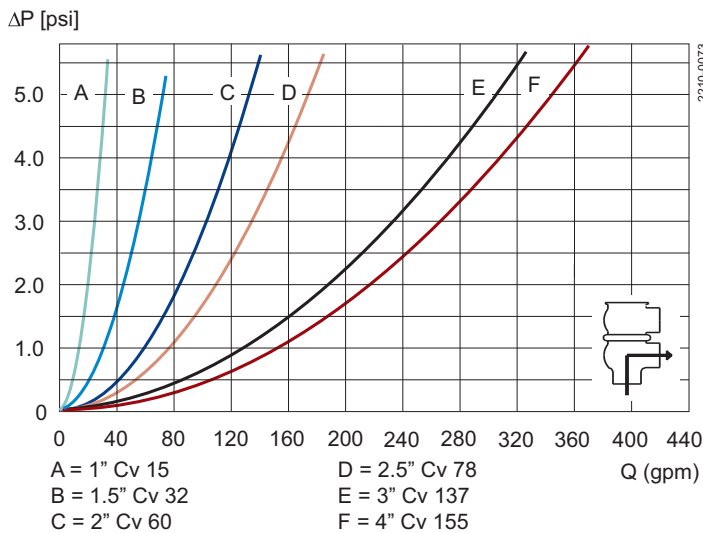
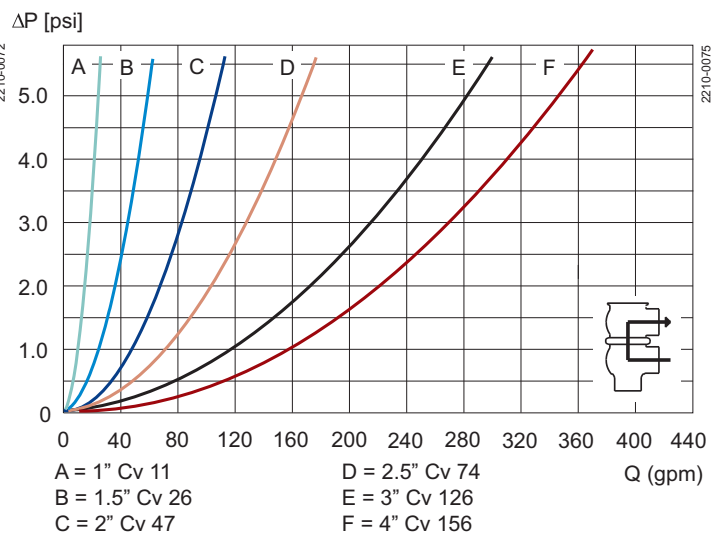
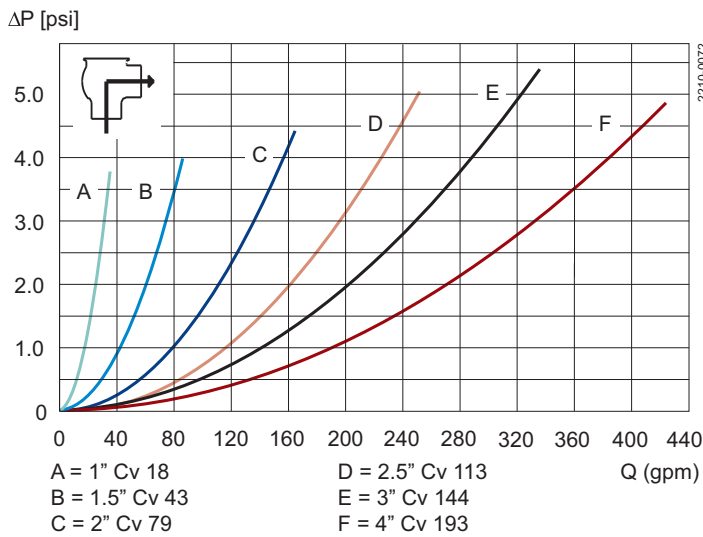
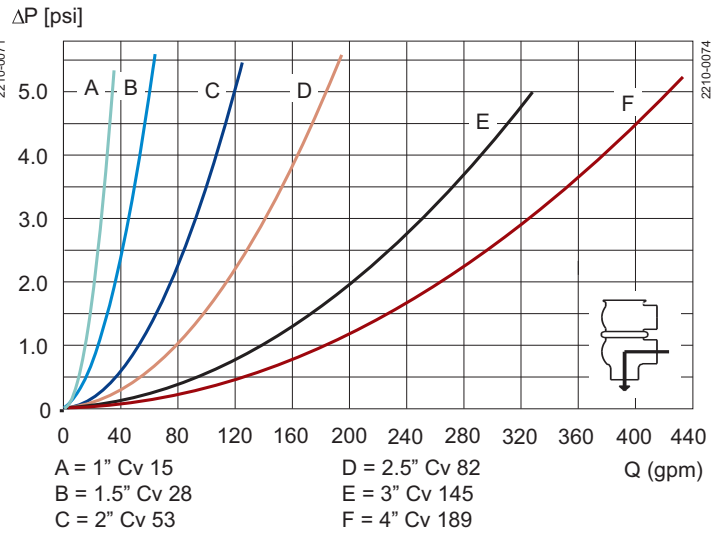
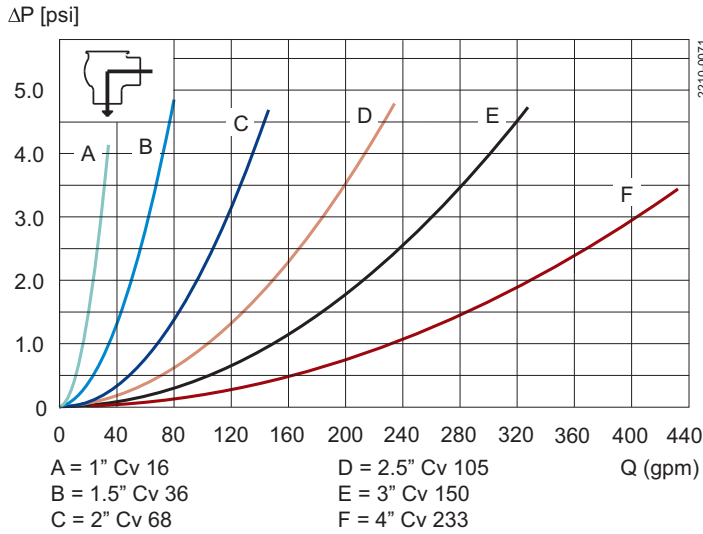
The plugs have linear characteristics. This means that a certain amount of throttling, by reducing the stroke, results in a proportional reduction of the flow if the pressure drop remains unchanged.



The flow in % of the total flow at a pressure drop of 1 bar.

Pressure drop/capacity diagrams

1.11



Note!

For the diagrams the following applies:

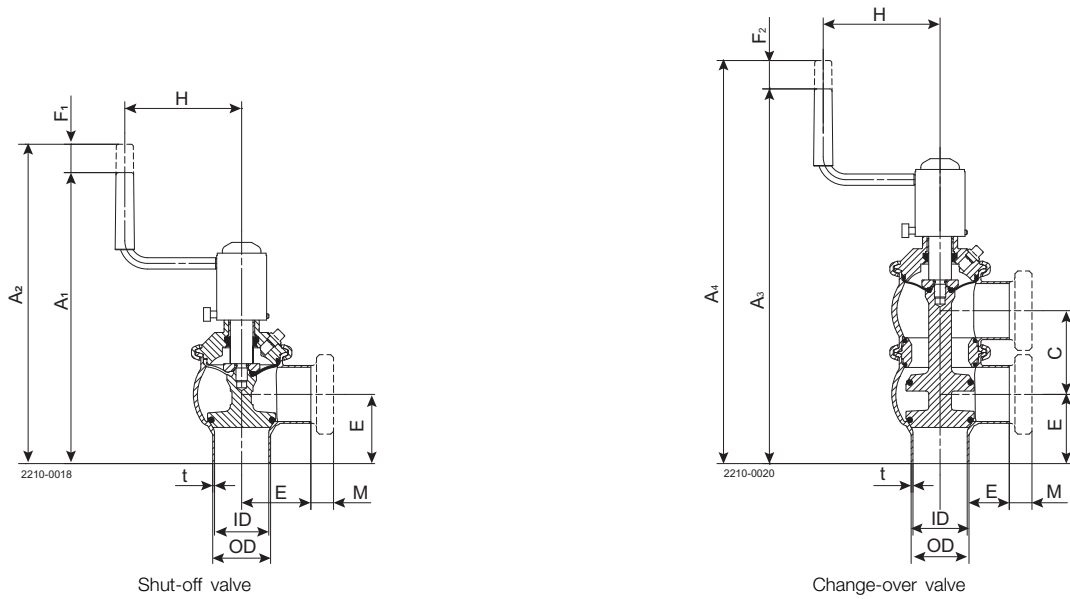
Medium: Water (20°C)

Measurement: In accordance with VDI 2173

Pressure drop can also be calculated in Anytime configurator.

Dimensions (inch)

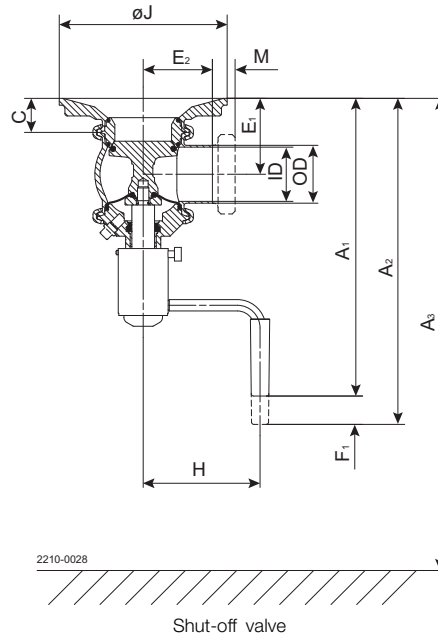
Dimensions for Unique SSV aseptic manually operated valve



1.11

Size	1 inch	1.5 inch	2 inch	2.5 inch	3 inch	4 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
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



1.11

Size	2 inch	2.5 inch	3 inch	4 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 m³/h.

Kv = See above.

Δ p = Pressure drop in bar over the valve.

Conversion factors:

Cv = US gal/min. at 1 psi pressure drop

$$Cv = Kv \times 1.18$$

$$Q \text{ (gal/min)} = 4.4 \times Q \text{ (m}^3\text{/h)}$$

Example:

How to calculate the pressure drop for an ISO 63.5 tank outlet valve if the flow is 176 gal/min.

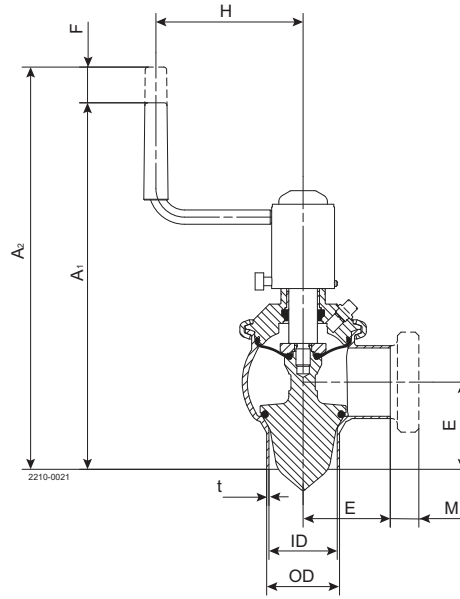
ISO 63.5 tank outlet valve where Cv = 112 (See table above)

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

$$176 = 112 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{176}{112}\right)^2 = 2.5 \text{ psi}$$

Dimensions for Unique SSV aseptic manual regulating valve



Shut-off valve

1.11

Size	1.5 inch	2 inch	2.5 inch	3 inch	4 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
M (Tri-clamp)	0.50	0.50	0.50	0.50	0.63
Weight (lb)					
Stut-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:

$$Q = K_v \times \sqrt{\Delta p}$$

Where

Q = Flow in m³/h.

Kv = See above.

Δ p =Pressure drop in bar over the valve.

Conversion factors:

Cv = US gal/min. at 1 psi pressure drop

$$Cv = Kv \times 1.18$$

$$Q \text{ (gal/min)} = 4.4 \times Q \text{ (m}^3\text{/h)}$$

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

$$Q = Cv \times \sqrt{\Delta p} = 47 \times \sqrt{\Delta p} = 66 \text{ gal/min}$$

or at 50% stroke:

$$Q = 0.5 \times 66 = 33 \text{ gal/min}$$

1.11

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 ($\frac{1}{2}$ "") and 19 mm ($\frac{3}{4}$ "") 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.



1.11

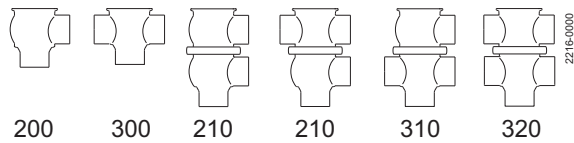
Working principle

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



1.11

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:	1/2" and 3/4"
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

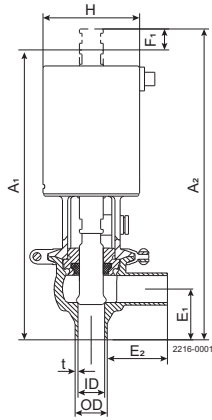
Options

- A. Adapter for IndiTop, ThinkTop and ThinkTop Basic.
- B. Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- C. Product wetted seals of HNBR or FPM.
- D. Surface finish external ≤ 32 µinch Ra.

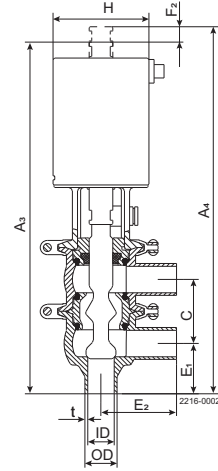
Note!

Semi-Maintainable actuator comes with 5 year warranty

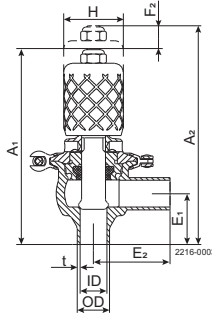
Dimensions (inch)



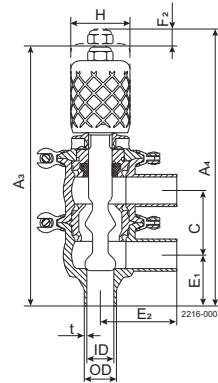
Stop valve



Divert valve



Manual stop valve



Manual divert valve

1.11

Nominal Size	Remote-controlled	
	OD 1/2"	OD 3/4"
A1	6.78	6.74
A2	7.06	7.17
A3	7.88	8.24
A4	8.16	8.67
C	1.27	1.50
OD	0.50	0.75
ID	0.37	0.62
t	0.06	0.06
E1	1.17	1.18
E2	1.77	1.77
F1	0.28	0.43
F2	0.28	0.43
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.

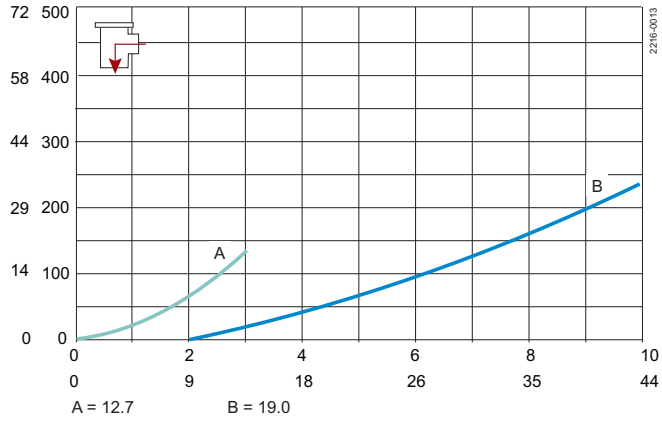
Air Connections Compressed air:

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

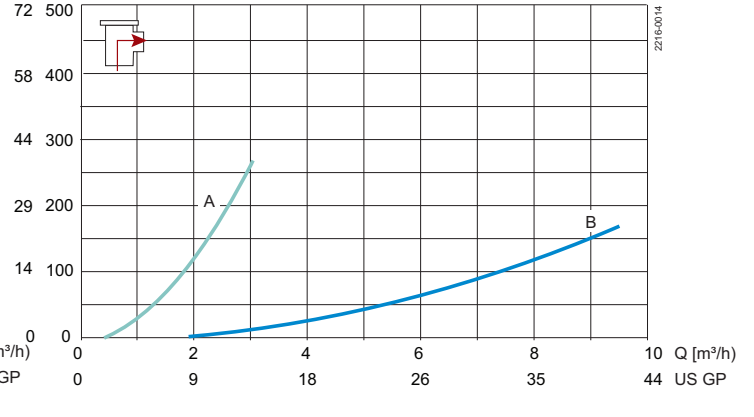
Pressure drop/capacity diagrams

Stop valve

PSI ΔP [kPa]

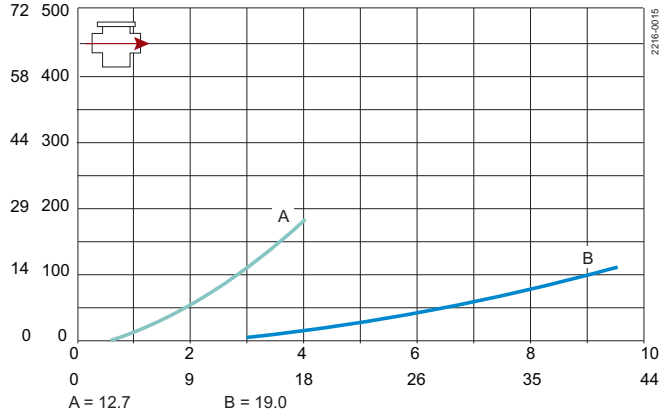


PSI ΔP [kPa]



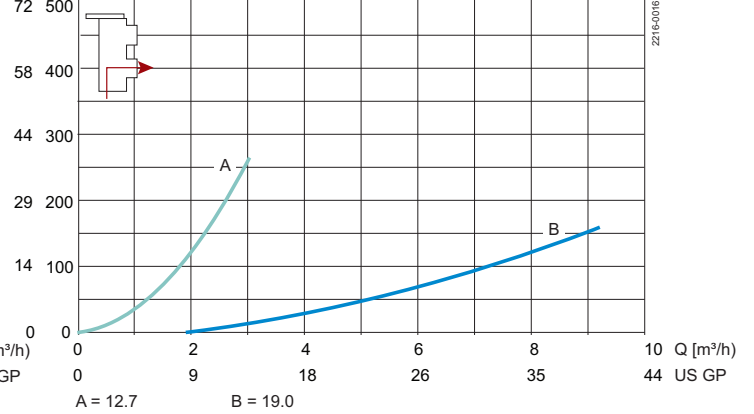
1.11

PSI ΔP [kPa]

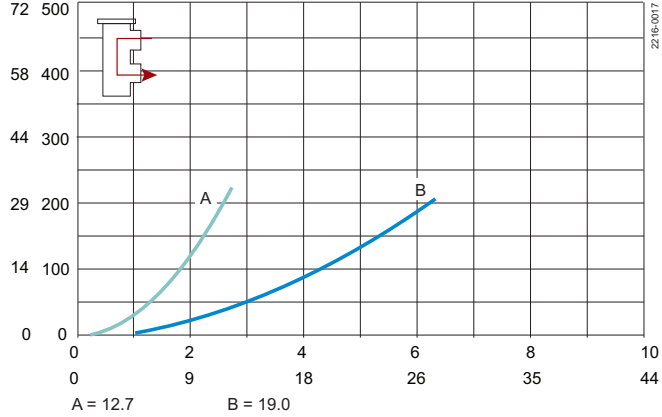


Change-over valve

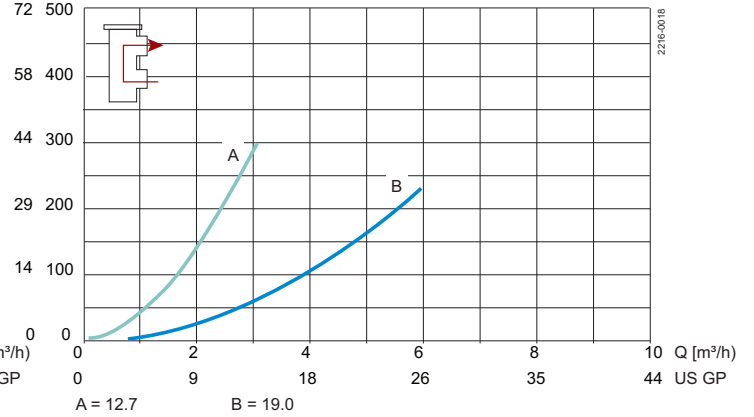
PSI ΔP [kPa]



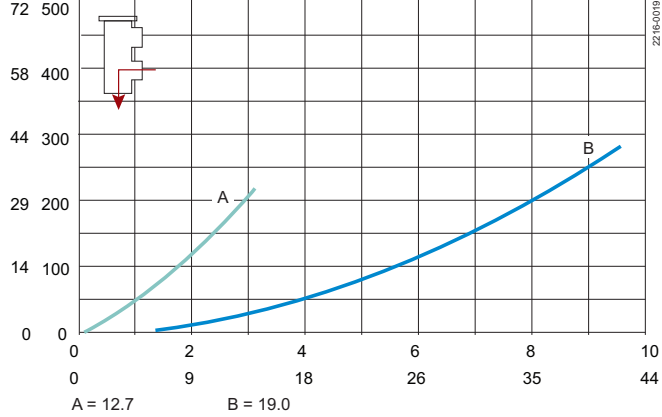
PSI ΔP [kPa]



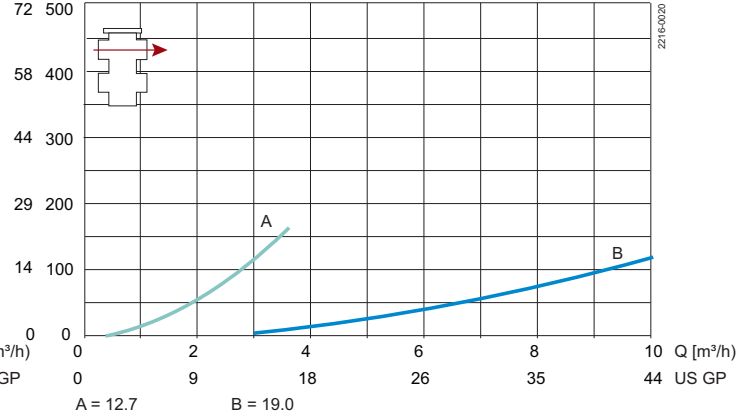
PSI ΔP [kPa]



PSI ΔP [kPa]



PSI ΔP [kPa]



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:

$$Q = K_v \times \sqrt{\Delta p}$$

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 1 psi (see table above).

Δp = 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).

Δp = Pressure drop in psi over the valve.

2.5" shut-off valve, where Cv = 128 (See table above).

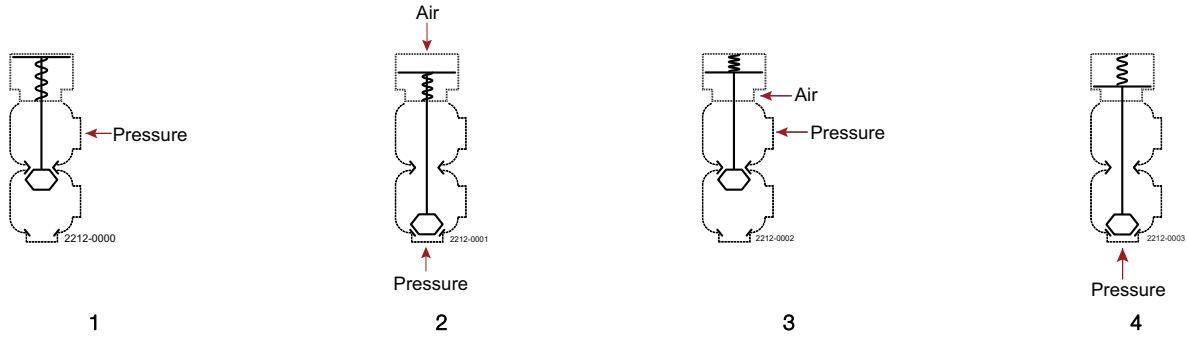
$$Q = K_v \times \sqrt{\Delta p}$$

$$160 = 128 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1,6 \text{ psi}$$

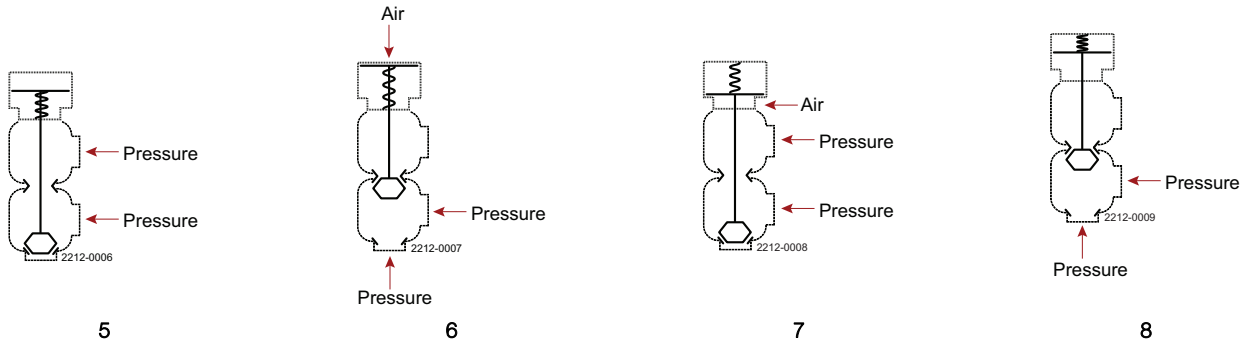
(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Small Single Seat Valve



1.11

Actuator / Valve body combination and direction of pressure	Air pressure (psi)	Plug position	Max. pressure in bar without leakage	
			Valve size	
			DN/OD 1/2"	DN/OD 3/4"
1	29	NO	Min. 145	Min. 145
	43.5	NO	29	-
2	43.5	NO	Min. 145	43.5
	58	NO	Min. 145	Min. 145
3	29	NC	130.5	-
	43.5	NC	Min. 145	Min. 145
4		NC	Min. 145	Min. 145



Actuator / Valve body combination and direction of pressure	Air pressure (psi)	Plug position	The table shows the approx. static pressure (p) in bar against which the valve can open	
			Valve size	
			DN/OD 1/2"	DN/OD 3/4"
5		NO	Min. 145	Min. 145
6	29	NO	130.5	-
	43.5	NO	Min. 145	87
7	58	NO	-	Min. 145
	29	NC	Min. 145	Min. 145
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.



1.11

TECHNICAL DATA

Pressure

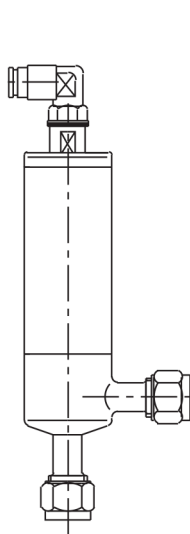
Max. product pressure:	87 PSI
Process air pressure:	87 - 116 PSI

PHYSICAL DATA

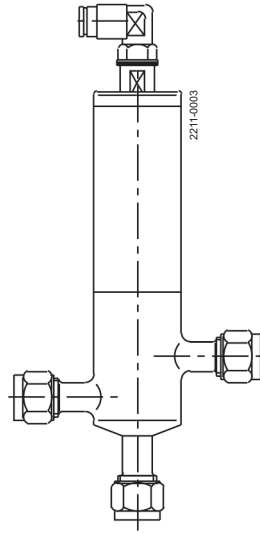
Materials

Product wetted steel surfaces:	EN 1.4404 (AISI 316L)
Product wetted seals:	EPDM
Product wetted polymers:	PTFE

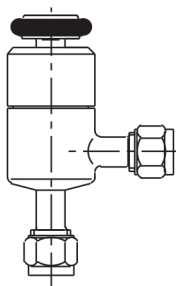
1.11



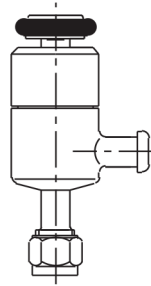
Pneumatic angle valve



Pneumatic 2-way valve

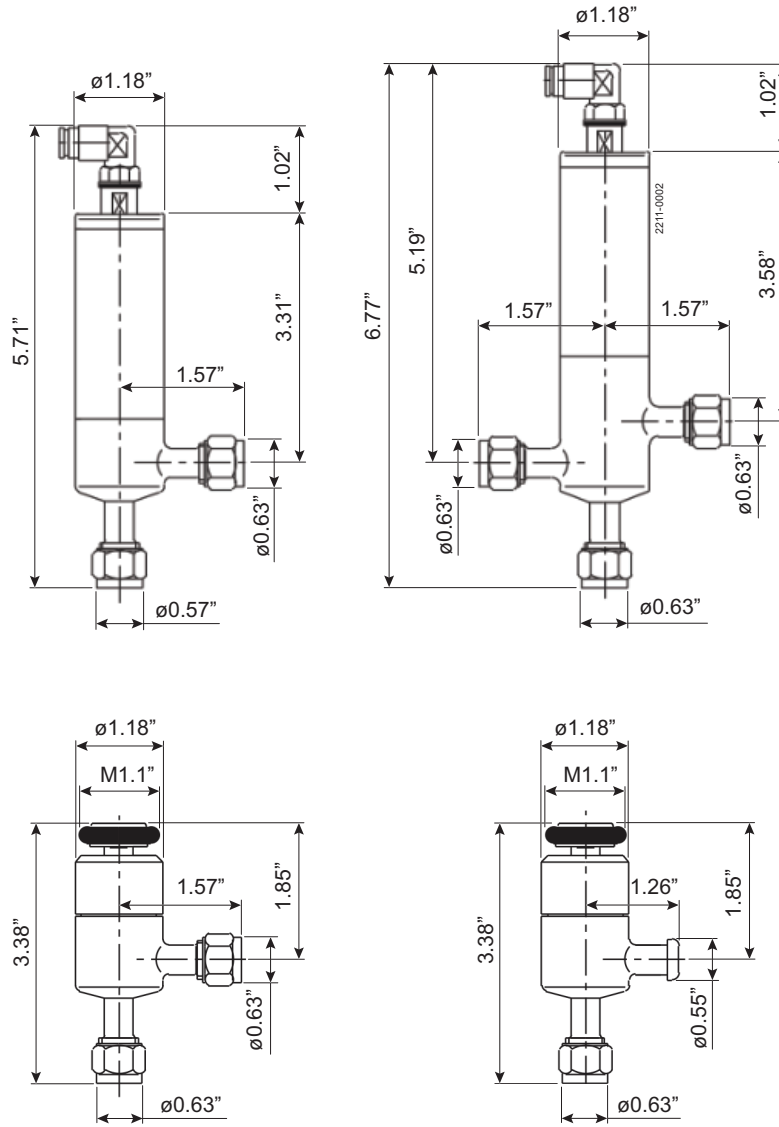


Drain valve with fittings



Drain valve with fittings/clip-on

Dimensions (inch)



1.11

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

1.11

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 RA (2 PORT)
- 021 - SHUT-OFF RA (3 PORT)
- X21 - SHUT-OFF RA (5 PORT)
- 012 - SHUT-OFF RA (3 PORT)
- X12 - SHUT-OFF RA (3 PORT)
- 022 - SHUT-OFF RA (4 PORT)
- X22 - SHUT-OFF RA (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)
- 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

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

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
- H- ISO
- S- UNION SMS
- H-HDI 14
- F-HDI 15
- N- NO PORT

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

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

⑪ STEM TYPE

- S- ELASTOMER PLUG SEAL
- T- TR2/PDTE PLUG SEAL

⑫ ELASTOMERS

- E- EPDM
- U- HNBR
- Y- FPM

LAST LETTER IS : * SEE BUILD CODE BELOW

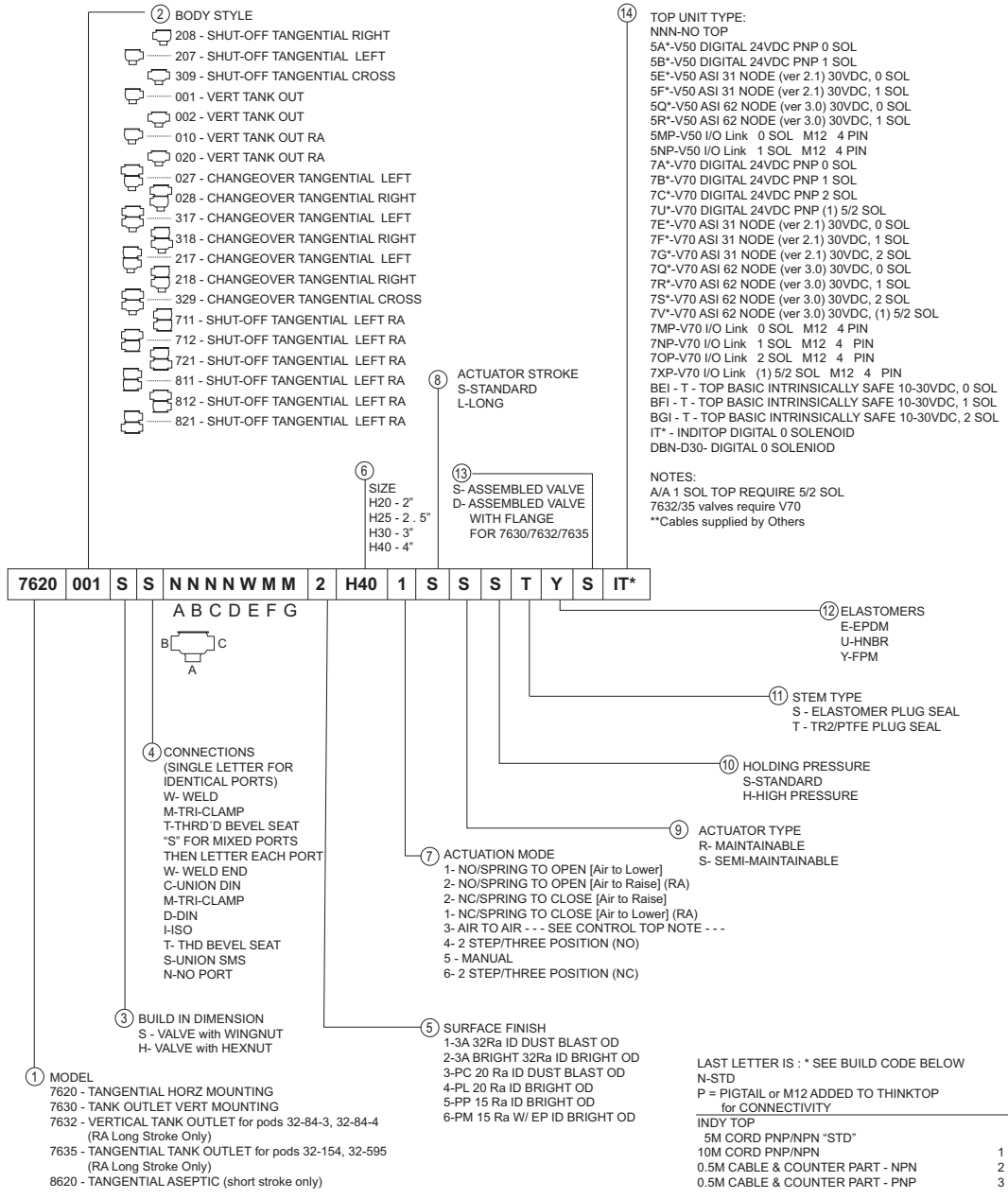
N = CABLELAND

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

Description codes

MODEL NUMBER ALL PORTS TRI - CLAMP																				
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭							
7620	- 208	- S	- M	- 2	H20	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							
7620	- 208	- S	- S	M	W	N	N	N	N	N	2	H20	1	S	S	S	T	Y	S	ITN



Description Codes

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

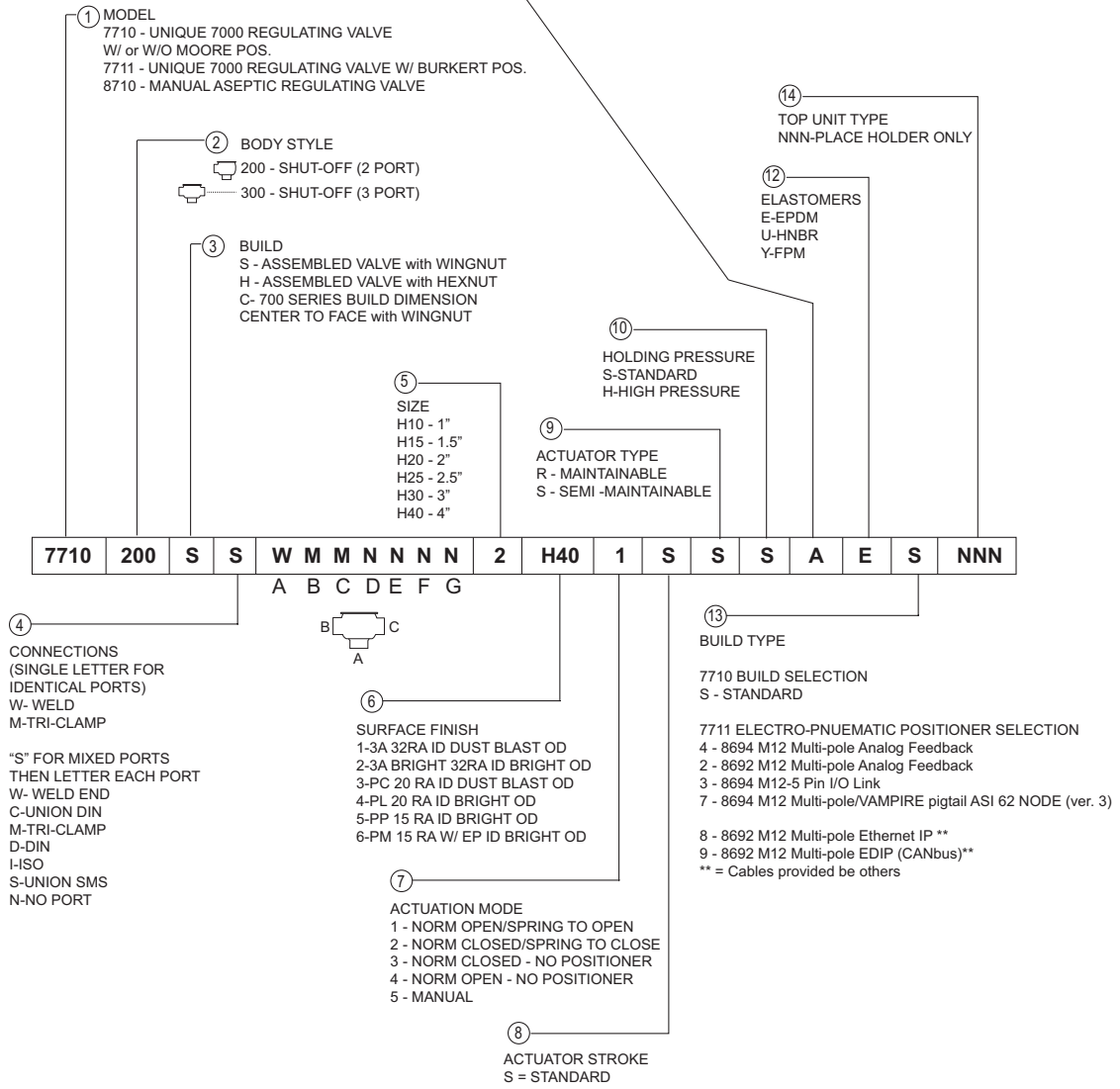
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭
 7710 - 200 - S - S W M M N N N N 2 H20 1 S S S C Y S NNN

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

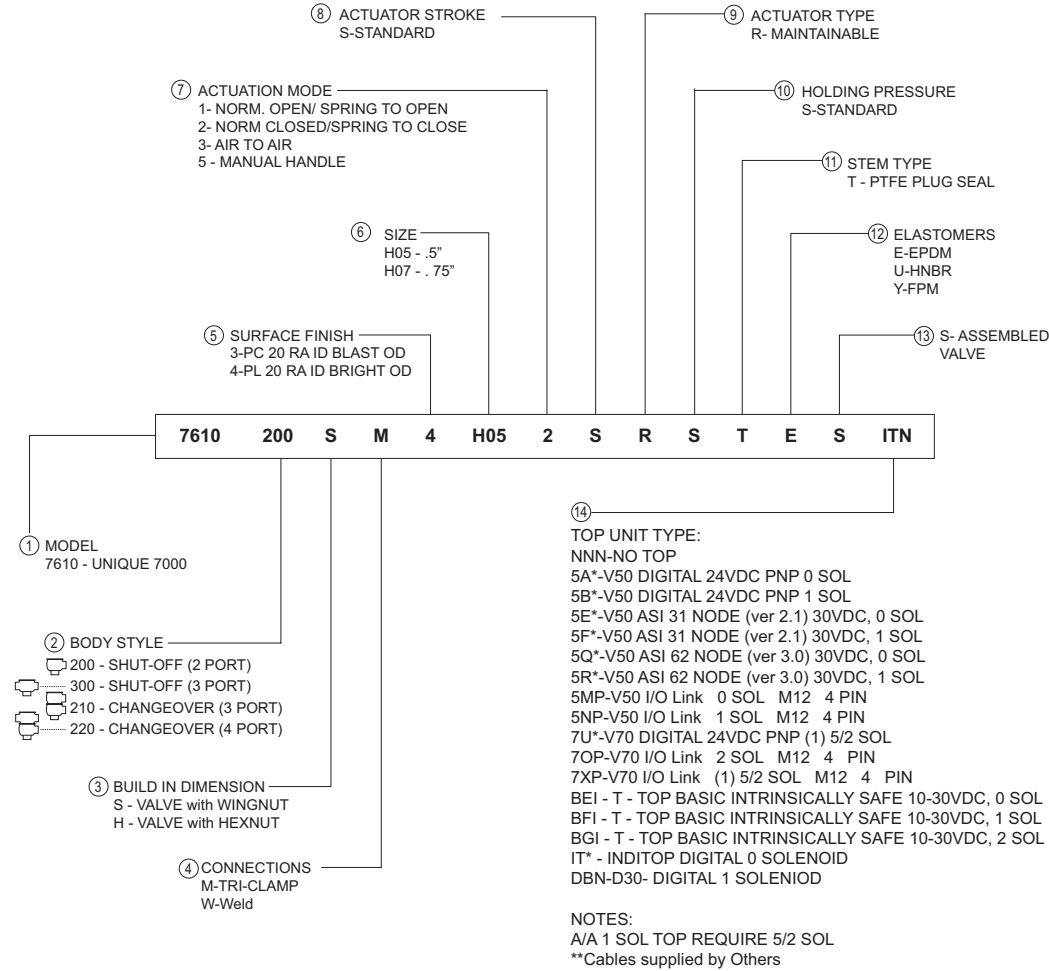
Size	1	2	3	4	5	6	7	R	U	W	A	H	I	B	G	K	L	C	J	D	M	N	E	O	P	F
1" NEEDLE	1	1.5	1.9	2.5	2.9																					
1" STD.						6.6	13																			
1.5"								4	6	10	14	16	25	44												
2"															9	34	52	75								
2.5"																			27	106						
3"																					59	100	171			
4"																								125	164	250

1.11



Description Codes

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



1.11

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

Unique SSV Standard

Single Seat Valves

Product code: 5233

Material: 1.4404 (316L)
 Connections: TriClamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 μ inch.
 Outside surface finish: Bright
 Actuator: Normally Open (NO)

1.11

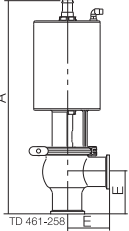
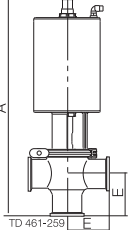
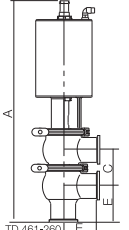
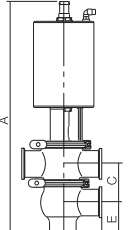
Item No. TR2	LLP USD	Item No. Elastomer	LLP USD	Size DN/OD (Inch)	Dimension (inch)			Body combination
					A	C	E	
								Shut-off valve 200
9613323371		9613360679		1	12.89		1.97	
9613360208		9613360680		1½	13.13		1.95	
9613360209		9613360681		2	15.30		2.44	
9613360210		9613360682		2½	16.33		3.23	
9613360211		9613360683		3	17.80		3.43	
9613360212		9613360684		4	19.62		4.72	
								Shut-off valve 300
9613325500		9613360693		1	12.89		1.97	
9613360222		9613360694		1½	13.13		1.95	
9613360223		9613360695		2	15.30		2.44	
9613360224		9613360696		2½	16.33		3.23	
9613360225		9613360697		3	17.80		3.43	
9613360226		9613360698		4	19.62		4.72	
								Change-over valve 210
9613360236		9613360707		1	---	1.88	1.97	
9613360237		9613360708		1½	15.41	2.39	1.95	
9613360238		9613360709		2	18.08	2.91	2.44	
9613360239		9613360710		2½	19.61	3.40	3.23	
9613360240		9613360711		3	21.61	3.89	3.43	
9613360240		9613360712		4	24.37	4.87	4.72	
								Change-over valve 220
9613360250		9613360721		1	---	1.88	1.97	
9613360251		9613360722		1½	15.41	2.39	1.95	
9613360252		9613360723		2	18.08	2.91	2.44	
9613360253		9613360724		2½	19.61	3.40	3.23	
9613360254		9613360725		3	21.61	3.89	3.43	
9613360254		9613360726		4	24.37	4.87	4.72	

Single Seat Valves

Unique SSV Standard

Product code: 5233

Material: 1.4404 (316L)
 Connections: TriClamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µ inch.
 Outside surface finish: Bright
 Actuator: Normally Closed (NC)

Item No. TR2	LLP USD	Item No. Elastomer	LLP USD	Size DN/OD (Inch)	Dimension (inch)			Body combination
					A	C	E	
Shut-off valve 200								
9613320387		9613360672		1	12.30		1.97	 <p style="text-align: center; font-size: small;">TD 461-258</p>
9613360201		9613360673		1.5	12.34		1.95	
9613360202		9613360674		2	14.31		2.44	
9613360203		9613360675		2.5	15.34		3.23	
9613360204		9613360676		3	16.66		3.43	
9613360205		9613360677		4	18.44		4.72	
Shut-off valve 300								
9613320618		9613360686		1	12.30		1.97	 <p style="text-align: center; font-size: small;">TD 461-259</p>
9613360215		9613360687		1.5	12.34		1.95	
9613360216		9613360688		2	14.31		2.44	
9613360217		9613360689		2.5	15.34		3.23	
9613360218		9613360690		3	16.66		3.43	
9613360219		9613360691		4	18.44		4.72	
Change-over valve 210								
9613360229		9613360700		1	-	1.88	1.97	 <p style="text-align: center; font-size: small;">TD 461-260</p>
9613360230		9613360701		1.5	14.70	2.39	1.95	
9613360231		9613360702		2	17.22	2.91	2.44	
9613360232		9613360703		2.5	18.74	3.40	3.23	
9613360233		9613360704		3	20.55	3.89	3.43	
9613360233		9613360705		4	23.31	4.87	4,72	
Change-over valve 220								
9613360243		9613360714		1	---	1.88	1.97	 <p style="text-align: center; font-size: small;">TD 461-261</p>
9613360244		9613360715		1.5	14.70	2.39	1.95	
9613360244		9613360716		2	17.22	2.91	2.44	
9613360245		9613360717		2.5	18.74	3.40	3.23	
9613360246		9613360718		3	20.55	3.89	3.43	
9613360247		9613360719		4	23.31	4.87	4.72	

1.11

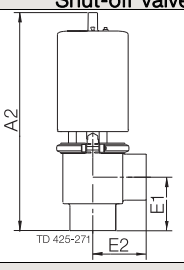
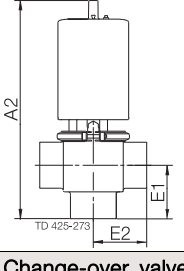
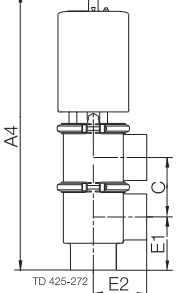
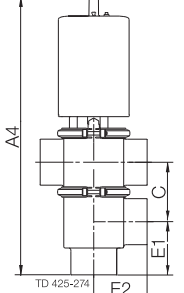
Unique SSV Series 6-inch

Single Seat Valves

Air-operated valves
Product code: 5233

Material: 1.4404 (316L)
Connection: DIN Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 63 µin
Outside surface finish: Blasted
Actuation: Pneumatic NO

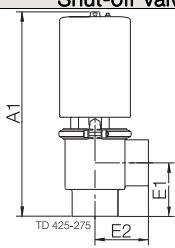
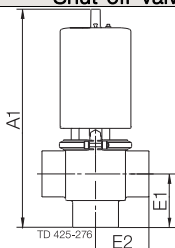
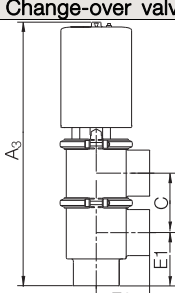
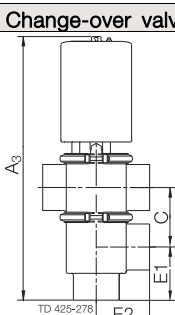
1.11

Item No.	LLP USD	Size		Dimension (in)				Body combination
		Inch	DIN	A ₂ / A ₄	C	E1	E2	
Shut-off valve 200								
9612486003 9612486007		4.92 5.91	DN125 DN150	24.33 24.84		5.91 5.91	5.91 5.91	
Shut-off valve 300								
9612486004 9612486008		4.92 5.91	DN125 DN150	24.33 24.84		5.91 5.91	5.91 5.91	
Change-over valve 210								
9612488203 9612488207		4.92 5.91	DN125 DN150	30.63 32.13	6.57 7.56	5.91 5.91	5.91 5.91	
Change-over valve 220								
9612488204 9612488208		4.92 5.91	DN125 DN150	30.63 32.13	6.57 7.56	5.91 5.91	5.91 5.91	

NOTE! Body combinations 31 and 32 on request.
Options - please see later this chapter.

Air-operated valves
Product code: 5233

Material: 1.4404 (316L)
Connection: DIN Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 63 µin
Outside surface finish: Blasted
Actuation: Pneumatic NC

Special lip seal Item No.	LLP USD	Size		Dimension (in)				Body combination
		Inch	DIN	A ₁ / A ₃	C	E1	E2	
Shut-off valve 200								
9612486001 9612486005		4.92 5.91	DN125 DN150	22.48 22.99		5.91 5.91	5.91 5.91	
Shut-off valve 300								
9612486002 9612486006		4.92 5.91	DN125 DN150	22.48 22.99		5.91 5.91	5.91 5.91	
Change-over valve 210								
9612488201 9612488205		4.92 5.91	DN125 DN150	29.13 30.59	167 192	5.91 5.91	5.91 5.91	
Change-over valve 220								
9612488202 9612488206		4.92 5.91	DN125 DN150	29.13 30.59	167 192	5.91 5.91	5.91 5.91	

NOTE! Body combinations 31 and 32 on request.

Options - please see later this chapter.

1.11

Options
The pneumatic valves not mentioned in the code number sheets, should be ordered as below

1.11

Item No.	LLP USD	Nominal size		Type*		
		Inch	DIN			
		4.92 5.91	125 150	Unique SSV Unique SSV	Male parts with DIN male DIN clamp etc. Fitting of male parts included.	Male parts Please state which type of male part you want and to which outlet it should be connected.
Seals						
				All types All types	Replacement to seals of nitrile (NBR) Replacement to seals of fluorinated rubber (FPM)	
Other equipment						
9612454001		4.92-5.91	125-150	All types	Spanner	

Additional price for internal polishing RA 32 µm

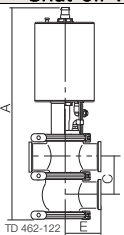
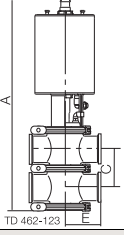
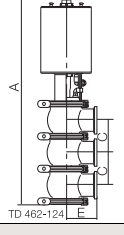
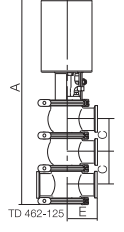
Item No.	LLP USD	Nominal size				
		Inch	DIN			
		4.92 5.91 4.92 5.91 4.92 5.91 4.92 5.91	DN125 DN150 DN125 DN150 DN125 DN150 DN125 DN150		Type 20 Type 20 Type 30 Type 30 Type 21 Type 21 Type 22 Type 22	

Additional price for internal and external polishing RA 32 µm

Item No.	LLP USD	Nominal size				
		Inch	DIN			
		4.92 5.91 4.92 5.91 4.92 5.91 4.92 5.91	DN125 DN150 DN125 DN150 DN125 DN150 DN125 DN150		Type 20 Type 20 Type 30 Type 30 Type 21 Type 21 Type 22 Type 22	

Product code: 5233

Material: 1.4404 (316L)
 Connections: TriClamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µ inch.
 Outside surface finish: Bright
 Plug position: Normally open (NO)

Item No. TR2	LLP USD	Item No. Elastomer	LLP USD	Size DN/OD Inch	Dimension (inch)			Body combination
					A	C	E	
Shut-off valve 012								
9613360379		9613360791		1.5	14.79	2.39	1.95	
9613360380		9613360792		2	17.23	2.91	2.44	
9613360381		9613360793		2.5	18.22	3.40	3.23	
9613360382		9613360794		3	20.30	3.89	3.43	
9613360383		9613360795		4	22.22	4.87	4.72	
Shut-off valve 022								
9613360403		9613360803		1.5	14.79	2.39	1.95	
9613360404		9613360804		2	17.23	2.91	2.44	
9613360405		9613360805		2.5	18.22	3.40	3.23	
9613360406		9613360806		3	20.30	3.89	3.43	
9613360407		9613360807		4	22.22	4.87	4.72	
Change-over valve 111								
9613360607		9613360815		1.5	17.15	2.39	1.95	
9613360608		9613360816		2	20.14	2.91	2.44	
9613360609		9613360817		2.5	21.61	3.40	3.23	
9613360610		9613360818		3	24.17	3.89	3.43	
9613360611		9613360819		4	27.08	4.87	4.72	
Change-over valve 211								
9613360619		9613360827		1.5	17.15	2.39	1.95	
9613360620		9613360828		2	20.14	2.91	2.44	
9613360621		9613360829		2.5	21.61	3.40	3.23	
9613360622		9613360830		3	24.17	3.89	3.43	
9613360623		9613360831		4	27.08	4.87	4.72	

1.11

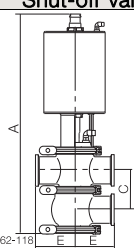
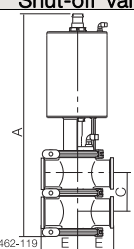
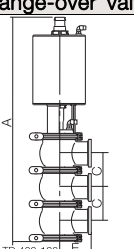
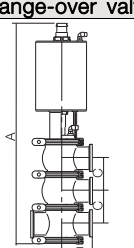
Unique SSV Reverse Acting

Single Seat Valves

Product code: 5233

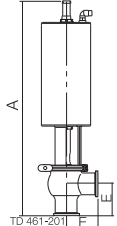
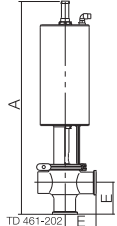
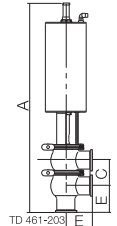
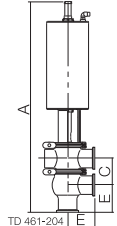
Material: 1.4404 (316L)
 Connections: TriClamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µ inch.
 Outside surface finish: Bright
 Plug position: Normally closed (NC)

1.11

Item No. TR2	LLP USD	Item No. Elastomer	LLP USD	Size DN/OD Inch	Dimension (inch)			Body combination
					A	C	E	
								Shut-off valve 012
9613360373		9613360784		1.5	13.96	2.39	1.95	 <p style="text-align: right; font-size: small;">TD 462-118</p>
9613360374		9613360785		2	16.21	2.91	2.44	
9613360375		9613360786		2.5	17.19	3.40	3.23	
9613360376		9613360787		3	19.05	3.89	3.43	
9613360377		9613360788		4	21.00	4.87	4.72	
								Shut-off valve 022
9613360397		9613360796		1.5	13.96	2.39	1.95	 <p style="text-align: right; font-size: small;">TD 462-119</p>
9613360398		9613360797		2	16.21	2.91	2.44	
9613360399		9613360798		2.5	17.19	3.40	3.23	
9613360400		9613360799		3	19.05	3.89	3.43	
9613360401		9613360800		4	21.00	4.87	4.72	
								Change-over valve 111
9613360601		9613360808		1.5	16.50	2.39	1.95	 <p style="text-align: right; font-size: small;">TD 462-120</p>
9613360602		9613360809		2	19.27	2.91	2.44	
9613360603		9613360810		2.5	20.75	3.40	3.23	
9613360604		9613360811		3	23.10	3.89	3.43	
9613360605		9613360812		4	16.02	4.87	4.72	
								Change-over valve 211
9613360613		9613360820		1.5	16.50	2.39	1.95	 <p style="text-align: right; font-size: small;">TD 462-121</p>
9613360614		9613360821		2	19.27	2.91	2.44	
9613360615		9613360822		2.5	20.75	3.40	3.23	
9613360616		9613360823		3	23.10	3.89	3.43	
9613360617		9613360824		4	16.02	4.87	4.72	

Product code: 5292

Material: 1.4404 (316L)
 Connections: TriClamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra ≤ 32 µin
 Outside surface finish: Bright
 Plug position: Normally open (NO)

Item No. TR2	LLP USD	Item No. Elastomer	LLP USD	Size DN/OD Inch	Dimension (inch)			Body combination
					A	C	E	
								Shut-off valve 200
9613360264		9613360736		1½	17.32		1.95	 <p style="text-align: center;">TD 461-201</p>
9613360265		9613360737		2	18.11		2.44	
9613360266		9613360738		2½	19.13		3.23	
9613360267		9613360739		3	23.49		3.43	
9613360268		9613360740		4	25.83		4.72	
								Shut-off valve 300
9613360278		9613360750		1½	17.32		1.95	 <p style="text-align: center;">TD 461-202</p>
9613360279		9613360751		2	18.11		2.44	
9613360280		9613360752		2½	19.13		3.23	
9613360281		9613360753		3	23.49		3.43	
9613360282		9613360754		4	25.83		4.72	
								Change-over valve 210
9613360292		9613360764		1½	19.04	2.39	1.95	 <p style="text-align: center;">TD 461-203</p>
9613360293		9613360765		2	20.75	2.91	2.44	
9613360294		9613360766		2½	22.40	3.40	3.32	
9613360295		9613360767		3	27.13	3.89	3.43	
9613360296		9613360768		4	30.59	4.88	4.72	
								Change-over valve 220
9613360306		9613360778		1½	19.04	2.39	1.95	 <p style="text-align: center;">TD 461-204</p>
9613360307		9613360779		2	20.75	2.91	2.44	
9613360308		9613360780		2½	22.40	3.40	3.32	
9613360309		9613360781		3	27.13	3.89	3.43	
9613320491		9613331501		4	30.59	4.88	4.72	

1.11

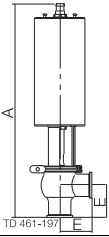
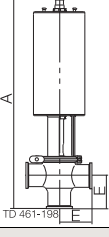
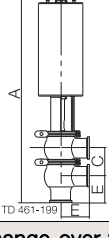
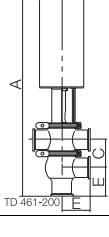
Unique SSV Long Stroke

Single Seat Valves

Product code: 5292

Material: 1.4404 (316L)
 Connections: TriClamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µin.
 Outside surface finish: Bright
 Plug position: Normally closed (NC)

1.11

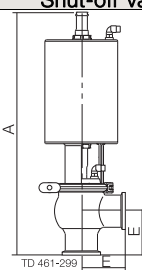
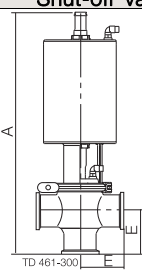
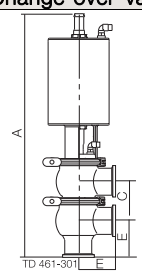
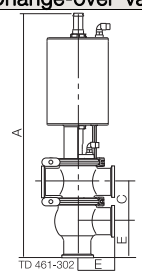
Item No. TR2	LLP USD	Item No. Elastomer	LLP USD	Size DN/OD Inch	Dimension (inch)			Body combination
					A	C	E	
								Shut-off valve 200
9613360257		9613360729		1½	17.32		1.95	
9613360258		9613360730		2	18.11		2.44	
9613360259		9613360731		2½	19.13		3.23	
9613360260		9613360732		3	23.49		3.43	
9613360261		9613360733		4	25.83		4.72	
								Shut-off valve 300
9613360271		9613360743		1½	17.32		1.95	
9613360272		9613360744		2	18.11		2.44	
9613360273		9613360745		2½	19.13		3.23	
9613360274		9613360746		3	23.49		3.43	
9613360275		9613360747		4	25.83		4.72	
								Change-over valve 210
9613360285		9613360757		1½	19.04	2.39	1.95	
9613360286		9613360758		2	20.75	2.91	2.44	
9613360287		9613360759		2½	22.40	3.40	3.32	
9613360288		9613360760		3	27.13	3.89	3.43	
9613360289		9613360761		4	30.59	4.88	4.72	
								Change-over valve 220
9613360299		9613360771		1½	19.04	2.39	1.95	
9613360300		9613360772		2	20.75	2.91	2.44	
9613360301		9613360773		2½	22.40	3.40	3.32	
9613360302		9613360774		3	27.13	3.89	3.43	
9613360303		9613360775		4	30.59	4.88	4.72	

Single Seat Valves

Unique SSV Aseptic

Product code: 5235

Material: 1.4404 (316L)
 Connections: TriClamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra ≤ 32 µin
 Outside surface finish: Bright
 Plug position: Normally open (NO)

Item No. TR2	LLP USD	Item No. Elastomer	LLP USD	Size DN/OD Inch	Dimension (in)			Body combination
					A	C	E	
Shut-off valve 200								
9613360630				1	12.89		1.97	
9613360631				1.5	13.13		1.95	
9613360632				2	15.30		2.44	
9613360633				2.5	16.33		3.23	
9613360634				3	17.80		3.43	
9613360635				4	19.62		4.72	
Shut-off valve 300								
9613360642				1	12.89		1.97	
9613360643				1.5	13.13		1.95	
9613360644				2	15.30		2.44	
9613360645				2.5	16.33		3.23	
9613360646				3	17.80		3.43	
9613360647				4	19.62		4.72	
Change-over valve 210								
9613360655				1	14.66	1.88	1.97	
9613360656				1.5	15.41	2.39	1.95	
9613360657				2	18.08	2.91	2.44	
9613360657				2.5	19.61	3.40	3.23	
9613360658				3	21.61	3.89	3.43	
9613360659				4	24.37	4.87	4.72	
Change-over valve 220								
9613360667				1	14.66	1.88	1.97	
9613360668				1.5	15.41	2.39	1.95	
9613360668				2	18.08	2.91	2.44	
9613360669				2.5	19.61	3.40	3.23	
9613360670				3	21.61	3.89	3.43	
9613360671				4	24.37	4.87	4.72	

1.11

Unique SSV Aseptic

Single Seat Valves

Product code: 5235

Material: 1.4404 (316L)
 Connections: TriClamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra ≤ 32 μm
 Outside surface finish: Bright
 Plug position: Normally closed (NC)

1.11

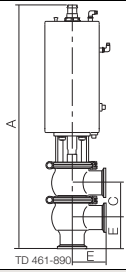
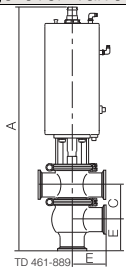
Item No. TR2	LLP USD	Item No. Elastomer	LLP USD	Size DN/OD Inch	Dimension (in)			Body combination
					A	C	E	
								Shut-off valve 200
9613360624				1	12.30		1.97	
9613360625				1.5	13.34		1.95	
9613360626				2	14.31		2.44	
9613360627				2.5	15.34		3.23	
9613360628				3	16.66		3.43	
9613360629				4	18.44		4.72	
								Shut-off valve 300
9613360636				1	12.30		1.97	
9613360637				1.5	13.34		1.95	
9613360638				2	14.31		2.44	
9613360639				2.5	15.34		3.23	
9613360640				3	16.66		3.43	
9613360641				4	18.44		4.72	
								Change-over valve 210
9613360649				1	14.19	1.88	1.97	
9613360650				1.5	14.70	2.39	1.95	
9613360651				2	17.22	2.91	2.44	
9613360652				2.5	18.74	3.40	3.23	
9613360653				3	20.55	3.89	3.43	
9613360653				4	23.31	4.87	4.72	
								Change-over valve 220
9613360661				1	14.19	1.88	1.97	
9613360662				1.5	14.70	2.39	1.95	
9613360663				2	17.22	2.91	2.44	
9613360664				2.5	18.74	3.40	3.23	
9613360664				3	20.55	3.89	3.43	
9613360665				4	23.31	4.87	4.72	

Single Seat Valves

Unique SSV Two Step

Product code: 5233

Material: 1.4404 (316L)
 Connections: TriClamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µm inch
 Outside surface finish: Bright
 Plug position: Normally open (NO)

Item No. TR2	LLP USD	Size DN/OD Inch	Dimension (inch)			Body combination Change-over valve 210
			A	C	E	
9613363337		1.5	16.34	2.39	2.45	
9613363338		2	17.1	2.91	2.94	
9613363339		2.5	18.12	3.4	3.73	
9613363340		3	19.8	3.89	3.93	
9613363341		4	21.68	4.87	5.35	
Change-over valve 220						
9613363342		1.5	16.34	2.39	2.45	
9613363343		2	17.1	2.91	2.94	
9613363344		2.5	18.12	3.4	3.73	
9613363345		3	19.8	3.89	3.93	
9613363346		4	21.68	4.87	5.35	

1.11

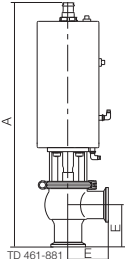
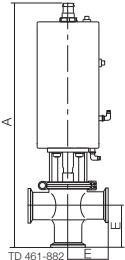
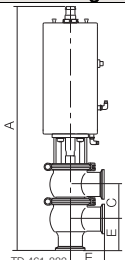
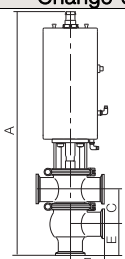
Unique SSV Two Step

Single Seat Valves

Product code: 5233

Material: 1.4404 (316L)
 Connections: TriClamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µ inch.
 Outside surface finish: Bright
 Actuator: Normally closed (NC)

1.11

Item No. TR2	LLP USD	Size DN/OD Inch	Dimension (inch)			Body combination
			A	C	E	
Shut-off valve 200						
9613363266		1.5	15.56		2.45	
9613363267		2	16.11		2.94	
9613363268		2.5	17.14		3.73	
9613363269		3	18.58		3.93	
9613363270		4	20.50		5.35	
Shut-off valve 300						
9613363271		1.5	15.56		2.45	
9613363272		2	16.11		2.94	
9613363273		2.5	17.14		3.73	
9613363274		3	18.58		3.93	
9613363275		4	20.50		5.35	
Change-over 210						
9613363286		1.5	17.9	2.39	2.45	
9613363287		2	19.01	2.91	2.94	
9613363288		2.5	20.54	3.4	3.73	
9613363289		3	22.47	3.89	3.93	
9613363290		4	25.36	4.87	5.35	
Change-over 220						
9613363291		1.5	17.9	2.39	2.45	
9613363292		2	19.01	2.91	2.94	
9613363293		2.5	20.54	3.4	3.73	
9613363294		3	22.47	3.89	3.93	
9613363295		4	25.36	4.87	5.35	

Product code: 5247

Material: 1.4404 (316L)
 Connections: TriClamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µm inch
 Outside surface finish: Bright
 Plug position: Normally closed (NC)

Item No. TR2	LLP USD	Size DN/OD Inch	Dimension (inch)					Body combination
			A	C	E	G	N	
								Shut-off Right 208
9613363296		2	14.31		2.94	2.44	0.56	
9613363297		2.5	15.34		3.73	3.23	0.7	
9613363298		3	16.66		3.93	3.43	0.85	
9613363299		4	18.44		5.35	4.72	0.98	
								Shut-off Cross 309
9613363300		2	14.31		2.94	2.44	0.56	
9613363301		2.5	15.34		3.73	3.23	0.7	
9613363302		3	16.66		3.93	3.43	0.85	
9613363303		4	18.44		5.35	4.72	0.98	
								Change-over Right 218
9613363304		2	17.22	2.91	2.94	2.44	0.56	
9613363305		2.5	18.74	3.4	3.73	3.23	0.7	
9613363306		3	20.55	3.89	3.93	3.43	0.85	
9613363307		4	23.31	4.87	5.35	4.72	0.98	
								Change-over Right 228
9613363308		2	17.22	2.91	2.94	2.44	0.56	
9613363309		2.5	18.74	3.4	3.73	3.23	0.7	
9613363310		3	20.55	3.89	3.93	3.43	0.85	
9613363311		4	23.31	4.87	5.35	4.72	0.98	

1.11

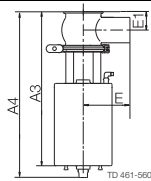
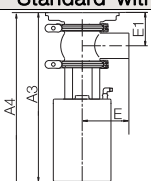
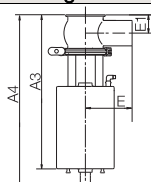
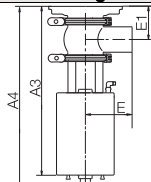
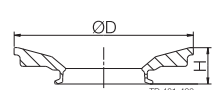
Unique SSV Tank Outlet Valve

Single Seat Valves

Product code: 5250

Material: 1.4404 (316L)
 Connection: Welding ends
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µm inch
 Outside surface finish: Bright
 Plug position: Normally closed (NC)

1.11

Item No. TR2	LLP USD	Item No. Elastomer	LLP USD	Size DN/OD Inch	Dimension (inch)				Standard without flange
					A3	A4	E	E1	
9613321988		9613321992		2	14.49	15.35	2.44	2.64	
9613321989		9613321993		2½	15.0	15.87	3.23	2.87	
9613321990		9613321994		3	16.38	17.44	3.43	3.11	
9613321991		9613321995		4	17.32	18.39	4.72	3.62	
Standard with flange									
9613325726		9613328968		2	14.49	15.35	2.44	2.64	
9613328965		9613328969		2½	15.0	15.87	3.23	2.87	
9613328966		9613328970		3	16.38	17.44	3.43	3.11	
9613328967		9613328971		4	17.32	18.39	4.72	3.62	
Reverse acting without flange									
9613328972		9613328977		2	14.49	15.35	2.44	2.64	
9613328973		9613328978		2½	15.0	15.87	3.23	2.87	
9613328974		9613328979		3	16.38	17.44	3.43	3.11	
9613328975		9613328976		4	17.32	18.39	4.72	3.62	
Reverse acting with flange									
9613328980		9613328984		2	14.49	15.35	2.44	2.64	
9613328981		9613328985		2½	15.0	15.87	3.23	2.87	
9613328982		9613328986		3	16.38	17.44	3.43	3.11	
9613328983		9613328987		4	17.32	18.39	4.72	3.62	
					ØD	Tank flange			
9634069901				2	5.83				
9634070001				2½	6.42				
9634070101				3	7.01				
9634070201				4	7.8				

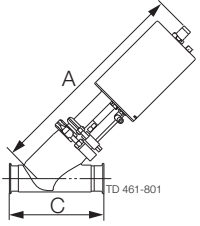
Size	PPL	Size	PPL	Size	PPL	Size	PPL	Elastomer
51 / 2" / DN50	EUR	63.5 / 2 1/2" / DN65	EUR	76.1 / 3" / DN80	EUR	101.6 / 4" / DN100	EUR	
9614465001		9614465004		9614465007		9614465010		EPDM
9614465002		9614465005		9614465008		9614465011		HNBR
9614465003		9614465006		9614465009		9614465012		FPM

Single Seat Valves

Unique SSV Y-body

Product code: 5247

Material: 1.4404 (316L)
 Connection: Tri-Clamp/Clamp
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µm inch
 Outside surface finish: Bright
 Actuator: Normally Closed (NC)

Item No. TR2	LLP USD	Size DN/OD Inch	Dimension (inch)		Body combination Y-body 900
			A	C	
9634076321		2	17.32	7.88	
9634076322		2.5	17.95	9.25	
9634076421		3	22.05	10.38	
9634076422		4	24.41	12.63	

1.11

Unique SSV Manually Operating Valve

Single Seat Valves

Product code: 5240

Material: 1.4404 (316L)
 Connection: Welding ends
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µm inch
 Outside surface finish: Bright

1.11

Item No. TR2	LLP USD	Item No. Elastomer	LLP USD	Size DN/OD Inch	Dimension (inch)			Body combination
					A ₁ / A ₃	C	E	
								Shut-off valve 200
9613321964		9613321969		1	9.65	1.92	1.97	
9613321965		9613320613		1½	9.65	2.39	1.95	
9613321561		9613321970		2	10.20	2.91	2.44	
9613321966		9613320614		2½	11.22	3.40	3.23	
9613321967		9613320615		3	11.46	3.89	3.43	
9613321968		9613321971		4	13.27	4.87	4.72	
								Shut-off valve 300
9613328921		9613328936		1	9.65	1.92	1.97	
9613328922		9613328937		1½	9.65	2.39	1.95	
9613328923		9613328938		2	10.20	2.91	2.44	
9613328924		9613328939		2½	11.22	3.40	3.23	
9613324991		9613328940		3	11.46	3.89	3.43	
9613328925		9613328941		4	13.27	4.87	4.72	
								Change-over valve 210
9613328927		9613328486		1	11.46	1.92	1.97	
9613327870		9613328942		1½	12.09	2.39	1.95	
9613328928		9613328943		2	13.07	2.91	2.44	
9613328929		9613328944		2½	14.61	3.40	3.23	
9613328930		9613328945		3	15.35	3.89	3.43	
		9613328946		4	18.11	4.87	4.72	
								Change-over valve 220
9613328931		9613328947		1	11.46	1.92	1.97	
9613328932		9613328948		1½	12.09	2.39	1.95	
9613328933		9613328949		2	13.07	2.91	2.44	
9613328934		9613328950		2½	14.61	3.40	3.23	
9613328935		9613328951		3	15.35	3.89	3.43	
		9613328952		4	20.98	4.87	4.72	

* = Please contact your Alfa Laval contact person for further information.

NOTE! Body combinations 310 and 320 on request.

Options - please see later this chapter.

Single Seat Valves

Unique SSV Manually Regulating

Manual regulating valves for inch and DIN tube
 Product code: 5245

Material: 1.4404 (316L)
 Connection: ISO/DIN Welding ends
 Connection: Welding ends
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µm inch
 Outside surface finish: Bright
 Actuation: Manual

Standard lip seal Item No.	LLP USD	Size	Flow K	Dimension (in)		Body combination
				A	E	
Inch tube		DN/OD	(Yard ³ /h)	DN/OD		
9613320115		1.5	18.31	6.93	1.95	
9613320116		1.5	57.55	6.93	1.95	
9613320117		2	95.48	7.44	2.40	
9613320118		2.5	138.64	8.46	3.03	
9613320119		3	223.66	8.70	3.39	
9613320120		4	321.76	10.51	4.69	

1.11

Unique SSV Aseptic Manually Operating Valve

Single Seat Valves

Product code: 5240

Material: 1.4404 (316L)
 Connection: Welding ends
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µm inch
 Outside surface finish: Bright

1.11

Standard lip seal Item No.	LLP USD	Size	Dimension (in)				Body combination
			A1	A2	C	E	
Inch tube		DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	Shut-off valve 200
		1"	9.25	9.65		1.97	
1½"	9.53	9.92		1.95			
2"	10.16	10.71		2.40			
2½"	11.18	11.73		3.19			
3"	11.54	12.20		3.39			
4"	13.54	14.17		4.69			
Shut-off valve 300							
		1"	9.25	9.65		1.97	
		1½"	9.53	9.92		1.95	
		2"	10.16	10.71		2.40	
		2½"	11.18	11.73		3.19	
		3"	11.54	12.20		3.39	
		4"	13.54	14.17		4.69	
Change-over valve 210							
		1"	11.18	11.54	1.88	1.97	
		1½"	11.93	12.28	2.39	1.95	
		2"	13.03	13.50	2.91	2.40	
		2½"	14.53	15.04	3.40	3.19	
		3"	15.43	16.02	3.89	3.39	
		4"	18.35	18.98	4.87	4.69	
Change-over valve 220							
		1"	11.18	11.54	1.88	1.97	
		1½"	11.93	12.28	2.39	1.95	
		2"	13.03	13.50	2.91	2.40	
		2½"	14.53	15.04	3.40	3.19	
		3"	15.43	16.02	3.89	3.39	
		4"	18.35	18.98	4.87	4.69	

NOTE! Body combinations 31 and 32 on request.

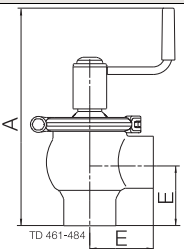
Options - please see later this chapter.

Single Seat Valves

Unique SSV Aseptic Manually Regulating Valve

Manual regulating valves for inch and DIN tube
 Product code: 5245

Material: 1.4404 (316L)
 Connection: ISO/DIN Welding ends
 Connection: Welding ends
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µm inch
 Outside surface finish: Bright
 Actuation: Manual

Standard lip seal Item No.	LLP USD	Size	Flow K	Dimension (in)			Body combination
				A1	A2	E	
Inch tube		DN/OD	(m ³ /h)	DN/OD	DN/OD		
		1½"	14	9.53	9.92	1.95	
		2"	73	10.16	10.71	2.40	
		2½"	106	11.18	11.38	3.03	
		3"	171	11.54	12.2	3.39	
		4"	246	13.54	14.17	4.69	

1.11

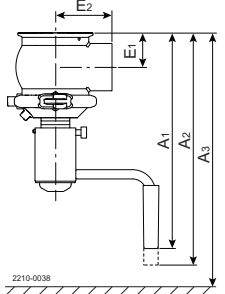
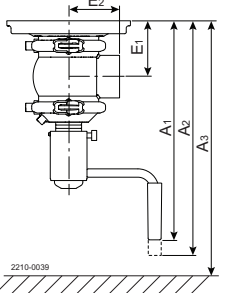
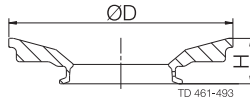
Unique SSV Aseptic Manually Tank Outlet Valve

Single Seat Valves

Product code: 5250

Material: 1.4404 (316L)
 Connection: Welding ends
 Seals: EPDM (Ethylene Propylene)
 Inside surface finish: Ra 32 µm inch
 Outside surface finish: Bright
 Plug position: Normally closed (NC)

1.11

Item No.	LLP USD	Size						E2	Standard without flange
			A1	A2	A3	E1			
Inch Tube		DN/OD	DN/ OD	DN/ OD	DN/ OD	DN/ OD	DN/ OD		
		2" 2½" 3" 4"					2.40 3.19 3.39 4.69	2.64 2.87 3.13 3.62	
			øD	H				Standard with flange	
		2" 2½" 3" 4"	10.39 10.87 11.14 12.17	10.87 11.38 11.93 12.91	13.39 14.96 15.35 17.32		2.40 3.19 3.39 4.69	2.64 2.87 3.13 3.62	
								Tank flange	
		2" 2½" 3" 4"	5.83 6.42 7.01 7.80						

* For prices please contact customer support.

Item No.	LLP USD	Description	Size (Inches)	
		Manual Shut Off Valve		Manual Actuators
9612946640		7610200SM4H055SRSTESNNN	1/2	
9612946664		7610200SM4H075SRSTESNNN	3/4	
9612946644		7610300SM4H055SRSTESNNN - Cross Body	1/2	
9612946668		7610300SM4H075SRSTESNNN - Cross Body	3/4	
		Manual Divert Valve		Manual Actuators
9612946648		7610210SM4H055SRSTESNNN	1/2	
9612946672		7610210SM4H075SRSTESNNN	3/4	
9612946652		7610220SM4H055SRSTESNNN	1/2	
9612946676		7610220SM4H075SRSTESNNN	3/4	
		Air Actuated Shut Off Valve Normally Closed		Air Actuated
9612946638		7610200SM4H052SRSTESNNN	1/2	
9612946662		7610200SM4H072SRSTESNNN	3/4	
9612946642		7610300SM4H052SRSTESNNN - Cross Body	1/2	
9612946666		7610300SM4H072SRSTESNNN - Cross Body	3/4	
		Air Actuated Divert Valve Normally Closed		Air Actuated
9612946646		7610210SM4H052SRSTESNNN	1/2	
9612946670		7610210SM4H072SRSTESNNN	3/4	
9612946650		7610220SM4H052SRSTESNNN	1/2	
9612946674		7610220SM4H072SRSTESNNN	3/4	

1.11

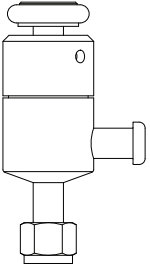
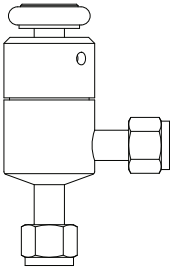
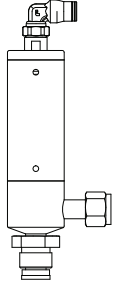
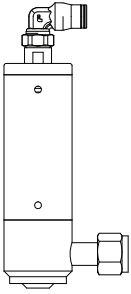
SB Mini Flow Valve

Single Seat Valves

CIP Valve
Product code: 5920

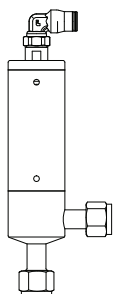
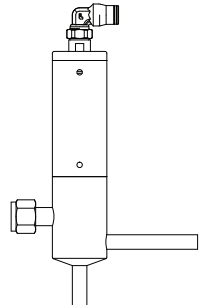
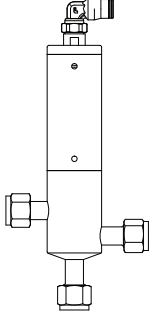
Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 63 µin
Outside surface finish: Ra ≤ 63 µin

1.11

Item No.	LLP USD	Specification	Function	SCANDI BREW
9615085302		Manual Angle Valve Clip-On/Swage	N/A	
9615085301		Manual Angle Valve Swage/Swage	N/A	
9615082003 9615082103		Pneumatic Angle Valve Swage/BSP Pneumatic Angle Valve Swage/BSP	NC NO	
9615082002 9615082102		Pneumatic Angle Valve Swage/1 Inch ISO Pneumatic Angle Valve Swage/1 Inch ISO	NC NO	

CIP Valve
 Product code: 5920

Material: 1.4404 (316L)
 Seals: EPDM
 Inside surface finish: Ra ≤ 63 µin
 Outside surface finish: Ra ≤ 63 µin

Item No.	LLP USD	Specification	Function	SCANDI BREW
9615082001 9615082101		Pneumatic Angle Valve Swage/Swage Pneumatic Angle Valve Swage/Swage	NC NO	
9615088402		Pneumatic Change Over Valve Swage/Pipe	NC	
9615088401 9615088301		Pneumatic Change Over Valve Swage/Swage Pneumatic Change Over Valve Swage/Swage	NC NO	

1.11

Actuator: Normally open (10) - lower seat - Short Stroke
 Connection: Tri-Clamp
 Material: AISI 316
 Elastomers: Buna

Item No. Elastomer	LLP USD	Item No. TR	LLP USD	Item No. TR2	LLP USD	Size Inch	Body Combination
Lower Tee 10							
741990		741674		9634073214		1	
740001		740017		9634052209		1½	
740002		740018		9634058092		2	
740003		740019		9634057446		2½	
740004		740020		9634058643		3	
743473		743784		9634073215		4	
Lower Cross 30							
9634073216		9634073218		9634073217		1	
740065		740081		9634058302		1½	
740066		740082		9634073219		2	
740067		740083		9634058068		2½	
740068		740084		9634059649		3	
742664		3100610		9634073220		4	

1.11

* = Please contact your Alfa Laval contact person for further information.

Actuator: Normally Closed (20) - lower seat - Short Stroke
 Connection: Tri-Clamp
 Material: AISI 316
 Elastomers: Buna

Item No. Elastomer	LLP USD	Item No. TR	LLP USD	Item No. TR2	LLP USD	Size Inch	Body Combination
							Lower Tee 10
740540		740605		9634057415		1	
740005		740021		9634051714		1½	
740006		740022		9634051715		2	
740007		740023		9634052211		2½	
740008		740024		9634051716		3	
742458		743318		9634051717		4	
							Lower Cross 30
741289		741675		9634073299		1	
740069		740085		9634057417		1½	
740070		740086		9634052210		2	
740071		740087		9634052208		2½	
740072		740088		9634057162		3	
742502		318438		9634051727		4	

* = Please contact your Alfa Laval contact person for further information.

761 Series Shut-Off

Single Seat Valves

Actuator: Normally open (10) - lower seat - Long Stroke
 Connection: Tri-Clamp
 Material: AISI 316
 Elastomers: Buna

Item No. Elastomer	LLP USD	Item No. TR	LLP USD	Item No. TR2	LLP USD	Size Inch	Body Combination
Lower Tee 10							
740009		740025		9634073338		1½	
740010		740026		9634068149		2	
740011		740027		9634073339		2½	
740012		740028		9634073340		3	
740604		740359		9634057559		4	
Lower Cross 30							
740073		740089		9634073341		1½	
740074		740090		9634073342		2	
740075		740091		9634073343		2½	
740076		740092		9634073344		3	
741270		740539		9634057551		4	
Y-Body 90							
740527		9634051044				2½	
741167		743998				3	
742274		743783				4	

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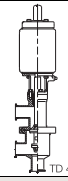
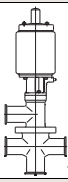
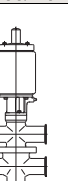
Actuator: Normally Closed (20) - lower seat - Long Stroke
 Connection: Tri-Clamp
 Material: AISI 316
 Elastomers: Buna

Item No. Elastomer	LLP USD	Item No. TR	LLP USD	Item No. TR2	LLP USD	Size Inch	Body Combination
Lower Tee 10							
740013		740029		9634058084		1½	
740014		740030		9634058085		2	
740015		740031		9634073373		2½	
740016		740032		9634059652		3	
740350		740355		9634057556		4	
Lower Cross 30							
740077		740093		9634073374		1½	
740078		740094		9634073375		2	
740079		740095		9634073376		2½	
740080		740096		9634058363		3	
740640		740456		9634057107		4	
Y-Body 90							
740490		310759				2½	
740445		743192				3	
740352		310502				4	

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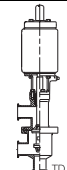
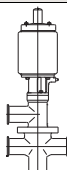
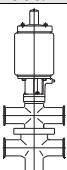
Actuator: Normally open (10) - lower seat - Short Stroke
 Connection: Tri-Clamp
 Material: AISI 316
 Elastomers: Buna

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Item No. Elastomer	LLP USD	Item No. TR	LLP USD	Item No. TR2	LLP USD	Size Inch	Body Combination
Upper Tee/Lower Tee 21							
740033		740049		9634054529		1½	 <small>TD 465-00-L1</small>
740034		740050		9634057427		2	
740035		740051		9634057864		2½	
740036		740052		9634051762		3	
742626		742954		9634051720		4	
Upper Tee/Lower Cross 23							
9634073424		740759		9634073408		1½	 <small>TD 465-00-L3</small>
9634073425		740579		9634073409		2	
9634073426		9634073400		9634073410		2½	
9634073427		9634073401		9634073411		3	
9634073428		9634073402		9634073412		4	
Upper Cross/Lower Cross 43							
9634073395		9614073403		9634073416		1½	 <small>TD 465-00-L1</small>
9634073396		9614073404		9634073417		2	
9634073397		9614073405		9634073418		2½	
9634073398		9614073406		9634073419		3	
9634073399		9614073407		9634073420		4	

* = Please contact your Alfa Laval contact person for further information.

Actuator: Normally Closed (20) - lower seat - Short Stroke
 Connection: Tri-Clamp
 Material: AISI 316
 Elastomers: Buna

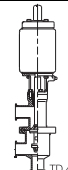
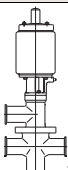
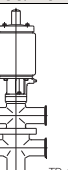
Item No. Elastomer	LLP USD	Item No. TR	LLP USD	Item No. TR2	LLP USD	Size Inch	Body Combination
Upper Tee/Lower Tee 21							
740037		740053		9634051722		1½	 <small>TD 465-001J</small>
740038		740054		9634051723		2	
740039		740055		9634051724		2½	
740040		740056		9634051763		3	
742573		742572		9634051721		4	
Upper Tee/Lower Cross 23							
743993		740716		9634073470		1½	 <small>TD 465-004J</small>
9634073454		319995		9634073471		2	
9634073455		319991		9634073472		2½	
743083		9634073464		9634073473		3	
9634073456		9634073465		9634073474		4	
Upper Cross/Lower Cross 43							
9634073459		743888		9634073477		1½	 <small>TD 465-003J</small>
9634073460		740372		9634073478		2	
9634073461		9634073467		9634073479		2½	
9634073462		9634073468		9634073480		3	
9634073463		9634073469		9634073481		4	

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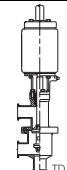
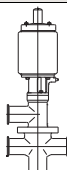
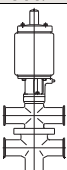
Actuator: Normally open (10) - Lower Seat - Long Stroke
 Connection: Tri-Clamp
 Material: AISI 316
 Elastomers: Buna

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Item No. Elastomer	LLP USD	Item No. TR	LLP USD	Item No. TR2	LLP USD	Size Inch	Body Combination
Upper Tee/Lower Tee 21							
740041		740057		9634073537		1½	 <small>TD 465-00-L1</small>
740042		740058		9634073538		2	
740043		740059		9634073539		2½	
740044		740060		9634069875		3	
740536		740671		9634057553		4	
Upper Tee/Lower Cross 23							
9634073516		9634073528		9634073540		1½	 <small>TD 465-00-L3</small>
9634073517		9634073529		9634073541		2	
9634073518		743437		9634073542		2½	
9634073519		9634073530		9634073543		3	
9634073520		9634073531		9634073544		4	
Upper Cross/Lower Cross 43							
9634073523		9634073532		9634073550		1½	 <small>TD 465-00-L3</small>
9634073524		9634073533		9634073551		2	
9634073525		9634073534		9634073552		2½	
9634073526		9634073535		9634073553		3	
9634073527		9634073536		9634073554		4	

* = Please contact your Alfa Laval contact person for further information.

Actuator: Normally Closed (20) - lower seat - Long Stroke
 Connection: Tri-Clamp
 Material: AISI 316
 Elastomers: Buna

Item No. Elastomer	LLP USD	Item No. TR	LLP USD	Item No. TR2	LLP USD	Size Inch	Body Combination
Upper Tee/Lower Tee 21							
740045		740061		9634073556		1½	 <small>TD 465-001</small>
740046		740062		9634073152		2	
740047		740063		9634058086		2½	
740048		740064		9634073501		3	
740349		740357		9634057552		4	
Upper Tee/Lower Cross 23							
Not available		Not available		Not available		1	 <small>TD 465-004</small>
9634073482		9634073494		9634073502		1½	
9634073483		741359		9634073503		2	
9634073484		9634073495		9634073504		2½	
9634073485		741360		9634073505		3	
9634073486		9634048466		9634073506		4	
Upper Cross/Lower Cross 43							
9634073489		9634073496		9634073511		1½	 <small>TD 465-003</small>
9634073490		9634073497		9634073512		2	
9634073491		9634073498		9634073513		2½	
9634073492		9634073499		9634073514		3	
9634073493		9634073500		9634073515		4	

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Item Number	LLP USD	Description	Handle	Size	Seat Style
660 Sample Valves					
812830		66010-40HN-1/2 x 1/4-C-316L	HN = UHMW Polyethylene	1/2 TC x 1/4 Hose Barb	C
810863		66010-40BR-1/2 x 1/4-C-316L	BR = Aluminum/Bronze	1/2 TC x 1/4 Hose Barb	C
810017		66010M-40HN-1/2 x 1/2-C-316L	HN = UHMW Polyethylene	1/2 TC x 1/2 TC	C
810003		66010M-40BR-1/2 x 1/2-C-316L	BR = Aluminum/Bronze	1/2 TC x 1/2 TC	C

* Authorized to carry the 3A symbol.

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Alfa Laval in brief

Alfa Laval is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

How to contact Alfa Laval

Contact details for all countries are continually updated on our website. Please visit www.alfalaval.com to access the information.

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