



Close at hand

Valves for Hygienic Fluid Handling Equipment,
January 2024



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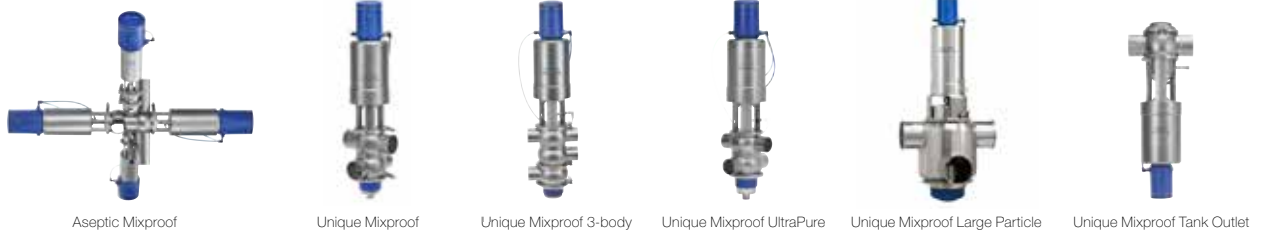
Pumps

Centrifugal pumps



Valves

Double seat valves



Diaphragm valves



Ball valves



Shutter valves

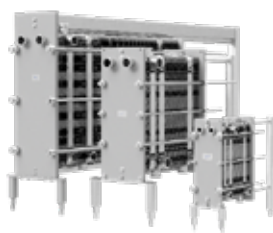


Regulating valves



Heat transfer

Gasketed plate heat exchangers



Tank equipment

Tank cleaning machines



Agitators



Mixers



Tubes and fittings

Hygienic tubes and fittings



UltraPure tubes and fittings



Filters and strainers



Rotary lobe pumps



LKH Prime

LKH Prime UltraPure

SolidC

SolidC UltraPure

MR

OptiLobe

SRU

Double seal valves

Single seat valves



Unique Mixproof Horizontal Tank

Unique Mixproof CIP

Unique Mixproof Process

SMP-BC

SMP-BC 22

Unique SSV

Unique SSV Change-over

Unique SSV Aseptic

SSV Tangential

Control/Check valves

Safety valves



LKC-2 Non-Return

LKC UltraPure

Unique Vacuum Breaker

LKUV-2 Air-Relief

LKBV Air-Blow

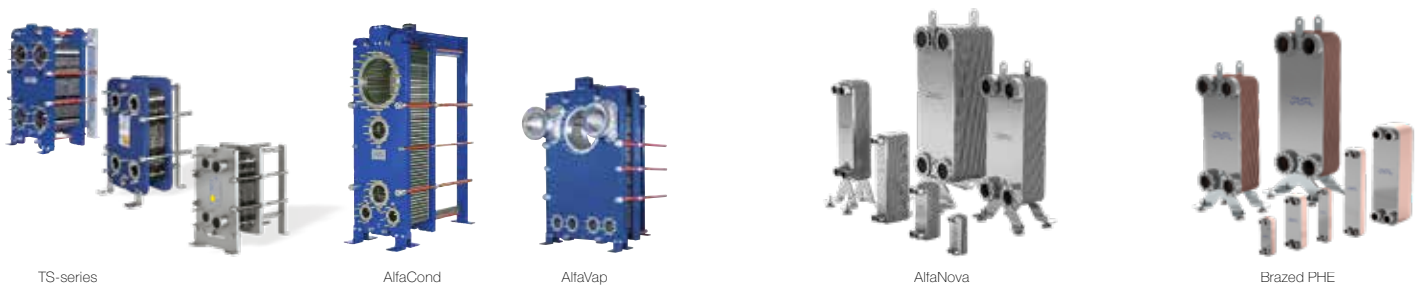
Safety Valve

SB Anti Vacuum House

SB Anti Vacuum Valve

Fusion-bonded plate heat exchangers

Brazed plate heat exchangers



TS-series

AlfaCond

AlfaVap

AltaNova

BrazeD PHE

Static spray balls



GJ 8

GJ BB

MultiJet 45

GJ 4

SaniMicro

SaniMidget

SaniMagnum

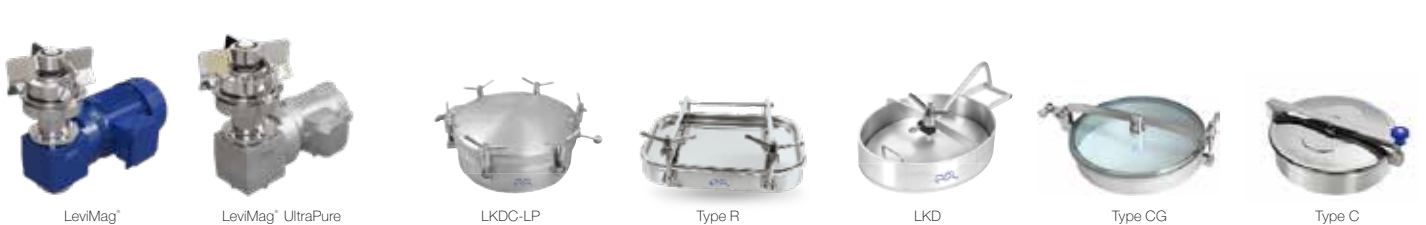
SaniMidget SB

SaniMagnum SB

SaniMega SB

LKPK Static Spray Ball

Tank covers



LeviMag

LeviMag UltraPure

LKDC-LP

Type R

LKD

Type CG

Type C

Membranes and filters

Auxiliary membrane equipment



Spiral membranes

Flat sheet membranes

Plate and frame module

LabStak modules

Pilot plants

Membrane filtration systems

Housing

Circumferential piston pumps



SX



SX UltraPure



DuraCirc



DuraCirc Aseptic

Twin screw pumps



Twin Screw

Gear pumps



M Gear

Butterfly valves



Unique SSV Tank Outlet



Unique SSV Manual



Unique SSSV Small Single Seat



LKAP Air-Operated



LKB



LKB-F



LKB UltraPure

Sampling valves



SB Pressure Relief Valve



Unique Sampling Valve



SB Membrane Sample Valve



SB Micro Sample Port



SB Micro Sample Port Type M

Welded spiral heat exchangers



Spiral Heat Exchangers

Welded plate and block heat exchangers



Combabloc Free Flow

Scraped surface heat exchangers



Contherm

Tubular heat exchangers



Pharma-line S and P



Pharma-line Point of Use

Wall mounted cleaning nozzles



PlusClean/PlusClean UltraPure

Automation Sensing and control



ThinkTop V70



ThinkTop V50



ThinkTop V20



ThinkTop Basic Intrinsically Safe



IndiTop



Unique Control LKB

Tank accessories



Sight glasses



Tank feet

Condition monitoring



CM Connect



CM

Cleaning validation



Rotacheck

Service and spare parts



Service kits

Service tools



Service tools valves



Service tools mixing and blending



Service tools tank cleaning



Service tools pumps

Alfa Laval Stainless Steel and Rubber Materials

Technical Information

Stainless Steel

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

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

Rubber Materials

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

EPDM Rubber (Ethylene Propylene)

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

Actylonitrile Butadiene Rubber, NBR

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

Silicone rubber, Q

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

Fluorine rubber, FPM

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

Hydrogenated actylonitrileButadiene Rubber, HNBR

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

Perfluoroalkoxy polymer, PFA

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

Product and chemical resistance of flexible rubber materials

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

Ratings

1 = Unsuitable.

2 = Limited suitability.

3 = Normal suitability.

4 = High suitability.

- = Not recommended for other reasons.

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

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

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

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

ISO = International standard.

Notes

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

Compliance and certification

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

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

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

For special requests please contact your local Alfa Laval organization.



Authorized to carry the 3A symbol

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



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

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



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



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



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



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

**USP Class VI /
ISO 10993**

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



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

Alfa Laval hygienic product animations

Valves animations

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

Alfa Laval Unique Mixproof Valve

Alfa Laval Unique Single Seat Valve

Intuitive, intelligent hygienic valve control with Alfa Laval ThinkTop®

Alfa Laval Unique Mixproof Horizontal Tank Valve (inlet)

Alfa Laval Unique Mixproof Horizontal Tank Valve (outlet)

Alfa Laval Unique Mixproof Large Particle Valve

Alfa Laval Aseptic Mixproof Valve

Alfa Laval Valve matrix

Valves

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Ball valves

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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 across the dairy, food, beverage, brewery, chemical and many other industries.

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

Benefits

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

Standard design

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

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

Standard design enables product recovery using pigging systems.

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

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



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

Working principle

The Alfa Laval SBV sanitary ball valve has a precision-made ball with full bore positioned inside the valve body between two flanges and two PTFE valve seats. A 90° rotation of the valve stem enables opening or closing the valve. A specially selected PTFE-grade material secures long lifetime. The use of spring-loaded, self-adjusting seal rings ensures the reliability of the valve stem sealing. Either a pneumatic actuator or a manually-operated handle with lockable positions enables valve operation. Valve screws enable assembly and disassembly for easy inspection and maintenance.

TECHNICAL DATA

Temperature range	
Ambient (air):	+4 °C to +45 °C
Operating (medium dependent):	+0 °C to +95 °C
	EPDM +140 °C
	PTFE +130 °C
Sterilization (SIP 30 min):	NBR +100 °C
	FPM +140 °C
	Q +90 °C
Pressure	
Max. product pressure:	16 bar
Min. product pressure:	Full vacuum
Pressure range	
Working pressure:	16 bar
Cleaning pressure:	3 bar
ATEX	
Classification:	II 2 G D ¹
¹ This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source	
Leak rate:	A (DIN EN 12266-1)

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 < 0.8 µm
Product wetted seals:	EPDM
Other seals:	NBR



Note! If welding both flanges, ensure that the flanges can be moved axially 30-40 mm depending on size to allow for valve maintenance (see manual for further details).
Actuated valves are delivered NC (normally closed) and are easily rebuilt to NO (normally open). See manual for further details.

Options

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

Dimensions (mm)

Cavity cleaning connections (optional)

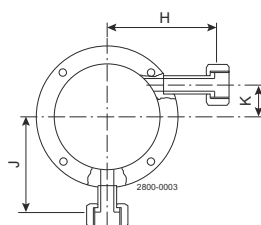


Figure 1. DN/OD 25 - 63.5 / DN 25-65

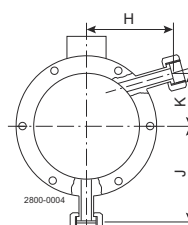


Figure 2. DN/OD 76.1 - 101.6 / DN 80-100

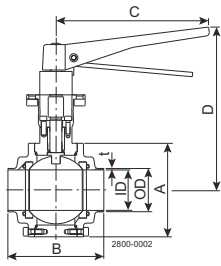


Figure 3. SBV manual

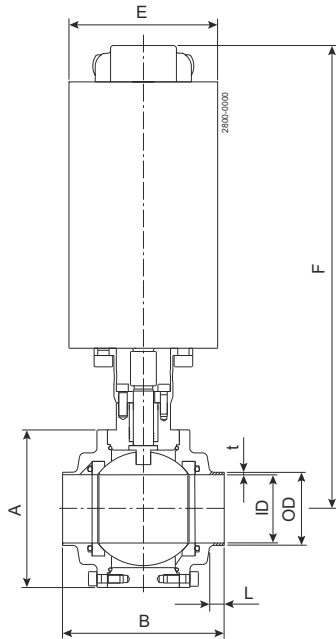


Figure 4. SBV with actuator

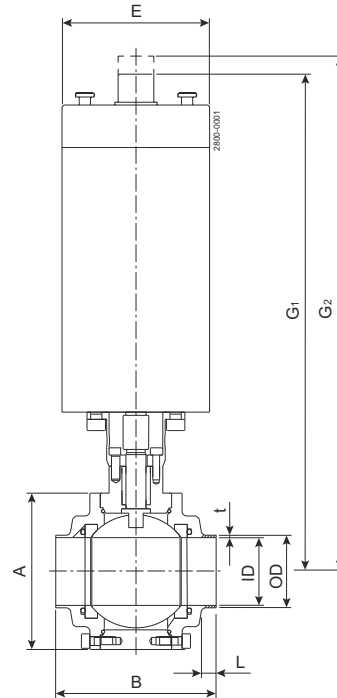
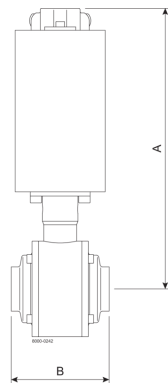
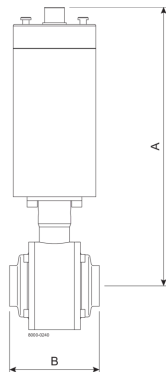
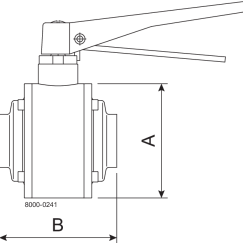


Figure 5. SBV with actuator for ThinkTop

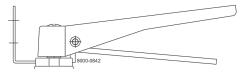
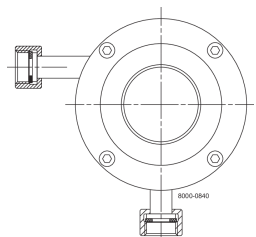
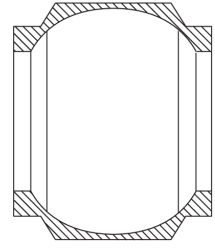
Size	Inch tube						DIN tube					
	DN/OD						DN					
	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100
A	74	95	110	130	159	195	74	95	110	130	159	195
OD	25	38	51	63.5	76.1	101.6	29	41	53	70	85	104
ID	21.8	34.8	47.8	60.3	72.9	97.6	26	38	50	66	81	100
t	1.6	1.6	1.6	1.6	1.6	2	1.5	1.5	1.5	2	2	2
B	93	103	113	125	163	220	93	103	113	125	163	220
C	180	180	180	180	180	291	180	180	180	180	180	291
D	117	125	135	145	156	206	117	125	135	145	156	206
E	104	104	104	104	104	129	104	104	104	104	104	129
F	307	315	324	335	346	395	307	315	324	335	346	395
G1	334	342	350	362	372	422	334	342	350	362	372	422
G2	344	352	360	372	382	432	344	352	360	372	382	432
H	70.5	79	84	90.5	104	114	70.5	79	84	90.5	104	114
J	55	65.5	73	83	97.5	115.5	55	65.5	73	83	97.5	115.5
K	13	19	25	33	54.5	65.5	13	19	25	33	54.5	65.5
L	7.48	7.48	7.48	7.48	9.89	15.80	7.48	7.48	7.48	7.48	9.89	15.80
Weight manual (kg)	2.3	3.4	4.8	7	13.5	27	2	3.1	4.5	6.4	12.3	24
Weight actuated (kg)	6.7	7.8	9.2	11.4	17.9	35.8	6.4	7.5	8.9	10.8	17.9	32.8
Weight with ThinkTop® adapter (kg)	8.6	9.7	11.1	13.3	19.8	37.7	8.3	9.4	10.8	12.7	19.8	34.7

Valve Type: Hygienic ball valve
 ALSIS Code: 5272

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

Item no.	Item no.	Size		Dimension (mm)		
		DN/OD, mm	DN	A	B	
Inch tube	DIN tube	Air-operated - normally closed				
9612644013	9612646049	25	DN25	307.0	93.0	
9612644014	9612646050	38	DN40	315.0	95.0	
9612644015	9612646051	51	DN50	324.0	113.0	
9612644016	9612646052	63.5	DN65	335.0	126.0	
9612644017	9612646053	76.1	DN80	346.0	163.0	
9612644018	9612646054	101.6	DN100	395.0	220.0	
Inch tube	DIN tube	Air-operated - normally closed, prepared for ThinkTop®				
9612644019	9612646055	25	DN25	344.0	93.0	
9612644020	9612646056	38	DN40	352.0	103.0	
9612644021	9612646057	51	DN50	360.0	113.0	
9612644022	9612646058	63.5	DN65	372.0	125.0	
9612644023	9612646059	76.1	DN80	382.0	163.0	
9612644024	9612646060	101.6	DN100	432.0	220.0	
Inch tube	DIN tube	Manually operated				
9612644001	9612646037	25	DN25	74.0	93.0	
9612644002	9612646038	38	DN40	95.0	103.0	
9612644003	9612646039	51	DN50	110.0	113.0	
9612644004	9612646040	63.5	DN65	130.0	125.0	
9612644005	9612646041	76.1	DN80	159.0	163.0	
9612644006	9612646042	101.6	DN100	195.0	220.0	

Hygienic ball valves
 ALSIS code: 5272, 5822

Item no,	Size		Options	
	DN/OD, mm	DN		
Alternative elastomer seals				
	25.0 - 101.6	25.0 - 100.0	Replacement to seals of silicone (Q)	
	25.0 - 101.6	25.0 - 100.0	Replacement to seals of Fluorinated rubber (FPM)	
Bracket and handle for inductive proximity switches				
	25.1 - 101.6	25.0 - 100.0	Additional price Prepared for up to two M12inductive proximity switches	
Cavity cleaning feature				
	250 - 101.6	25.0 - 100.0	Additional price not including male connection parts	
Cavity fillers (encapsulating valve seats)				
	25.0 38.0 51.0 63.5 76.1 101.6	DN25 DN40 DN50 DN65 DN80 DN100	Additional price Material: PTFE	
Fitting of male part				
	25.0 38.0 51.0 63.5 76.1 101.6	DN25 DN40 DN50 DN65 DN80 DN100	Inch valves: SMS, DIN or clamp DIN valves: DIN or clamp Price per fitting	

Butterfly valves

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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, ø85 mm and ø133 mm, 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:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Temperature range:	-10 °C to + 140 °C (EPDM) However max. 95 °C when operating the valve (All seals)

Actuator

Max. air pressure:	600 kPa (6 bar)
Min. air pressure, NC and NO:	400 kPa (4 bar)
Temperature range:	-25 °C to +90 °C
Air consumption (litres free air) - ø85 mm:	0.24 x p (bar)
Air consumption (litres free air) - ø133 mm:	0.95 x p (bar)
Weight:	- ø85 mm: 3 kg - ø133 mm: 12 kg

ATEX

Classification:	II 2 G D ¹
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¹ This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Valve bodies

Product wetted steel parts:	1.4307 (304L) or 1.4404 (316L)
Disc:	1.4301 (304) or 1.4404 (316L)
Other steel parts:	1.4301 (304)
Rubber grades:	Q, EPDM, FPM, HNBR ¹ or PFA ¹
Bushes for valve disc:	PVDF
Finish:	Semi-bright
Inside surface finish:	≤ Ra 0.8 µm

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 ø85 mm: Bronze) Air/air version
Seals:	NBR

Options

- Male parts or clamp liners in accordance with required standard
- ThinkTop® for control and indication¹
- Indication unit with micro switches¹
- Indication unit with inductive proximity switches¹
- Indication unit with Hall proximity switches¹
- Explosion proof indication unit with inductive proximity switches¹
- Bracket for actuator. (Also for ball valves)
- Handle with two or four positions (standard on DN125 and DN150)
- Handle for electrical position indication
- Handle with infinite intermediate positions (not for DN125 and DN150)
- Multipositioning handle²
- Lockable Multiposition Handle. Padlock can be mounted as shown in fig. 3. **Note!** Padlock is not delivered
- Special cap for 90° turned handle position
- Service tool for actuator
- Service tool for fitting 25-38 mm (DN25 - DN40) valve discs



Note! For further details, see also ESE02446.

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

² **Note!** A padlock can be mounted on the Lockable Multiposition. Handle as shown in the opposite figure. Padlock is not delivered.

LKB Handle Options

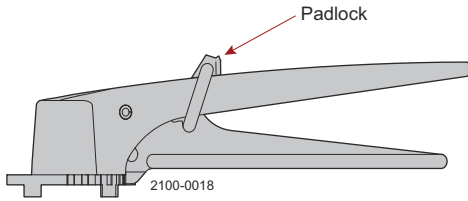


Figure 1. Lockable Multiposition Handle with padlock

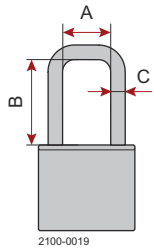


Figure 2. Dimensions - padlock

- A. Min. 20 mm
- B. Min. 35 mm
- C. $\varnothing 6$ mm

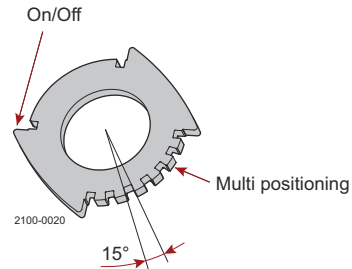


Figure 3. Positioning cap

Capacity/Pressure drop diagrams

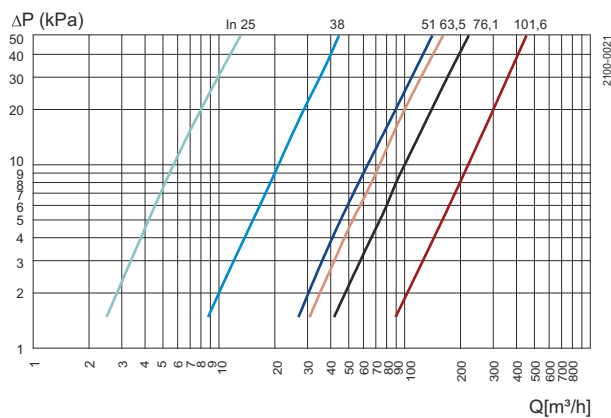


Figure 4. LKB and LKB-F fully open

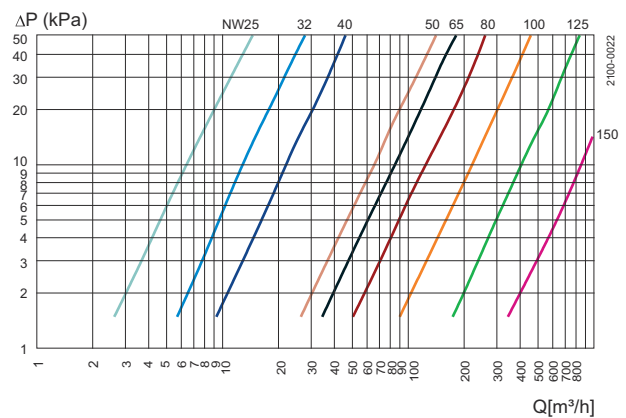


Figure 5. LKB-2 and LKB-F fully open



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

Torque diagrams - Actuator

LKLA ø85 mm:

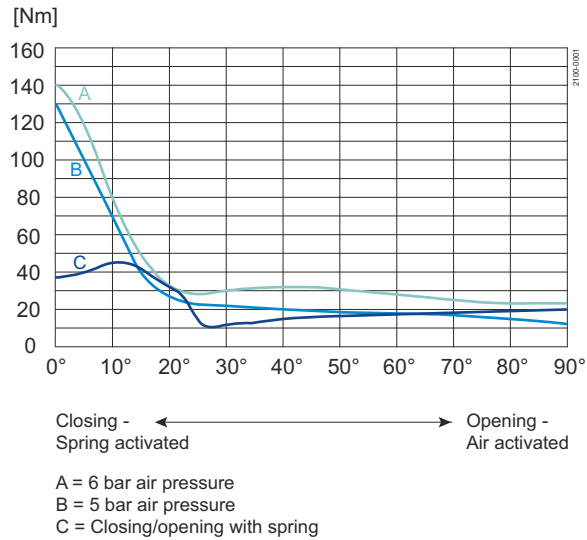


Figure 6. NC

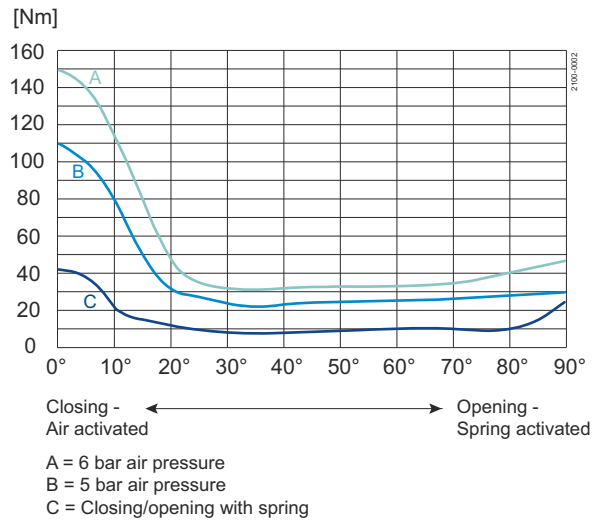


Figure 8. NO

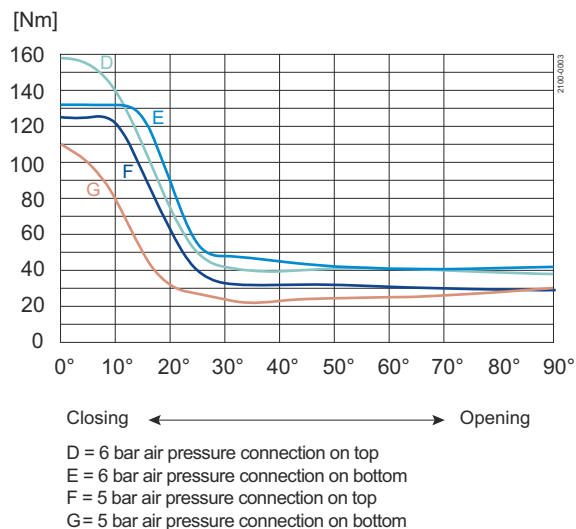


Figure 10. A/A

LKLA ø133 mm:

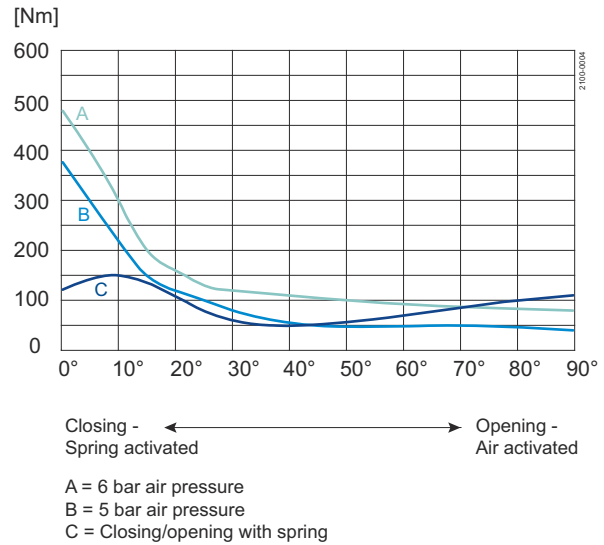


Figure 7. NC

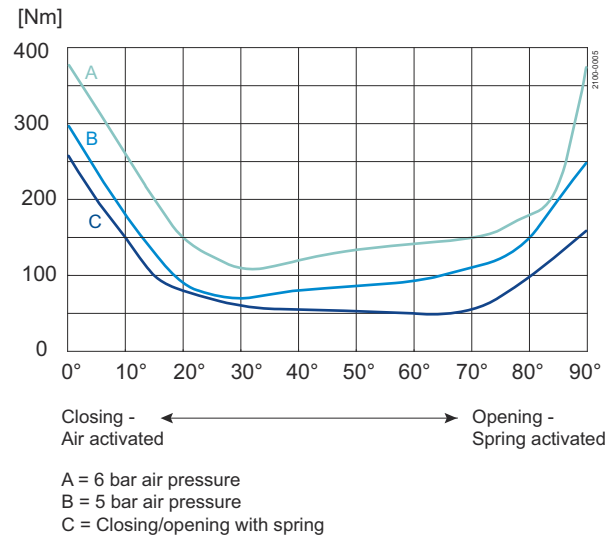


Figure 9. NO

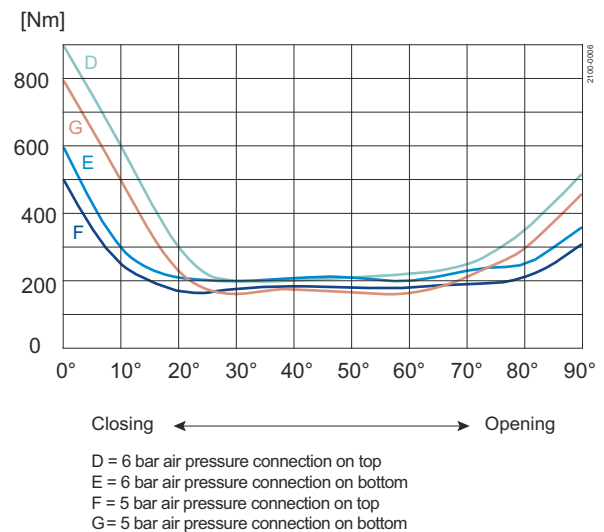


Figure 11. A/A

Alfa Laval recommends actuator size ø133 for >101.6/DN100

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

Size	Max. Nm
25mm/DN25	15
DN32	15
38mm/DN40	15
51mm/DN50	20
63.5mm/DN65	25
76mm/DN80	30
101.6mm/DN100	35
DN125	50
DN150	120

Valve Dimensions (mm)

Dimensions - valve

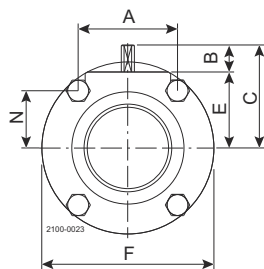


Figure 12. LKB-F

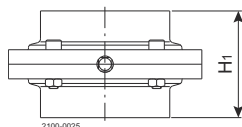


Figure 13. LKB with welding ends.

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

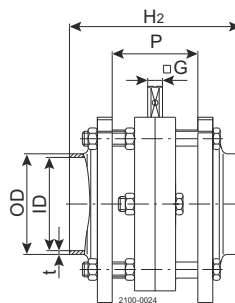


Figure 14. c. LKB with male part/nut and liner

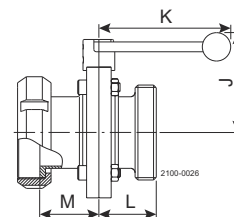


Figure 15. LKB with male part/nut and liner

Dimensions - actuator

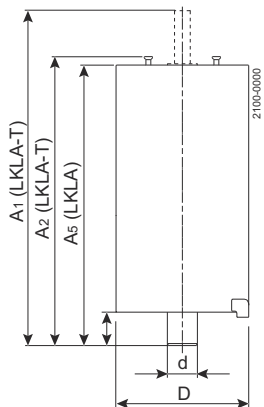


Figure 16. Without coupling

a1 = d

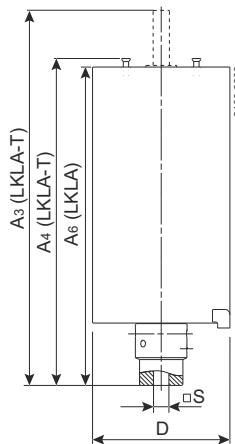


Figure 17. With coupling

b1 = S

Dimensions (mm) - Valve LKB, LKB-2, LKB-F:

Size	25	38	51	63.5	76.1	101.6	152	DN	DN	DN	DN	DN	DN	DN	DN	DN
	mm	mm	mm	mm	mm	mm	mm	25	32	40	50	65	80	100	125	150
A	42.0	42.0	61.0	61.0	79.5	106.0	98.0	42.0	42.0	42.0	61.0	61.0	79.0	106.0	106.0	98.0
B	15.5	16.7	16.6	17.5	16.6	16.0	18.0	14.7	15.9	16.7	16.6	17.5	16.0	16.0	18.0	18.0
C	49.0	49.0	58.5	69.5	73.5	93.0	122.0	48.0	49.0	54.0	63.0	75.0	79.0	93.0	115.0	122.0
OD	25.6	38.6	51.6	64.1	76.6	102.2	152.7	30.0	36.0	42.0	54.0	70.0	85.0	104.0	129.0	154.0
ID	22.5	35.5	48.5	60.5	72.0	97.6	146.9	26.0	32.0	38.0	50.0	66.0	81.0	100.0	125.0	150.0
t	1.55	1.55	1.55	1.8	2.3	2.3	2.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
E	32.5	32.5	42.0	52.0	57.0	77.0	104.0	33.3	33.3	37.7	46.6	57.3	63.0	77.0	96.7	104.0
F	78.0	78.0	99.0	117.0	132.0	169.0	216.0	79.0	79.0	86.5	105.7	125.0	143.0	169.0	199.0	216.0
G	8.0	8.0	8.0	8.0	10.0	12.0	15.0	8.0	8.0	8.0	8.0	10.0	10.0	12.0	14.0	15.0
H ₁	47.0	47.0	52.0	54.0	62.0	80.0	80.0	47.0	47.0	47.0	52.0	62.0	64.0	80.0	110.0	80.0
H ₂	83.0	83.0	92.0	92.0	114.0	132.0	-	83.0	83.0	83.0	92.0	114.0	116.0	132.0	136.0	152.0
J	82.0	82.0	92.0	102.0	107.0	127.0	161.0	74.0	74.0	78.0	88.0	98.0	104.0	118.0	150.0	161.0
K	120.0	120.0	120.0	120.0	162.0	162.0	338.0	120.0	120.0	120.0	120.0	162.0	162.0	162.0	223.0	338.0

Size	25	38	51	63.5	76.1	101.6	152	DN	DN	DN	DN	DN	DN	DN	DN	DN
	mm	mm	mm	mm	mm	mm	mm	25	32	40	50	65	80	100	125	150
L IDF/ISO	45.0	45.0	47.5	48.5	52.5	61.5	-	-	-	-	-	-	-	-	-	-
M IDF/ISO	55.5	55.5	58.0	59.0	63.0	81.5	-	-	-	-	-	-	-	-	-	-
L DS	42.0	43.5	46.0	51.0	55.0	64.0	-	-	-	-	-	-	-	-	-	-
M DS	54.5	54.5	57.0	59.0	63.0	72.0	-	-	-	-	-	-	-	-	-	-
L SMS	38.5	43.5	46.0	51.0	55.0	75.0	-	-	-	-	-	-	-	-	-	-
M SMS	51.0	52.5	55.0	56.0	61.0	72.0	-	-	-	-	-	-	-	-	-	-
L BS	45.7	45.7	48.2	49.2	53.2	67.0	-	-	-	-	-	-	-	-	-	-
M BS	50.5	50.5	53.0	54.0	58.0	71.8	-	-	-	-	-	-	-	-	-	-
L DIN	45.5	45.5	48.0	52.0	61.0	70.0	-	40.0	40.0	37.0	37.0	43.0	48.0	51.0	55.0	115.0
M DIN	61.5	61.5	66.0	67.0	71.0	83.0	-	45.5	48.5	49.5	54.0	63.0	69.0	84.0	89.0	77.0
L Clamp	45.0	45.0	47.5	48.5	52.5	61.5	78.1	45.0	45.0	45.0	47.5	59.0	60.0	68.0	83.0	68.0
N	26.5	26.5	30.5	40.5	43.5	53.0	85.0	27.3	27.3	31.7	35.1	45.8	49.5	53.0	72.7	85.0
P	42.0	42.0	46.0	46.0	58.0	58.0	-	42.0	42.0	42.0	46.0	58.0	58.0	58.0	62.0	78.0
Weight LKB-F (kg)	1.6	1.3	2.1	2.9	5.0	7.9	-	1.6	1.6	1.7	2.6	4.7	5.8	7.9	11.7	12.3
Weight LKB/ LKB-2 (kg)	1.2	1.0	1.5	2.1	3.0	4.7	9.9	1.2	1.1	1.3	1.8	3.0	3.5	5.1	7.5	9.0



Note! Weights are for valves with welding ends and handles.

Dimensions (mm) - Actuator

LKLA and LKLA-T:

Valve	25-63.5	76.1	101.6	101.6				
size	DN25-50	DN65-80	DN100	DN100	DN125	DN125	DN150	DN150
A ₁	217.1	217.1	217.1	337	217.1	337	217.1	337
A ₂	173.5	173.5	173.5	290	173.5	290	173.5	290
A ₃	236.1	234.1	234.1	363.5	237.1	363.5	237.1	363.5
A ₄	192.5	190.5	190.5	316.5	193.5	316.5	193.5	316.5
A ₅	165.5	165.5	165.5	282	165.5	282	165.5	282
A ₆	184.5	182.5	182.5	308.5	185.5	308.5	185.5	308.5
D	85	85	85	133	85	133	85	133
d	17	17	17	30	20	30	20	30
l	16.5	16.5	16.5	34	16.5	34	16.5	34
S	8	10	12	12	14	14	15	15
Function	NC,NO,A/A	NC,NO,A/A	NC,NO,A/A	NC,NO,A/A	A/A	NC,NO,A/A	A/A	NC,NO,A/A

Connections

Compressed air

R1/8" (BSP), internal thread.

Alfa Laval LKB UltraPure

Butterfly valves

Introduction

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

Application

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

Benefits

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

Standard design

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

Working principle

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

For pneumatic operation, an actuator converts axial piston motion into a 90° rotation of the shaft. The actuator torque increases as the valve disc comes into contact with the seal ring of the butterfly valve to secure proper closing of the valve seat. The actuator comes in three standard versions: normally closed (NC); normally open (NO); and, air/air activated (A/A). Two actuator sizes, ø85 mm and ø133 mm, 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:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Temperature range:	-10 °C to + 140 °C (EPDM) However max. 95 °C when operating the valve (All seals)

Actuator

Max. air pressure:	600 kPa (6 bar)
Min. air pressure, NC and NO:	400 kPa (4 bar)
Temperature range:	-25 °C to +90 °C
Air consumption (litres free air):	
- ø85 mm:	0.24 x p (bar)
- ø133 mm:	0.95 x p (bar)
Weight:	
- ø85 mm:	3 kg
- ø133 mm:	12 kg

ATEX

Classification:	II 2 G D ¹
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¹ This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source



PHYSICAL DATA

Materials

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

Elastomers

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

Weld ends: ¹	Matching tubes and fittings: ISO 2037 / DIN / ASME BPE Acc. to ISO, DIN or ASME BPE
Clamp ends:	Matching tubes and fittings: ISO 2037 / DIN / ASME BPE Acc. to ISO, DIN or ASME BPE

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

Actuator

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

Surface specification (Product wetted steel parts)

ISO 2037 / DIN:

Internal:	0.5 µm
ASME BPE designation:	SF1
External:	Semi-bright

ASME BPE: ¹

Internal:	0.5 µm
ASME BPE designation:	SF1
External:	Semi-bright

ASME BPE: ¹

Internal:	0.4 µm electro polish
ASME BPE designation:	SF4
External:	Semi-bright

¹ According to ASME BPE 2009 table SF-3

Options

- Product wetted seals: FPM (acc. to FDA and USP Class VI), Q and PFA
- ThinkTop® for control and indication.¹
- Indication unit with micro switches.¹

- Indication unit with inductive proximity switches.¹
- Indication unit with Hall proximity switches.¹
- Explosion proof indication unit with inductive proximity switches.¹
- Bracket for actuator.
- Handle with two or four positions.
- Handle for electrical position indication.
- Handle with infinite intermediate positions.
- Multipositioning handle.²
- Lockable Multiposition Handle. Padlock can be mounted as shown in fig. 3. **Note!** Padlock is not delivered.
- Special cap for 90° turned handle position.
- Service tool for actuator.
- Service tool for fitting 25-38 mm (DN25 - DN40) valve discs.

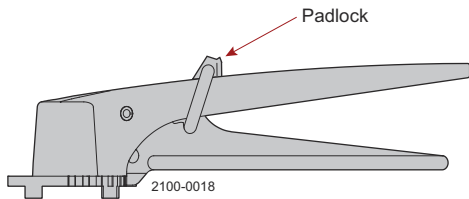


Figure 1. Lockable Multiposition Handle with padlock

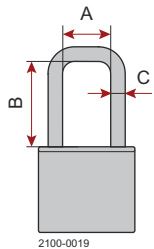


Figure 2. Dimensions - padlock

- A. Min. 20 mm
B. Min. 35 mm
C. ø6 mm

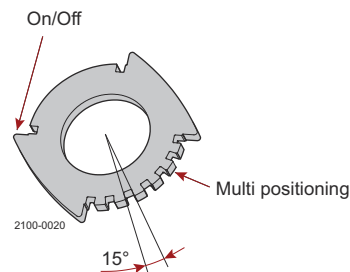


Figure 3. Positioning cap



Note! For Ultra Pure ASME BPE clamp valve (size 1" - 2½")

Installation and removal of some clamp rings is easiest by removal of the lockable multi position handle first.

Documentation

All valves are delivered with Alfa Laval Q-doc.

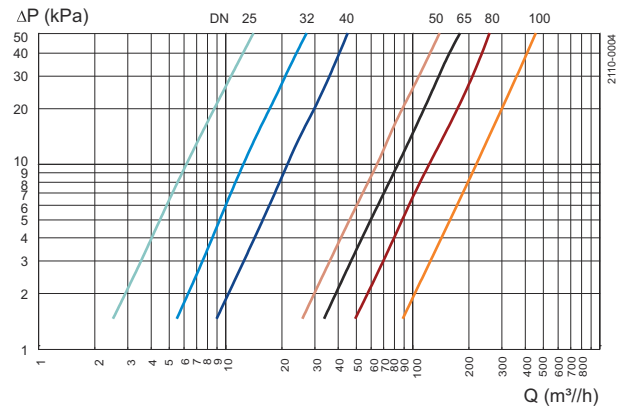
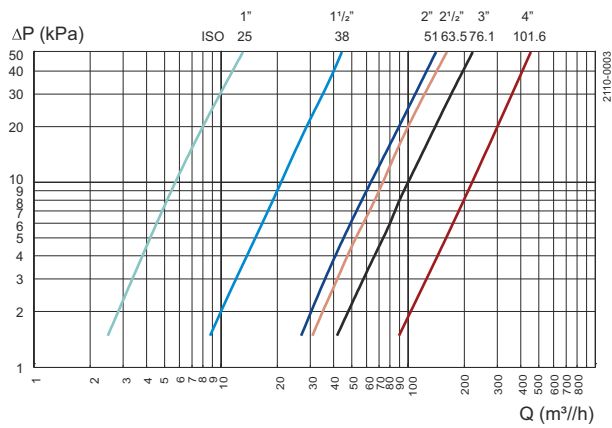


Note! For further details, see also ESE01699.

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

² **Note!** A padlock can be mounted on the Lockable Multiposition. Handle as shown in the opposite figure. Padlock is not delivered.

Capacity/Pressure drop diagrams



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

Torque diagrams - Actuator

LKLA ø85 mm:

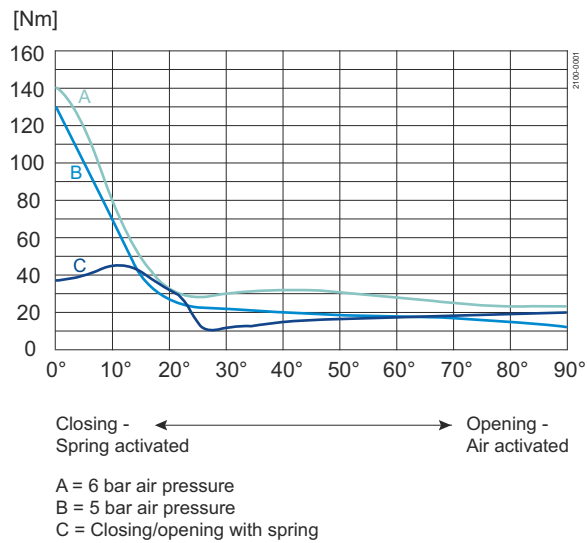


Figure 4. NC

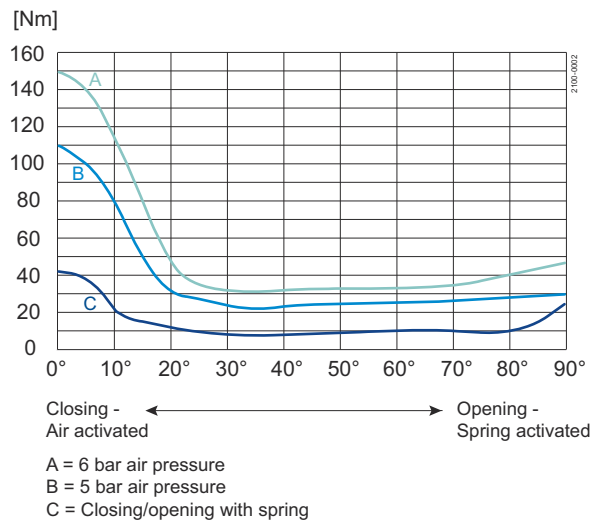


Figure 6. NO

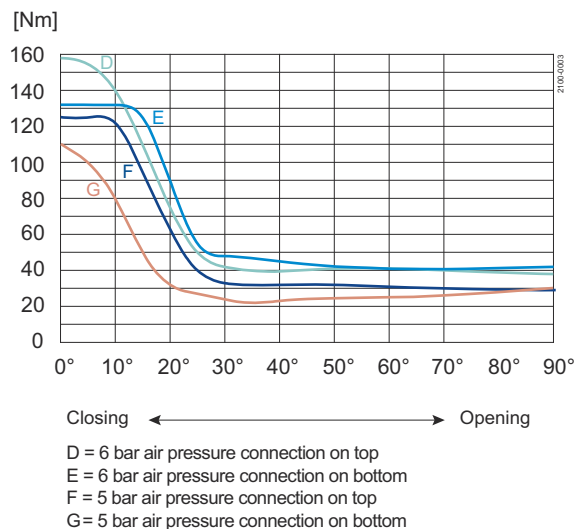


Figure 8. A/A

LKLA ø133 mm:

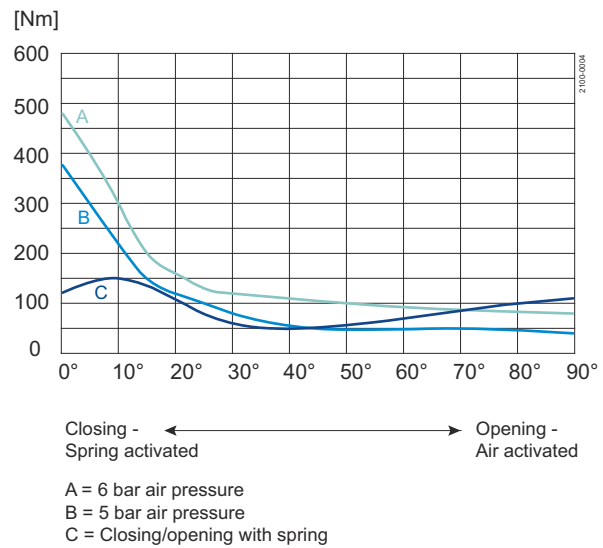


Figure 5. NC

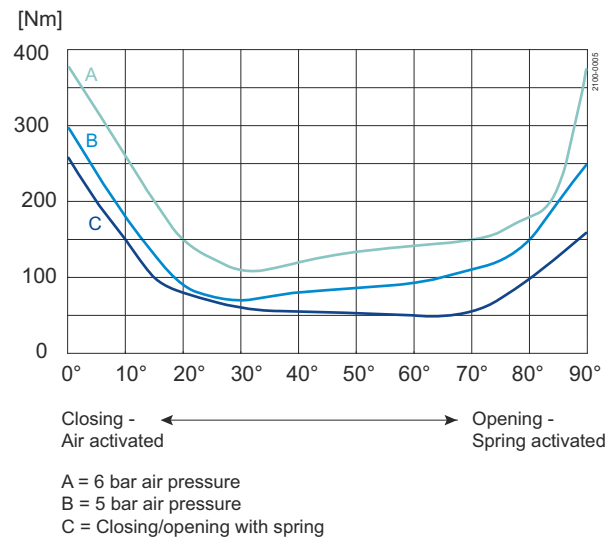


Figure 7. NO

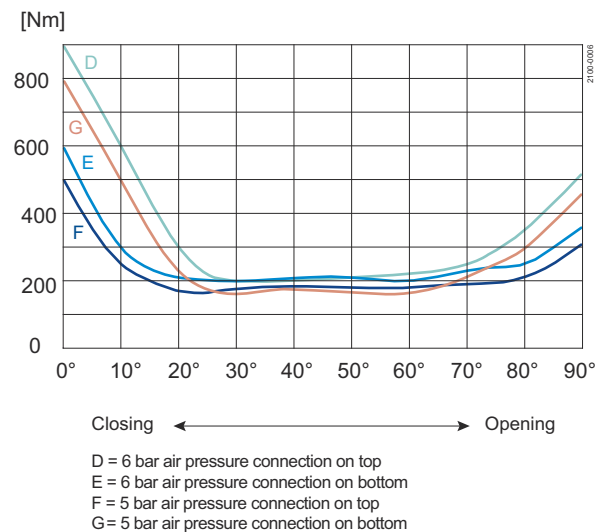


Figure 9. A/A

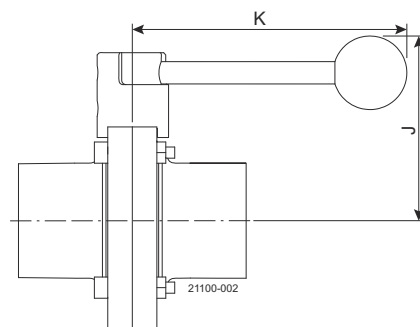
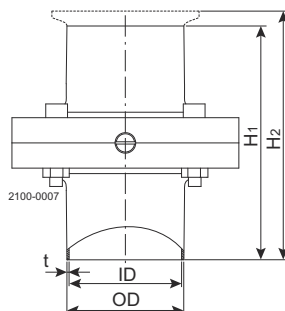
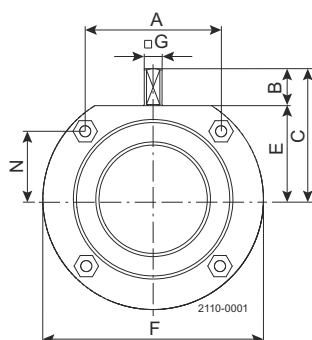
Alfa Laval recommends actuator size ø133 for >101.6/DN100

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

Size	Max. Nm
25mm/DN25	15
DN32	15
38mm/DN40	15
51mm/DN50	20
63.5mm/DN65	25
76mm/DN80	30
101.6mm/DN100	35
DN125	50
DN150	120

Dimensions (mm)

Dimensions - valve



Dimensions - actuator

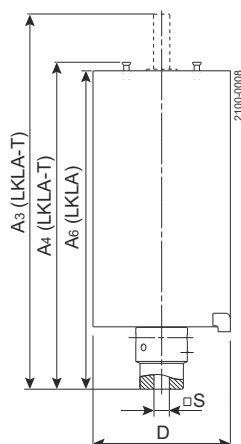
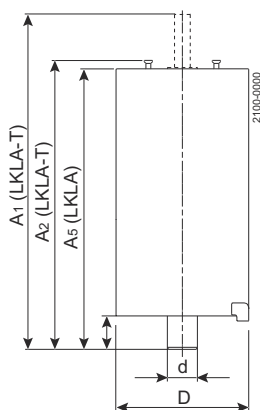


Figure 10. a. Without coupling

Figure 11. b. With coupling

Dimensions (mm)

LKB UltraPure

Size	ISO 2037						DIN						
	25	38	51	63.5	76.1	101.6	DN	DN	DN	DN	DN	DN	DN
	mm	mm	mm	mm	mm	mm	25	32	40	50	65	80	100
A	42.00	42.00	61.00	61.00	79.50	106.00	42.00	42.00	42.00	61.00	61.00	79.00	106.00
B	15.50	16.70	16.60	17.50	16.60	16.00	14.70	15.90	16.70	16.60	17.50	16.00	160.00
C	49.00	49.00	58.50	69.50	73.50	93.00	48.00	49.00	54.00	63.00	75.00	79.00	93.00
OD	25.00	38.00	51.00	63.50	76.10	101.60	29.00	35.00	41.00	53.00	70.00	85.00	104.00
ID	22.60	35.60	48.60	60.30	72.90	97.60	26.00	32.00	38.00	50.00	66.00	81.00	100.00
t	1.20	1.20	1.20	1.60	1.60	2.00	1.50	1.50	1.50	1.50	2.00	2.00	2.00
E	32.50	32.50	42.00	52.00	57.00	77.00	33.30	33.30	37.70	46.60	57.30	63.00	77.00
F	78.00	78.00	99.00	117.00	132.00	169.00	79.00	79.00	86.50	105.70	125.00	143.00	169.00
□ S	8	8	8	8	10	12	8	8	8	8	10	10	12
H1	127.00	127.00	132.00	134.00	162.00	180.00	127.00	127.00	127.00	132.00	142.00	164.00	180.00
H2	104.20	104.20	109.20	111.20	176.40	194.40	90.00	90.00	90.00	95.00	118.00	120.00	136.00
J	82.00	82.00	92.00	102.00	107.00	127.00	74.00	74.00	78.00	88.00	98.00	104.00	118.00
K	120.00	120.00	120.00	120.00	162.00	162.00	120.00	120.00	120.00	120.00	162.00	162.00	162.00
N	26.50	26.50	30.50	40.50	43.50	53.00	27.30	27.30	31.70	35.10	45.80	49.50	53.00
Weight (kg)	1.2	1.0	1.5	2.1	3.0	4.7	1.2	1.1	1.3	1.8	3.1	3.5	5.1

ASME						
Size	mm	mm	mm	mm	mm	mm
A	42.00	42.00	61.00	61.0	79.50	105.90
B	15.50	16.70	16.60	17.50	16.61	16.00
C	49.00	49.00	58.50	69.50	73.66	93.00
OD	25.40	38.10	50.80	63.50	76.2	101.60
ID	22.10	34.80	47.50	60.20	72.90	97.00
t	1.65	1.65	1.65	1.65	1.65	2.10
E	32.50	32.50	42.00	52.00	56.99	77.00
F	78.00	78.00	98.80	117.00	132.00	169.00
□ S	8.00	8.00	8.00	8.00	10.00	12.00
H ₁	127.00	127.00	132.00	134.00	162.00	180.00
H ₂	72.40	72.40	77.40	79.40	87.37	111.80
J	82.00	82.00	92.00	102.00	107.01	127
K	120.00	120.00	120.00	120.00	162.00	162.00
N	26.50	26.50	30.50	10.50	43.50	53.00
Weight (kg)	1.20	1.00	1.50	2.10	3.00	4.70



Note! Weights are for valves with welding ends and handles.

Dimensions (mm) - Actuator

LKLA and LKLA-T:

Valve	25-63.5 mm	76.1 mm	101.6 mm	101.6 mm
size	DN25-50	DN65-80	DN100	DN100
A ₁	244	242	242	363
A ₂	193	191	191	316
A ₃	244	244	244	337
A ₄	173	173	173	290
A ₅	185	183	183	308
A ₆	165	165	165	282
D	85	85	85	133
d	17	17	17	30
l	16.5	16.5	16.5	34
□ s	8	10	12	12
Function	NC, NO, A/A	NC, NO, A/A	NC, NO, A/A	NC, NO, A/A

Connections

Compressed air

R¹/₈" (BSP), internal thread.

Alfa Laval Unique Control

Butterfly valves

Introduction

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

Application

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

Benefits

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

Standard design

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

Working principle

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



TECHNICAL DATA

Actuator	
Max. air pressure:	800 kPa (8 bar)
Min. air pressure:	300 kPa (3 bar)
Working temperature:	See pd sheet for LKB/LKB-F
Ambient temperature:	-5°C to +60°C
Protection class:	IP66 and IP67
Air consumption (liters free air):	0.8 x p (bar)

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

Sensor board	
Power supply:	24 VDC, 1 W
Feedback signal #1:	De-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 (ø4 - ø8 mm)
Max. wire diameter:	1.0 mm ² (AWG 18)

Solenoid valve	
Supply voltage:	24 VDC ± 10%, 1 W
Air supply:	300-800 kPa (3-8 bar)
Type of solenoid:	4/2-ways
Number of solenoids:	1
Manual hold override:	Yes
Push-in fittings:	6 mm 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" (DN25 -DN100).

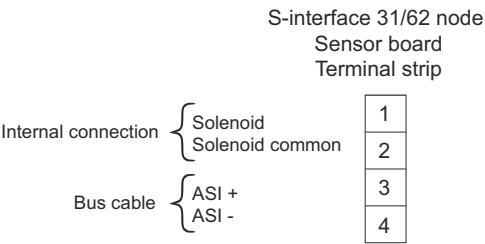
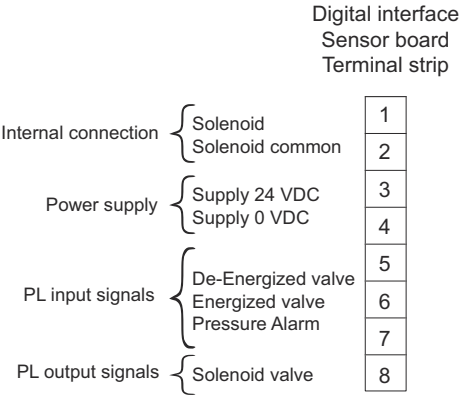
Options

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

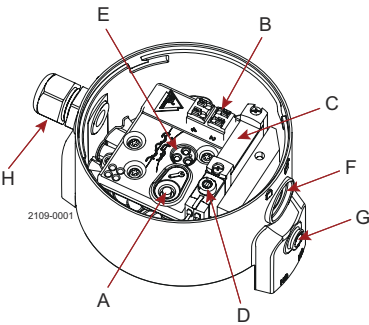
Electrical connection



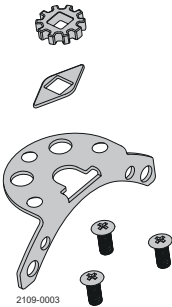
AS-Interface bits assignment

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

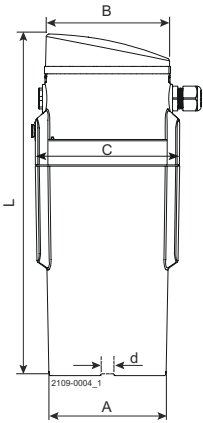


Bracket kit
changeable coupling
supporting 1" to 4" LKB valves

Actuator performance

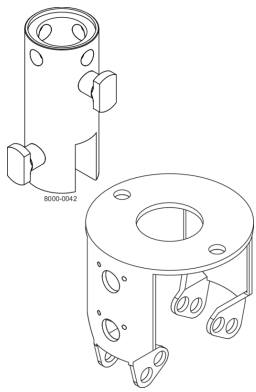
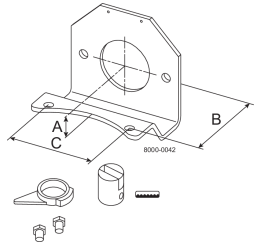
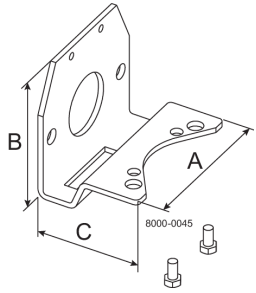
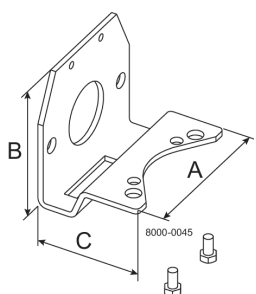
Bar	Torque Nm
3	44
4	60
5	76
6	90
7	104
8	118

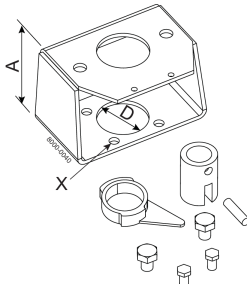
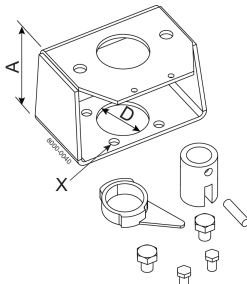
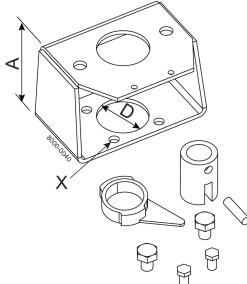
Dimensions (mm)



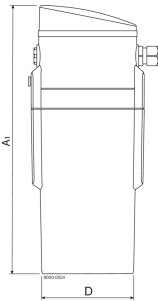
Size	25-63.5m DN25-50	76mm DN65-80	101.6mm DN100
øA	90	90	90
øB	97	97	97
C	111	111	111
L	263	263	263
d	8	10	12
Weight (kg)	1.6	1.6	1.6

900615

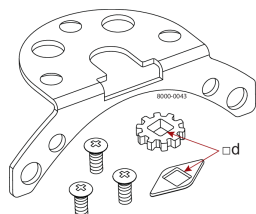
Item no.	Size	Dimension (mm)			
		A	B	C	
Air fittings, quick coupling KRG					
9611992323	3.2"				
Coupling Type JJ					
9613497203	25.0 - 63.5				
9613497202	76.1				
9613497205	101.6				
9613497204	152.0				
9613497201	152.0				
8010014489					
8010014490					
8010014491					
For Nocado butterfly valves					
9612084301		10.0	53.0	51.1	
9612084302		10.0	53.0	55.4	
9612084303		10.0	56.0	58.4	
9612084304		10.0	56.0	67.5	
9612084305		10.0	59.0	79.1	
9612084306		10.0	62.0	90.2	
9612084307		10.0	65.0	104.2	
For actuator LKLA Ø 85					
9611416480	76.1-101.6/DN80-100	125.0	77.5	70.0	
9611416640	152.0	125.0	88.0	69.2	
9612099901		130.0	88.0	71.0	
9612081502		85.0	76.5	59.0	
For actuator LKLA Ø 133					
9612285301	101.6	130.0	120.0	95.0	
9612285401		130.0	120.0	92.0	

Item no.	Actuator size	DN reduced	Dimension (mm)		Hole for bolt	No. of holes	
			A	D	X, mm	X	
For Ego ball valves, type 223 Starline							
9612497101	Ø85	18.0 - 20.0	40.0	25.5	Ø6	4	
9612497102	Ø85	25.0	42.0	30.5	Ø6	4	
9612497103	Ø85	32.0	48.0	30.5	Ø6	4	
9612497104	Ø85	40.0 - 65.0	50.0	35.5	Ø7	6	
9612497105	Ø133	65.0	68.0	35.5	Ø7	4	
9612497106	Ø133	80.0	77.0	55.5	Ø9	4	
9612497107	Ø133	100.0	77.0	55.5	Ø9	4	
For Meca Inox ball valves							
9612491817	Ø85	10.0 - 15.0	40.0	25.5	Ø6	4	
9612491818	Ø85	20.0 - 25.0	42.0	30.5	Ø6	4	
9612491819	Ø85	32.0 - 40.0	47.0	35.5	Ø7	4	
9612491820	Ø85	50.0	47.0	55.5	Ø9	4	
9615369102	Ø133	65.0 - 80.0	80.0	70.5	Ø11	4	
9615369101	Ø133	100.0	77.0	55.5	Ø9	4	
For Worcester ball valves type A44-45 and 459							
9612491801		8.0 - 15.0	40.0	35.5	Ø7	6	
9612491802		20.0	40.0	35.5	Ø7	2	
9612491803		25.0	40.0	35.5	Ø9	2	
9612491804		32.0	50.0	30.5	Ø6	4	
9612491805		40.0	50.0	35.5	Ø7	6	
9612491806		50.0	50.0	35.5	Ø7	6	
9612491807		65.0	62.0	35.5	Ø9	4	
9612491808		65.0	80.0	35.0	Ø9	4	
9612491813		65.0	80.0	55.5	Ø9	4	
9612491814		65.0	62.0	55.5	Ø9	4	
9612491815		80.0	85.0	55.5	Ø9	4	
9612491809		80.0- 100.0	85.0	45.0	Ø11	4	
9612491810		80.0- 100.0	85.0	45.0	Ø11	4	
9612491816		100.0	85.0	70.5	Ø11	4	

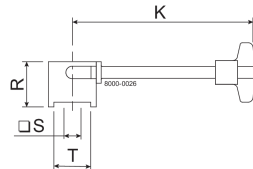
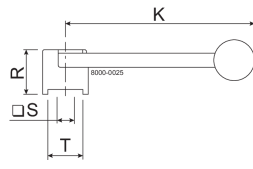
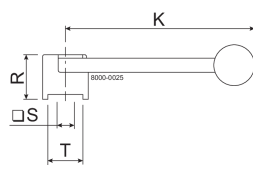
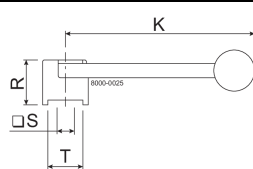
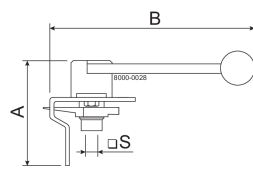
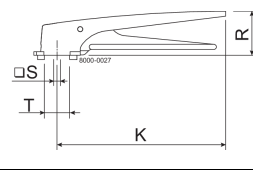
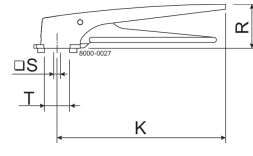
AL SIS Code: 5229
 Actuator with control for LKB/i-BFV

Item no.	Supply sensor system	Function	Dimension (mm)		
			A1	D	
Actuator for LKB/i-BFV					
9614067201	AS-Interface v2.1, 31 node	NC	263.0	90.0	
9614067202	AS-Interface v2.1, 31 node	NO	263.0	90.0	
9614067221	AS-Interface v3.0, 62 node	NC	263.0	90.0	
9614067222	AS-Interface v3.0, 62 node	NO	263.0	90.0	
9614067209	Digital 24V DC	NC	263.0	90.0	
9614067210	Digital 24V DC	NO	263.0	90.0	

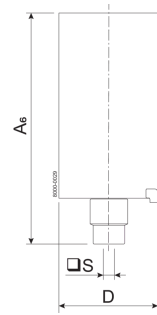
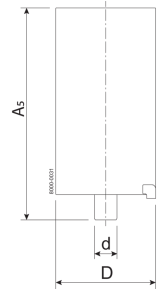
Note: Only to be mounted on LKB/LKB-F with welding ends

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

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

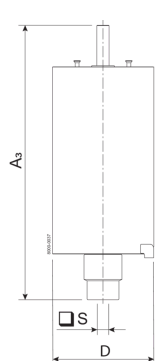
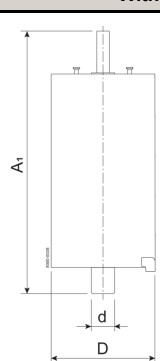
Item no.	Size		Dimension (mm)				
	mm	DN	S	K	R	T	
1.1 regulating							
9612047401	25.0 - 63.5	25.0 - 50.0	8.0	121.0	34.0	22.2	
9612047402	76.1	65.0 - 80.0	10.0	161.3	34.0	30.2	
9612047403	101.6	DN100	12.0	161.3	34.0	30.2	
1.1 with 2 positions							
9612045001	25.0 - 63.5	25.0 - 50.0	8.0	122.7	38.0	22.2	
9612523701	25.0 - 63.5	25.0 - 50.0	8.0	122.7	38.0	22.2	
9612045101	76.1	65.0 - 80.0	10.0	170.3	38.0	30.2	
9612523703	76.1	65.0 - 80.0	10.0	170.3	38.0	30.2	
9612045901	101.6	DN100	12.0	170.3	38.0	30.2	
9612523705	101.6	DN100	12.0	170.3	38.0	30.2	
1.1 with 4 positions							
9612045002	25.0 - 63.5	25.0 - 50.0	8.0	122.7	38.0	22.2	
9612045102	76.1	65.0 - 80.0	10.0	170.3	38.0	30.2	
9612045902	101.6	DN100	12.0	170.3	38.0	30.2	
9612078201		DN125	14.0	225.0	49.0	30.0	
9612079101	152.0	DN150	15.0	365.0	51.0	48.0	
1.1 with 4 positions - Pos. B							
9612523702	25.0 - 63.5	25.0 - 50.0	8.0	122.7	38.0	22.2	
9612523704	76.1	65.0 - 80.0	10.0	170.3	38.0	30.2	
9612523706	101.6	DN100	12.0	170.3	38.0	30.2	
8010023732		DN125	14.0	225.0	49.0	30.0	
Bracket w. handle 1.1 for indication							
9612047501	25.0 - 63.5	25.0 - 50.0	8.0				
9612047504		DN65	10.0				
9612047502	76.1	DN80	10.0				
9612047503	101.6	DN100	12.0				
8010013929	125.0		14.0				
8010013928	152.0		15.0				
Lockable multi position long							
9612592801	25.0 - 63.5	25.0 - 50.0	8.0	200.0	43.2	22.0	
9612592802	76.1	65.0 - 80.0	10.0	200.0	43.2	30.0	
9612592803	101.6	DN100	12.0	200.0	43.2	30.0	
Lockable multi position short							
9612592804	25.0 - 63.5	25.0 - 50.0	8.0	150.0	43.8	22.0	
9612592805	76.1	65.0 - 80.0	10.0	150.0	43.8	30.0	
9612592806	101.6	DN100	12.0	150.0	43.8	30.0	

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

Item no.	Size		Function	Dimension (mm)				
	Inch	DIN		A6	D	d	S	
With coupling								
9611417491	1.0" - 2.5"	25.0 - 50.0	A/A	187.0	85.0		8.0	
9611417492	3.0"	65.0 - 80.0	A/A	184.5	85.0		10.0	
9611417493	4.0"	100.0	A/A	184.5	85.0		12.0	
9612271308	4.0"	100.0	A/A	310.5	133.0		12.0	
9612271313	5.0"	125.0	A/A	310.5	133.0		14.0	
9612271318	6.0"	150.0	A/A	310.5	133.0		15.0	
9611417500	6.0"	150.0	A/A	187.0	85.0		15.0	
9611417502	5.0"	125.0	A/A	187.0	85.0		14.0	
9611416301	1.0" - 2.5"	25.0 - 50.0	NC	185.0	85.0		8.0	
9611416302	3.0"	65.0 - 80.0	NC	184.5	85.0		10.0	
9611416306	4.0"	100.0	NC	182.5	85.0		12.0	
9612271306	4.0"	100.0	NC	310.5	133.0		12.0	
9612271311	5.0"	125.0	NC	310.5	133.0		14.0	
9612271316	6.0"	150.0	NC	310.5	133.0		15.0	
9611416304	1.0" - 2.5"	25.0 - 50.0	NO	185.0	85.0		8.0	
9611416305	3.0"	65.0 - 80.0	NO	182.5	85.0		10.0	
9611416307	4.0"	100.0	NO	182.5	85.0		12.0	
9612271307	4.0"	100.0	NO	310.5	133.0		12.0	
9612271312	5.0"	125.0	NO	310.5	133.0		14.0	
9612271317	6.0"	150.0	NO	310.5	133.0		15.0	
Without coupling								
9612271303			A/A		133.0	30.0		
9611417490			A/A		85.0	17.0		
9611417501			A/A		85.0	20.0		
9611416300			NC		85.0	17.0		
9612271301			NC		133.0	17.0		
9611416303			NO		85.0	17.0		
9612271302			NO		133.0	30.0		

Alfa Laval recommends actuator size ø133 for ≥ 101.6/DN100

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

Item no.	Size		Function	Dimension (mm)				
	Inch	DN		A3	D	d	S	
With coupling								
9612194102	1.0" - 2.5"	25.0 - 50.0	A/A	236.1	85.0		8.0	
9612194103	3.0"	65.0 - 80.0	A/A	234.1	85.0		10.0	
9612194104	4.0"	100.0	A/A	234.1	85.0		12.0	
9612374908	4.0"	100.0	A/A	363.5	133.0		12.0	
9612374913	5.0"	125.0	A/A	363.5	133.0		14.0	
9612374918	6.0"	150.0	A/A	363.5	133.0		15.0	
9612194202	5.0"	125.0	A/A	237.1	85.0		14.0	
9612194201	6.0"	150.0	A/A	237.1	85.0		15.0	
9612194002	1.0" - 2.5"	25.0 - 50.0	NC	236.1	85.0		8.0	
9612194003	3.0"	65.0 - 80.0	NC	234.1	85.0		10.0	
9612374906	4.0"	100.0	NC	363.5	133.0		12.0	
9612374911	5.0"	125.0	NC	363.5	133.0		14.0	
9612374916	6.0"	150.0	NC	363.5	133.0		15.0	
9612194007	4.0"	100.0	NC	234.1	85.0		12.0	
9612194005	1.0" - 2.5"	25.0 - 50.0	NO	236.1	85.0		8.0	
9612374907	4.0"	100.0	NO	363.5	133.0		12.0	
9612374912	5.0"	125.0	NO	363.5	133.0		14.0	
9612374917	6.0"	150.0	NO	363.5	133.0		15.0	
9612194006	3.0"	65.0 - 80.0	NO	234.1	85.0		10.0	
9612194008	4.0"	100.0	NO	234.1	85.0		12.0	
Without coupling								
9612374903			A/A		133.0	30.0		
9612194203			A/A		85.0	20.0		
9612194101			A/A		85.0	17.0		
9612194001			NC		85.0	17.0		
9612374901			NC		133.0	30.0		
9612194004			NO		85.0	17.0		
9612374902			NO		133.0	30.0		

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Control/Check valves

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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 6 kPa (0.06 bar).



TECHNICAL DATA

Temperature

Max. temperature:	140°C (EPDM)
Min. temperature:	-10°C

Pressure

Max. product pressure:	1000 kPa (10 bar)
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ATEX

Classification:	II 2 G D ¹
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¹ This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

Mechanical

Required differential pressure for opening the valve when fitted in a vertical pipe, as shown in fig. 3, is approx. 6 kPa (0.06 bar).

Options

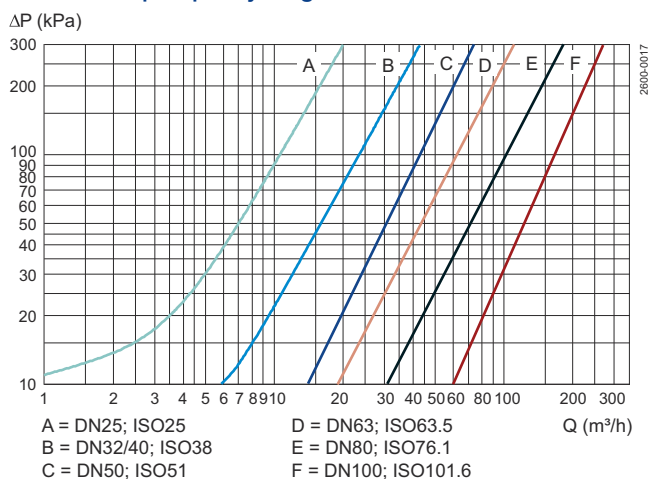
Product wetted seal rings of Nitrile (NBR) or Fluorinated rubber (FPM).

PHYSICAL DATA

Materials

Product wetted steel parts:	1.4301 (304) / 1.4404 (316L)
External surface finish:	Bright (Machined Ra 1.6)
Internal surface finish:	Ra < 0.8 µm
Product wetted seals:	EPDM rubber

Pressure drop/capacity diagram



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

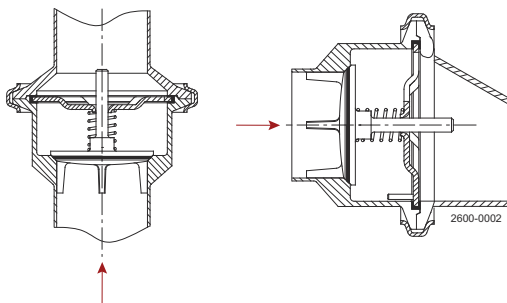


Figure 1. Flow direction.

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

90° rotation.

Dimensions (mm)

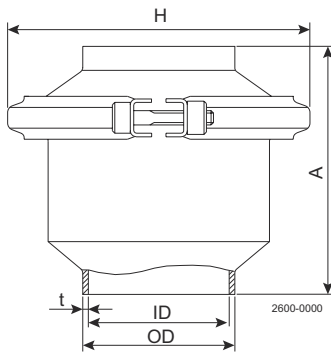


Figure 2. Vertical mounted

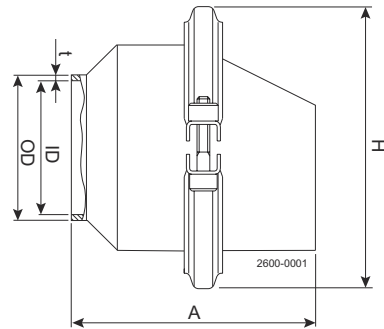


Figure 3. Horizontal mounted

Table 1. Dimensions - Vertical mounted

Size	ISO						DIN						
	25	38	51	63.5	76.1	101.6	DN	DN	DN	DN	DN	DN	DN
	mm	mm	mm	mm	mm	mm	25	32	40	50	65	80	100
A	62.5	75.0	87.5	95.0	115	155	62.5	75.0	75.0	87.5	95.0	115	155
OD	25.4	38.4	51.4	63.9	76.4	102	30.0	36.0	42.0	54.0	70.0	85.0	104
ID	22.5	35.5	48.5	60.5	72.0	97.6	26.0	32.0	38.0	50.0	66.0	81.0	100
t	1.45	1.45	1.45	1.7	2.2	2.2	2	2	2	2	2	2	2
H	72.0	85.5	99	127	138	164	72.0	85.5	85.5	99	127	138	164
Weight (kg)	0.5	0.7	1.0	1.7	2.4	4.3	0.5	0.7	0.7	1.0	1.7	2.4	4.3

Table 2. Dimensions - Horizontal mounted

Size	ISO				
	25	38	51	63.5	76.1
	mm	mm	mm	mm	mm
A	95.5	86.4	104.1	119.4	139.7
OD	25.4	38.4	51.4	63.9	76.4
ID	22.5	35.5	48.5	60.5	72.0
t	1.45	1.45	1.45	1.7	2.2
H	72.0	85.5	99.0	127.0	138.0
Weight (kg)	0.5	0.7	1.0	1.7	2.4

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 6 kPa (0.06 bar).

Certificates



TECHNICAL DATA

Max. product pressure: 1000 kPa (10 bar)



Required differential pressure for opening the valve when fitted in a vertical pipe, is approx. 6 kPa (0.06 bar).

Surface specification (Product wetted steel parts)

Internal:	Ra < 0.8 µm
ASME BPE designation:	SF3
External:	Ra < 0.8 µm
Internal:	Ra < 0.5 µm
ASME BPE designation:	SF1
External:	Ra < 0.8 µm

ATEX

Classification: II 2 G D¹

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

PHYSICAL DATA

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

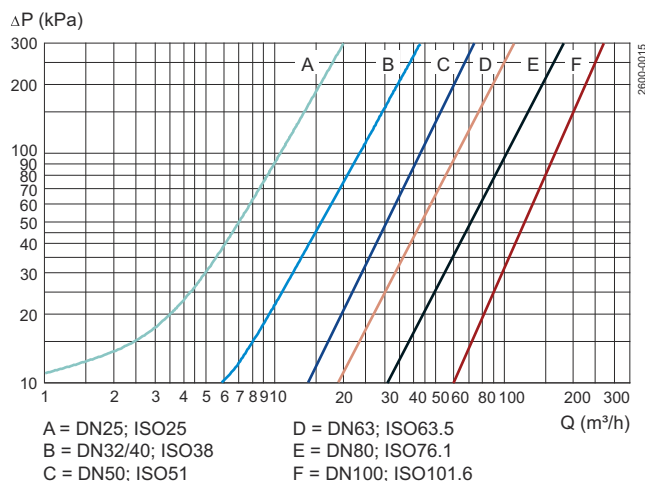
Elastomers

Product wetted elastomer:	EPDM Acc. to FDA and USP Class VI Temperature: -10°C - 140°C
Product wetted elastomer:	FPM Acc. to FDA Temperature: -10°C - 180°C

Connections

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

Pressure drop/capacity diagrams



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

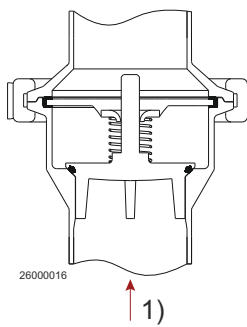
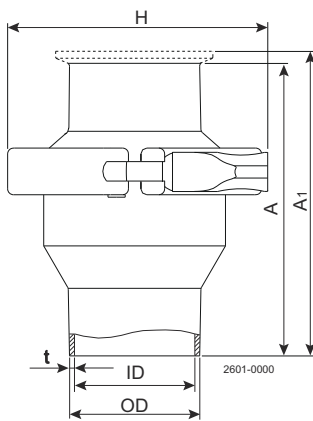


Figure 1. 1 = Flow direction.

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

Dimensions (mm)



	ISO						DIN						
Size	25	38	51	63.5	76.1	101.6	25	32	40	50	65	80	100
A	62.5	75.0	87.5	95.0	115.0	155.0	62.5	75.0	75.0	87.5	95.0	115.0	155.0
A ₁	105.5	118.0	130.5	138.0	158.0	198.0	105.5	118.0	118.0	130.5	151.0	171.0	211.0
OD	25.4	38.4	51.4	63.9	76.4	102.0	30.0	36.0	42.0	54.0	70.0	85.0	104.0
ID	22.5	35.5	48.5	60.5	72.0	97.6	26.0	32.0	38.0	50.0	66.0	81.0	100.0
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	77.4	90.4	103.6	132.6	144.0	164.0	77.4	90.4	90.4	103.6	132.6	144.0	164.0
Weight (kg):													
Welding ends	0.7	1.0	1.3	2.1	2.9	4.3	0.7	1.0	1.0	1.3	2.1	2.9	4.3
Clamp ends	0.9	1.1	1.4	2.5	3.4	4.7	0.9	1.1	1.1	1.4	2.5	3.4	4.7

TD 900-563

Alfa Laval LKUV-2 Air-relief Valve

Control/Check valves

Introduction

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

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

Application

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

Benefits

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

Standard design

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

Working principle

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

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



TECHNICAL DATA

Pressure

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

Temperature

Max. temperature:	90°C (because of the plastic ball)
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ATEX

Classification:	II 2 G D ¹
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¹ This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials

Product wetted steel parts:	1.4301 (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 (mm)

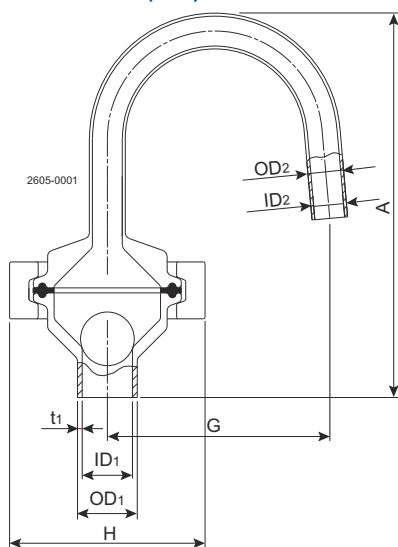


Figure 1. Dimensions

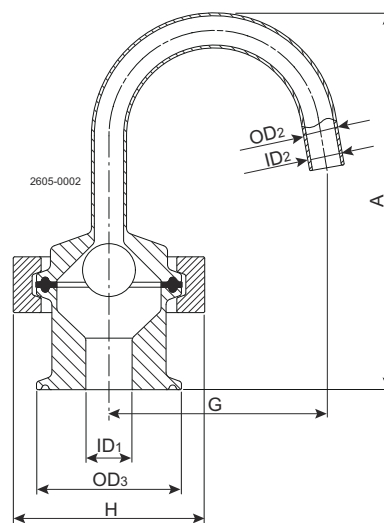
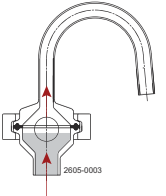
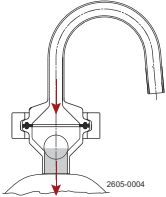


Figure 2. Dimensions

Dimensions

Dimension	(mm)	(inch)
A	128.7	5.07
G	74.5	2.93
H	58.5	2.57
ID1	15.8	0.66
ID2	10	0.39
OD1	20	0.79
OD2	12	0.47
OD3	49.5	1.95
	64.0	2.52
t1	1.6	0.06
Weight	(kg)	(lb)
	0.6	1.32

Situation 1	Pressure conditions	Effect
	Pressure, air or product, or air/product.	The ball is lifted from the lower seat. The air can escape until the product lifts the ball against the upper seat, closing the valve.
Situation 2	Pressure conditions	Effect
	Vacuum, air or product, or air/ product.	The ball moves against the lower seat, closing the valve, whether it contains air or product, or air/product.

Alfa Laval Unique Vacuum Breaker Valve

Control/Check Valves

Introduction

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

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

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

Applications

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

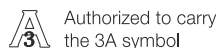
Benefits

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

Standard design

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

Certificates



Working principle

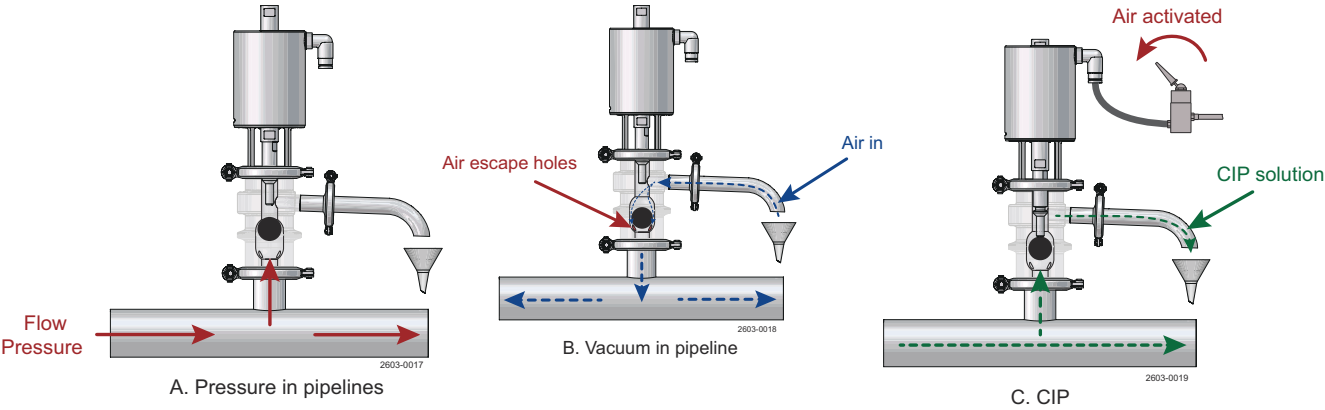
The Alfa Laval Unique Vacuum Breaker Valve operates in a manner similar to a ball check valve. When pipelines are pressurized during a process or CIP, the internal ball is forced upward against its seat, closing the vent port (Fig. A).

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



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

Working Principle



TECHNICAL DATA

Pressure	
Valve	
Maximum product pressure:	10 bar
Minimum product pressure:	Full vacuum
Actuator	
Maximum air pressure:	7 bar
Minimum air pressure:	5 bar

Temperature	
Temperature range:	-10 °C to 90 °C

PHYSICAL DATA

Materials	
Valve/Actuator	
Product wetted steel parts:	AISI 316L
Product wetted seals:	EPDM
Ball:	Polypropylene HD
Internal surface finish:	Ra ≤0.8 µm
Actuator	
Seals:	NBR
External surface finish:	Blasted

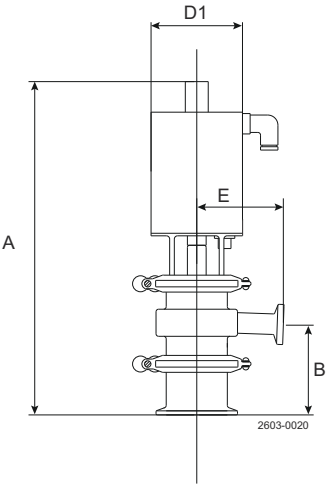
Connections	
Compressed air:	6 mm
Vent:	½" Tri-Clamp
Process/CIP:	1½" Tri-Clamp

Ordering

Please state the following when ordering:

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

Dimensions (mm)



Size	38 mm
A	208
B	56
D ¹	57
E	54
Weight (kg.)	1.85

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 800-900 l/h, 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. 0.1 bar ΔP

Size	Flow (m³/h)
1"/DN25	25
1½"/DN40	50
2"/DN50	150
2½"/DN65	250
3"/DN80	450
4"/DN100	600

PHYSICAL DATA

Materials

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

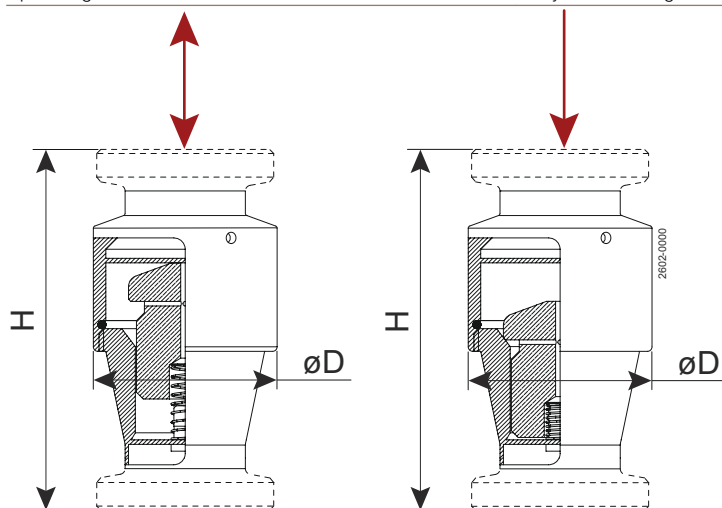
Connections

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

Dimensions (mm)

Open for gas in/out

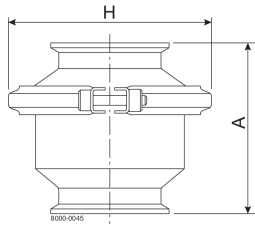
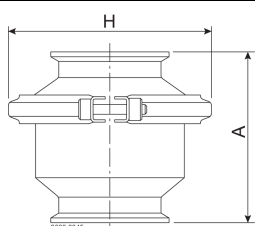
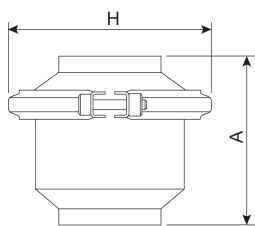
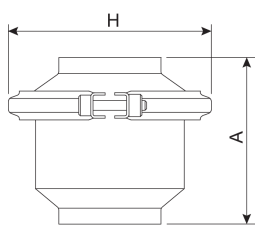
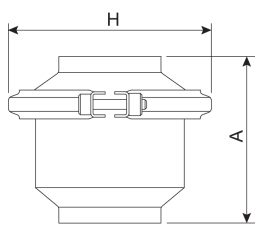
Partly closed during CIP flow



	25/DN25	38/DN40	51/DN50	63.5/DN65	76.1/DN80	101.6/DN100
H						
Welding End - DIN 11850	78	86	113	133	165	165
Welding End - ISO 2037	78	86	113	133	165	165
DIN Male Part - DIN 11851	122	130	159	183	215	225
Clamp Ferrule - ISO 2852	130	137	164	184	216	216
DIN Hygienic Male Part - DIN 11853	130	148	175	205	249	265
DIN Male/Weld End - DIN11851 / DIN11850	100	108	136	158	190	195
Clamp Ferrule/Weld End - ISO2852 / ISO2037	104	112	139	159	191	191
Hygienic/Weld End - DIN11853 / DIN11850	104	117	144	169	207	215
øD						
	49	64	81	106	130	159

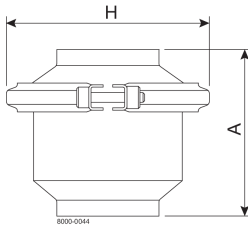
AL SIS Code: 5280
Valve Model Specification: Non-Return valve

Seals: EPDM
Inside surface finish: $Ra \leq 0.8 \mu m$

Item no.	Size		Dimension (mm)		
	mm	DN	A	H	
Clamp ends - 1.4307 (304L)					
9612650179	25		105.5	72.0	
9612650180	38		118.0	85.5	
9612650102	51		130.5	99.0	
9612650100	63.5		138.0	127.0	
9612650101	76.1		158.0	138.0	
9612650181	101.6		198.0	164.0	
Clamp ends - 1.4404 (316L)					
9612650105	25		105.5	72.0	
9612650106	38		118.0	85.5	
9612650107	51		130.5	99.0	
9612650164	63.5		138.0	127.0	
9612650165	76.1		158.0	138.0	
9612650182	101.6		198.0	164.0	
Welding ends - 1.4404 (316L) - DIN tube - Inside surface finish Ra ≤ 0.5 μm					
9612220047		DN25	62.5	72.0	
9612220048		DN32	75.0	85.5	
9612220049		DN40	75.0	85.5	
9612220050		DN50	87.5	99.0	
9612220051		DN65	95.0	127.0	
9612220052		DN80	115.0	138.0	
9612220053		DN100	155.0	164.0	
Welding ends - 1.4404 (316L) - Inch tube					
9612220007	25		62.5	72.0	
9612220008	38		75.0	85.5	
9612220009	51		87.5	99.0	
9612220010	63.5		95.0	127.0	
9612220011	76.1		115.0	138.0	
9612220012	101.6		155.0	164.0	
Welding ends ISO/DIN - 1.4307 (304L) - DIN tube					
9612220040		DN25	62.5	72.0	
9612220042		DN40	75.0	85.5	
9612220043		DN50	87.5	99.0	
9612220044		DN65	95.0	127.0	
9612220045		DN80	115.0	138.0	
9612220046		DN100	155.0	164.0	
9612220041		DN32	75.0	85.5	

ALSIS Code: 5280
Valve Model Specification: Non-Return valve

Seals: EPDM
Inside surface finish: Ra ≤ 0.8 μm

Item no.	Size		Dimension (mm)		
	mm	DN	A	H	
Welding ends ISO/DIN - 1.4307 (304L) - Inch tube					
9612220001	25		62.5	72.0	
9612220002	38		75.0	85.5	
9612220003	51		87.5	99.0	
9612220004	63.5		95.0	127.0	
9612220005	76.1		115.0	138.0	
9612220006	101.6		155.0	164.0	

The LKC-2 valves not mentioned in the code number sheets, should be ordered as below:

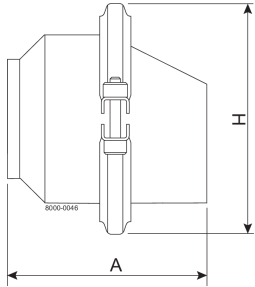
AL SIS Code: 5280

Valve Model Specification: Non-Return valve

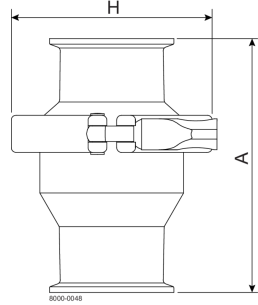
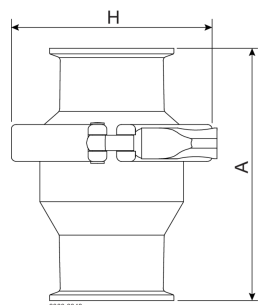
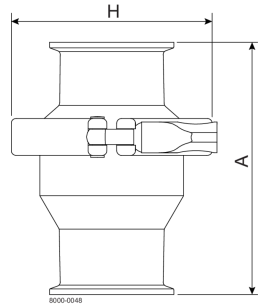
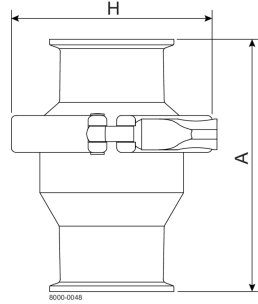
Item no.	Size		Options
	mm	DN	
Male part			
	25.0 38.0 51.0 63.5 76.1 101.6	DN25 DN40 DN50 DN65 DN80 DN100	Male part standards (included in the price) SMS, ISO/IDF, DS, BS, DIN, ISO clamp.
Seal			
	25.0 - 63.5 76.1 - 101.6 All	25.0 - 65.0 80.0 - 100.0 All	Replacement to seals of Fluorinated rubber (FPM) Replacement to seals of Fluorinated rubber (FPM) Replacement to seals of Nitrile (NBR)

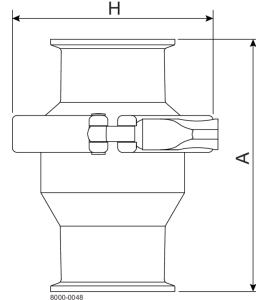
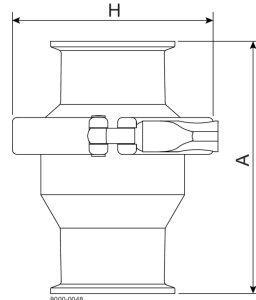
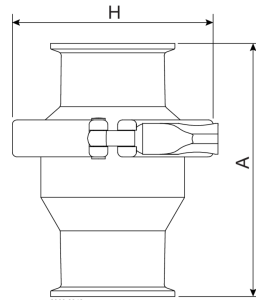
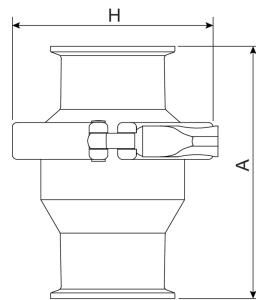
AL SIS Code: 5280
Valve Model Specification: Non-Return valve

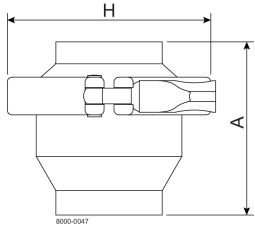
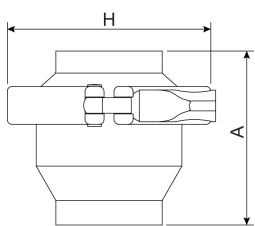
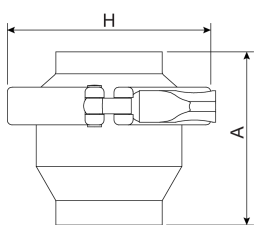
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 μm

Item no.	Size	Dimension (mm)		
	mm	A	H	
Welding ends - 1.4404 (316L) - Inch tube				
9612220030	25	95.5	72.0	
9612220031	38	88.4	85.5	
9612220032	51	104.1	99.0	
9612220033	63.5	117.9	127.0	
9612220034	76.1	147.3	138.0	

NOTE! Seal rings of Nitrile (NBR) or Fluorinated rubber are also available.

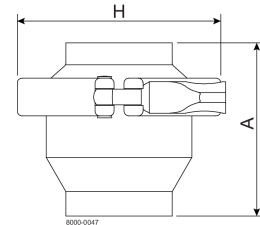
Item no.	Elastomer	Size DN/OD		Dimension (mm)		
		mm	DN	A	H	
Clamp ends - 1.4404 (316L) - DIN Clamp - Inside surface finish Ra ≤ 0.5 μm						
9613481934	EPDM USP Class VI		32	118.0	90.4	
9613481935	EPDM USP Class VI		40	118.0	90.4	
9613481936	EPDM USP Class VI		50	130.5	103.6	
9613481937	EPDM USP Class VI		65	138.0	132.6	
9613481938	EPDM USP Class VI		80	158.0	144.0	
9613481939	EPDM USP Class VI		100	198.0	164.0	
9613481946	FPM (Viton)		25	105.5	77.4	
9613481947	FPM (Viton)		32	118.0	90.4	
9613481948	FPM (Viton)		40	118.0	90.4	
9613481949	FPM (Viton)		50	130.5	103.6	
9613481950	FPM (Viton)		65	138.0	132.6	
9613481952	FPM (Viton)		100	198.0	164.0	
Clamp ends - 1.4404 (316L) - DIN Clamp - Inside surface finish Ra ≤ 0.8 μm						
9613484333	EPDM USP Class VI		25	105.5	77.4	
9613484335	EPDM USP Class VI		40	118.0	90.4	
9613484336	EPDM USP Class VI		50	130.5	103.6	
9613484337	EPDM USP Class VI		65	138.0	132.6	
9613484338	EPDM USP Class VI		80	158.0	144.0	
9613484339	EPDM USP Class VI		100	198.0	164.0	
9613484346	FPM (Viton)		25	105.5	77.4	
9613484347	FPM (Viton)		32	118.0	90.4	
9613484348	FPM (Viton)		40	118.0	90.4	
9613484349	FPM (Viton)		50	130.5	103.6	
9613484350	FPM (Viton)		65	138.0	132.6	
9613484351	FPM (Viton)		80	158.0	144.0	
9613484352	FPM (Viton)		100	198.0	164.0	
Clamp ends - 1.4404 (316L) - DIN tube - Inside surface finish Ra ≤ 0.5 μm						
9613481933	EPDM USP Class VI		25	105.5	77.4	
9613481951	FPM (Viton)		80	158.0	144.0	
Clamp ends - 1.4404 (316L) - DIN tube - Inside surface finish Ra ≤ 0.8 μm						
9613484334	EPDM USP Class VI		32	118.0	90.4	

Item no.	Elastomer	Size DN/OD		Dimension (mm)		
		mm	DN	A	H	
Clamp ends - 1.4404 (316L) - ISO - Inside surface finish Ra ≤ 0.5 μm						
9613481927 9613481943	EPDM USP Class VI FPM (Viton)	25 63.5		105.5 138.0	77.4 132.6	
Clamp ends - 1.4404 (316L) - ISO - Inside surface finish Ra ≤ 0.8 μm						
9613484330 9613484332 9613484340	EPDM USP Class VI EPDM USP Class VI FPM (Viton)	63.5 101.6 25		138.0 198.0 105.5	132.6 164.0 77.4	
Clamp ends - 1.4404 (316L) - ISO Clamp - ISO - Inside surface finish Ra ≤ 0.8 μm						
9613484327 9613484328 9613484329 9613484331 9613484341 9613484342 9613484343 9613484344 9613484345	EPDM USP Class VI EPDM USP Class VI EPDM USP Class VI EPDM USP Class VI FPM (Viton) FPM (Viton) FPM (Viton) FPM (Viton) FPM (Viton)	25 38 51 76.1 38 51 63.5 76.1 101.6		105.5 118.0 130.5 158.0 118.0 130.5 138.0 158.0 198.0	77.4 90.4 103.6 144.0 90.4 103.6 132.6 144.0 164.0	
Clamp ends - 1.4404 (316L) - ISO Clamp - Inside surface finish Ra ≤ 0.5 μm						
9613481928 9613481929 9613481930 9613481931 9613481932 9613481940 9613481941 9613481942 9613481944 9613481945	EPDM USP Class VI EPDM USP Class VI EPDM USP Class VI EPDM USP Class VI EPDM USP Class VI FPM (Viton) FPM (Viton) FPM (Viton) FPM (Viton) FPM (Viton)	38 51 63.5 76.1 101.6 25 38 51 76.1 101.6		118.0 130.5 138.0 158.0 198.0 105.5 118.0 130.5 158.0 198.0	90.4 103.6 132.6 144.0 164.0 77.4 90.4 103.6 144.0 164.0	

Item no.	Elastomer	Size DN/OD		Dimension (mm)		
		mm	DN	A	H	
Welding ends - 1.4404 (316L) - DIN tube - Inside surface finish Ra ≤ 0.5 μm						
9613481907	EPDM USP Class VI		25	62.5	77.4	
9613481908	EPDM USP Class VI		32	75.0	90.4	
9613481909	EPDM USP Class VI		40	75.0	90.4	
9613481910	EPDM USP Class VI		50	87.5	103.6	
9613481911	EPDM USP Class VI		65	95.0	132.6	
9613481912	EPDM USP Class VI		80	115.0	144.0	
9613481913	EPDM USP Class VI		100	155.0	164.0	
9613481920	FPM (Viton)		25	62.5	77.4	
9613481921	FPM (Viton)		32	75.0	90.4	
9613481922	FPM (Viton)		40	75.0	90.4	
9613481923	FPM (Viton)		50	87.5	103.6	
9613481924	FPM (Viton)		65	95.0	132.6	
9613481925	FPM (Viton)		80	115.0	144.0	
9613481926	FPM (Viton)		100	155.0	164.0	
Welding ends - 1.4404 (316L) - DIN tube - Inside surface finish Ra ≤ 0.8 μm						
9613484307	EPDM USP Class VI		25	62.5	77.4	
9613484308	EPDM USP Class VI		32	75.0	90.4	
9613484309	EPDM USP Class VI		40	75.0	90.4	
9613484310	EPDM USP Class VI		50	87.5	103.6	
9613484311	EPDM USP Class VI		65	95.0	132.6	
9613484312	EPDM USP Class VI		80	115.0	144.0	
9613484313	EPDM USP Class VI		100	155.0	164.0	
9613484320	FPM (Viton)		25	62.5	77.4	
9613484321	FPM (Viton)		32	75.0	90.4	
9613484322	FPM (Viton)		40	75.0	90.4	
9613484323	FPM (Viton)		50	87.5	103.6	
9613484324	FPM (Viton)		65	95.0	132.6	
9613484325	FPM (Viton)		80	115.0	144.0	
9613484326	FPM (Viton)		100	155.0	164.0	
Welding ends - 1.4404 (316L) - ISO - Inside surface finish Ra ≤ 0.5 μm						
9613481901	EPDM USP Class VI	25		62.5	77.4	
9613481902	EPDM USP Class VI	38		75.0	90.4	
9613481903	EPDM USP Class VI	51		87.5	103.6	
9613481904	EPDM USP Class VI	63.5		95.0	132.6	
9613481905	EPDM USP Class VI	76.1		115.0	144.0	
9613481906	EPDM USP Class VI	101.6		155.0	164.0	
9613481914	FPM (Viton)	25		62.5	77.4	
9613481915	FPM (Viton)	38		75.0	90.4	
9613481916	FPM (Viton)	51		87.5	103.6	
9613481917	FPM (Viton)	63.5		95.0	132.6	
9613481918	FPM (Viton)	76.1		115.0	144.0	
9613481919	FPM (Viton)	101.6		155.0	164.0	

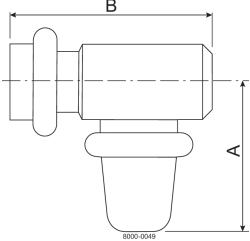
ALSIS Code: 5298

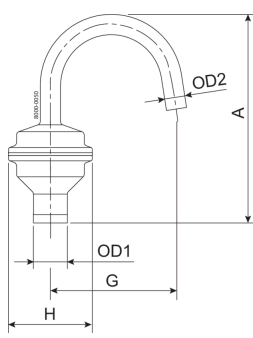
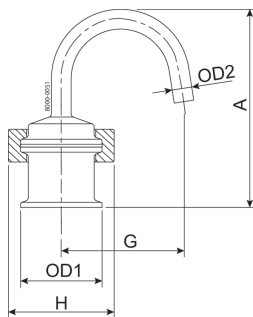
Material: 1.4404 (316L)
 Seals: EPDM
 Inside surface finish: $Ra \leq 0.5 \mu m$
 Outside surface finish: $Ra \leq 0.8 \mu m$

Item no.	Elastomer	Size DN/OD		Dimension (mm)		
		mm	DN	A	H	
Welding ends - 1.4404 (316L) - ISO - Inside surface finish Ra ≤ 0.8 μm						
9613484301	EPDM USP Class VI	25		62.5	77.4	
9613484302	EPDM USP Class VI	38		75.0	90.4	
9613484303	EPDM USP Class VI	51		87.5	103.6	
9613484304	EPDM USP Class VI	63.5		95.0	132.6	
9613484305	EPDM USP Class VI	76.1		115.0	144.0	
9613484306	EPDM USP Class VI	101.6		155.0	164.0	
9613484314	FPM (Viton)	25		62.5	77.4	
9613484315	FPM (Viton)	38		75.0	90.4	
9613484316	FPM (Viton)	51		87.5	103.6	
9613484317	FPM (Viton)	63.5		95.0	132.6	
9613484318	FPM (Viton)	76.1		115.0	144.0	
9613484319	FPM (Viton)	101.6		155.0	164.0	

Valve Model Specification: Air blow valve - LKBV
ALSIS Code: 5288

Material: 1.4301 (304)

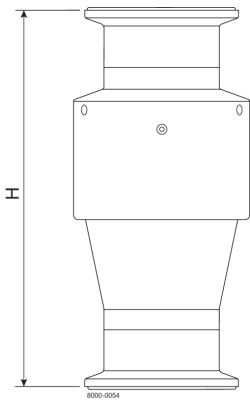
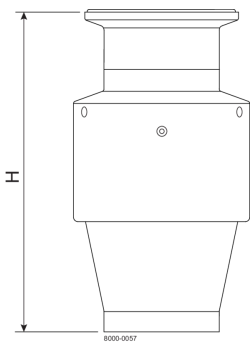
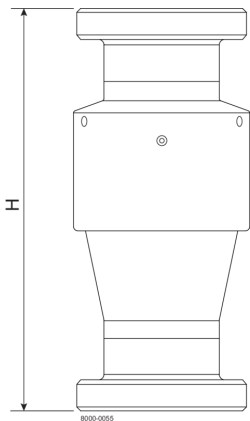
Item no.	Size	Dimension (mm)		
	mm	A	B	
Air blow valve - LKBV				
9611250117	51	112.5	143.0	

Item no.	Gasket material	Size	Dimension (mm)			OD1	OD2	
		Inch	A	G	H	mm	mm	
Air Releif valve - LKUV-2								
9613426901 9613426903 9613426904	EPDM NBR FPM		128.7 128.7 128.7	74.5 74.5 74.5	58.5 58.5 58.5	20.0 20.0 20.0	12.0 12.0 12.0	
Air Releif valve-LKUV-2 Clamp								
9613426905 9613426907 9613426908 9613426910	EPDM FPM EPDM FPM	1.5" 1.5" 2.0" 2.0"	128.7 128.7 128.7 128.7	74.5 74.5 74.5 74.5	58.5 58.5 58.5 58.5	49.5 49.5 64.0 64.0	12.0 12.0 12.0 12.0	

Item no.	Size	
	inch	mm
Unique Vacuum Breaker		
9634098751	1 1/2"	38.1

Valve Model Specification: Check valve
 ALSIS Code: 5920

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

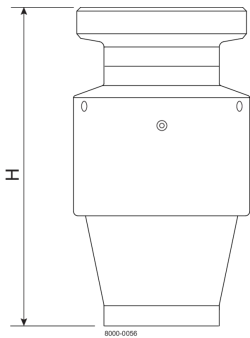
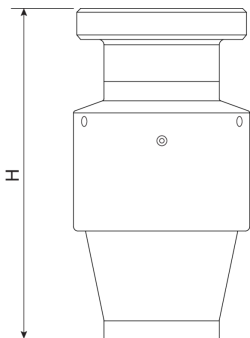
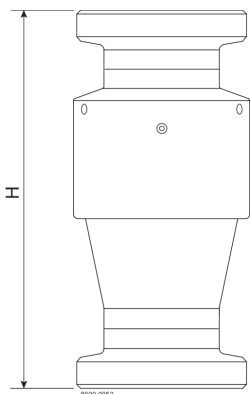
Item no.	Size		Dimension (mm)			
	mm	DN				
Clamp Ferule Acc. ISO 2852						
9615118001 9615118002 9615118003 9615118004 9615118005 9615118006	25 38 51 63.5 76.1 101.6		130.0 137.0 164.0 184.0 216.0 216.0			
Clamp Ferule/Weld End Acc. ISO2852/ISO2037						
9615118007 9615118008 9615118009 9615118010 9615118011 9615118012	25 38 51 63.5 76.1 101.6		104.0 112.0 139.0 159.0 191.0 191.0			
DIN Hygienic Male par Acc.DIN 11853						
9615117901 9615117902 9615117903 9615117904 9615117905 9615117906		DN25 DN40 DN50 DN65 DN80 DN100	130.0 148.0 175.0 205.0 249.0 265.0			

Self-cleaning CO2 valve

Control/Check valves

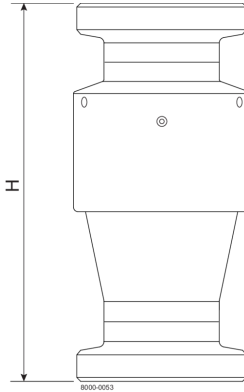
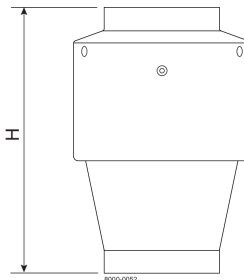
Valve Model Specification: Check valve
ALSIS Code: 5920

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

Item no.	Size		Dimension (mm)			
	mm	DN				
DIN Male/weld End Acc. DIN11851/DIN11850						
9615117807 9615117808 9615117809 9615117810 9615117811 9615117812		DN25 DN40 DN50 DN65 DN80 DN100	100.0 108.0 136.0 158.0 190.0 195.0			
Hygienic/Weld End Acc. DIN 11853/DIN11850						
9615117907 9615117908 9615117909 9615117910 9615117911 9615117912	25 38 51 63.5 76.1 101.6		104.0 117.0 144.0 169.0 207.0 215.0			
Male part Acc. DIN 11851						
9615117801 9615117802 9615117803 9615117804 9615117805 9615117806		DN25 DN40 DN50 DN65 DN80 DN100	122.0 130.0 159.0 183.0 215.0 225.0			

Valve Model Specification: Check valve
 ALSIS Code: 5920

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

Item no.	Size		Dimension (mm)	
	mm	DN		
Welding Ends Acc. DIN 11850				
9615116001		DN25	78.0	
9615116002		DN40	86.0	
9615116003		DN50	113.0	
9615116004		DN65	133.0	
9615116005		DN80	165.0	
9615116006		DN100	165.0	
Welding Ends Acc. ISO 2037				
9615110601	25		78.0	
9615110602	38		86.0	
9615110603	51		113.0	
9615110604	63.5		133.0	
9615110605	76.1		165.0	
9615110606	101.6		165.0	

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Diaphragm valves

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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.

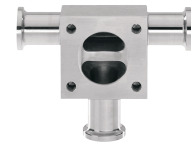


Figure 2. T-Block

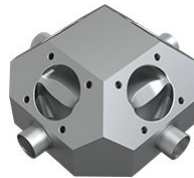


Figure 3. Multi-port



Figure 4. Tandem



Figure 5. Tank outlet-block

Figure 1. 2-way

PHYSICAL DATA

Materials

Body types	Cast CF3M (316L)	Forged 1.4435 (316L)	Block ¹ 1.4404 (316L)
2-way	✓	✓	✓
T			✓
Tank outlet			✓
Tandem / IAV solutions	✓	✓	✓
Multi-port			✓

¹ Other alloys on request.

	Cast	Forged	Block
Material	CF3M (316L)	1.4435 (316L)	1.4404 (316L)
Delta ferrite	< 5.0%	< 0.5%	< 0.5%
Sulphur content	0.005%-0.017%	0.005-0.017%	0.005-0.017%
Internal surface finish	Ra < 0.51 µm Ra < 0.38 µm EP ¹	Ra < 0.51 µm Ra < 0.38 µm EP ¹	Ra < 0.51 µm Ra < 0.38 µm EP ¹
External surface finish	Blasted	Blasted	Machined

¹ Electro Polished

0.51µm = SF1, 0.38 µm = 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 pneumatic actuator. Alfa Laval offers 2 versions of manual handles and 2 versions of pneumatic actuator.

Actuator



Figure 6. Model SS/SL



Figure 7. Model SS/HP

Sizes	DN 8 - 100 1/4" - 4"		
Housing	Stainless steel		
Intermediate part	Stainless steel		
Compressor, stem	Stainless steel		
Full Vacuum	✓		
Leakage Detection	✓		
Autoclavable ¹	✓		
Max. Air Temperature	80°C		
Max. Air Pressure ²	7 bar		
Stroke limiter	Yes		No
OD Surface	Polished		Blasted
Valve/Seat tightness	ANSI Class VI		ANSI Class VI
TA Luft (Air)	DIN EN ISO 15848-1		
ATEX	✓		
	II 2G Ex h IIB T4 Gb (-10°C ≤ tamb ≤ 80°C)		
	II 3D Ex h IIIB T100°C Dc (-10°C ≤ tamb ≤ 80°C)		
Max working pressure	Delta P 100% ³		Delta P 0% ³
Sizes	1/4" - 1 1/2"	EPDM 10 bar PTFE/EPDM 6 bar	1/4" - 4" EPDM 10 bar PTFE/EPDM 10 bar TFM/EPDM 6 bar
	2"-4"	EPDM 8 bar PTFE/EPDM 5 bar	

¹ 121°C for max. 60 min

² Min. Air pressure see instruction manual

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

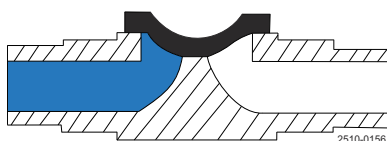


Figure 8. Delta P 100%

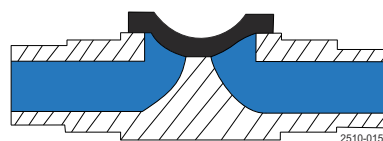


Figure 9. Delta P 0%

Handles



Figure 10. Model SS/SS



Figure 11. Model C/SS

Size	DN 8 - 100 1/4" - 4"	DN 8 - 100 1/4" - 4"
Handwheel	Stainless steel	PA ¹
Bonnet	Stainless steel	Stainless steel
Spindle + compressor ¹	Stainless steel	Stainless steel
Max. product pressure	10 bar	10 bar
Overclosure protection	✓	✓
Optical positioner	✓	✓
Autoclavable	✓ ²	✓ ²
Leakage Detection	✓	✓
Valve/Seat tightness	ANSI Class VI	ANSI Class VI
TA Luft (Air)		DIN EN ISO 15848-1
ATEX		II 2 G D 3 ³
Stroke limiter	Optional	Optional

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

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



¹ PA (polyamid)

² 121°C 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 \geq DN 25 (1")
- Bayonet connections are used on all hard elastomer \geq DN 15 (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 (PTFE 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 °C			Documentation			Available sizes	Available Diaphragm connections:		
	Min.	Max. Liquid	Max. Steam	FDA	USP	TSE		Button ¹	Thread	Bayonet ²
EPDM	-40°C	130°C	150°C ³	✓	✓	✓	DN 8 - 100	DN 8 - 20	DN 25 - 100	
PTFE/EPDM	-5°C	175°C	150°C ⁴	✓	✓	✓	DN 15 - 100			DN 15 - 100
TFM/EPDM	-5°C	175°C	150°C ⁴	✓	✓	✓	DN 8 - 100	DN 8 - 10		DN 15 - 100

¹ < DN25 thread optional

² TFM/EPDM point-fixed thread optional

³ Continuous temperature

⁴ 40 min. steam sterilisation

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

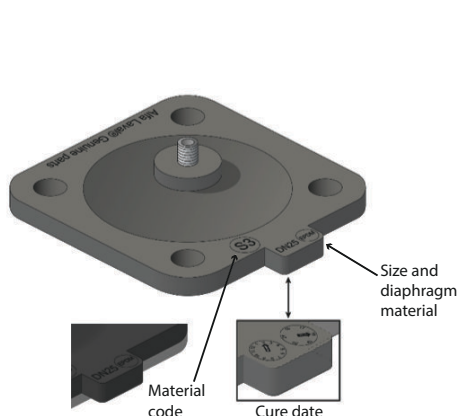
USP - Certificate of conformity to USP Class VI (chapter 88, biological reactivity test)

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

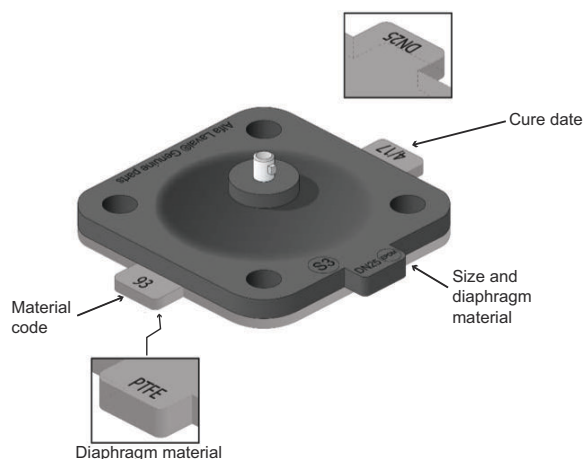
Alfa Laval Cast valve bodies with Optimized Flow utilize smaller diaphragm and topwork vs. Valve pipe dimension. Topwork being either pneumatic or manual. This giving the benefit of having a slim and light weight valve.

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

Alfa Laval EPDM Diaphragm



Alfa Laval PTFE/EPDM



Pressure drop/capacity table

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

kv in m³/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 m³/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)

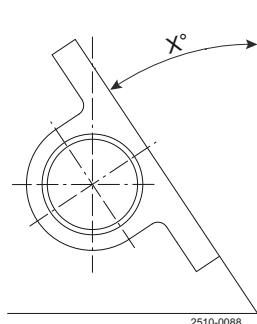
KV Value (Pipe standard ASME BPE / ISO 2037 Cast OP)

kv in m³/h Δp = 1 bar

DN8-10	DN15	DN20	DN25	DN40	DN50	DN65	DN80
1/4"-3/8"	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"
0.2	2.2	5.1	10.8	25.3	53.4	79.7	128.6

KV values are based on lab test.

Drain angle x:



Drain angles, forged and block valve bodies

Port size		ASME BPE	ISO 2037	DIN11850	ISO 1127
DN	Inch			(Series A)	(Series B)
8	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		ASME
DN	Inch	
8	1/4"	38°
10	3/8"	30°
15	1/2"	26°

Drain angles, Cast OP valve bodies

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

Dimensions (mm)

2-way body:

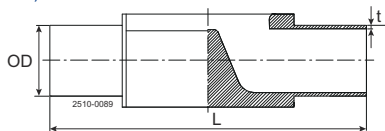
2-way bodies are the standard configuration for shut off and regulating functions.

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: (mm)

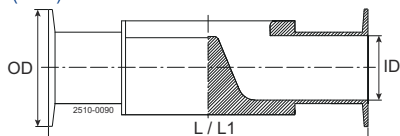


Port size		Length	ASME BPE	ISO 2037	DIN11850 ¹ (Series A)	ISO1127 ¹ (Series B)
DN	Inch	L	OD x t	OD x t	OD x t	OD x t
8	¼"	89	6.35 x 0.89	12.00 x 1.00	10.00 x 1.00	13.50 x 1.60
10	⅜"	89	9.53 x 0.89	12.70 x 1.00	13.00 x 1.50	17.20 x 1.60
15	½"	89	12.70 x 1.65			
15	½"	110	12.70 x 1.65	17.20 x 1.00	19.00 x 1.50	21.30 x 1.60
20	¾"	119	19.05 x 1.65	21.30 x 1.00	23.00 x 1.50	26.90 x 1.60
25	1"	129	25.40 x 1.65	25.00 x 1.20	29.00 x 1.50	33.70 x 2.00
32	1¼"	129	-	-	35.00 x 1.50	
32	1¼"	161	-	-	-	42.40 x 2.00
40	1½"	161	38.10 x 1.65	38.00 x 1.20	41.00 x 1.50	48.30 x 2.00
50	2"	192	50.80 x 1.65	51.00 x 1.20	53.00 x 1.50	60.30 x 2.00
65	2½"	218	63.50 x 1.65	63.50 x 1.60	70.00 x 2.00	76.10 x 2.00
80	3"	256	76.20 x 1.65	76.10 x 1.60	85.00 x 2.00	88.90 x 2.30
100	4"	218	101.60 x 2.11	101.60 x 2.00	104.00 x 2.00	114.30 x 2.30

¹ Forged only

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

Clamp ends: (mm)



Port size		Length	Length	Clamp ASME BPE for ASME BPE		Clamp ISO 2852 for ISO 2037		Clamp DIN 32676 ¹ for Series A/DIN		Clamp DIN 32676 ¹ for Series B/ISO	
DN	Inch	L ²	L1 ³	OD	ID	OD	ID	OD	ID	OD	ID
8	¼"	89	63.5	25.00	4.57	34.00	10.00	25.00	8.00	25.0	10.3
10	⅜"	89	63.5	25.00	7.75	34.00	10.70	34.00	10.00		
15	½"	-	63.5	25.00	9.40						
10	⅜"	108								25.0	14.0
15	½"	108	89	25.00	9.40	34.00	15.20	34.00	16.00	50.5	18.1
20	¾"	118	102	25.00	15.75	34.00	19.30	34.00	20.00	50.5	23.7
25	1"	127	114	50.50	22.10	50.50	22.60	50.50	26.00	50.5	29.7
32	1¼"	127						50.50	32.00		
32	1¼"	159								64.0	38.4
40	1½"	159	140	50.50	34.80	50.50	35.60	50.50	38.00	64.0	44.3
50	2"	191	159	64.00	47.50	64.00	48.60	64.00	50.00	77.5	56.3 ¹
65	2½"	216	194	77.50	60.20	77.50	60.30	91.00	66.00	91.0	72.1
80	3"	254	222	91.00	72.90	91.00	72.90	106.00	81.00	106.0	84.3
100	4"	305	-	118.92	97.38	119.00	97.60	119.00	100.00	119.00	109.7

¹ Forged only

² Standard build-in length acc. EN 558-1, Series 7

³ ASME BPE forged valves only, short version acc. to ASME BPE dimension table for hygienic clamp joint: Weir style diaphragm valve

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

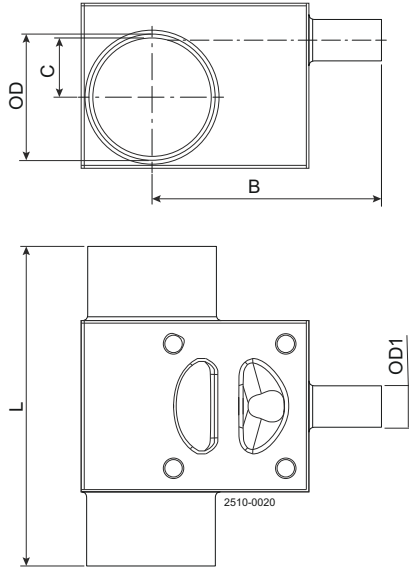
Other sizes and connections available on request.

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



Main tube	Valve	Main tube OD x t	Valve OD1 x t	B - Weld	B - Clamp	C	L - Weld	L - Clamp
DN	DN	mm	mm	mm	mm	mm	mm	mm
8	8	ø6.35x0.89	ø6.35x0.89	34.9	47.6	0.0	57.0	82.4
10	8	ø9.53x0.89	ø6.35x0.89	35.6	48.3	3.2	57.0	82.4
15	8	ø12.7x1.65	ø6.35x0.89	37.0	49.7	4.6	81.0	106.4
20	8	ø19.05x1.65	ø6.35x0.89	39.9	52.6	9.0	81.0	106.4
25	8	ø25.4x1.65	ø6.35x0.89	43.2	55.9	12.3	81.0	106.4
40	8	ø38.1x1.65	ø6.35x0.89	55.4	68.1	13.0	81.0	106.4
50	8	ø50.8x1.65	ø6.35x0.89	57.7	70.4	19.4	81.0	106.4
65	8	ø63.5x1.65	ø6.35x0.89	63.5	76.2	25.8	81.0	106.4
80	8	ø76.2x1.65	ø6.35x0.89	70.2	88.9	32.1	81.0	106.4
10	10	ø9.53x0.89	ø9.53x0.89	35.6	48.3	3.2	57.0	82.4
15	10	ø12.7x1.65	ø9.53x0.89	37.0	49.7	4.6	81.0	106.4
20	10	ø19.05x1.65	ø9.53x0.89	39.9	52.6	9.0	81.0	106.4
25	10	ø25.4x1.65	ø9.53x0.89	43.2	55.9	12.3	81.0	106.4
40	10	ø38.1x1.65	ø9.53x0.89	55.4	68.1	13.0	81.0	106.4
50	10	ø50.8x1.65	ø9.53x0.89	57.7	70.4	19.4	81.0	106.4
65	10	ø63.5x1.65	ø9.53x0.89	69.5	76.2	25.8	81.0	106.4
80	10	ø76.2x1.65	ø9.53x0.89	70.2	82.9	32.1	81.0	106.4
15	15	ø12.7x1.65	ø12.7x1.65	57.7	70.4	3.6	95.0	120.4
20	15	ø19.05x1.65	ø12.7x1.65	58.6	71.3	8.0	95.0	120.4
25	15	ø25.4x1.65	ø12.7x1.65	62.0	74.7	11.3	95.0	120.4
40	15	ø38.1x1.65	ø12.7x1.65	68.6	81.3	16.95	95.0	120.4
50	15	ø50.8x1.65	ø12.7x1.65	75.2	87.9	20.6	95.0	120.4
65	15	ø63.5x1.65	ø12.7x1.65	81.8	94.5	24.75	95.0	120.4
80	15	ø76.2x1.65	ø12.7x1.65	88.3	101.0	29.1	95.0	120.4
20	20	ø19.05x1.65	ø19.05x1.65	64.9	77.6	1.0	109.0	134.4
25	20	ø25.4x1.65	ø19.05x1.65	68.4	81.1	6.3	109.0	134.4
40	20	ø38.1x1.65	ø19.05x1.65	75.1	87.8	13.0	109.0	134.4
50	20	ø50.8x1.65	ø19.05x1.65	81.7	94.4	17.6	109.0	134.4

Main tube	Valve	Main tube OD x t	Valve OD1 x t	B - Weld	B - Clamp	C	L - Weld	L - Clamp
DN	DN	mm	mm	mm	mm	mm	mm	mm
65	20	ø63.5x1.65	ø19.05x1.65	88.2	100.9	21.2	109.0	134.4
80	20	ø76.2x1.65	ø19.05x1.65	94.8	107.5	24.9	109.0	134.4
25	25	ø25.4x1.65	ø25.4x1.65	72.9	85.6	4.3	117.0	142.4
40	25	ø38.1x1.65	ø25.4x1.65	79.6	92.3	12.4	117.0	142.4
50	25	ø50.8x1.65	ø25.4x1.65	85.3	98.0	18.1	117.0	142.4
65	25	ø63.5x1.65	ø25.4x1.65	91.9	104.6	22.2	117.0	142.4
80	25	ø76.2x1.65	ø25.4x1.65	98.4	111.1	25.9	117.0	142.4
40	40	ø38.1x1.65	ø38.1x1.65	88.9	101.6	2.4	143.0	168.4
50	40	ø50.8x1.65	ø38.1x1.65	95.8	108.5	11.3	143.0	168.4
65	40	ø63.5x1.65	ø38.1x1.65	102.4	115.1	17.6	143.0	168.4
80	40	ø76.2x1.65	ø38.1x1.65	109.1	121.8	22.6	143.0	168.4
50	50	ø50.8x1.65	ø50.8x1.65	111.5	124.2	4.6	170.0	195.4
65	50	ø63.5x1.65	ø50.8x1.65	111.7	124.4	12.8	170.0	195.4
80	50	ø76.2x1.65	ø50.8x1.65	118.4	131.1	18.9	170.0	195.4
65	65	ø63.5x1.65	ø63.5x1.65	134.4	147.1	12.7	190.0	215.4
80	65	ø76.2x1.65	ø63.5x1.65	134.5	147.2	12.9	190.0	215.4
80	80	ø76.2x1.65	ø76.2x1.65	152.1	164.8	9.9	233.0	258.4



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

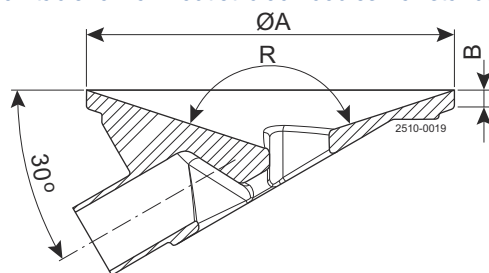
T-block valves are available in all dimension standards (ASME, DIN, ISO2037, ISO1127) Hybrid solutions with mixed dimension standards (ASME, DIN, ISO2037, ISO1127) is furthermore possible, please contact Alfa Laval.

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 further in the DV-ST catalogue.



Dimension table for Tank outlet-block bodies - all standards



DN	ØA	B	R
	(mm)	(mm)	
DN15 (1/2")	90	5.4	144°
DN20 (3/4")	100	5.4	144°
DN25 (1")	120	5.4	144°
DN40 (1 1/2")	150	5.4	144°
DN50 (2")	180	5.4	144°
DN65 (2 1/2")	200	5.4	144°
DN80 (3")	250	5.4	144°

For OD dimensions see two-way valves.



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

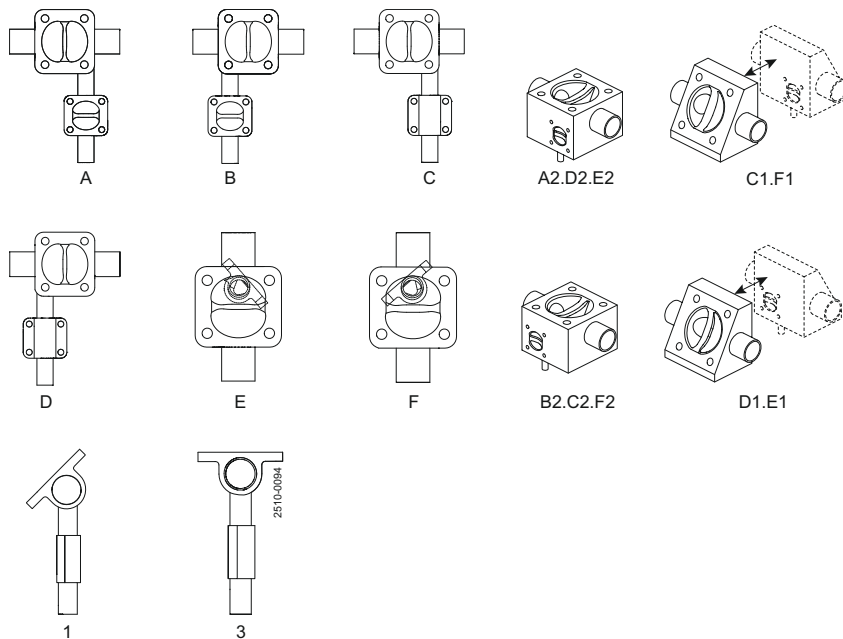
Tandem body:

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.



Forged Tandem Valves configurations (sizes)

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



Note! For other size configurations please contact Alfa Laval

Multi-port body:

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



For more details, please contact Alfa Laval.

Tandem valves are available in a wide variety of angles and positions, as machined from block or from forged material.

To price a tandem configuration: Price for main valve + price for branch valve + add-on price by the size of the branch valve.

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

1) Available for forged only

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

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Double seal valves

Product leaflet	
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Ordering leaflet	
SMP-BC	109
SMP-BCA	110

Alfa Laval SMP-BC

Double seal valves

Introduction

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

Application

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

Benefits

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

Working principle

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

Standard design

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



TECHNICAL DATA

Pressure

Max. product pressure (depending on valve specifications):	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	500 to 800 kPa (5 to 8 bar)

Temperature

Temperature range:	-10°C to +140°C (EPDM)
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ATEX

Classification:	II 2 G D ¹
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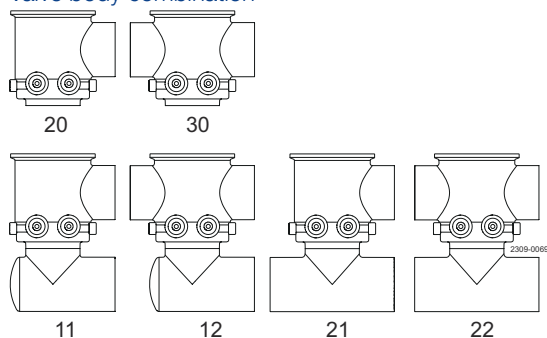
¹ This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source.

PHYSICAL DATA

Material

Product wetted steel parts:	1.4401 (316L)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Ra ≤ 1.6 µm
Optional:	Bright Polished Ra ≤ 0.8 µm
Other steel parts:	1.4301 (304)
Product wetted seals:	EPDM (optional: NBR, FPM)
Other seals:	NBR

Valve body combination



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

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

Options

- Male parts or clamp liners in accordance with required standard.
- Control and Indication: ThinkTop V50 and V70, IndiTop.
- Actuator with stronger spring.
- Larger actuator for valve sizes 38-51 mm/DN40-50.
- CIP installation kits.
- Other valve body combinations.
- Service tools for actuator.
- Tool for plug seals (Necessary for changing the seals).



Note!

For further details, see also instruction manual ESE02255.

Air consumption (litres free air) for one stroke

Size	38-51 mm	63.5-101.6 mm	
	DN 40-50	DN 65-100	DN 125-150
Stop valve	0.2 x air pressure (bar)	0.7 x air pressure (bar)	1.5 x air pressure (bar)
Actuator function	NC	NC	NC
Stop valve			3.6 x air pressure (bar)
Actuator function			NC (Support air for closing)

Operation/cleaning

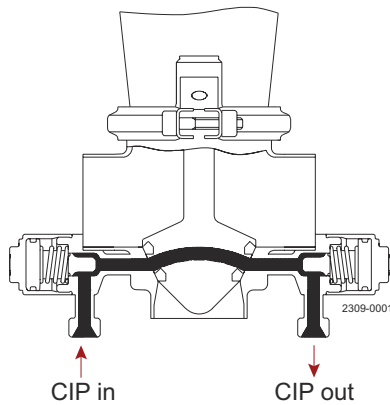


Figure 1. Closed shut-off valve: cleaning of the leakage chamber

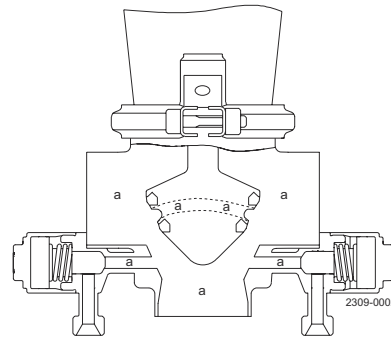
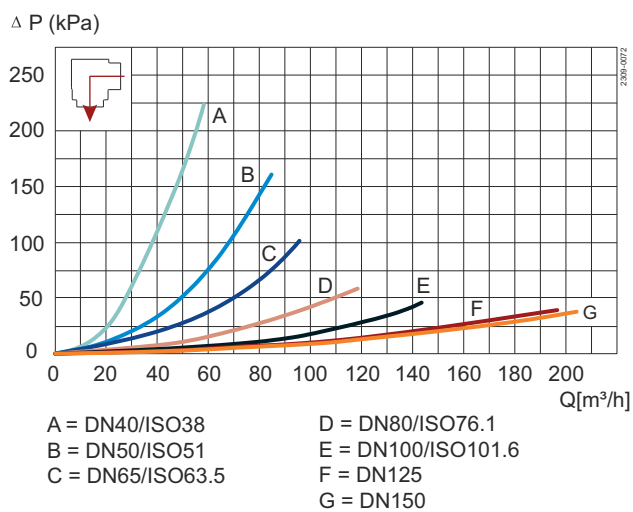
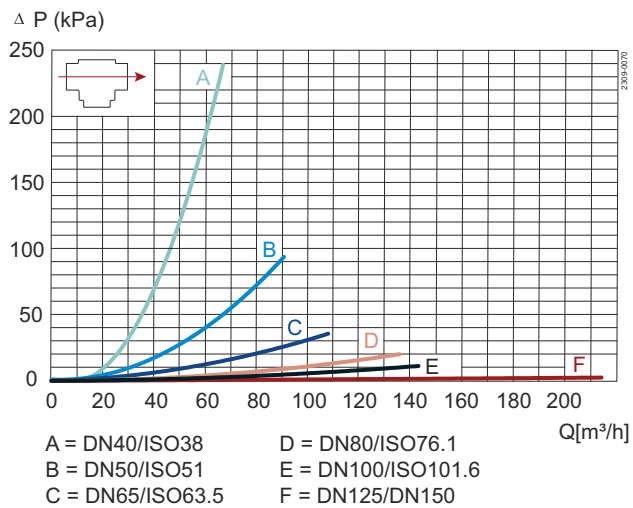
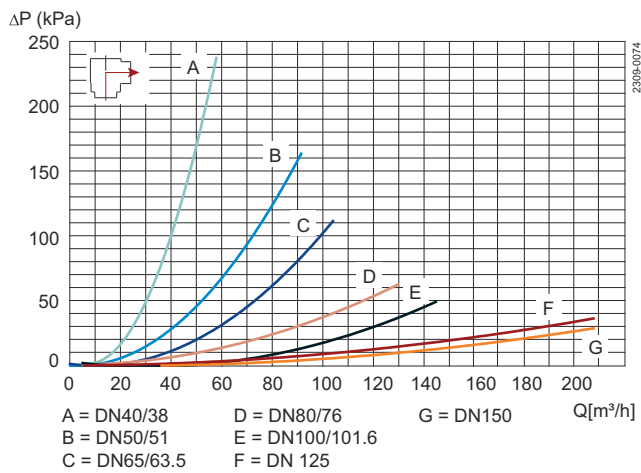


Figure 2. Open shut-off valve: cleaning of the valve body and the leakage chamber

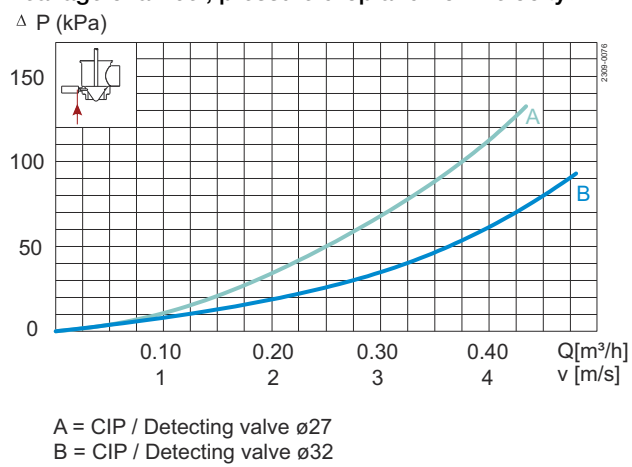
Pressure drop/capacity diagrams

Shut-off valve:





Leakage chamber, pressure drop and flow velocity



Note!

For the diagrams the following applies:

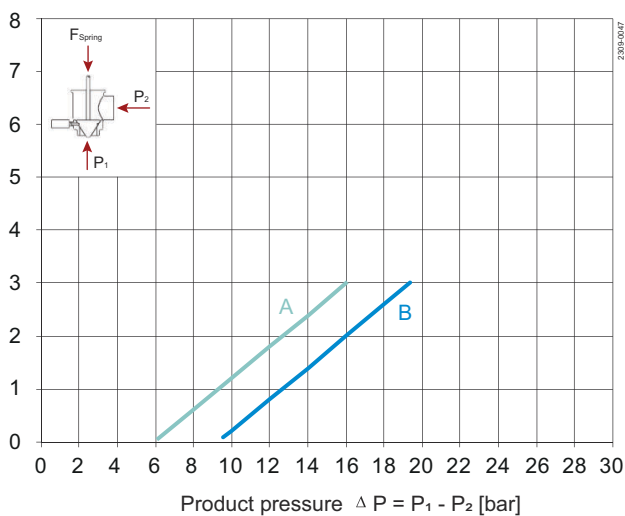
Medium: Water (20°C).

Measurement: In accordance with VDI 21.

Max pressure difference/support air pressure diagrams

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

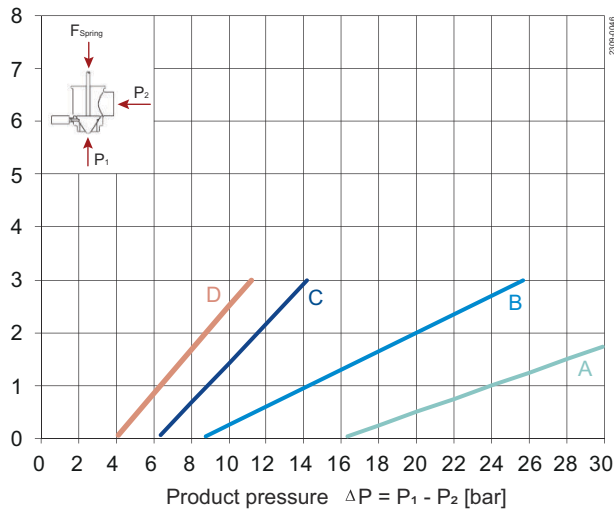
Support air P_{air} [bar]



A = ø89 Std. spring: DN40/DN50, ISO38/ISO51
B = ø89 Strong spring: DN40/DN50, ISO38/ISO51

Figure 3. ø89 actuator

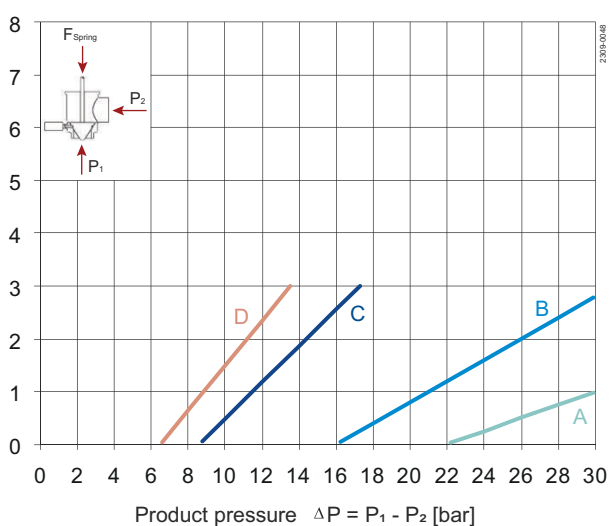
Support air P_{air} [bar]



A = DN40/DN50, ISO38/ISO51 C = DN80, ISO76.1
B = DN65, ISO63.5 D = DN100, ISO101.6

Figure 4. ø133 actuator with standard spring

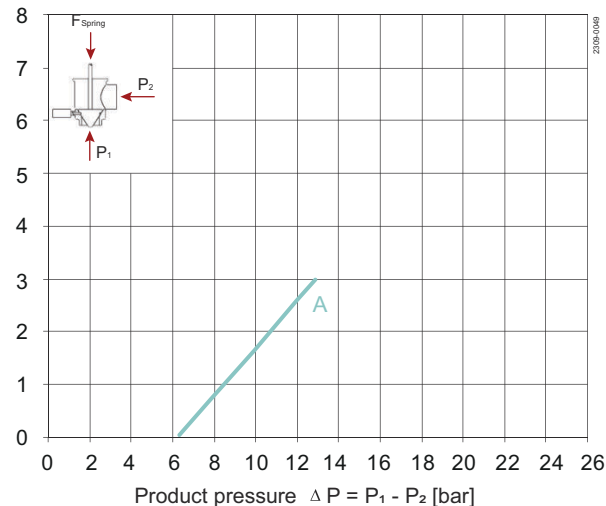
Support air P_{air} [bar]



A = DN40/DN50, ISO38/ISO51 C = DN80, ISO76.1
B = DN65, ISO63.5 D = DN100, ISO101.6

Figure 5. ø133 actuator with strong spring

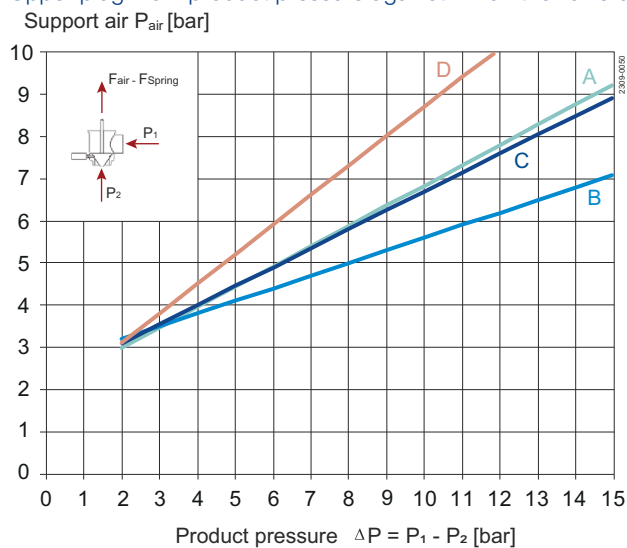
Support air P_{air} [bar]



A = DN125, DN150

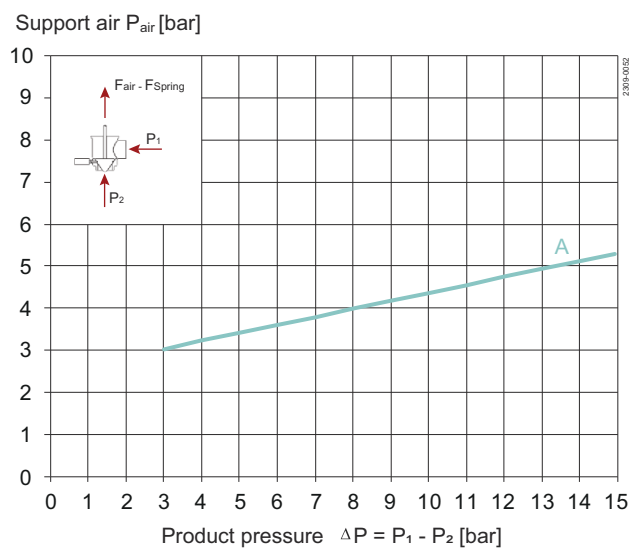
Figure 6. ø199 actuator

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



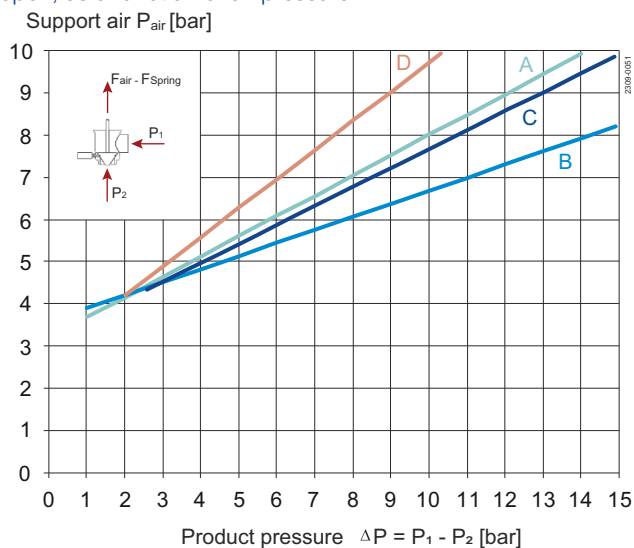
A = DN40/DN50, ISO38/ISO51
B = DN65, ISO63.5
C = DN80, ISO76.1
D = DN100, ISO101.6

Figure 7. ø89 actuator with standard spring



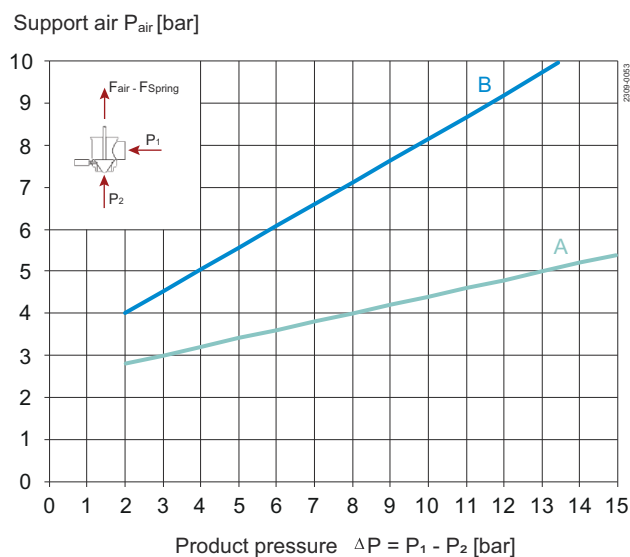
A = DN40/DN50, ISO38/ISO51

Figure 9. ø133 actuator with standard spring



A = DN40/DN50, ISO38/ISO51 C = DN80, ISO76.1
B = DN65, ISO63.5 D = DN100, ISO101.6

Figure 8. ø89 actuator with strong spring



A = DN40/DN50, ISO38/ISO51
B = DN125, DN150

Figure 10. ø133 actuator with strong spring



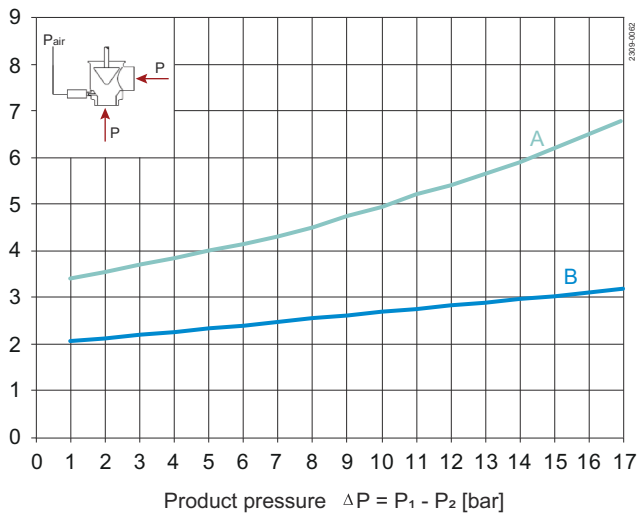
Note!

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.

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

Support air P_{air} [bar]



A = CIP valve ø27

B = CIP valve ø32

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

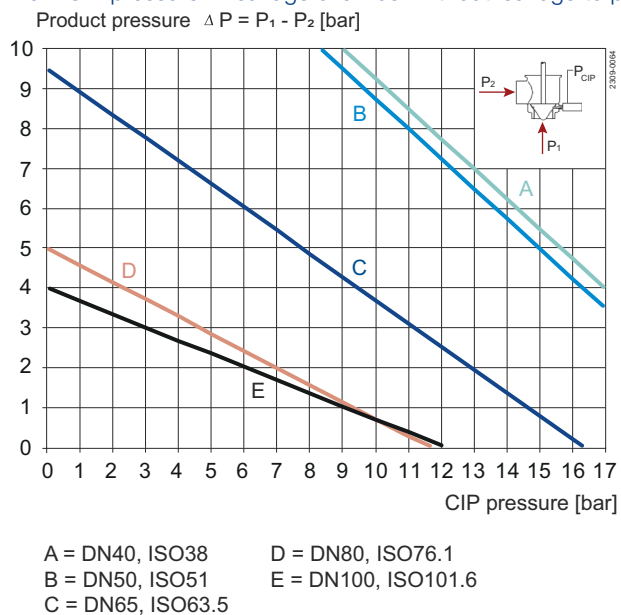


Figure 11. ø89 actuator with standard spring

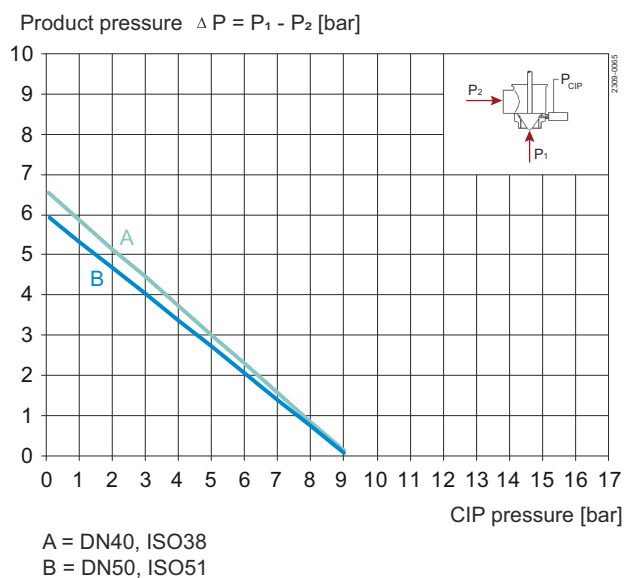


Figure 13. ø133 actuator with standard spring

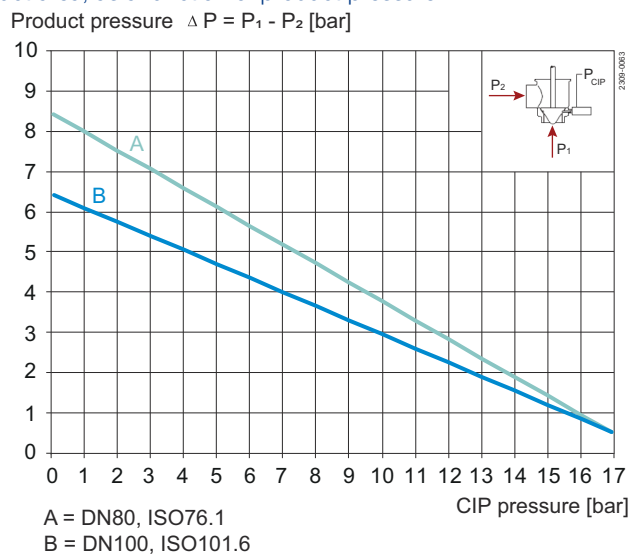


Figure 12. ø89 actuator with strong spring

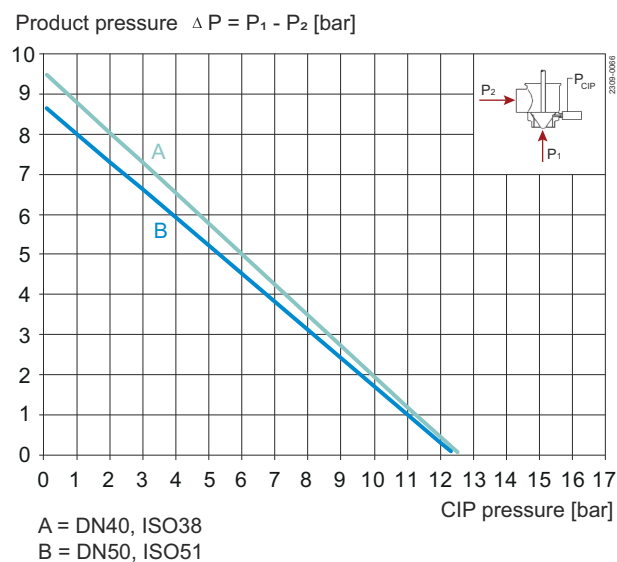


Figure 14. ø133 actuator with strong spring



Note!

If actuator is supported by air on spring side max allowable pressure is 300 kPa (3 bar).

Dimensions (mm)

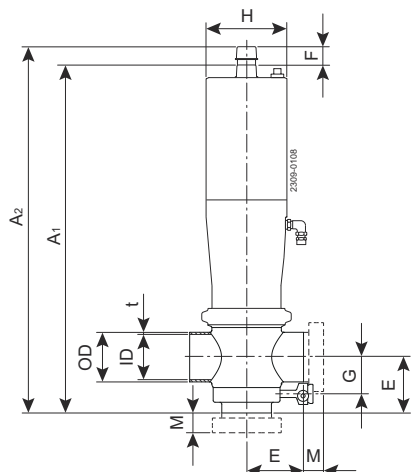


Figure 15. Shut-off valve with one valve body

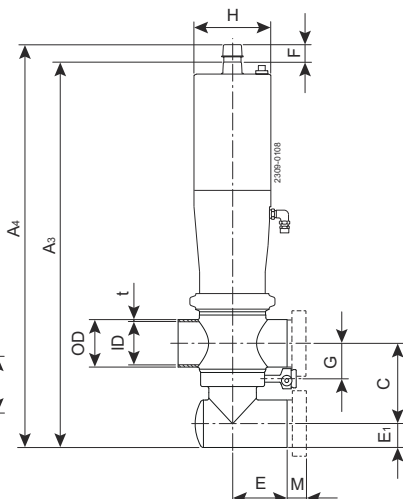


Figure 16. Shut-off valve with two valve bodies

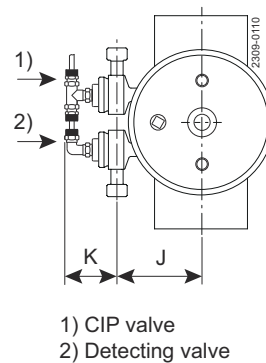


Figure 17. Top view

Size	38	51	63.5	76.1	101.6	40	50	65	80	100	125	150
	mm	mm	mm	mm	mm	DN	DN	DN	DN	DN	DN	DN
A ₁	345	355	433	455	527	343	354	430	456	526	535	584
A ₂	370	380	458	487	559	368	379	455	488	558	580	629
A ₃	413.5	422	508	536	611	413	422	508	547	631		
A ₄	438.5	447	540	568	643	438	447	540	579	663		
C	98	102	124	129	166	98	102	124	134	166		
C ₁	80	84	108	115	150	80	84	108	120.5	150		
OD	38.1	50.8	63.5	76.1	101.6	41	53	70	85	104	129	154
ID	34.9	47.6	60.3	72.1	97.6	38	50	66	81	100	125	150
t	1.6	1.6	1.6	2.0	2.0	1.5	1.5	2.0	2.0	2.0	2.0	2.0
E	49.5	61.5	82.3	87.3	133.5	49.5	61.5	82.3	87.3	133.5	150	150
E ₁	20.5	26.8	33.2	39.1	51.8	22	28	36	43.5	53		
F	25	25	32	32	32	25	25	32	32	32	49	49
G	27	33.3	39.7	45.6	58.3	28.5	34.5	42.5	50	59.5	72	84.5
H	89	89	133	133	133	89	89	133	133	133	199	199
J	46.7	46.7	57	66.6	84.3	46.7	46.7	57	66.6	84.3	99.5	99.5
K	63	63	63	63	63	63	63	63	63	63	58.5	58.5
M/ISO clamp	21	21	21	21	21							
M/ISO male	21	21	21	21	21							
M/DIN male						22	23	25	25	30	46	50
M/SMS male	20	20	24	24	35							
M/BS male	22	22	22	22	27							
Weight (kg)												
Shut-off valve with one valve body	6.0	6.3	12.8	13.3	16.6	6.0	6.3	12.8	14.0	16.6	43.4	44.5
Weight (kg)												
Shut-off valve with two valve bodies	7.1	7.4	14.2	15.9	21.4	7.1	7.4	14.4	17.1	21.6		

Air Connections Compressed air:

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

CIP connection:

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

Leakage connection:

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

Caution, opening/closing time:

Opening/closing time will be affected by the following:

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

Alfa Laval SMP-BCA

Double seal valves

Introduction

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

Application

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

Benefits

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

Working principle

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

Standard design

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



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

TECHNICAL DATA

Temperature	
Temperature range:	-10 °C to 140 °C (EPDM)
Max. sterilization temperature (steam - short time)	150 °C - 380 kPa (3.8 bar)
Pressure	
Pressure range:	0-800 kPa (0-8 bar)
Optimum process conditions:	>50 kPa (0.5 bar), > 20 °C
Air pressure:	500-800 kPa (5-8 bar)

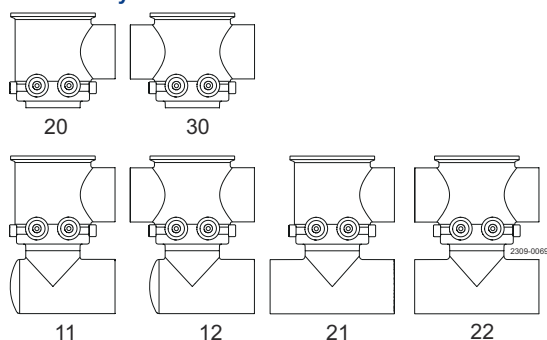


Note! Vacuum is not recommended in aseptic applications.

PHYSICAL DATA

Material	
Product wetted steel parts:	1.4404 (316L)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Ra ≤ 1.6 µm
Optional:	Bright (polished) Ra ≤ 0.8 µm
Other steel parts:	1.4301 (304)
Product wetted seals:	EPDM and PTFE
Optional:	NBR and PTFE, FPM and PTFE
Other seals:	NBR, EPDM

Valve body combination



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

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

Options

- Male parts or clamp ends in accordance with required standard
- Control and Indication: ThinkTop V50 and V70, IndiTop
- Larger actuator for valve sizes 38-51 mm/DN 40-50
- CIP installation kits
- Other valve body combinations
- Service tool for actuator
- Tool for plug seals (Necessary for changing the seals)



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

Air consumption (litres free air)

Size	38 mm, 51 mm/DN40,50 Actuator ø89	63.5, 76.1, 101.6 mm/DN 65, 80, 100 Actuator ø133
Stop valve/Divert valve	0.2 x Air pressure (bar)	0.7 x Air pressure (bar)

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

Size/Type	Stop valve activations	Divert valve activations
38mm/DN40	12.000	10.000
51mm/DN50	12.000	10.000

Size/Type	Stop valve activations	Divert valve activations
63.5mm/DN65	12.000	5.000
76.1mm/DN80	5.000	5.000
101.6mm/DN100	5.000	5.000

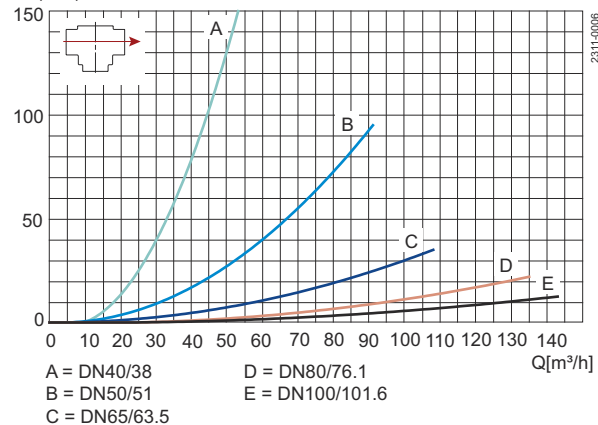


Note! Activating the valve without internal product pressure reduces lifetime of diaphragm unit.

Pressure drop/capacity diagrams

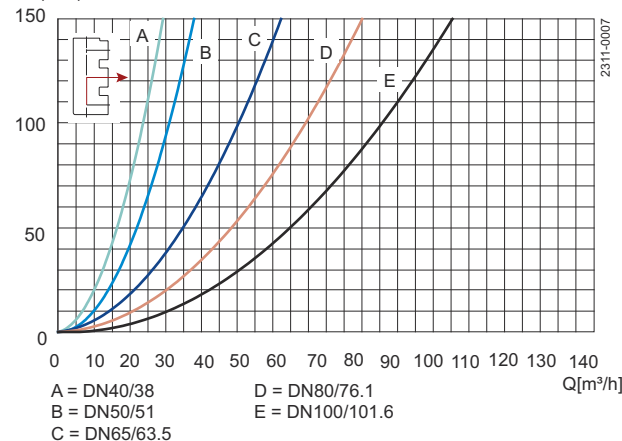
Stop valve:

ΔP (kPa)

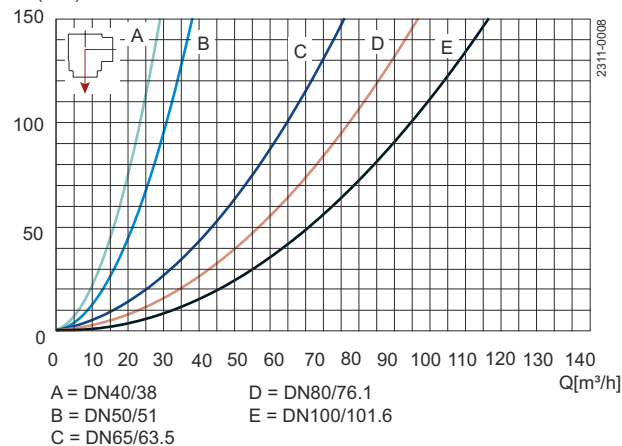


Divert valve (obsolete product):

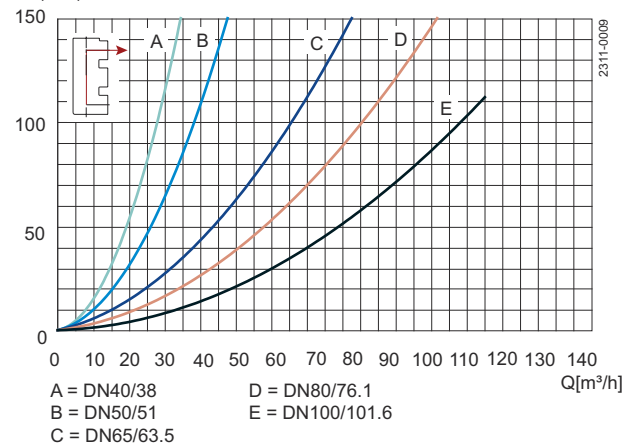
ΔP (kPa)



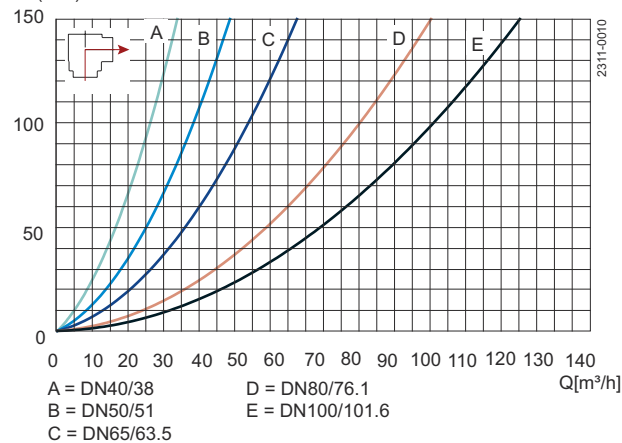
ΔP (kPa)



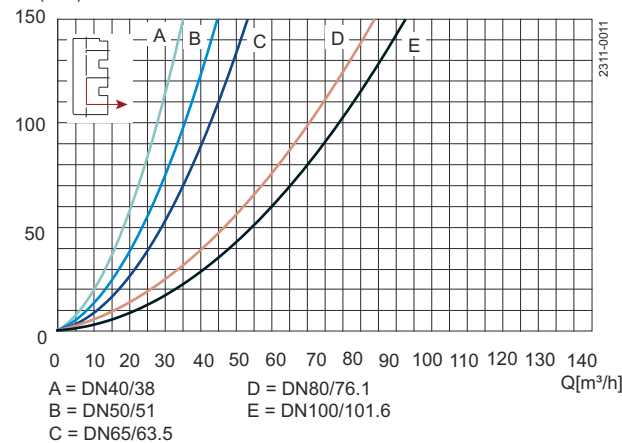
ΔP (kPa)



ΔP (kPa)

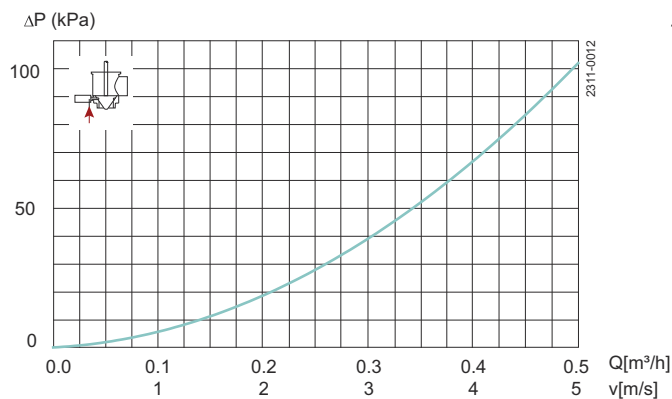


ΔP (kPa)

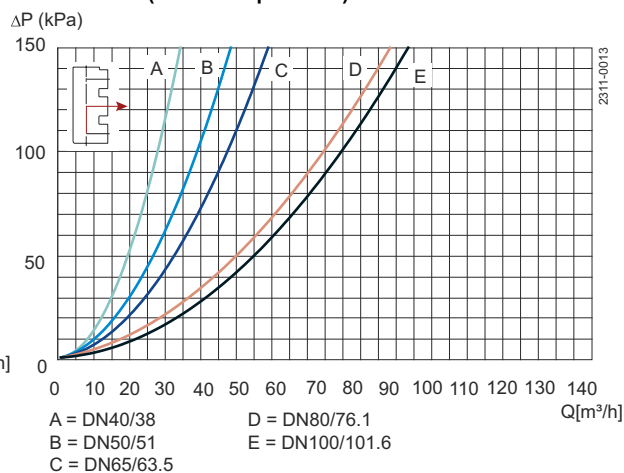


Note! For the diagrams the following applies:
Medium: Water (20°C).
Measurement: In accordance with VDI 2173.

CIP chamber:



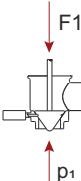
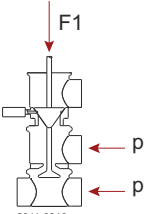
Divert valve (obsolete product):



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

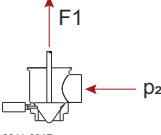
Pressure data for SMP-BCA

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

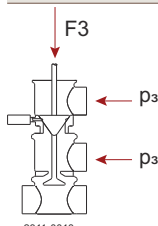
Direction of pressure	Valve size	Actuator size	Spring type	Support air pressure (bar)	
				0	3
	38mm/ DN40	ø89	Normal	6.0	16.0
		ø89	Strong	9.6	19.5
		ø133	Normal	16.0	30.0
		ø133	Strong	22.0	30.0
	51mm/ DN50	ø89	Normal	6.0	16.0
		ø89	Strong	9.6	19.5
		ø133	Normal	16.0	30.0
		ø133	Strong	22.0	30.0
	63.5mm/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

F1 = Spring + support Air

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

Direction of pressure	Valve size	Actuator size	Spring type	Support air pressure (bar)	
				3	4
	38mm/ 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

3. Upper valve. Max. product pressure P3 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

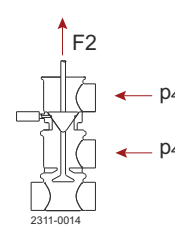
F3 = Spring



Note! If actuator is supported by air on spring side; max allowable pressure is 300 kPa (3 bar)

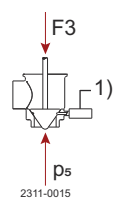
Air reduction valve: Alfa Laval item no. 9611995903 ensuring max 3 bar support air.

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

Direction of pressure	Valve size	Actuator size	Spring size	Air pressure (bar)
				3
 <p>2311-0014</p>	38mm/DN40	ø89	Normal	*
		ø89	Strong	*
		ø133	Normal	8.6
		ø133	Strong	*
	51mm/DN50	ø89	Normal	*
		ø89	Strong	*
		ø133	Normal	8.6
		ø133	Strong	*
	63.5mm/DN65	ø133	Normal	3.4
		ø133	Strong	*
	76.1mm/DN80	ø133	Normal	*
		ø133	Strong	*
	101.6mm/DN100	ø133	Normal	*
		ø133	Strong	*

* = Valve cannot close

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

Direction of pressure	Valve size	Actuator size	Spring size	Product pressure P ₅ below plug (bar)		
				0	2	4
 <p>2311-0015</p>	38mm/DN40	ø89	Normal	9.0	6.3	3.5
		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/DN50	ø89	Normal	9.0	6.3	3.5
		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/DN65	ø133	Normal	10.0	10.0	9.3
		ø133	Strong	10.0	10.0	10.0
	76.1mm/DN80	ø133	Normal	10.0	10.0	8.5
		ø133	Strong	10.0	6.8	2.3
	101.6mm/DN100	ø133	Normal	10.0	6.0	-
		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 (mm)

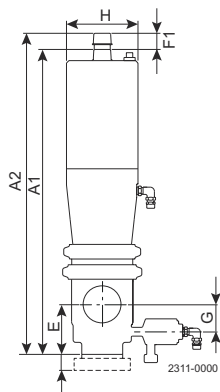


Figure 1. a. Stop valve

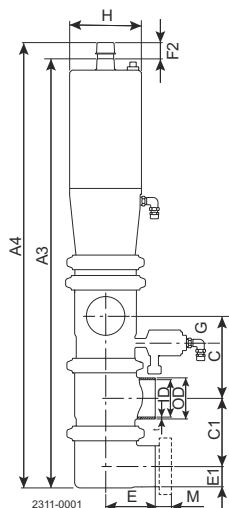
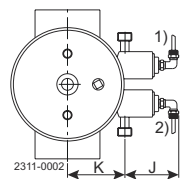


Figure 2. b. Divert valve (obsolete products)



- 1) CIP valve
2) Detecting valve

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

Size	38	51	63.5	76.1	101.6	40	50	65	80	100
	mm	mm	mm	mm	mm	DN	DN	DN	DN	DN
A ₁	371	381	459	481	553	369	379	456	482	552
A ₂	385	395	473	501	573	383	393	470	502	572
A ₃	511	532	642	677	778	511	532	642	693	778
A ₄	525	546	662	697	798	525	546	662	713	798
C	90	102	124	129	157	90	102	124	134	157
C ₁	80	84	108	115	150	80	84	108	120.5	150
OD	38	50.8	63.5	76.1	101.6	41	53	70	85	104
ID	34.9	47.6	60.3	72.1	97.6	38	50	66	81	100
t	1.6	1.6	1.6	2.0	2.0	1.5	1.5	2.0	2.0	2.0
E	49.5	61.5	82.3	87.3	133.5	49.5	61.5	82.3	87.3	133.5
E ₁	20.5	26.8	33.2	39.1	51.8	22	28	36	43.5	53
F ₁	14	14	14	20	20	14	14	14	20	20
F ₂	14	14	20	20	20	14	14	20	20	20
G	27	33.3	39.7	45.6	58.3	28.5	34.5	42.5	50	59.5
H	89	89	89	133	133	89	89	89	133	133
J	46.7	46.7	57	66.6	84.3	46.7	46.7	57	66.6	84.3
K	63	63	63	63	63	63	63	63	63	63
M/ISO clamp	21	21	21	21	21					
M/ISO male	21	21	21	21	21					
M/DIN male					22	23	25	25	30	
M/SMS male		20	20	24	24	35				
M/BS male	22	22	22	22	27					
Weight (kg): Stop valve	6.5	6.8	13.3	14.9	18.2	6.5	6.8	13.3	15.6	18.2
Divert valve	8.2	8.6	15.5	18.6	24.6	8.2	8.6	15.5	19.6	24.6

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:

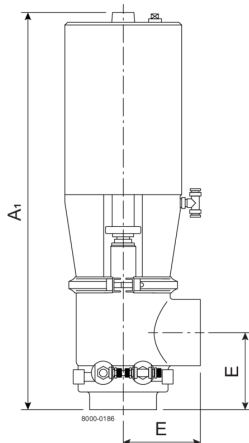
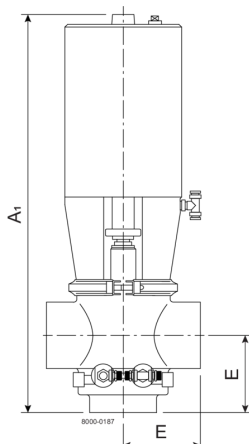
- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure

Double seal valves

SMP-BC

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

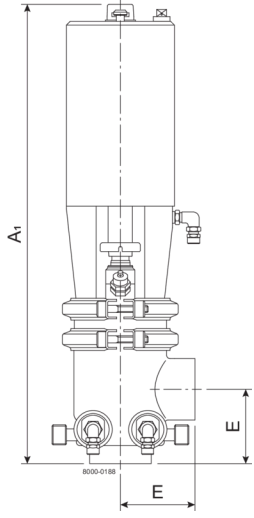
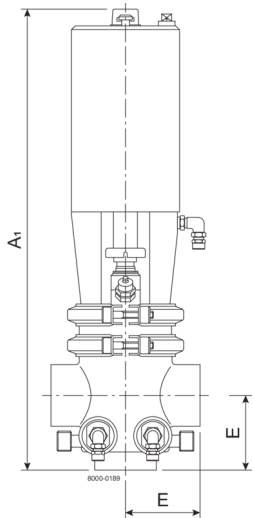
Material: 1.4404 (316L)
 Connection Type: Welding ends
 Seals: EPDM
 Inside surface finish: $Ra \leq 1.6 \mu m$
 Outside surface finish: Blasted
 Actuation: Pneumatic NC

Item no.	Tube standard	Size		Dimension (mm)			
		mm	DN	A1, inch	A1, DIN	E	
Shut-off 20							
9612364806	DIN tube	38.0	40.0	345.00	343.0	49.5	
9612364807	DIN tube	51.0	50.0	355.00	354.0	61.5	
9612364808	DIN tube	63.5	65.0	433.00	430.0	82.3	
9612364809	DIN tube		80.0		456.00	87.3	
9612364810	DIN tube	101.6	100.0	527.00	526.0	133.5	
9612465601	DIN tube		125.0		567.00	150.0	
9612465603	DIN tube		150.0		580.00	150.0	
9612364801	Inch tube	38.0	40.0	345.00	343.0	49.5	
9612364802	Inch tube	51.0	50.0	355.00	354	61.5	
9612364803	Inch tube	63.5	65.0	433.00	430.0	82.3	
9612364804	Inch tube	76.1		455.00		87.3	
9612364805	Inch tube	101.6	100.0	527.00	526.0	133.5	
Shut-off 30							
9612364816	DIN tube	38.0	40.0	345.00	343.0	49.5	
9612364817	DIN tube	51.0	50.0	355.00	354.0	61.5	
9612364818	DIN tube	63.5	65.0	433.00	430.0	82.3	
9612364819	DIN tube		80.0		456.00	87.3	
9612364820	DIN tube	101.6	100.0	553.00	553.0	133.5	
9612465602	DIN tube		125.0		567.00	150.0	
9612465604	DIN tube		150.0		580.00	150.0	
9612364811	Inch tube	38.0	40.0	345.00	343.0	49.5	
9612364815	Inch tube	101.6	100.0	527.00	526.0	133.5	

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

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

Material: 1.4404 (316L)
 Connection Type: Welding ends
 Seals: EPDM
 Inside surface finish: $Ra \leq 1.6 \mu m$
 Outside surface finish: Blasted
 Actuation: Pneumatic NC

Item no.	Tube standard	Size		Dimension (mm)			
		mm	DN	A1, inch	A1, DIN	E	
Shut-off 20							
9612502507	DIN tube	51.0	50.0	381.00	381.0	61.5	
9612502508	DIN tube	63.5	65.0			82.3	
9612502509	DIN tube		80.0		482.00	87.3	
9612502510	DIN tube	101.6	100.0	563.00	563.0	133.5	
9612502501	Inch tube	38.0	40.0	371.00	371.0	49.5	
9612502502	Inch tube	51.0	50.0	381.00	381.0	61.5	
9612502503	Inch tube	63.5	65.0	459.00	459.0	82.3	
9612502504	Inch tube	76.1		481.00		87.3	
Shut-off 30							
9612502516	DIN tube	38.0	40.0	371.00	371.0	49.5	
9612502517	DIN tube	51.0	50.0	381.00	381.0	61.5	
9612502518	DIN tube	63.5	65.0	459.00	459.0	82.3	
9612502519	DIN tube		80.0		482.00	87.3	
9612502520	DIN tube	101.6	100.0	527.00	526.0	133.5	
9612502511	Inch tube	38.0	40.0	371.00	371.0	49.5	
9612502512	Inch tube	51.0	50.0	381.00	381.0	61.5	
9612502513	Inch tube	63.5	65.0	459.00	459.0	82.3	
9612502514	Inch tube	76.1		481.00		87.3	
9612502515	Inch tube	101.6	100.0	553.00	553.0	133.5	

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

Double seat valves

Product leaflet

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Alfa Laval Aseptic Mixproof

Double seat valves

Introduction

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

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

Application

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

Benefits

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

Standard design

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

Working principle

The Alfa Laval Aseptic Mixproof Valve is comprised of a series of base components, including valve body, valve plug/



diaphragm, actuator, and cleaning options and accessories that support a wide range of aseptic applications. Composed of a PTFE face and reinforced EPDM backing, the diaphragm creates a hermetic seal to ensure aseptic processing conditions. Leakage detection holes enable visual inspection without requiring valve disassembly and provide advanced notification of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs.

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

The product lines are separated by two individual plugs (two normally closed valves) and a sterile leakage chamber that acts as a barrier to prevent product mixing and to provide immediate indication of any leakage from either of the two plug seals.


Two small leakage detection valves (NO/NO or NC/NO) control the flow of steam into and out of the leakage chamber; these must be kept clean and sterile when the main valves are

closed. As an option, one of the two leakage detection valves can be supplied as a changeover valve to maintain the flow of steam, ensuring a continuous steam barrier in both leakage detection valves during the main actuation of the product valves.

A changeover valve may be used to control the steam flow in order to bypass the leakage chamber. On the steam-forward

line, you can add an additional aseptic SSV valve to build up a condensate reservoir in order to flush the leakage chamber after main activation.

Certificates

 Authorized to carry the 3A symbol

TECHNICAL DATA

Temperature	
Temperature range:	-10 °C to +140 °C (EPDM)
Max. sterilization temperature (<1 min):	150 °C/380 kPa (3.8 bar)
Pressure	
Pressure range:	0-800 kPa (0-8 bar)
Air pressure:	500-700 kPa (5-7 bar)
Pressure range, support air:	0-300 kPa / 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 < 0.8 µm
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:	51 mm; 63.5 mm; 76.1 mm

Shut fully closed. Max. static pressure without leakage

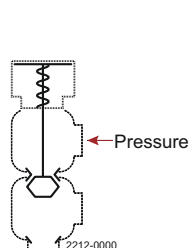


Figure 1. 1

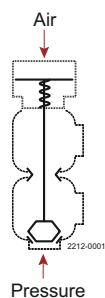


Figure 2. 2

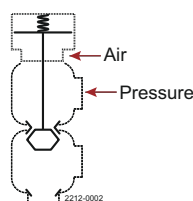


Figure 3. 3

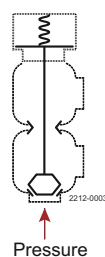


Figure 4. 4

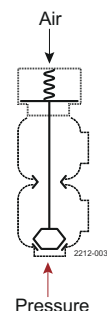
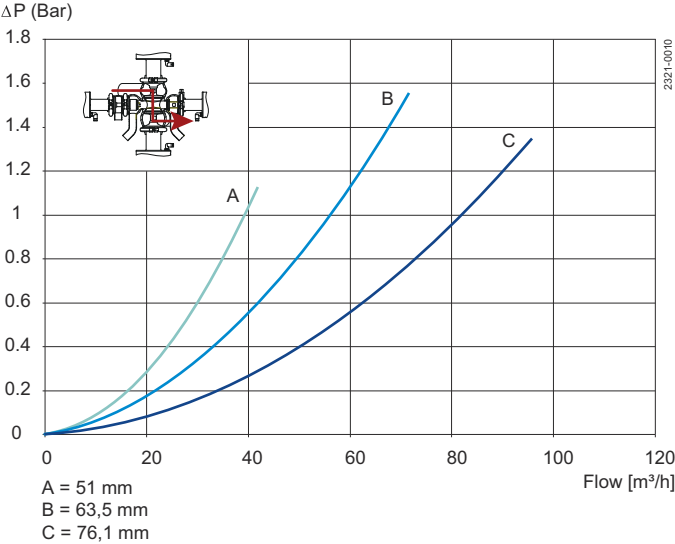


Figure 5. 5

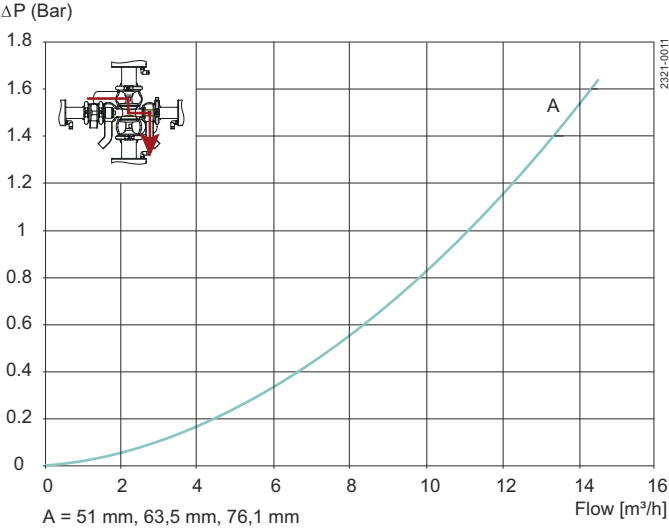
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size			
			Main valve			Leakage detection valve
			51 mm	63.5 mm	76.1 mm	
Figure 1. 1		NO				8 bar
Figure 2. 2	6	NO				8 bar
Figure 3. 3	6	NC				8 bar
Figure 4. 4		NC	7.5 bar	4.5 bar	7 bar	8 bar
Figure 5. 5 ¹	3	NC	8 bar	8 bar	8 bar	

¹ support air


Pressure drop/capacity diagrams

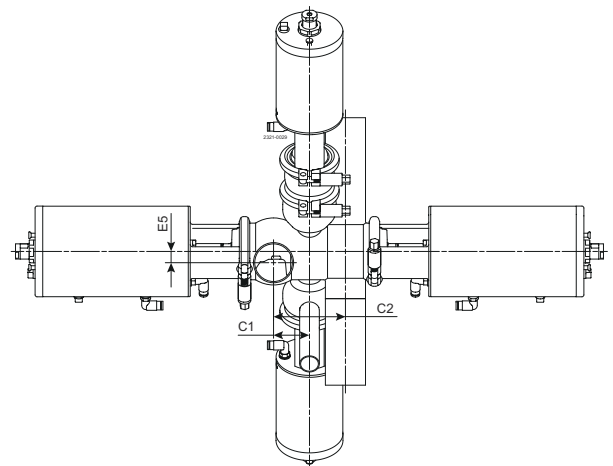
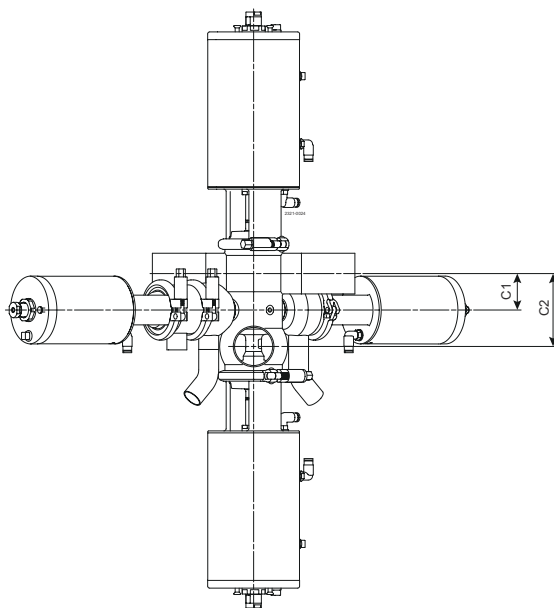
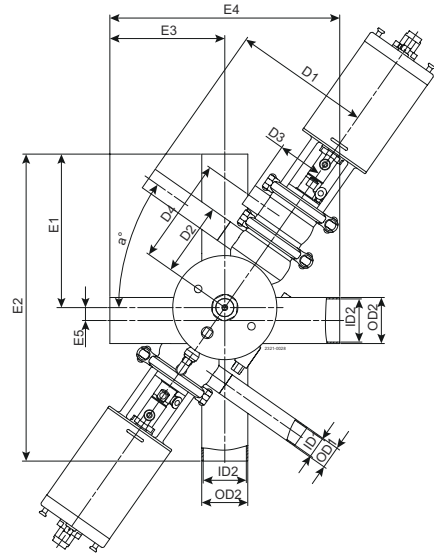
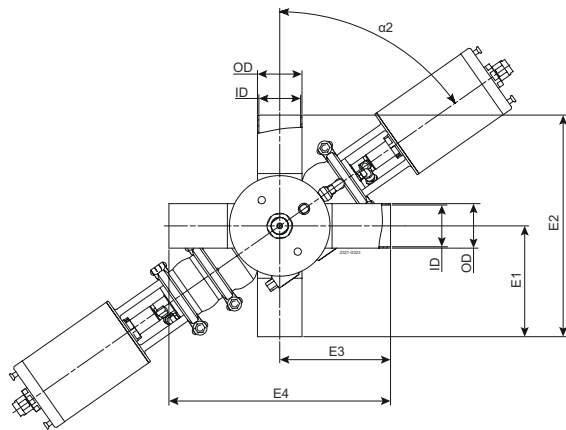
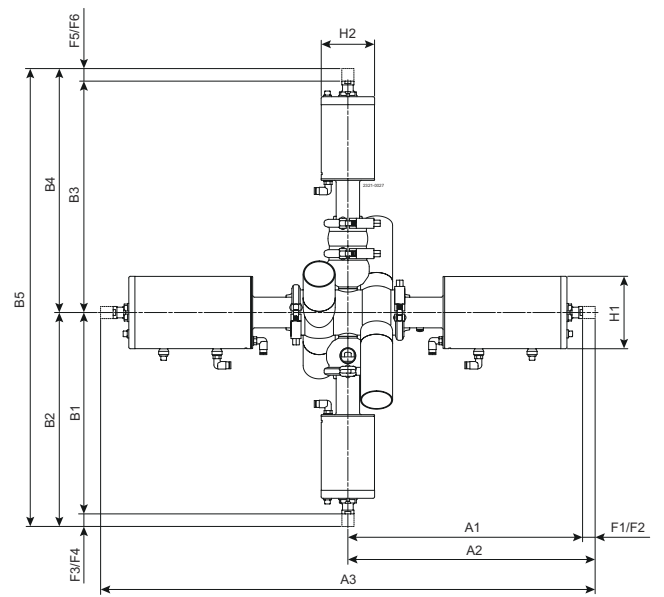
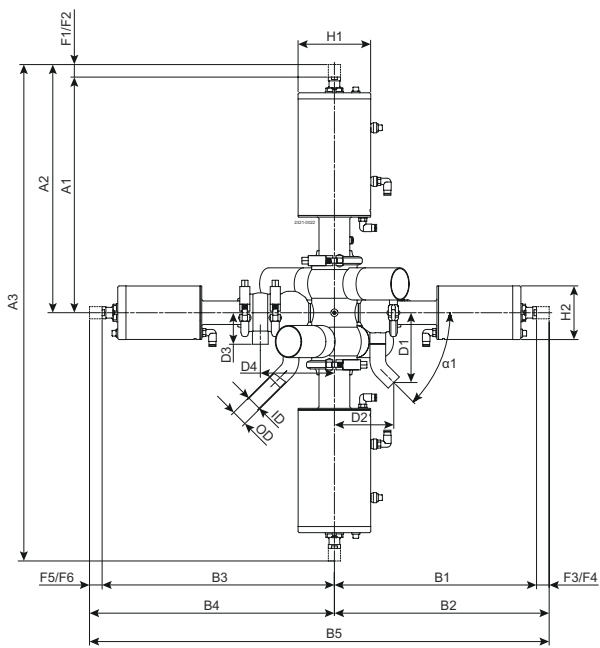


Seat lift	
Kv-Value	
51 mm	3.1 m³/hr
63.5 mm	3.6 m³/hr
76.1 mm	4.1 m³/hr



Dimensions (mm)

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



Vertical mount

Horizontal mount

Size	51 mm	63.5 mm	76.1 mm	51 mm	63.5 mm	76.1 mm
	Vertical mount			Horizontal mount		
A1	374	386	440	374	386	440
A2	388	400	457	388	400	457
A3	776	801	914	776	801	914
B1	335	343	350	335	343	350
B2	350	358	366	350	358	366
B3	381	389	396	381	389	396
B4	391	399	407	391	399	407
B5	741	757	772	741	757	772
C1	45.7	52.0	58.3	45.7	52.0	58.3
C2	91.4	103.9	116.5	91.4	103.9	116.5
D1	110.7	110.7	110.7	172.5	172.5	172.5
D2	94.2	102.2	109.7	68.8	76.8	84.3
D3	50	50	50	50	50	50
D4	117.5	125.5	133.0	117.5	125.5	133.0
E1	127	133	139	170.0	216.0	226.0
E2	254	266	278	340.0	432.0	452.0
E3	127	133	139	127	133	139
E4	254	266	278	254	266	278
E5	-	-	-	14.4	18	21.6
α1	45°	45°	45°	-	-	-
α2	55°	55°	55°	55°	55°	55°
F1	14	14	17	14	14	17
F2	2	2	2	2	2	2
F3	10	10	10	10	10	10
F4	15	15	15	15	15	15
F5	8	8	8	8	8	8
F6	12	12	12	12	12	12
H1	115	115	157.5	115	115	157.5
H2	85	85	85	85	85	85
t1	1.2	1.2	1.2	1.2	1.2	1.2
t2	1.6	1.6	1.6	1.6	1.6	1.6
ID1	22.6	22.6	22.6	22.6	22.6	22.6
ID2	47.8	60.3	72.9	47.8	60.3	72.9
OD1	25	25	25	25	25	25
OD2	51	63.5	76.1	51	63.5	76.1
Weight (kg) (max)	29	30	45	29	30	45

Alfa Laval Valve Manifold

Double seat valves

Introduction

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

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

Application

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

Benefits

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

General Information

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

Standard design

- Welding procedures according to EN 288-3
- Orbital welding used to the extent possible
- All external pipe ends or connections as requested
- All external pipe ends have welding ends. TriClamp optional
- Product wetted parts: AISI 316L
- Internal and external acid treatment and external blasting, after the welding
- External surface roughness (approximately $R_a < 1.6$ micron)
- Standard adjustable feet +/- 30 mm



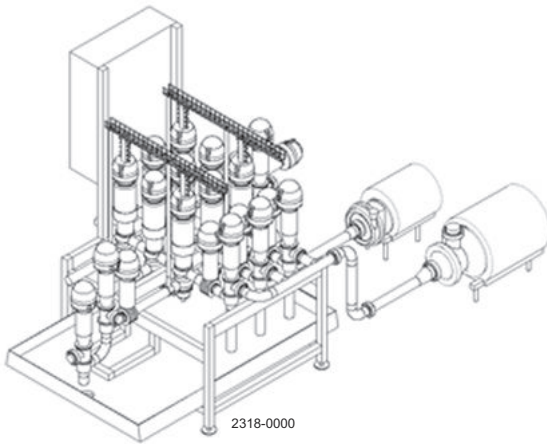
- Valves welded directly together to minimize footprint and dead space
- Maintenance catwalk for easy service access
- Frame supplied with #4 finish and drip pans
- The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve

TECHNICAL DATA

According to customer specification.

Options

- Connections welded on to the external pipe ends
- Polished surface
- Cat walk for service access
- Internal air distribution
- Internal wiring and junction box
- PLC equipment /master gateway etc
- Special frame design etc
- Dummy bodies for future expansion



Dimensions (mm)

According to customer specification.

Alfa Laval Unique Mixproof

Double seat valves

Introduction

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

Application

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

Benefits

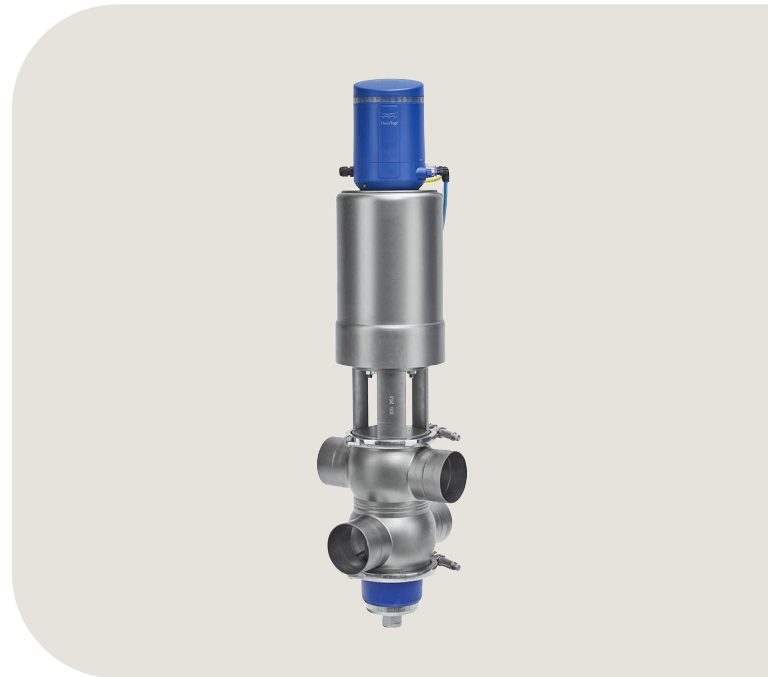
- Enhanced product safety
- Cost-effective, spillage-free operation
- Optimized plant efficiency and enhanced cleanability
- Leakage detection and leakage chamber cleaning
- Fully configurable to fit your exact needs

Standard design

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

Working principle

The Alfa Laval Unique Mixproof Valve is a normally closed (NC) valve controlled from a remote location by means of compressed air. The valve has two independent plugs and seals to separate the liquids; the space between the seals forms a leakage chamber at atmospheric pressure during



every working condition. Leakage rarely occurs but, should it occur, product flows into the leakage chamber and exits through the bottom outlet for easy detection.

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

TECHNICAL DATA

Pressure

Max. product pressure:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	Max. 800 kPa (8 bar)

Temperature

Temperature range:	-5°C to +125°C
--------------------	----------------

ATEX

Classification:	II 2 G D ¹
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Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

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

PHYSICAL DATA

Materials

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

Surface finish choose from the following:

Internal/external semi-bright	Ra< 1.6µm
Internal Bright (polished)	Ra< 0.8µm
Internal/external Bright (polished)	Ra< 0.8µm



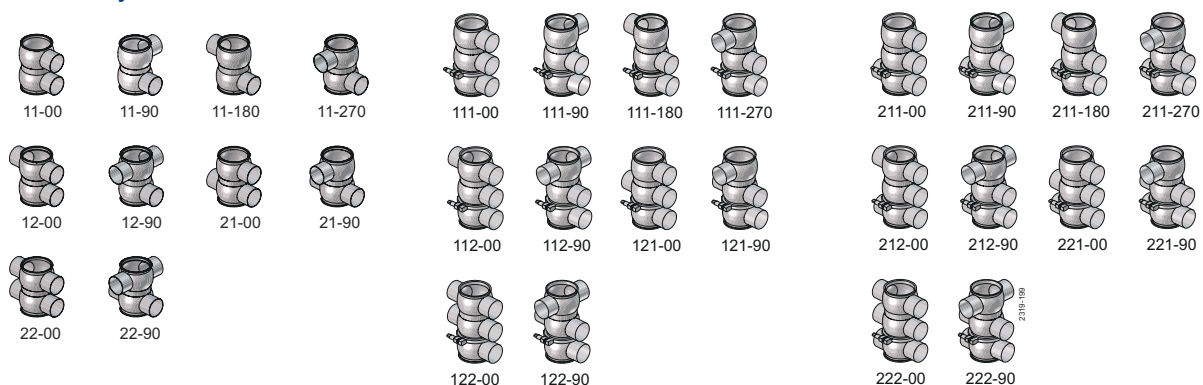
Note! The Ra values are only for the internal surface.

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

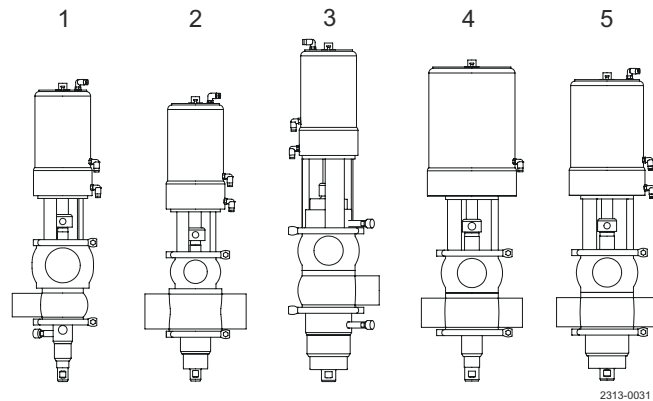
SpiralClean

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.

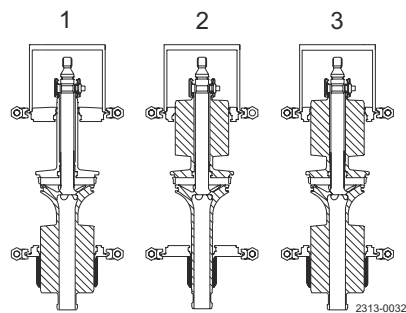
Size flexibility



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

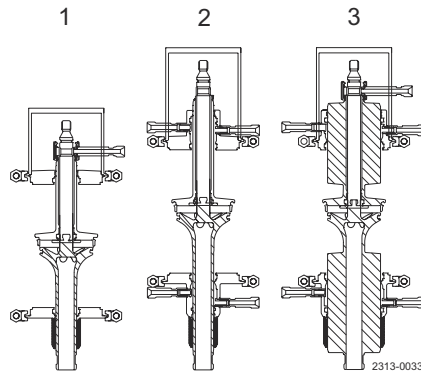
1. ISO 51 (2")/ISO 76.1 (3"), 11-90, with spiral clean on lower unbalanced plug, group 3 basic actuator incl. seat lift and seat push
2. ISO 76.1(3")/ISO 51 (2"), 22-90, with lower balanced plug, basic actuator incl. seat lift and seat push
3. ISO 63.5 (2½"), 12-90, with SpiralClean of upper, lower spindle 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:	DN/OD 51mm. Balanced upper plug. Capacity = 20 m ³ /h
Lower body size:	DN/OD 76.1mm. Balanced lower plug. Capacity = 20 m ³ /h
Between bodies:	Capacity = 15 m ³ /h

Result:

From fig. 1, $\Delta p = 7.5$ kPa through upper body.

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

From fig. 3, $\Delta p = 14$ kPa seeing that:

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

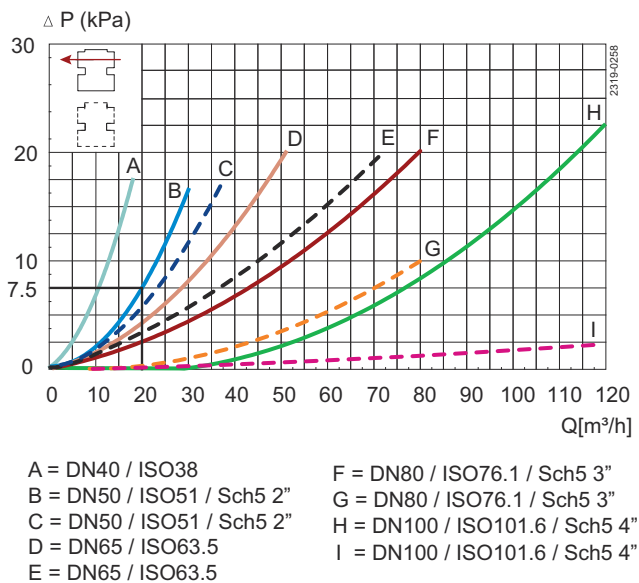


Figure 1. Pressure drop/capacity diagram, upper body.

Full lines: Balanced upper plug.

Dotted lines: Unbalanced upper plug.

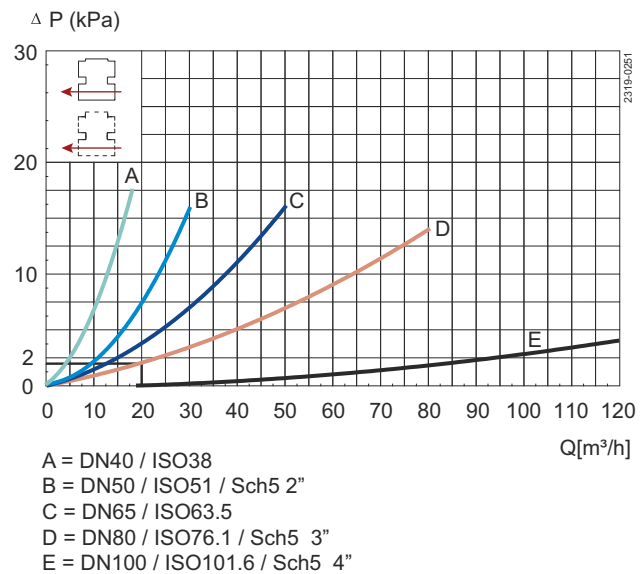


Figure 2. Pressure drop/capacity diagram, lower body, balanced and unbalanced lower plugs.

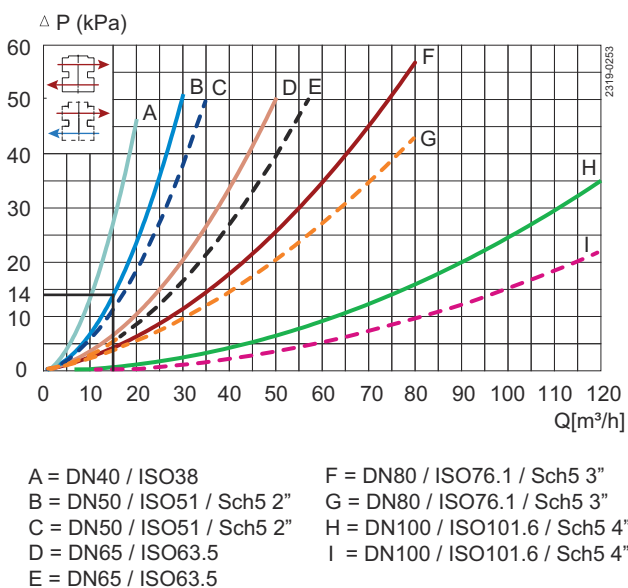


Figure 3. Pressure drop/capacity diagram, between bodies.

Full lines: Balanced.

Dotted lines: Unbalanced.

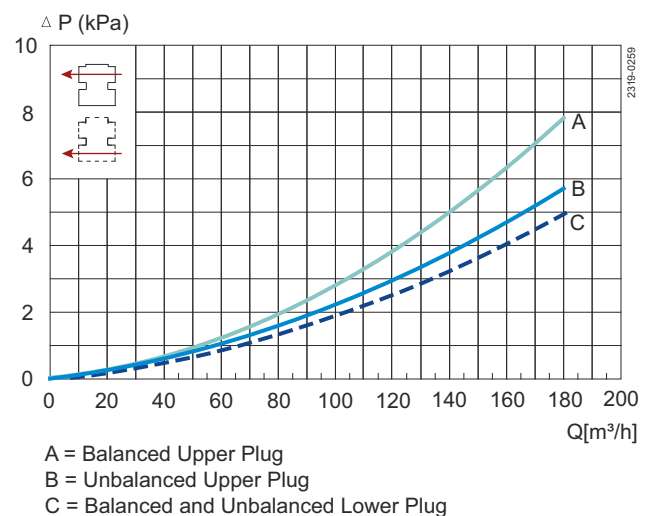


Figure 4. Pressure drop/capacity diagram, through bodies DN 125, DN 150

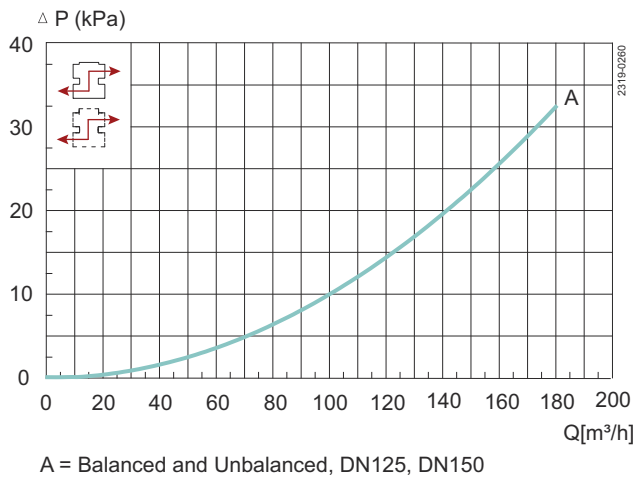


Figure 5. Pressure drop/capacity diagram between bodies

Pressure drop/capacity diagrams for 3 body valve

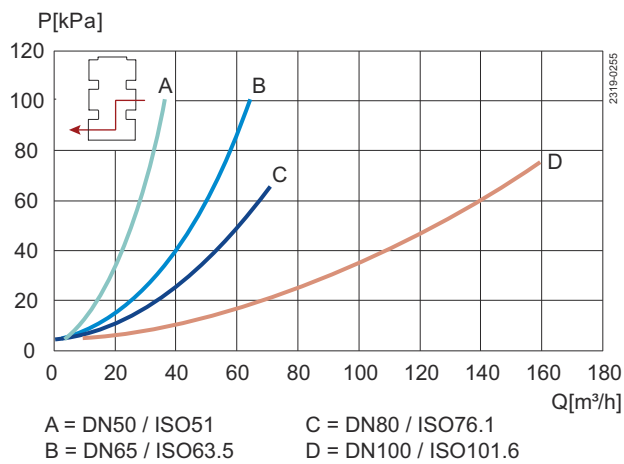


Figure 6. Between middle and lower body

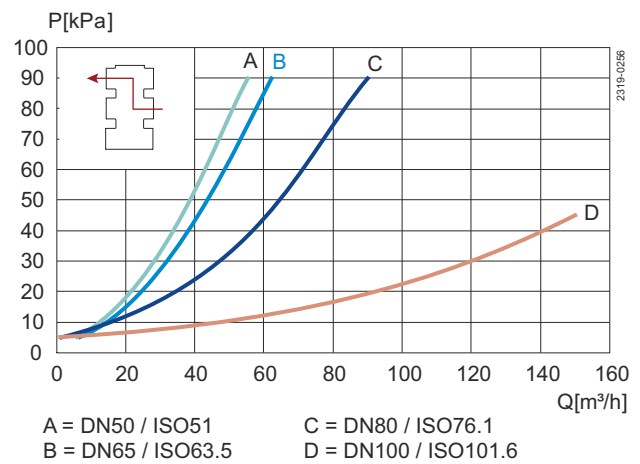


Figure 7. Between middle and upper body

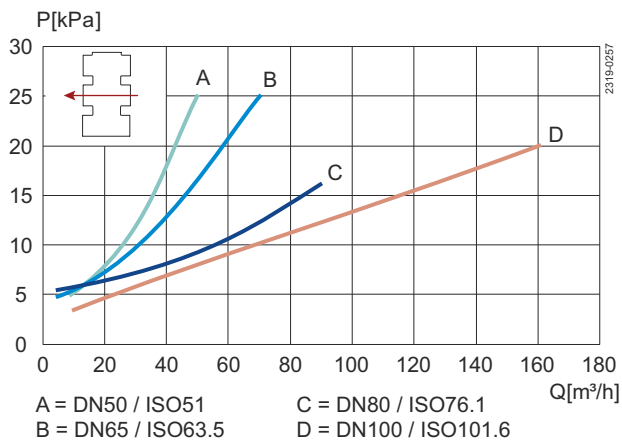


Figure 8. Middle body



Note! For the diagrams the following applies:

- Medium: Water (20°C).
- Measurement: In accordance with VDI 2173.

Air and CIP consumption

Size	DN/OD					DN						
ISO/DIN	38	51	63.5	76.1	101.6	40	50	65	80	100	125	150
Kv-value												
Upper Seat-lift [m³/h]	1.5	1.5	2.5	2.5	3.1	1.5	1.5	2.5	2.5	3.1	3.7	3.7
Lower Seat-lift [m³/h]	0.9	0.9	1.9	1.9	2.5	0.9	0.9	1.9	1.9	2.5	3.1	3.1
Air consumption												
Upper Seat-lift ¹ [n litre]	0.2	0.2	0.4	0.4	0.62	0.2	0.2	0.4	0.4	0.62	0.62	0.62
Lower Seat-lift ¹ [n litre]	1.1	1.1	0.13	0.13	0.21	1.1	1.1	0.13	0.13	0.21	0.21	0.21
Main Movement ¹ [n litre]	0.86	0.86	1.63	1.63	2.79	0.86	0.86	1.62	1.62	2.79	2.79	2.79
Kv-value - SpiralClean												
Spindle CIP [m³/h]	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
External CIP of leakage chamber [m³/h]	0.25	0.25	0.29	0.29	0.29	0.25	0.25	0.29	0.29	0.29	0.29	0.29



Note! Recommended min. pressure for SpiralClean: 2 bar.

¹ [n litre] = volume at atmospheric pressure

TD900074-1

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 Operating pressure for SeatClean, High Clean and Ultra Clean at 6 bar air pressure					STD/STD* Operating pressure for Basic at 6 bar air pressure	
Actuator Type	3	4BS ¹	4SS ²	5BS ¹	5SS ²			
Actuator dimensions øD x L	120 x 230	157 x 252	186 x 281	186 x 281	186 x 379			
Connection Size								
ISO (DN/OD)	DIN (DN)							
38	40	STD ³	OP ⁴			1000 kPa		600 kPa
51	50	STD ³	OP ⁴	OP ⁴		1000 kPa		600 kPa
63.5	65	OP ⁴	STD ³	STD* ⁵	OP ⁴	OP ⁴	1000 kPa	600 kPa
76.1	80	OP ⁴	STD ³	STD* ⁵	OP ⁴	OP ⁴	1000 kPa	600 kPa
101.6	100		OP ⁴	OP ⁴	STD ³	STD* ⁵	1000 kPa	600 kPa
	125		OP ⁴	OP ⁴	STD ³	STD* ⁵	800 kPa	600 kPa

¹ BS = Basic spring

² SS = Strong spring

³ STD: Normal size of actuator

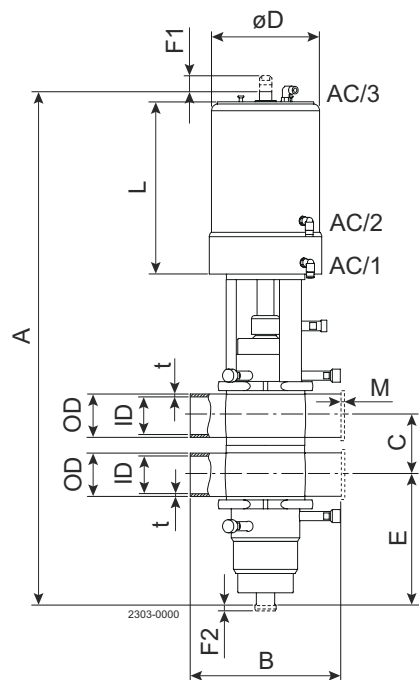
⁴ OP: Alternative size of actuator (NB: For choice and performance of optional actuators please contact Alfa Laval or refer to the Anytime Configurator).

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

Radial Seat Diameter

ISO (DN/OD)	DIN (DN)	Seat
38	40	ø53.3
51	50	ø53.3
63.5	65	ø81.3
76.1	80	ø81.3
101.6	100	ø100.3
	125	ø115.3
	150	ø115.3

Dimensions (mm)



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	DN/OD					DN						
ISO/DIN	38	51	63.5	76.1	101.6	40	50	65	80	100	125	150
A - BasicClean ¹	530	575	699	699	899	530	575	699	699	899	993	993
A - SeatClean ¹	530	575	670	670	791	530	575	670	670	791	895	895
A - HighClean + UltraClean ¹	611	656	760	760	922	611	656	760	760	922	1026	1026
B	170	220	220	220	300	170	220	220	220	300	300	300
C ²	60.8	73.8	86.3	98.9	123.6	64	76	92	107	126	151	176
OD	38	51	63.5	76.1	101.6	41	53	70	85	104	129	154
ID	34.8	47.8	60.3	72.9	97.6	38	50	66	81	100	125	150
t	1.6	1.6	1.6	1.6	2.0	1.5	1.5	2.0	2.0	2.0	2.0	2.0
E - Basic/SeatClean	100	121	149	142	177	99	119	146	138	176	215	202.5
E - HighClean/UltraClean	144	165	200	193	248	143	163	197	189	247	286	273.5
F1	31.5	31.5	38	38	59	31.5	31.5	38	38	59	59	59
F2	5	5	5	5	5	5	5	5	5	5	5	5
øD - Basic	120	120	186	186	186	120	120	186	186	186	186	186
øD - SeatClean, HighClean and UltraClean	120	120	157	157	186	120	120	157	157	186	186	186
L - Basic	230	230	281	281	379	230	230	281	281	379	379	379
L - SeatClean, HighClean and UltraClean	230	230	252	252	281	230	230	252	252	281	281	281
M/ISO clamp	21	21	21	21	21							
M/DIN clamp						21	21	21	21	21	28	28
M/ISO male	21	21	21	21	21							
M/DIN male						22	23	25	25	30	46	50
M/SMS male	20	20	24	24	35							
M/BS male	22	22	22	22	27							
Weight (kg) - Basic	13.5	15	24	24	34	13.5	15	24	24	34	44	45
Weight (kg) - SeatClean	13.5	15	24	24	34	13.5	15	24	24	34	47	48
Weight (kg) - High-/UltraClean	14.5	16	27	27	38	14.5	16	27	27	38	51	52

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

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

Dimension for 3-body version

Group	3	4	4	5	3	4	4	5
Size	DN/OD	DN/OD	DN/OD	DN/OD	DN	DN	DN	DN
ISO-DIN	51	63.5	76.1	101.6	50	65	80	100
A - without Spiral Clean	615.6	714.65	728.45	877.2	615.6	714.7	744.7	877.3
A - with Spiral Clean	696.1	804.65	818.45	1008.2	696.1	804.7	834.7	1008.3
A - Flushed	611.2	706.75	726.25	872.7	615.6	714.7	744.7	877.3
B	220	220	220	300	220	220	220	300
**C	73.8	86.3	98.9	123.6	76	92	107	126
OD	51	63.5	76.1	101.6	53	70	85	104
ID	47.8	60.3	72.9	97.6	50	66	81	100
t	1.6	1.6	1.6	2	1.5	2	2	2
E - without Spiral Clean	86.7	107.5	102.4	139.5	83.4	99.0	106.5	136.0
E - with Spiral Clean	130.2	158.0	152.9	210.5	126.9	149.5	157.0	207.0
E - Flushed	82.3	99.6	100.2	135.0	83.4	99.0	106.5	136.0
F1	31.5	38	38	59	31.5	38	38	59
F2	5	5	5	5	5	5	5	5
øD	120	157	157	186	120	157	157	186
L	230	252	252	281	230	252	252	281
M/ISO clamp	21	21	21	21				
M/DIN clamp					21	21	21	21
M/ISO male	21	21	21	21				
M/DIN male					23	25	25	30
M/SMS male	20	24	24	35				
M/BS male	22	22	22	27				

Alfa Laval Unique Mixproof UltraPure

Double seat valves

Introduction

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

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

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

Application

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

Benefits

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

Standard design

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



Working principle

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

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

Certificates



TECHNICAL DATA

Pressure

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

Temperature

Temperature range:	-5°C to +125°C (depending on elastomer)
Steaming in Place (SIP):	140°C - 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:	600 to 800 kPa (6-8 bar)
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ATEX

Classification:	II 2 G D ¹
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Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

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

PHYSICAL DATA

Materials

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

Surface finish choose from the following:

Internal:	Ra < 0.8 μm
Optional:	Ra 0.5 or Ra 0.4 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

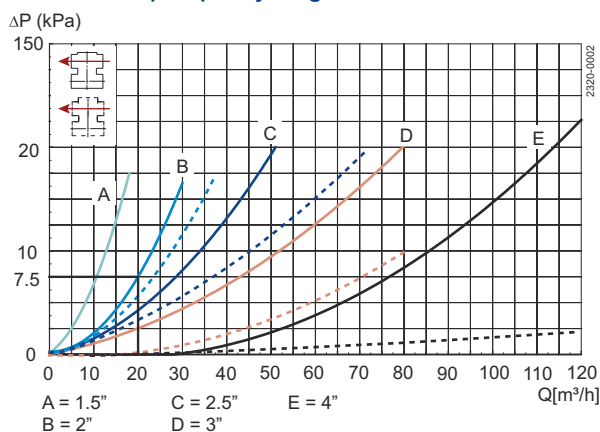


Figure 1. Pressure drop/capacity diagram, upper body.

Full lines: Balanced upper plug.

Dotted lines: Unbalanced upper plug.

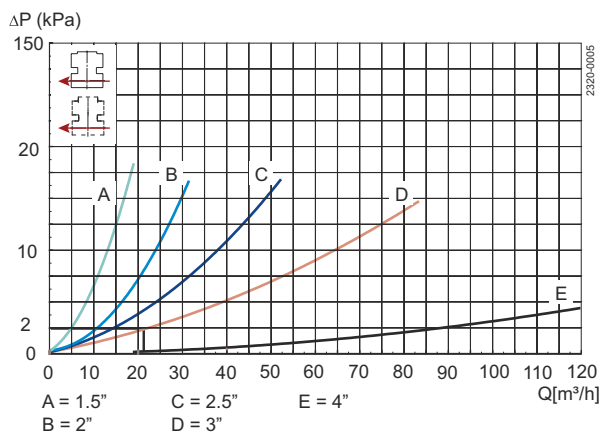


Figure 2. Pressure drop/capacity diagram, lower body, balanced

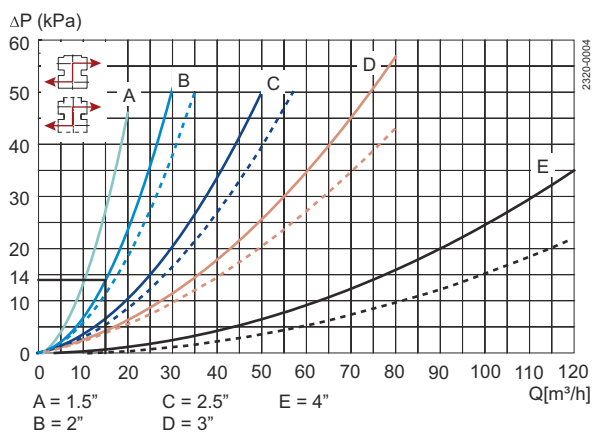


Figure 3. Pressure drop/capacity diagram, between bodies.

Full lines: Balanced.

Dotted lines: Unbalanced.



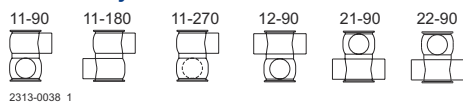
Note!

For the diagrams the following applies:

Medium: Water. (20°C)

Measurement: In accordance with VDI 2173.

Valve body combinations



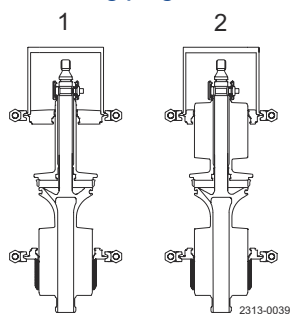
Valve body combinations, example: type 11-90

1 Number of ports - lower valve body

1 Number of ports - upper valve body

90° Angle between ports

Balancing plugs:



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

Options

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

Documentation

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

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

The following documentation is available upon request:

- Surface finish certificate (RA test results)
- ATEX

Air and CIP consumption

ASME BPE	1½"	2"	2½"	3"	4"
Kv-value					
Upper Seat-lift [m ³ /h]	1.5	1.5	2.5	2.5	3.1
Lower Seat-lift [m ³ /h]	0.9	0.9	1.9	1.9	2.5
Air consumption					
Upper Seat-lift ¹ [n litre]	0.2	0.2	0.4	0.4	0.62
Lower Seat-lift ¹ [n litre]	1.1	1.1	0.13	0.13	0.21
Main Movement ¹ [n litre]	0.86	0.86	1.63	1.63	2.79

¹ [n litre] = volume at atmospheric pressure. Formula to estimate CIP flow during seat lift: (for liquids with comparable viscosity and density to water): $Q = K_v \cdot \sqrt{\Delta p} Q = CIP - flow (m^3/h) K_v = K_v$ value from the above table $p = CIP pressure (bar)$

TD900074-1

Actuator

	STD Operating pressure at 6 bar air pressure				
Actuator Type	3	4BS ¹	4SS ²	5BS ¹	5SS ²
Actuator dimensions øD x L	120 x 230	157 x 252	186 x 281	186 x 281	186 x 379
Connection Size					
ASME BPE					
1½"	STD ³	OP ⁴			1000 kPa
2"	STD ³	OP ⁴	OP ⁴		1000 kPa

¹ BS = Basic spring

² SS = Strong spring

³ STD: Normal size of actuator

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

						STD Operating pressure at 6 bar air pressure
2½"	OP ⁴	STD ³	OP ⁴	OP ⁴	OP ⁴	1000 kPa
3"	OP ⁴	STD ³	OP ⁴	OP ⁴	OP ⁴	1000 kPa
4"		OP ⁴	OP ⁴	STD ³	OP ⁴	1000 kPa

¹ BS = Basic spring

² SS = Strong spring

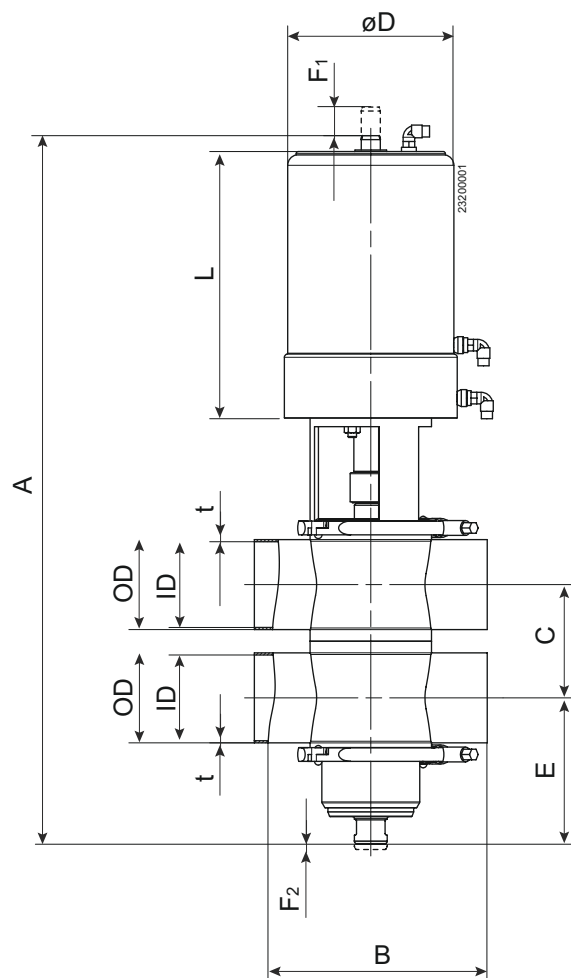
³ STD: Normal size of actuator

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

Radial Seat Diameter

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

Dimensions (mm)



Size ASME BPE	DN/OD		1½"		2"		2½"		3"		4"	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
A -	530	20.87	575	22.64	670	26.38	670	26.38	791	31.14		
B	170	6.69	220	8.66	220	8.66	220	8.66	300	11.81		
C ¹	60.8	2.39	73.5	2.89	86.2	3.39	98.9	3.89	123.4	4.86		
OD	38.1	1.5	50.8	2	63.5	2.5	76.2	3	101.6	4.00		
ID	34.8	1.37	47.5	1.87	60.2	2.37	72.9	2.87	97.4	3.83		
T	1.65	0.06	1.65	0.06	1.65	0.06	1.65	0.06	2.11	0.08		
E	100	3.94	121	4.76	149	5.87	142	5.59	177	6.97		
F1	31.5	1.24	31.5	1.24	38	1.5	38	1.5	59	2.32		
F2	5	0.2	5	0.2	5	0.2	5	0.2	5	0.20		

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

Size ASME BPE	DN/OD									
	1½"		2"		2½"		3"		4"	
	mm	in	mm	in	mm	in	mm	in	mm	in
øD -	120	4.72	120	4.72	157	6.18	157	6.18	186	7.32
L -	230	9.06	230	9.06	252	9.92	252	9.92	281	11.06
Weight (kg) (lb) -	13.5	29.76	15	33.07	24	52.91	24	52.91	34	74.96

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

TD900074-1

Alfa Laval Unique Mixproof Large Particle Valve (Unique LP)

Double seat valves

Introduction

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

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

Application

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

Benefits

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

Standard design

The Alfa Laval Unique Mixproof LP Valve is comprised of a series of base components, including valve body, valve plug and actuator. There are two sizes: 4" and 6". The standard 6" valve comes equipped with balanced lower plug to protect against the effects of pressure peaks and water hammering. To accommodate 1¾" (45 mm) particles, the 4" valve is not equipped with a balanced lower plug but comes with a boost actuator to accommodate a product pressure of up to 10 bar.

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

Temperature

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

Classification:	II 2 G D ¹
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Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

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

PHYSICAL DATA

Materials

Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish	Semi-bright (blasted)
Internal surface finish	Bright (polished), Ra < 0.8 µm
Product wetted parts:	EPDM

Other seals:

CIP seals:	EPDM
Actuator seals:	NBR
Guide strips	PTFE

Availability

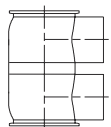
This LP edition of the Unique Mixproof valve is a high-end valve with regards to process security as well as from a hygienic point of view. The Unique Mixproof LP valve is available in 4" and 6" sizes.

Options

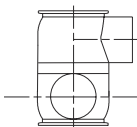
- Male parts or clamp liners in accordance with required standard
- Control and Indication: ThinkTop
- Side indication for detection of upper seat lift
- Product wetted seals in HNBR, NBR or FPM

Valve body combinations

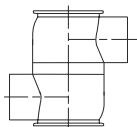
TYPE 11-00



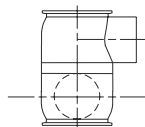
TYPE 11-90



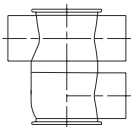
TYPE 11-180



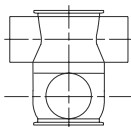
TYPE 11-270



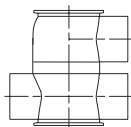
TYPE 12-00



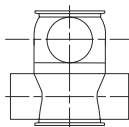
TYPE 12-90



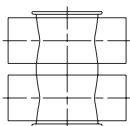
TYPE 21-00



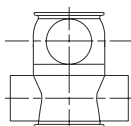
TYPE 21-90



TYPE 22-00



TYPE 22-90



2314-0057

Pressure drop/capacity diagrams

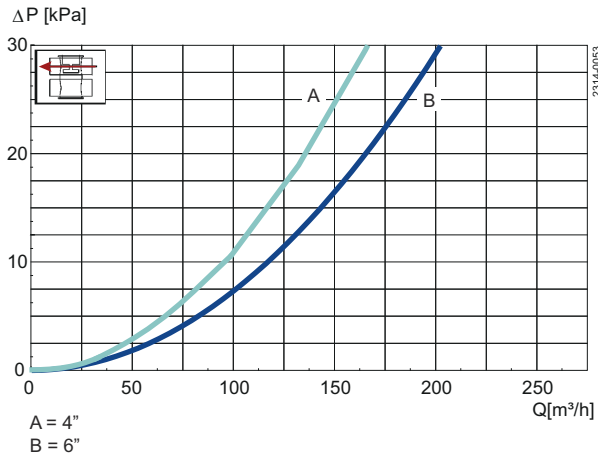


Figure 1. Pressure drop/capacity diagram, upper bodies

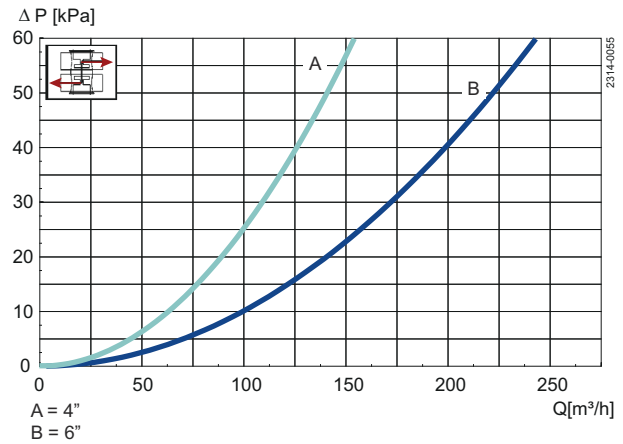


Figure 2. Pressure drop/capacity diagram, between bodies

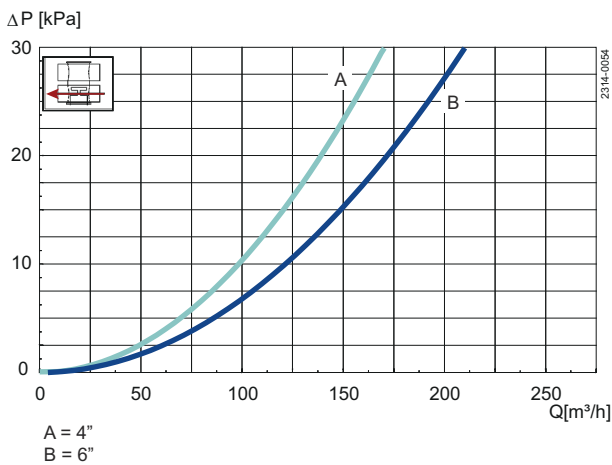


Figure 3. Pressure drop/capacity diagram, lower body



Note!

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

Air and CIP consumption

Size	OD 4"	OD 6"
Kv-value		
Upper Seat-lift	[m³/h] 3.2	7.1
Lower Seat-lift	[m³/h] 2.9	6.0
Air consumption		
Upper Seat-lift	[n litre] ¹ 0.62	0.62
Lower Seat-lift	[n litre] ¹ 0.21	0.21
Main Movement	[n litre] ¹ 3.54	3.54

¹ [n litre] = volume at atmospheric pressure

Formula to estimate CIP flow during seat lift:

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

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

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

$$K_v = \text{Kv value from the above table}$$

$$\Delta p = \text{CIP pressure (bar)}$$

Dimensions (mm)

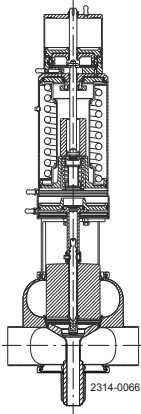
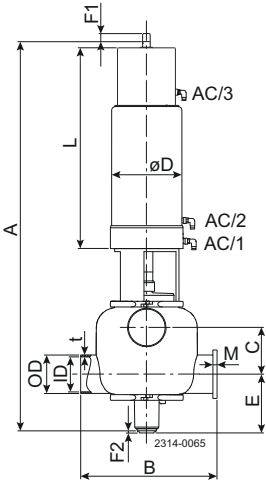


Figure 5. 4''

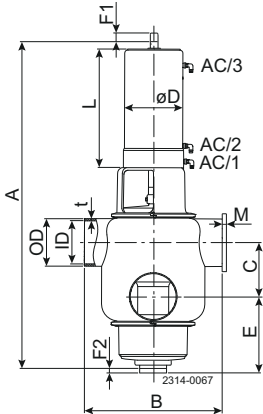


Figure 6. 6''

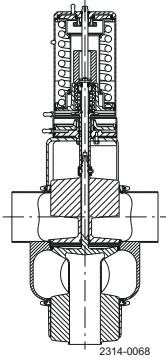


Figure 7. 6''

Figure 4. 4''

Size	4"	6"
A	1038.00	1002.00
B	350.00	440.00
C ¹	123.60	172.67
OD	101.60	152.40
ID	97.60	146.86
t	2.00	2.77
E	166.00	211.00
F1	75.00	75.00
F2	5.00	5.00
øD	186.00	186.00
L	534.00	379.00
M/Tri-clamp	21.00	38.60
Weight (kg)	64.90	86.20

¹ Note! The measure C can always be calculated by the formula $C = \frac{1}{2}ID\text{-upper} + \frac{1}{2}ID\text{-lower} + 26\text{mm}$.

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

Double seat valves

Introduction

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

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

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

Application

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

Benefits

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

Standard design

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



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

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

When the valve is open, the leakage chamber is closed. Product then flows from one line to the other. The radial

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

Certificates



Authorized to carry the 3A symbol

TECHNICAL DATA

Pressure

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

Temperature

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

Classification:	II 2 G D ¹
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Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

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

PHYSICAL DATA

Materials

Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 0.8 µm
Product wetted parts:	EPDM

Other seals:

CIP seals:	EPDM
Actuator seals:	NBR
Guide strips	PTFE

Availability

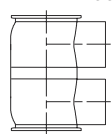
This LP-F edition of the Unique Mixproof valve is a high-end valve with regards to process security as well as from a hygienic point of view. The Unique Mixproof LP-F valve is available in 4" and 6" sizes.

Options

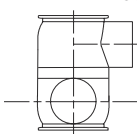
- Male parts or clamp liners in accordance with required standard
- Control and Indication: ThinkTop
- Side indication for detection of upper seat lift
- Product wetted seals in HNBR, NBR or FPM

Valve body combinations

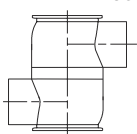
TYPE 11-00



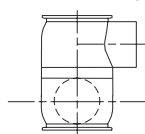
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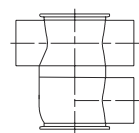
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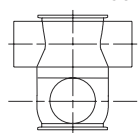
TYPE 11-270



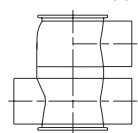
TYPE 12-00



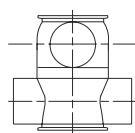
TYPE 12-90



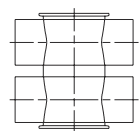
TYPE 21-00



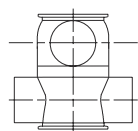
TYPE 21-90



TYPE 22-00



TYPE 22-90



2314-0057

Pressure drop/capacity diagrams

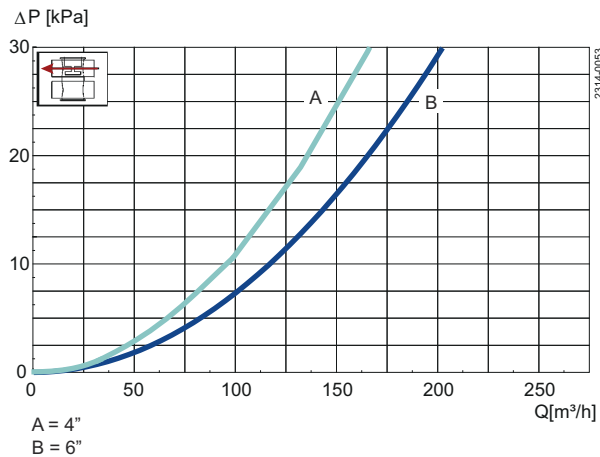


Figure 1. Pressure drop/capacity diagram, upper bodies

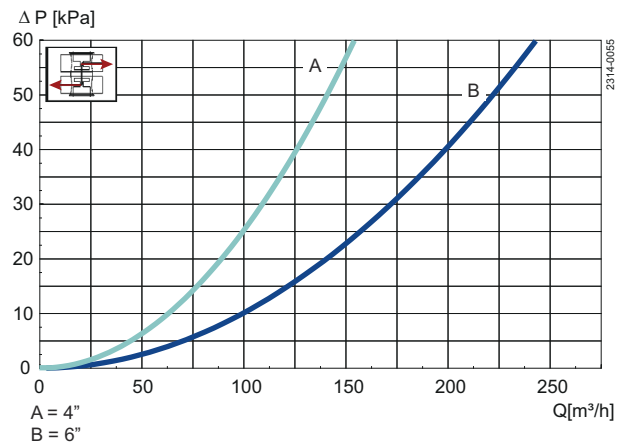


Figure 2. Pressure drop/capacity diagram, between bodies

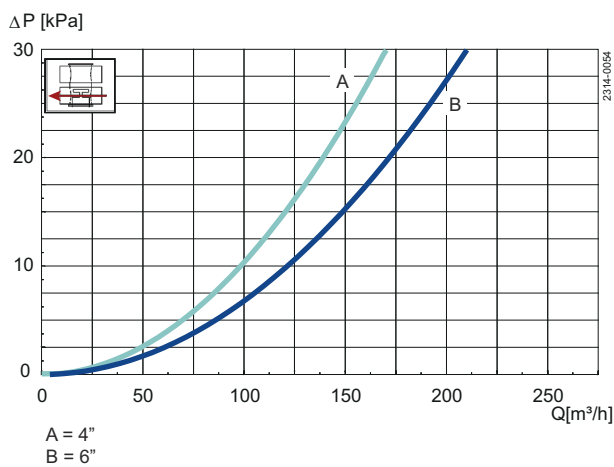


Figure 3. Pressure drop/capacity diagram, lower body



Note!

For the diagrams the following applies:

Medium: Water (20 °C).

Measurement: In accordance with VDI 2173.

Air and CIP consumption

		Size	OD	OD
		4"	6"	
Kv-value				
Upper Seat-lift	[m³/h]	3.2	7.1	
Lower Seat-lift	[m³/h]	3.9	8.9	
Air consumption				
Upper Seat-lift	[n litre] ¹	0.62	0.62	
Lower Seat-lift	[n litre] ¹	0.21	0.21	
Main Movement	[n litre] ¹	3.54	3.54	

¹ [n litre] = volume at atmospheric pressure

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

Δp = CIP pressure (bar)

Dimensions (mm)

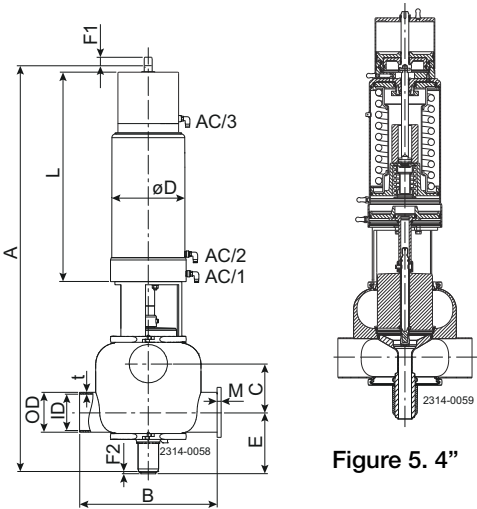


Figure 5. 4''

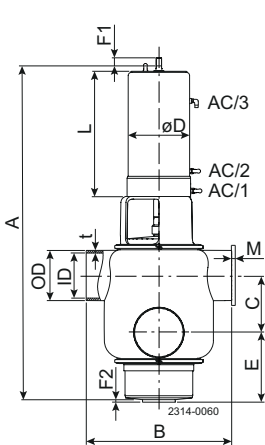


Figure 6. 6''

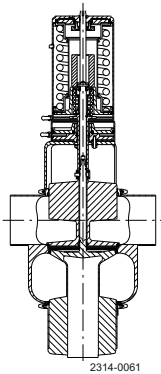


Figure 7. 6''

Figure 4. 4''

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

¹ Note! The measure C can always be calculated by the formula $C = \frac{1}{2}ID\text{-upper} + \frac{1}{2}ID\text{-lower} + 26\text{mm}$.

Alfa Laval Unique Mixproof Tank Outlet

Double seat valves

Introduction

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

Application

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

Benefits

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

Standard design

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

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

Leakage detection holes enable visual inspection without requiring valve disassembly and provide advance notification



of parts wear. Few straightforward moveable parts contribute to reliable operation and reduced maintenance costs.

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

Working principle

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

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

TECHNICAL DATA

Pressure

Max. product pressure in pipeline:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	Max. 800 kPa (8 bar)

Temperature

Temperature range:	-5°C to +125°C (Depending on rubber quality)
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ATEX

Classification:	II 2 G D ¹
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Note! In order to use Unique Mixproof valves in ATEX environment, the blue plastic cover at lower plug must be removed for the valve types where the valve is delivered with the cover mounted

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

PHYSICAL DATA

Materials

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

Surface finish - choose from the following:

Internal/external Matt (blasted)	Ra<1.6 µm
Internal Bright (polished)	Ra<0.8 µm
Internal/external Bright (internal polished)	Ra<0.8 µm



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 Combinations

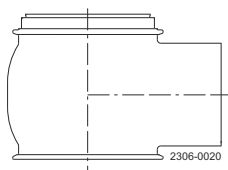


Figure 1. Type 20

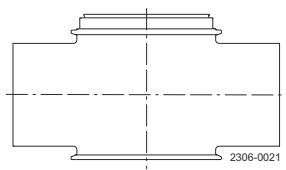


Figure 2. Type 30

SpiralClean

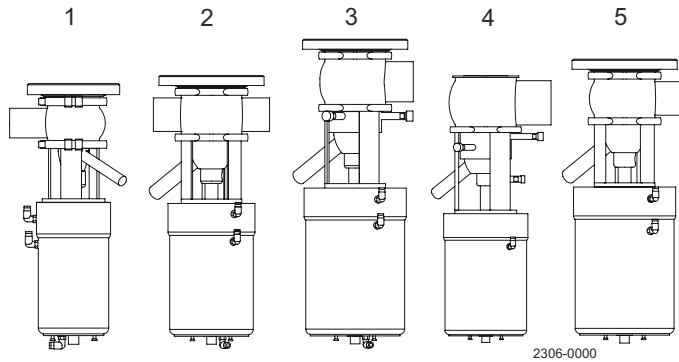
The Alfa Laval SpiralClean system to clean the balanced plug and leakage chamber. The system cleans more efficiently, uses less cleaning fluid by ensuring that a directional flow of CIP fluid reaches all the surfaces in much less time than with conventional systems.

Selection guide

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

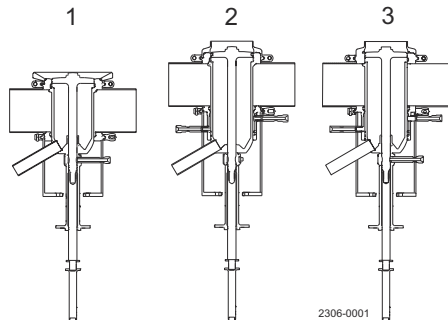
The Unique-TO concept offers balanced plug in pipe line, seat lift, CIP for the plugs and leakage chambers and any combination in between.

Unique-TO size flexibility



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

Unique-TO hygienic flexibility (spiral clean options)



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

Standard configurations

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

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

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

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

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

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

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

Options

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

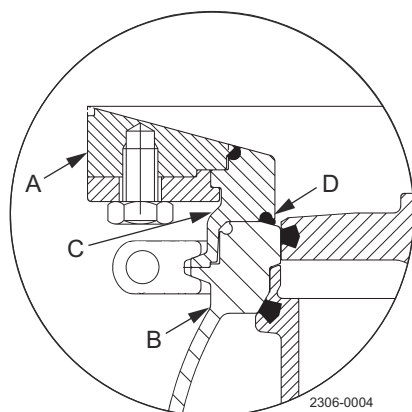


Figure 3. Converting from SMP-TO valve to Unique-TO valve in tank flange

- A. SMP-TO tank flange
 B. Unique Mixproof TO valve
 C. Conversion flange
 D. O-ring for conversion flange

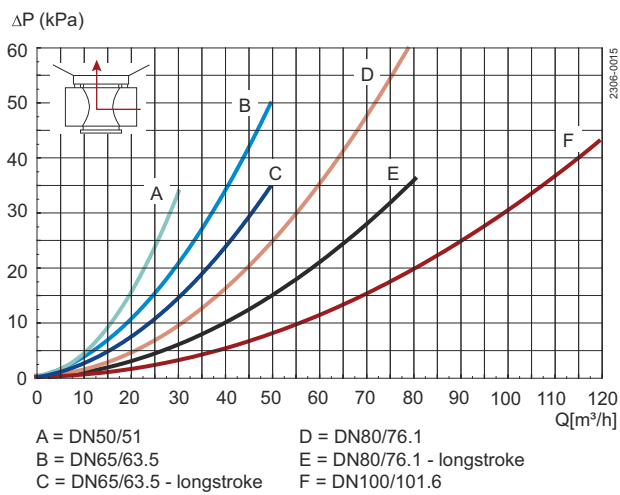
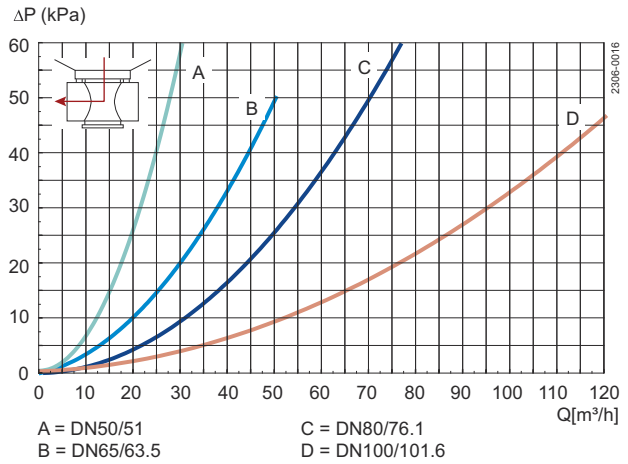
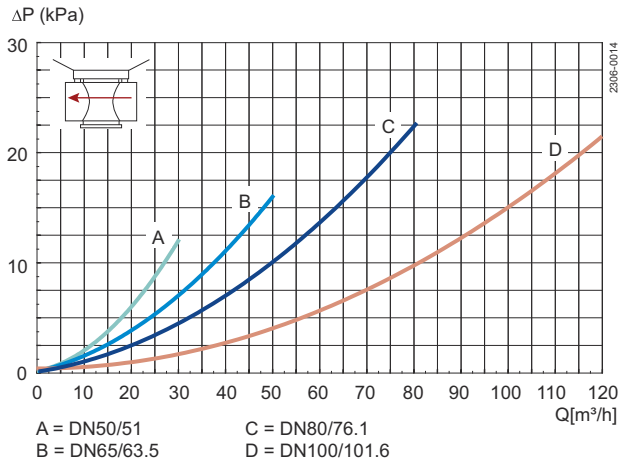
When Unique-TO is mounted on a SMP-TO flange via the Alfa Laval conversion flange add 28 mm to valve height dimensions (A1-A4)

Size		Max. size of particle (mm)	Max. tank pressure (kPa)	Actuator size 3-Basic (ø120x230)	Actuator size 4-Basic (ø157x252)	Actuator size 5-Basic (ø186x281)	Opening pressure in pipe line at 6 bar air pressure (kPa)
inch	DIN						
51	DN50	ø9	400	Standard			1000
63.5	DN65	ø15	450		Standard		1000
63.5	DN65	ø31	600			Long stroke	1000
76.1	DN80	ø15	450		Standard		1000
76.1	DN80	ø31	600			Long stroke	1000
101.6	DN100	ø31	450			Standard	1000
101.6	DN100	ø15	350		Option		1000
	DN125	ø33	350			Standard	1000
	DN125	ø15	250		Option		1000
	DN150	ø33	350			Standard	1000
	DN150	ø15	250		Option		1000



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

Pressure drop/capacity diagrams



Note!

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

Air and CIP consumption

Size	DN/OD				DN						Longstroke			
											DN/OD		DN	
ISO-DIN	51	63.5	76.1	101.6	50	65	80	100	125	150	63.5	76.1	65	80
Air consumption for Balanced Seat-lift Litre = volume at atmosphere pressure	0.20	0.40	0.40	0.62	0.20	0.40	0.40	0.62	0.62	0.62	0.40	0.40	0.40	0.40
Air consumption for Tank Seat-lift Litre = volume at atmosphere pressure	1.10	0.13	0.13	0.21	1.10	0.13	0.13	0.21	0.21	0.21	0.13	0.13	0.13	0.13
Air consumption for Main Movement Litre = volume at atmosphere pressure	0.86	1.63	1.63	2.79	0.86	1.62	1.62	2.79	2.79	2.79	1.63	1.63	1.62	1.62
Kv-value for Balanced CIP Seat-lift [m³/h]	1.50	2.50	2.50	1.90	1.50	2.50	2.50	1.90	3.70	3.70	2.50	2.50	2.50	2.50
Kv-value for Tank Seat-lift [m³/h]	0.90	1.90	1.90	1.40	0.90	1.90	1.90	1.40	3.10	3.10	1.90	1.90	1.90	1.90
Kv-value for SpiralClean Spindle CIP [m³/h]	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Kv-value for SpiralClean External CIP in leakage chamber [m³/h]	0.25	0.29	0.29	0.29	0.25	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29



Note! Recommended min. pressure for SpiralClean: 2 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)

K_v = K_v value from the above table

Δp = CIP pressure (bar)

Dimensions (mm)

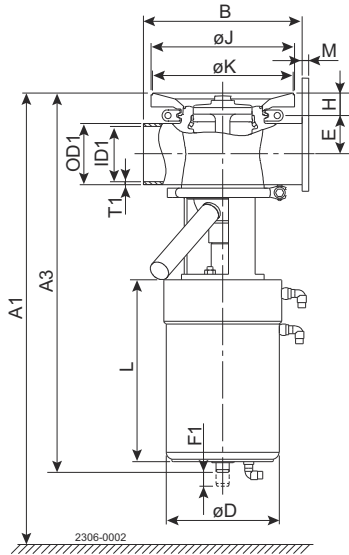


Figure 4. Unique-TO connected to tank flange

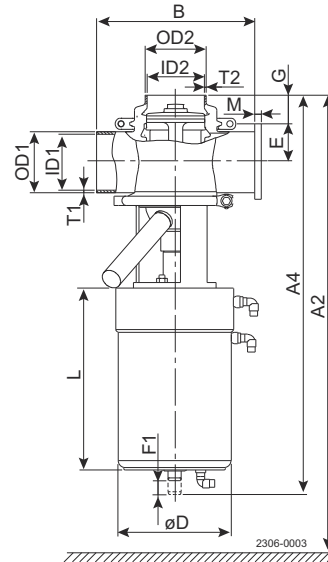


Figure 5. Unique-TO connected to stub flange

$A1 + A2$ = Min. clearance to allow that actuator and internal valve parts can be lifted out of the valve body. If ThinkTop is mounted, add 180 mm.

Size											Longstroke			
	DN/OD					DN					DN/OD		DN	
ISO-DIN	51	63.5	76.1	101.6	50	65	80	100	125	150	63.5	76.1	65	80
A1 min. dimension. Unique-TO	579	646	659	753	577	652	667	755	805	890	700	713	706	721
A1 min. dimension. Unique-TO with external cleaning	616	686	699	813	614	692	707	815	865	---	740	753	746	761
A2 min. dimension Unique-TO	588	655	668	762	586	661	676	764	814	899	709	722	715	730
A2 min. dimension Unique-TO with external cleaning	625	695	708	822	623	701	716	824	874	---	749	762	755	770
A3 Unique-TO	468	526	526	594	468	526	526	594	620	680	575	575	575	575
A3 Unique-TO with external cleaning	505	566	566	654	505	566	566	654	680	---	615	615	615	615
A4 Unique-TO	477	535	535	603	477	535	535	603	629	689	584	584	584	584
A4 Unique-TO with external cleaning	514	575	575	663	514	575	575	663	689	---	624	624	624	624
B	220	220	220	300	220	220	220	300	300	300	220	220	220	220
OD1	51	63.5	76.1	101.6	53	70	85	104	129	154	63.5	76.1	70	85
ID1	47.8	60.3	72.9	97.6	50	66	81	100	125	150	60.3	72.9	66	81
t1	1.6	1.6	1.6	2.0	1.5	2.0	2.0	2.0	2.0	2.0	1.6	1.6	2.0	2.0
E	36.9	43.2	49.5	61.8	38	46	53.5	63	75.5	88	43.2	49.5	46	53.5
F1	31.5	38	38	59	31.5	38	38	59	59	59	59	59	59	59
F2 (Tank plug)	5	5	5	5	5	5	5	5	5	5	5	5	5	5
G	40	40	40	40	40	40	40	40	40	40	40	40	40	40
H	31	31	31	31	31	31	31	31	31	31	31	31	31	31
øD	120	157	157	186	120	157	157	186	186	186	186	186	186	186
L	230	252	252	281	230	252	252	281	281	281	281	281	281	281
OD2	51	63.5	76.1	101.6	53	70	85	104	129	129	63.5	76.1	70	85
ID2	47.8	60.3	72.9	97.6	50	66	81	100	125	125	60.3	72.9	66	81
t2	1.6	1.6	1.6	2.0	1.5	2.0	2.0	2.0	2.0	2.0	1.6	1.6	2.0	2.0
øJ	159	199	199	199	159	199	199	199	199	199	199	199	199	199
øK	155	195	195	195	155	195	195	195	195	195	195	195	195	195
M/ISO clamp	21	21	21	21	---	---	---	---	---	---	21	21	---	---
M/DIN clamp	---	---	---	---	21	21	21	21	28	28	---	---	21	21
M/ISO male	21	21	21	21	---	---	---	---	---	---	21	21	---	---
M/DIN male	---	---	---	---	23	25	25	30	46	50	---	---	25	25
M/SMS male	20	24	24	35	---	---	---	---	---	---	24	24	---	---
M/BS male	22	22	22	27	---	---	---	---	---	---	22	22	---	---
Weight [kg] ¹ Unique TO	12.5	22.5	22.5	33	12.5	22.5	22.5	33	36	38	28	28	28	28
Weight [kg] ¹ Unique TO with external cleaning	13	23.5	23.5	34	13	23.5	23.5	34	37	---	29	29	29	29

¹ = without tank flange

Alfa Laval Unique Mixproof Process

Double Seat valves

Introduction

The Alfa Laval Unique Mixproof Process valve is a versatile, double block-and-bleed valve that enables the simultaneous flow of two products or fluids through the same valve in valve matrices and pipelines without the risk of cross-contamination. This double seat valve with seat lift is a compact, cost-effective version of the premium Alfa Laval Unique Mixproof valve. High cleanability, the ability to withstand pressure peaks and its fit-for-purpose components make this valve a great addition to dairy, food and beverage applications. It comes in various sizes to meet your fundamental hygienic processing requirements.

Applications

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

Benefits

- Get the product safety you need by eliminating the risk of cross-contamination and product loss while ensuring efficient cleaning
- Enhance the reliability and flexibility of your process setup with proven valve technology tailored to your specific production needs, minimize the risk of unplanned downtime while spending as little time and resources as possible on routine maintenance
- Limit your environmental impact with significantly reduced water and CIP media consumption, no spillage and eliminated product loss
- Predefined and available in various sizes to meet your fundamental hygienic processing requirements

Standard design

The valve comprises a series of base components, including a proven valve body, valve plug and seals, maintenance-free actuator, and seat lift cleaning. Leakage detection holes enable visual inspection without requiring valve disassembly, alerting operators of the need for parts wear replacement. Few straightforward, moveable parts contribute to reliable operation and reduced maintenance costs. The valve can also be fitted with an Alfa Laval ThinkTop sensing and control unit.



Working principles

The Alfa Laval Unique Mixproof Process valve is a normally closed (NC) valve controlled remotely using compressed air. The valve has two independent plugs and seals to separate the liquids; the space between the seals forms a leakage chamber at atmospheric pressure under every operating condition. Leakage rarely occurs, but should it happen, the product flows into the leakage chamber and drains through the outlet at the bottom of the chamber for easy detection.

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

Certificates



Authorized to carry
the 3A symbol

TECHNICAL DATA

Pressure

Max. product pressure:	1000 kPa (10 bar) / 145 PSI
Min. product pressure:	Full Vacuum
Air pressure range:	600-800 kPa (6-8 bar) / 87-116 PSI

Temperature

Temperature range:	EPDM -5 °C to +125 °C / 23 °F to 257 °F
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ATEX

Classification:	II 2 G D ¹
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¹ This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials

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

Surface finish

External (semi-bright):	Ra< 1.6 µm / Ra< 64 µi
Internal (polished):	Ra< 0.8 µm / Ra< 32 µi

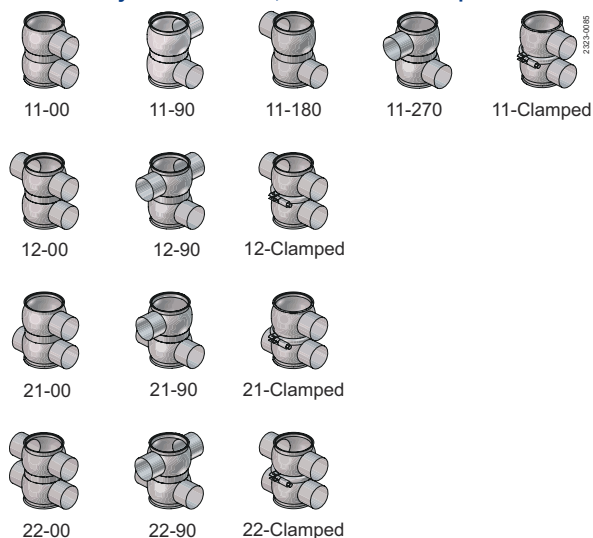
Product wetted seals

Sealing Material:	EPDM, FPM, HNBR
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Other seals

Actuator seals:	NBR
Guide strip:	PTFE

Valve body combination, welded or clamped



Valve body combinations, example: type 11-00

1 Number of ports - lower valve body

1 Number of ports - upper valve body

00 Angle between

Pressure drop/capacity diagrams

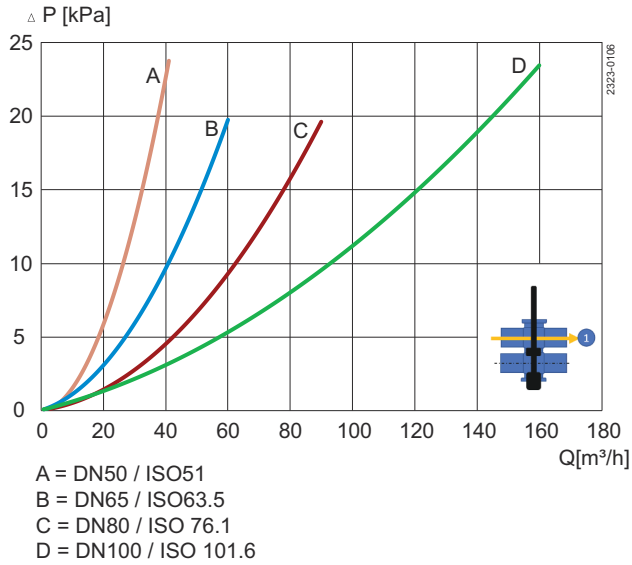


Figure 1. Pressure drop/capacity diagram, upper body

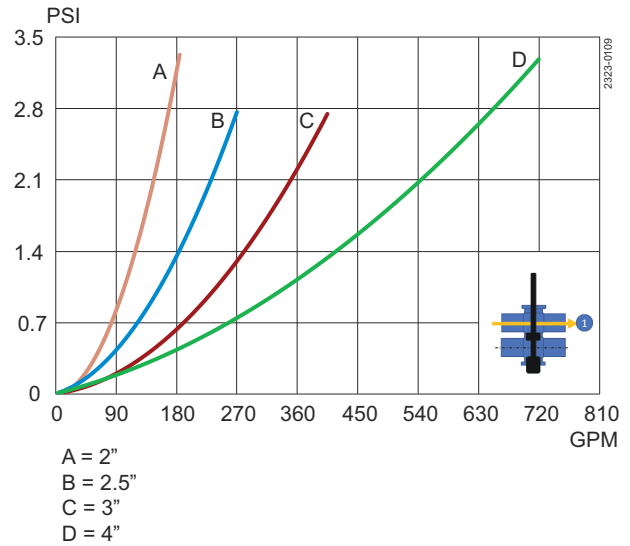


Figure 2. Pressure drop/capacity diagram, upper body

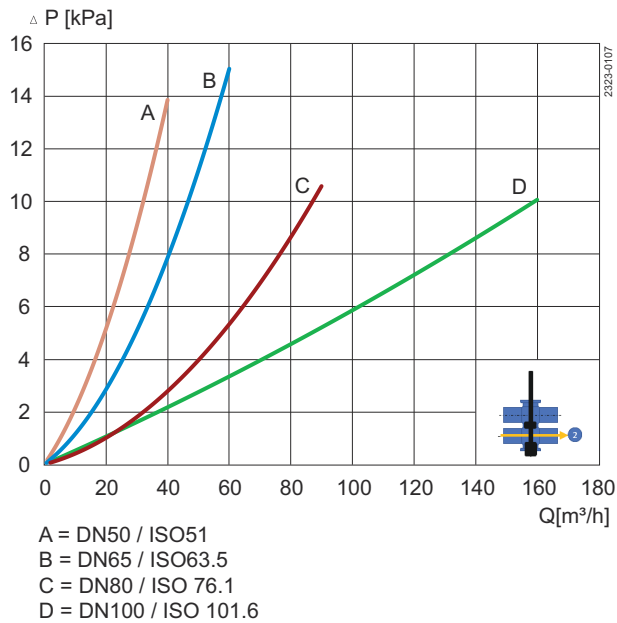


Figure 3. Pressure drop/capacity diagram, lower body

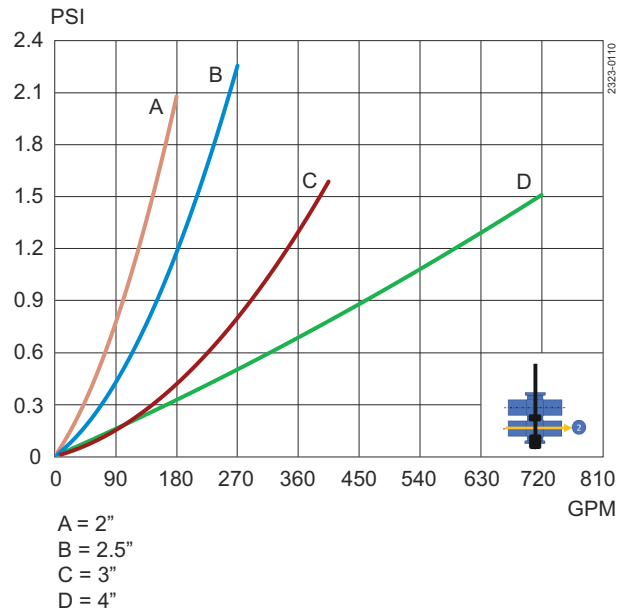


Figure 4. Pressure drop/capacity diagram, lower body

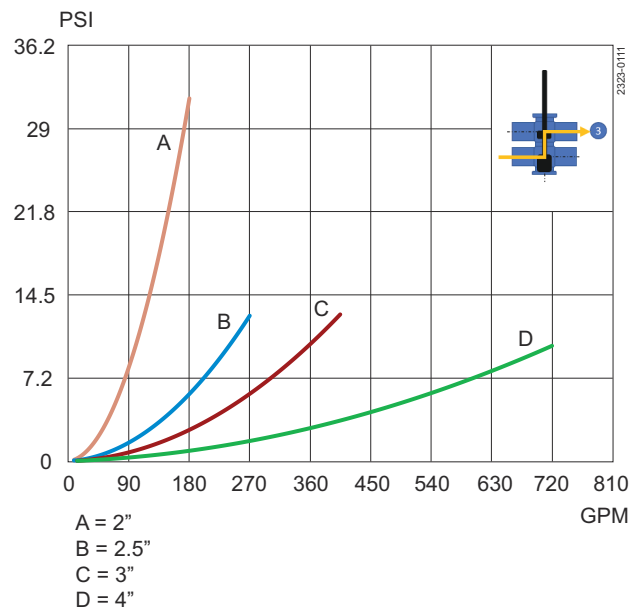
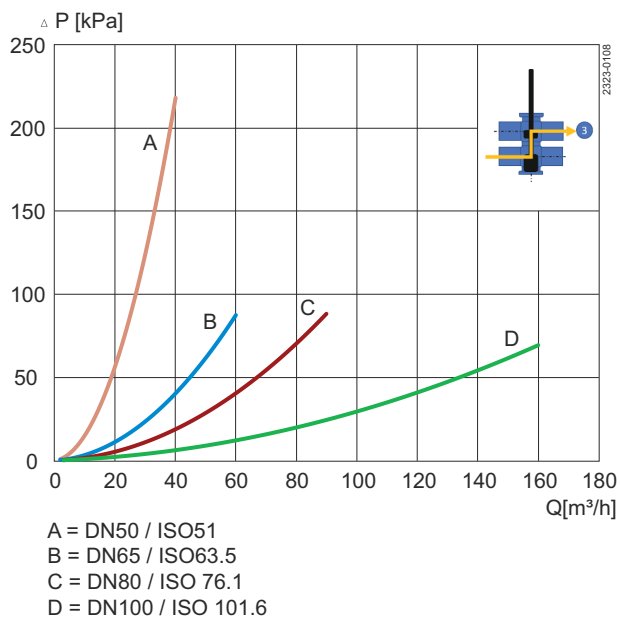


Figure 5. Pressure drop/capacity diagram, between bodies Figure 6. Pressure drop/capacity diagram, between bodies

Air and CIP consumption

Between bodies

Size	DN/OD				DN			
ISO/DIN	51	63.5	76.1	101.6	50	65	80	100
Kv-value [m³/h]	26.9	64.3	95.8	194.5	26.9	64.3	95.8	194.5
Cv-value [gpm/psi]	31.1	74.3	110.8	224.8	31.1	74.3	110.8	224.8

Size	DN/OD				DN			
ISO/DIN	51	63.5	76.1	101.6	50	65	80	100
Kv-value								
Upper Seat-lift [m³/h]	1.28	1.68	1.92	2.69	1.28	1.68	1.92	2.69
Lower Seat-push [m³/h]	0.81	1.33	1.90	1.92	0.81	1.33	1.90	1.92
Air consumption								
Upper Seat-lift [n litre]	0.02	0.02	0.08	0.08	0.02	0.02	0.08	0.08
Lower Seat-push [n litre]	0.97	0.97	2.76	2.76	0.97	0.97	2.76	2.76
Main Movement [n litre]	0.55	0.55	1.31	1.31	0.55	0.55	1.31	1.31

Size	OD			
ISO	51	63.5	76.1	101.6
Cv-value				
Upper Seat-lift [gpm/psi]	1.48	1.95	2.23	3.11
Lower Seat-lift [gpm/psi]	0.94	1.53	2.19	2.22
Air consumption				
Upper Seat-lift [cubic inches]	1.41	1.41	4.70	4.70
Lower Seat-lift [cubic inches]	59.23	59.23	168.38	168.38
Main Movement [cubic inches]	33.78	33.78	79.86	79.86

Burst seat clean nominal consumption

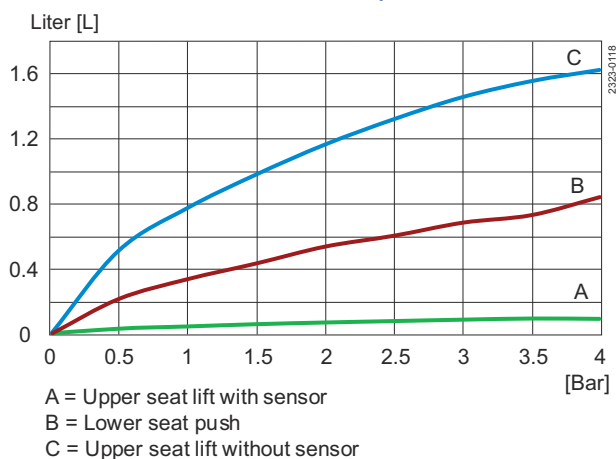


Figure 7. Unique Mixproof Process ISO51/DN50

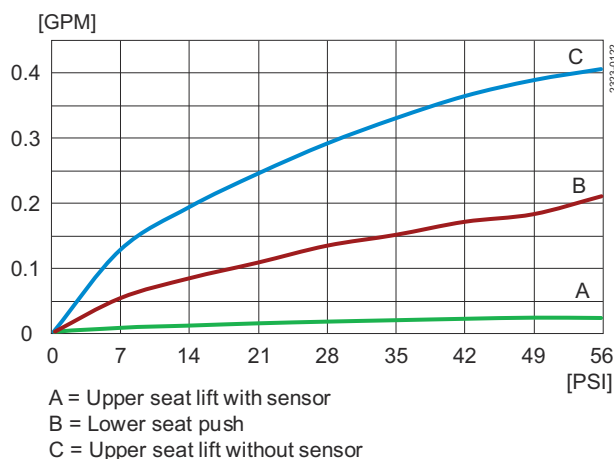


Figure 8. Unique Mixproof Process 2"

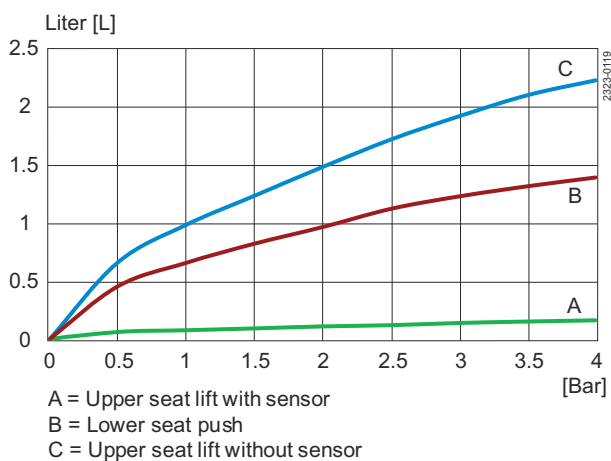


Figure 9. Unique Mixproof Process ISO63.5/DN65

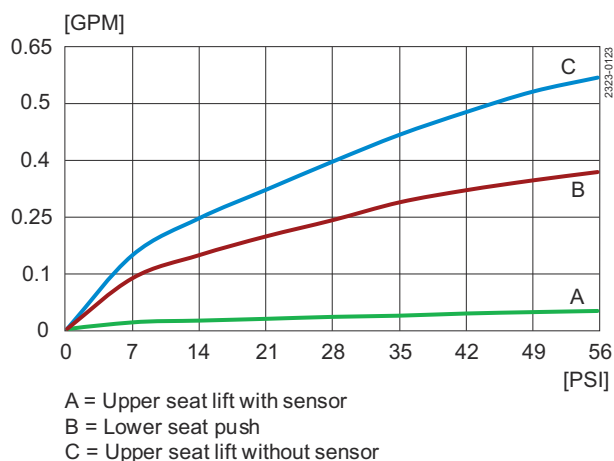


Figure 10. Unique Mixproof Process 2.5"

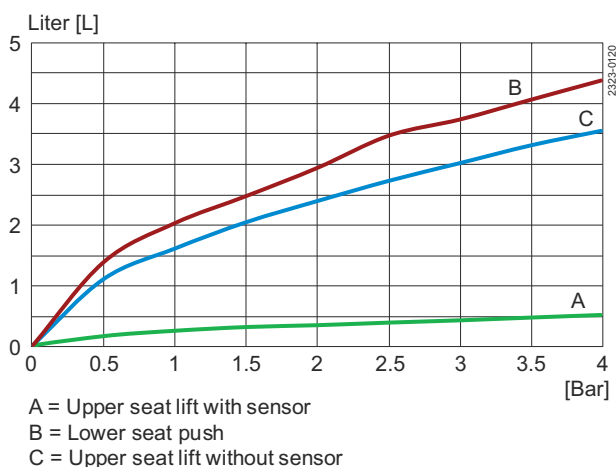


Figure 11. Unique Mixproof Process ISO76.1/DN80

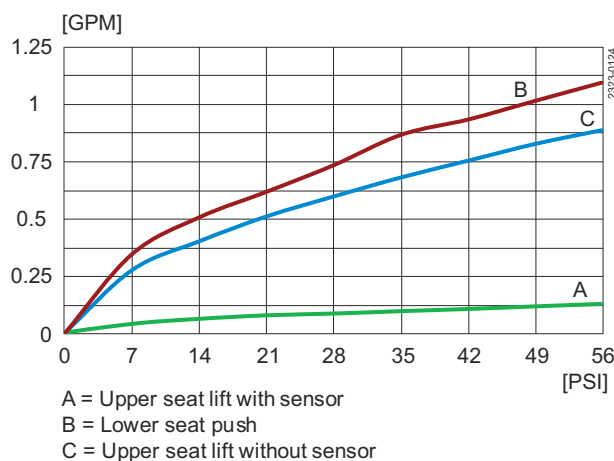


Figure 12. Unique Mixproof Process 3"

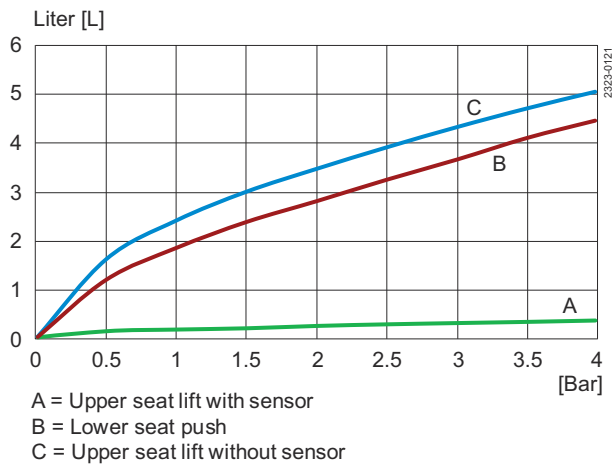


Figure 13. Unique Mixproof Process ISO101.6/DN100

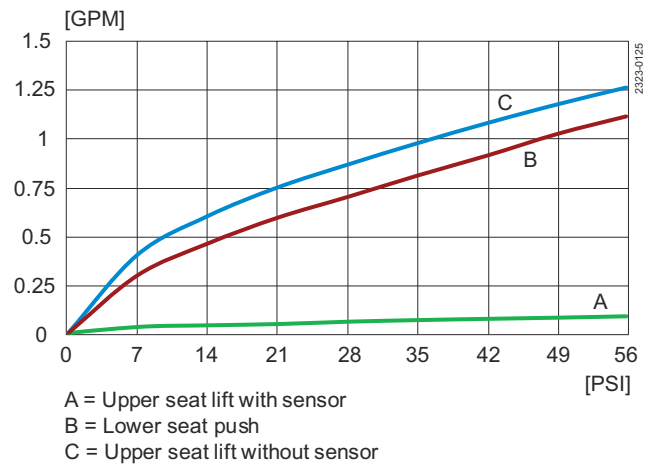
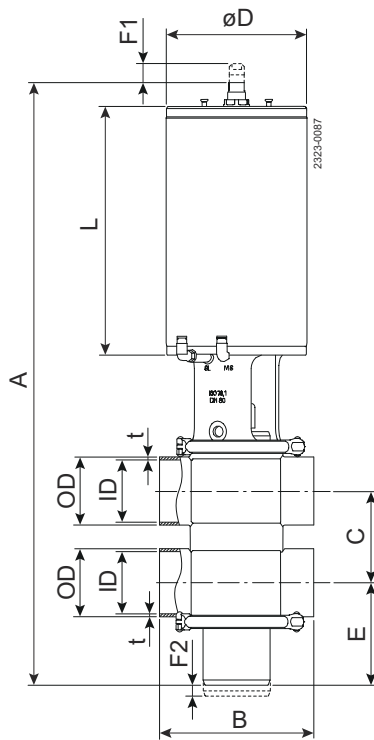


Figure 14. Unique Mixproof Process 4"

Dimensions



(mm)

Size	DN/OD				DN			
ISO/DIN	51	63.5	76.1	101.6	50	65	80	100
A	519	547	676	718	521	553	684	720
B	122	162	172	238	122	162	172	240
C	73.8	86.3	98.9	123.6	76	92	107	126
OD	51	63.5	76.1	101.6	53	70	85	104
ID	47.8	60.3	72.9	97.6	50	66	81	100
t	1.6	1.6	1.6	2	1.5	2	2	2
E	92	101	121	126	90	98	117	125
F1	30.5	30.5	43	43	30.5	30.5	43	43
F2	7	7	7	7	7	7	7	7
ØD	115	115	157	157	115	115	157	157
L	205	205	278	278	205	205	278	278
Weight, Welded (kg)	11.4	13.6	24.4	27.6	11.5	13.9	24.9	27.7
Weight, Clamped (kg)	11.6	13.9	24.7	27.9	11.7	14.2	25.2	28.0

(inch)

Size	OD			
ISO/DIN	2"	2½"	3"	4"
A	20.44	21.55	26.60	28.27
B	4.80	6.38	6.77	9.37
C	2.91	3.40	3.89	4.87
OD	2.01	2.50	3.00	4.00
ID	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.08
E	3.60	3.97	4.75	4.97
F1	1.20	1.20	1.69	1.69
F2	0.28	0.28	0.28	0.28
ØD	4.54	4.54	6.20	6.20
L	8.06	8.06	10.94	10.93
Weight, Welded (lb)	25.2	30.0	53.9	60.9
Weight, Clamped (lb)	25.6	30.6	54.5	61.5

Alfa Laval Unique Mixproof Horizontal Tank

Double seat valves

Introduction

The Alfa Laval Unique Mixproof Horizontal Tank 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, the Unique HT Mixproof 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 HT Mixproof 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.

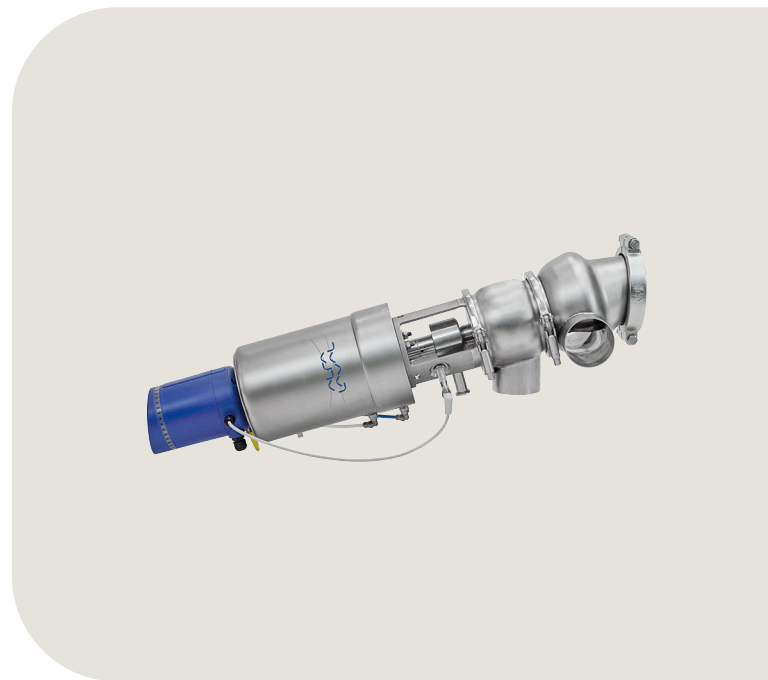
Benefits

- 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 HT Mixproof 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 45-mm 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

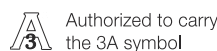
The Alfa Laval Unique HT Mixproof Valve is a normally closed (NC) valve controlled from a remote location by means of compressed air. The valve has two independent plugs to

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:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	Max. 8 bar (800 kPa)
Temperature	
Temperature range:	-5°C to +125°C (depending on rubber quality)
ATEX	
Classification:	II 2 G D ¹
¹ This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source.	



Note!

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

PHYSICAL DATA

Materials	
Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 1.6 µm
Product wetted seals:	EPDM
Other seals:	
CIP seals:	EPDM
Actuator seals:	NBR
Guide strips:	PTFE

Valve body combination

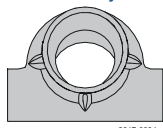


Figure 1. Welding ends

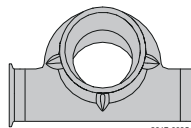


Figure 2. Clamp ends

State of the art – Cleanability

The Unique 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 45-mm opening, which enables the passage of very large particles or efficient handling of high viscosity fluids.

Options:

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

Pressure drop/capacity diagrams

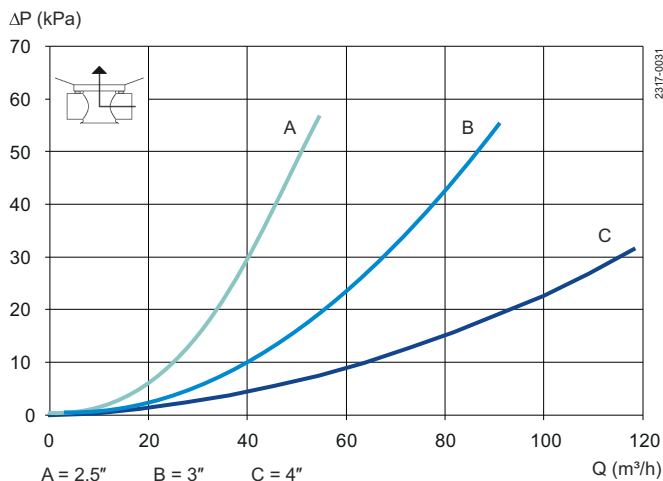


Figure 3. Unique Mixproof Horizontal Tank Valve - to tank

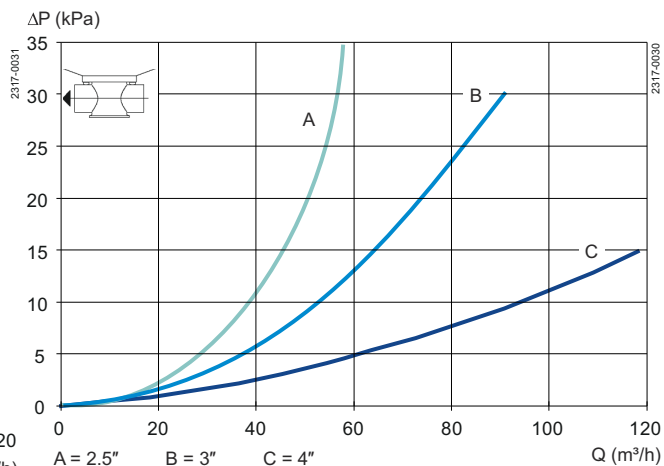


Figure 4. Unique Mixproof Horizontal Tank Valve - straight through

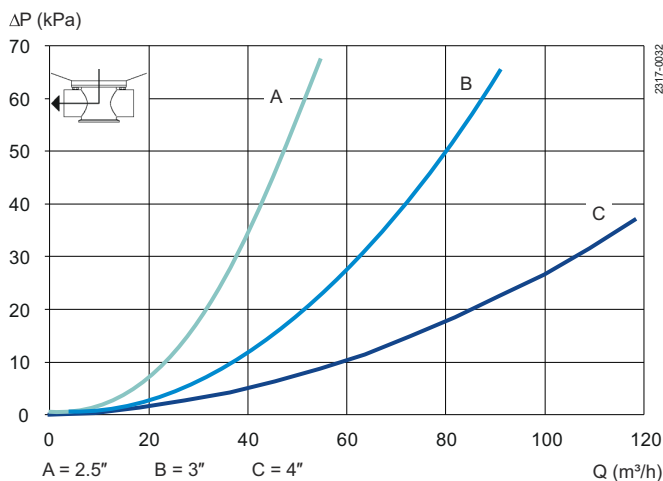


Figure 5. Unique Mixproof Horizontal Tank Valve - from tank

Air and CIP consumption

Size	DN/OD		
ISO	2½"	3"	4"
Kv-value			
Upper Seat-lift [m^3/h]	2.5	2.5	3.1
Lower Seat-lift (tank seat lift) [m^3/h]	11.5	11.5	34.1
Air consumption			
Upper Seat-lift * [n litre]	0.4	0.4	0.62
Lower Seat-lift (tank seat lift) * [n litre]	0.13	0.13	0.21
Main Movement * [n litre]	1.62	1.62	3.54
Kv-value - SpiralClean			
External CIP in leakage chamber [m^3/h]	1.52	1.52	1.52

* [n litre] = volume at atmospheric pressure



Note!

Recommended min. pressure for External CIP in leakage chamber 3 bar.

Formula to estimate CIP flow during seat lift:

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

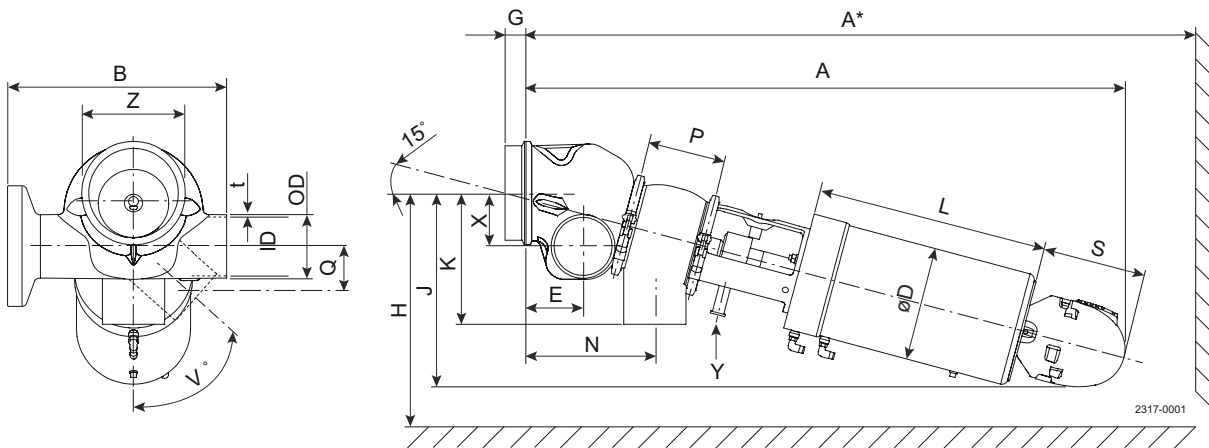
$$Q = K_v \cdot \sqrt{\Delta p}$$

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

K_v = K_v value from the above table

Δp = CIP pressure (bar)

Dimensions (mm)



Size	2.5"	3"	4"
A	735	759	977
A*	867	904	1155
B (same for welding and clamp)	245	245	342
OD	63.5	76.1	101.6
ID	60.3	72.9	97.6
t	1.6	1.6	2
øD	186	186	186
E	70.9	77.2	92.2
F1	38	38	75
F2 (Tank plug)	10	10	10
G	15.9	15.9	38.1
H	281	291	364
J	246	252	317
K	153	158	215
L	252	252	379
N	152	170	210
P	89.3	101.9	126.6
Q	15.9	15.9	38.1
S	180	180	180
V°	0-67°	0-60°	0-53°
X	38,3	36,6	52,6
Y	3/4" clamp ferrule	3/4" clamp ferrule	3/4" clamp ferrule
Z	4"	4"	6"
Weight (kg)	13.0	14.2	43.1

Alfa Laval Unique Mixproof CIP

Double Seat valves

Introduction

The Alfa Laval Unique Mixproof CIP valve is a double block-and-bleed valve that enables the simultaneous flow of two fluids through the same valve without the risk of cross-contamination. Purpose-built for routing cleaning media, this versatile, lightweight CIP valve safely directs CIP media. The Unique Mixproof CIP can distribute pressurized CIP media toward the area that requires cleaning or direct cleaning media through the top of a tank cleaning device into the tank. Based on the proven Unique Single Seat valves, it easily adapts to process requirements while meeting hygiene standards.

Applications

The Alfa Laval Unique Mixproof CIP provides continuous flow management and CIP safety towards hygienic processes where product safety is high on the agenda, such as in the dairy, food, beverage, and many other industries.

Benefits

- Get the product safety you need by eliminating the risk of cross-contamination
- Enhance the reliability and flexibility of your process and CIP setup when operating
- Minimize the risk of unplanned downtime and time and resources spent on routine maintenance
- Improve sustainability and limit environmental impact by reducing water and CIP media use
- Lower the total cost of ownership with a proven, cost-efficient mixproof valve for routing cleaning media

Standard design

A series of base components, including a valve body, seals, a maintenance-free actuator, and an optimized plug design to minimize spillage, comprises the Alfa Laval Unique Mixproof CIP valve. Leakage detection holes enable visual inspection without requiring valve disassembly, alerting operators of the need for wear parts replacement.

Few straightforward, moveable parts contribute to reliable operation and reduced maintenance costs. The valve can also be fitted with Alfa Laval ThinkTop units.

Working principle

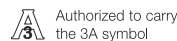
The Alfa Laval Unique Mixproof CIP valve is a normally closed (NC) valve controlled remotely using compressed air. The valve has two independent plugs and a three-seal design to separate the two media from each other; the space between



the seals forms a leakage chamber at atmospheric pressure under all operating conditions. Leakage rarely occurs, but if it should, the fluid flows into the leakage chamber and drains at the outlet for easy detection. When the valve is open, the leakage chamber is closed. The fluid then flows from one line to the other. The valve's three-seal design minimizes spillage and ensures the water and CIP media pass through and flush the leakage chamber.

The valve primarily handles cleaning media. Its balanced design ensures complete flow control and eliminates water hammer. Mounting upside down is possible.

Certificates



TECHNICAL DATA

Pressure

Max. product pressure:	1000 kPa (10 bar) / 145 PSI
Min. product pressure:	Full Vacuum
Holding pressure (lower plug):	600 kPa (6 bar) / 87 PSI
Air pressure range:	600-800 kPa (6-8 bar) / 87-116 PSI

Temperature

Temperature range:	EPDM -5 °C to +140 °C / 23 °F to 284 °F
--------------------	--

ATEX

Classification:	II 2 G D ¹
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¹ This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

PHYSICAL DATA

Materials

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

Surface finish

External (semi-bright):	Ra < 1.6 µm / Ra < 64 µi
Internal (polished):	Ra < 0.8 µm / Ra < 32 µi



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

Product wetted seals

Sealing material:	EPDM, FPM, HNBR
-------------------	-----------------

Other Seals

Actuator seals:	NBR
Guide Strip:	PTFE

Valve body combination



11



12



21



22



20



30

Valve body combinations, example: type 11

1 Number of ports - lower valve body

1 Number of ports - upper valve body



Note!

Standard: Inter-body clamped

Pressure drop/capacity diagrams

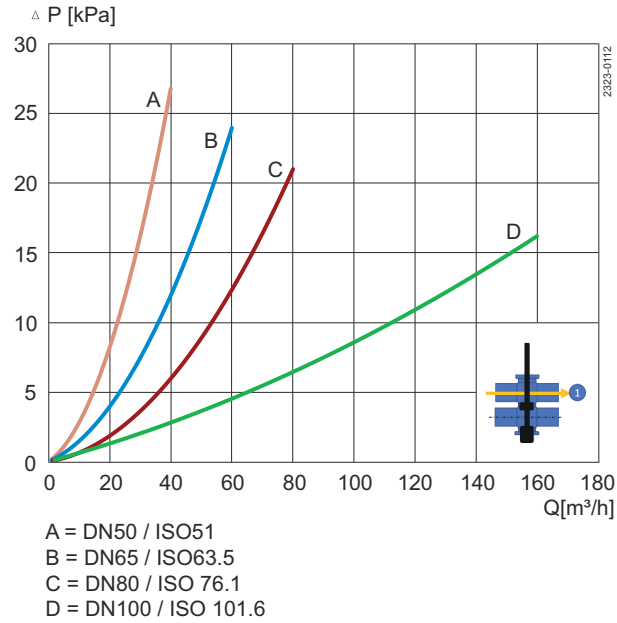


Figure 1. Pressure drop/capacity diagram, upper body

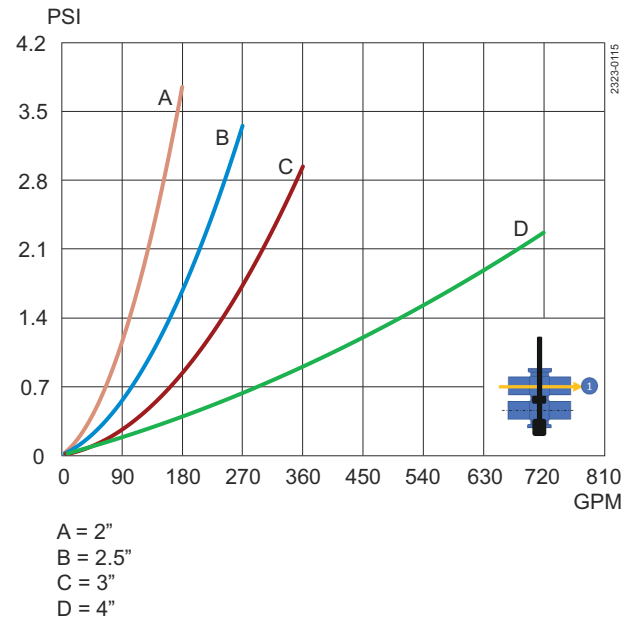


Figure 2. Pressure drop/capacity diagram, upper body

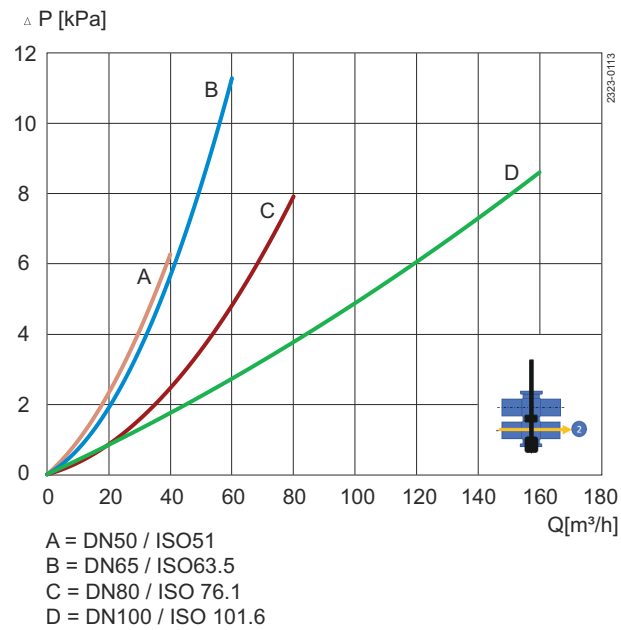


Figure 3. Pressure drop/capacity diagram, lower body

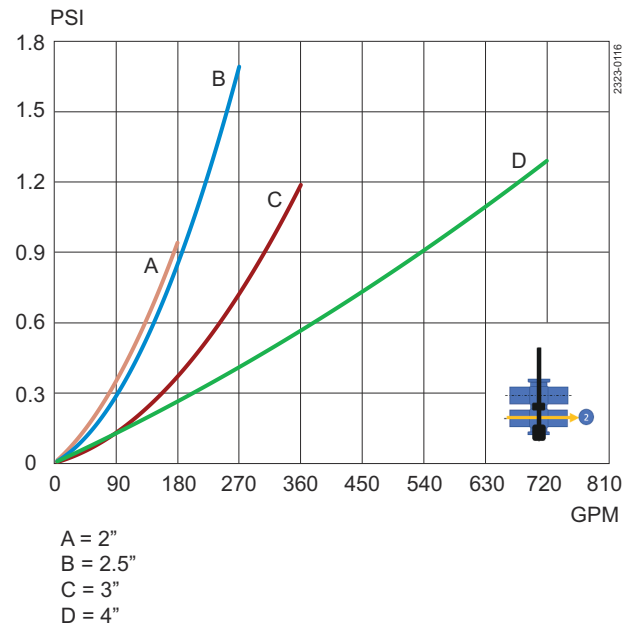


Figure 4. Pressure drop/capacity diagram, lower body

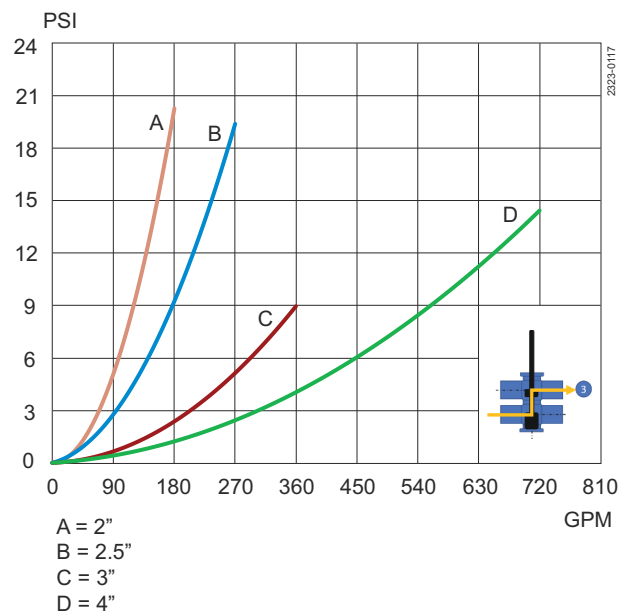
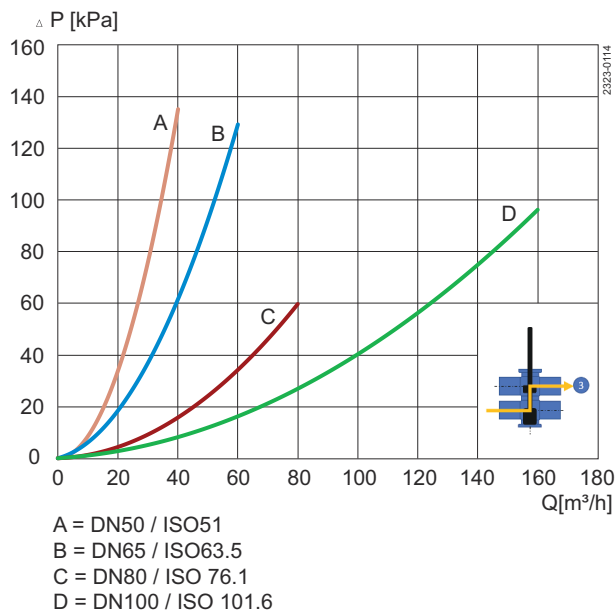


Figure 5. Pressure drop/capacity diagram, between bodies Figure 6. Pressure drop/capacity diagram, between bodies

Air consumption

Size	DN/OD				DN			
ISO/DIN	51	63.5	76.1	101.6	50	65	80	100
Kv-value [m³/h]	34.4	52.2	104.3	163.3	34.4	52.2	104.3	163.3
Cv-value [gpm/psi]	39.8	60.4	120.5	188.8	39.8	60.4	120.5	188.8
Airconsumption								
Main Movement [n litre]	0.64	0.64	1.48	1.48	0.64	0.64	1.48	1.48
Main Movement [cubic inches]	38.84	38.84	90.48	90.48	38.84	38.84	90.48	90.48

Dimensions

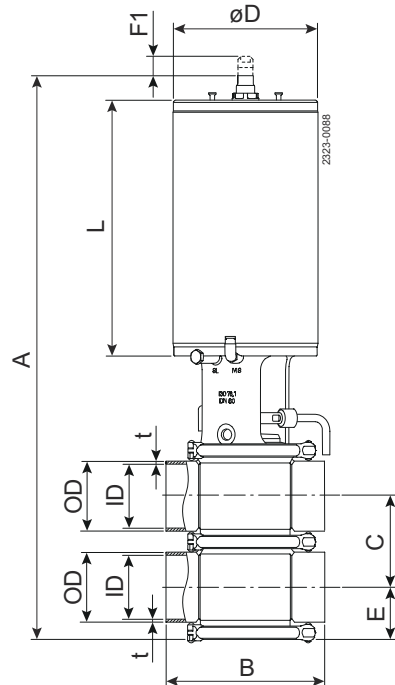


Figure 7. Unique Mixproof CIP

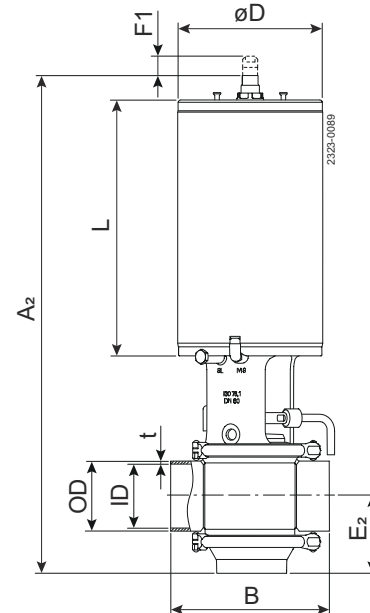


Figure 8. Unique Mixproof CIP Type 30

(mm)

Size	DN/OD				DN			
ISO/DIN	51	63.5	76.1	101.6	50	65	80	100
A	471	496	612	661	476	508	628	666
A ₂	513	536	660	702	516	545	666	706
B	122	162	172	238	122	162	172	240

Size	DN/OD				DN			
ISO/DIN	51	63.5	76.1	101.6	50	65	80	100
C	73.8	86.3	98.9	123.6	76	92	107	126
OD	51	63.5	76.1	101.6	53	70	85	104
ID	47.8	60.3	72.9	97.6	50	66	81	100
t	1.6	1.6	1.6	2	1.5	2	2	2
E	44	50	51	69	45	53	61	70
E ₂	85	90	99	110	85	90	99	110
F1	30.5	30.5	43	43	30.5	30.5	43	43
ØD	115	115	157	157	115	115	157	157
L	205	205	278	278	205	205	278	278
Weight, Type 22 (kg)	10.7	12.9	22.2	25.0	10.8	13.2	22.7	25.1
Weight, Type 30 (kg)	9.9	11.5	20.3	21.8	9.9	11.7	20.6	21.9

(inch)

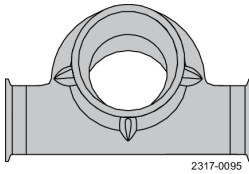
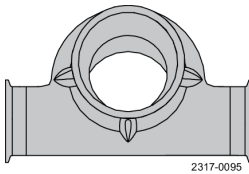
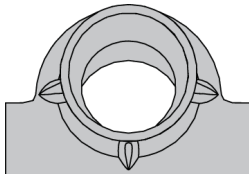
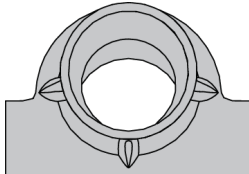
Size	OD			
ISO/DIN	2"	2½"	3"	4"
A	18.56	19.54	24.08	26.03
A ₂	20.20	21.10	25.98	27.64
B	4.80	6.38	6.77	9.37
C	2.91	3.40	3.89	4.87
OD	2.01	2.50	3.00	4.00
ID	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.08
E	1.71	1.98	2.00	2.72
E ₂	3.35	3.54	3.90	4.33
F1	1.20	1.20	1.69	1.69
ØD	4.54	4.54	6.20	6.20
L	8.06	8.06	10.94	10.93
Weight, Type 22 (lb)	23.6	28.4	49.0	55.1
Weight, Type 30 (lb)	21.8	25.4	44.8	48.1

Double seat valves

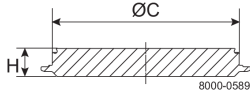
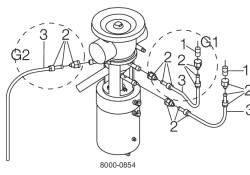
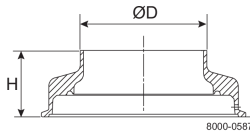
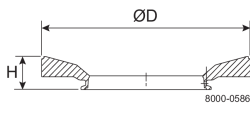
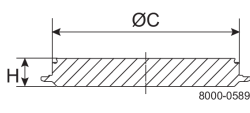
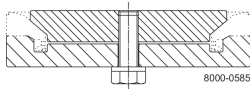
Unique Mixproof horizontal tank

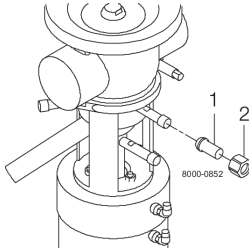
Air-operated valves Upper and lower seat lift No SpiralClean Balanced
upper plug
ALSIS Code: 5225

Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: FPM
Inside surface finish: Ra ≤ 1.6 µm Polished
Outside surface finish: Blasted

Item no.	Item no.	Item no.	Size	
			inch	
EPDM	FPM	NBR	Cross with clamp	
9614097733 9614097736 9614097739	9614097748 9614097751 9614097754	9614097703 9614097706 9614097709	2 1/2" 3" 4"	 2317-0095
HNBR			Cross with clamp	
9614097718 9614097721 9614097724			2 1/2" 3" 4"	 2317-0095
EPDM	FPM	NBR	Cross with welding ends	
9614097833 9614097836 9614097839	9614097848 9614097851 9614097854	9614097803 9614097806 9614097809	2 1/2" 3" 4"	 2317-0094
HNBR			Cross with welding ends	
9614097818 9614097821 9614097824			2 1/2" 3" 4"	 2317-0094

NOTE! Clamp ring tank ferrell

Item no.	Size		Dimension (mm)		Description	
	DN/OD, mm	DN	ØD	H		
Conversion flange SMP-TO to Unique-TO**						
9613444601 9613004103 9613444701	63.5 - 76.1 51 101.6	65.0 - 80.0 DN50 DN100		20.0		
Installation kit G						
9613055701					Contents: G1 1 x pos. 1: Welding male part AISI 316 1x pos. 2: 2 pcs. 3/8" 10 mm Female PVDF 1 x pos. 3: 10 mm PVDF hose, 1m	
Stub flange						
9613004702 9613004802 9613004804 9613004902 9613005001 9613004801 9613004803 9613004701 9613004901	 63.5 63.5 51 101.6	DN50 DN65 DN65 DN100 DN125		40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0		
Tank flange						
9613099201 9613099301 9613099101	63.5 - 76.1 101.6 51	65.0 - 80.0 100.0 - 150.0 DN50	Ø199 Ø199 Ø159	31.0 31.0 31.0		
Unique blind flange						
9613004104 9613004106 9613004102 9613004105	63.5 - 76.1 101.6 38 101.6	65.0 - 80.0 125.0 - 150.0 DN40 DN100		20.0 20.0 20.0 20.0		
Welding tool for Tank flange						
9613099902 9613099903 9613099901	63.5 - 76.1 101.6 51	65.0 - 80.0 100.0 - 150.0 DN50				

Item no.	Size		Options	
	mm	DN		
Installation kit C (inlet and/or outlet) for upper/lower sealing element				
3135710053	All	All	Installation kit C 1 x pos. 1: Welding liner. 1xpos. 2: Nut	
Installation kit H				
3135707466	All	All	Contents: H2 1 x pos. 4: Hose PTFE with stainless steel weave 1 x pos. 5: Weldingsocket	
9613055703			Contents: 1 x pos. 1: DIN union DN10 1 x pos. 2: 12 mm CIP pipe long 1 x pos. 3: 12 mm CIP pipe	

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Regulating valves

Product leaflet	
Unique RV-ST	170
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Alfa Laval Unique RV-ST

Regulating valves

Introduction

The Alfa Laval Unique RV-ST Regulating Valve is the third generation of the Alfa Laval single-seat regulating valve designed to meet the highest process demands of hygiene and safety. Built on a well-proven platform from an installed base of more than a million valves, it is ideal for high-volume, hygienic liquid processing applications that require precision control of flow rate or pressure.

RV-ST has a vast range of Kv-values to fit customers exact needs. 1½"-4" sizes come with a plug seal to also function as a shut-off valve, where 1" sizes do not have a plug seal.

Application

This pneumatic single-seat regulating valve is ideal for use as a hygienic product valve in the dairy, food, beverage, chemical, pharmaceutical and many other industries.

Benefits

- Reliable, automated performance
- Versatile, modular design
- Outstanding precision flow
- Easy to maintain
- Large operating range


Standard design

The Alfa Laval Unique RV-ST Regulating Valve with positioner consists of valve body, valve stem, EPDM plug seal, actuator with advanced electro-pneumatic process controller, and stem bushings threaded to the actuator shaft. The control unit comes in two versions: with or without display.

Working principle

The Alfa Laval Unique RV-ST Regulating Valve is controlled from a remote location by means of a digital electro-pneumatic process controller. Few straightforward moveable parts ensure reliable operation.

Certificates

 Authorized to carry
the 3A symbol



TECHNICAL DATA

Pressure

Max. product pressure:	10 bar (1000 kPa)
Min. product pressure:	Full vacuum
Air pressure:	5 - 7 bar (500 to 700 kPa)

Temperature

Temperature range:	-10°C to +140°C (EPDM)
--------------------	------------------------

Positioner data

Supply voltage:	24 VDC +/- 10%
Working temperature:	0 to 55 °C
Push-in fittings:	ø6mm or 1/4"
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)
Max. wire diameter:	1.5 mm ²

8694 Positioner – Basic control without display

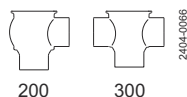
Setpoint setting:	0/4 to 20mA
Output resistance:	180Ω
Power consumption:	< 3,5W
Cable gland:	2xM16x1,5 (cable-ø10mm)
Max. wire diameter:	1.5 mm ²

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 < 0.8 µm
Other steel parts:	1.4301 (304)
Plug seal:	EPDM (optional HNBR or FPM)
Other product wetted seals:	EPDM (optional HNBR or FPM)
Other seals:	NBR

Valve Body Combinations



Other valves in the same basic design

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

Options

- Male parts or clamp liners in accordance with required standard
- Product wetted seals in HNBR or FPM
- Maintainable actuator

- External surface finish blasted
- Optional plug seal: HNBR or FPM (Not relevant for 1" / DN25 sizes)



Note! For further details, see instruction manual.

Valve Sizing

Flow Coefficients (Kv)

The following formula and flow coefficient values enable you to select the correct regulating valve for your application.

Formula for water and other products with a specific gravity equal to 1.0:

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

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

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

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 Kv Calculation:

Determine the proper size valve for 60 m³ per hour of water.

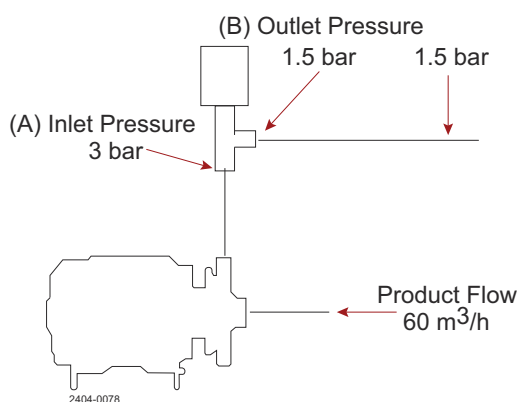
Inlet pressure of 3 bar

Outlet pressure of 1,5 bar

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

$$\Delta P = 3 \text{ bar} - 1,5 \text{ bar} = 1,5 \text{ bar}$$

$$Kvq = \frac{60}{\sqrt{1,5}} = 49$$



How to Use Data to Select Valve Size

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

Using the above example, refer to the chart on the following diagrams you will find that the Kv factor (49) is marked on the chart. You will find that a 2" valve crosses 1 Kv curve, 2½" 1 curve, 3" 3 curves and 4" 3 curves. The correct valve size to use is 2"

because Kv 49 crosses the curve closest to the optimum operating point 50%. Alternatively the 4" valve is also close to the 50%.

Pressure drop/capacity diagrams

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

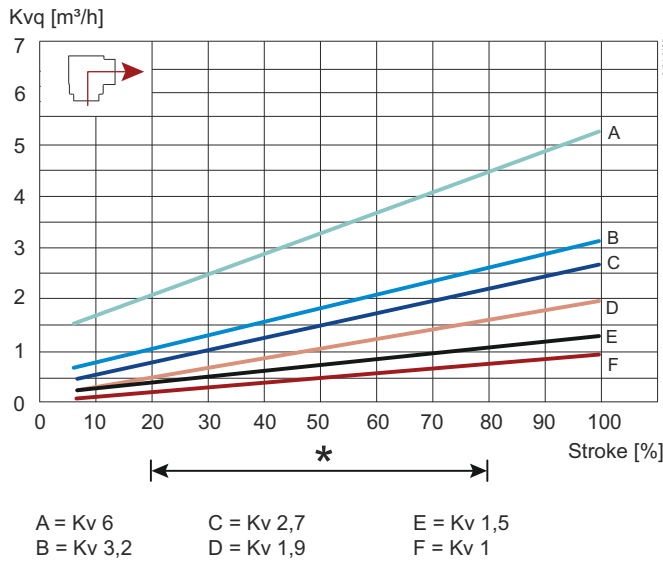


Figure 1. Valve size ISO 1"

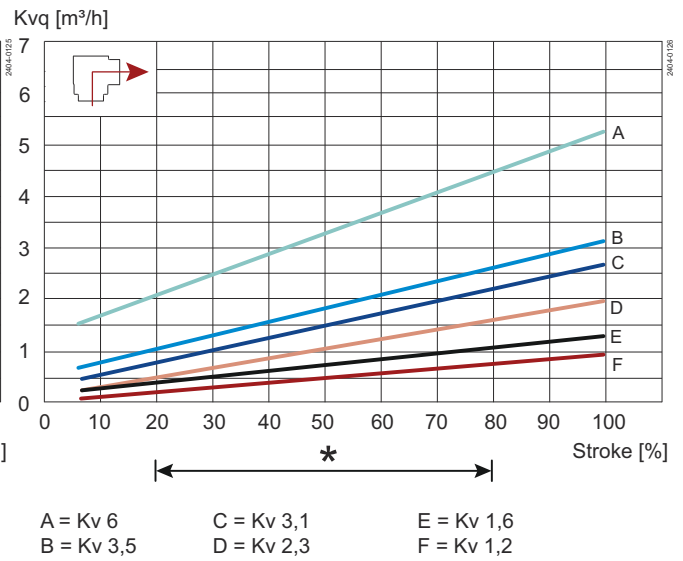


Figure 2. Valve size DN25

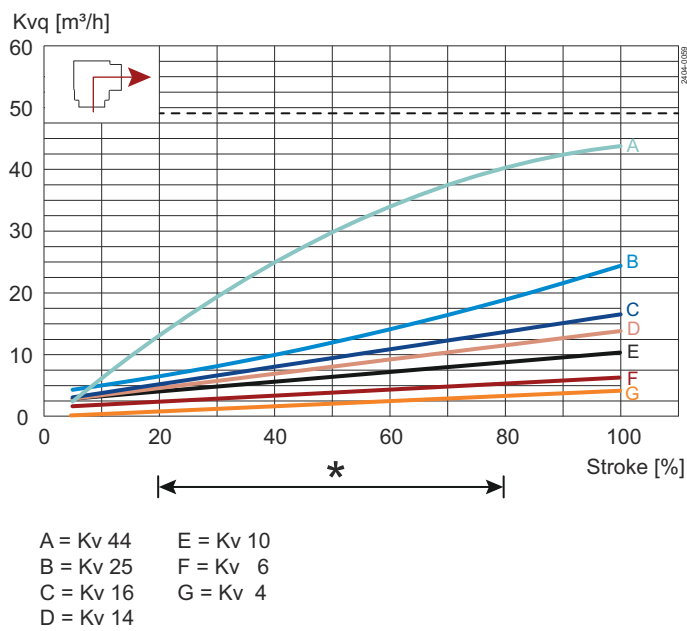


Figure 3. Valve size ISO 1.5"/DN40

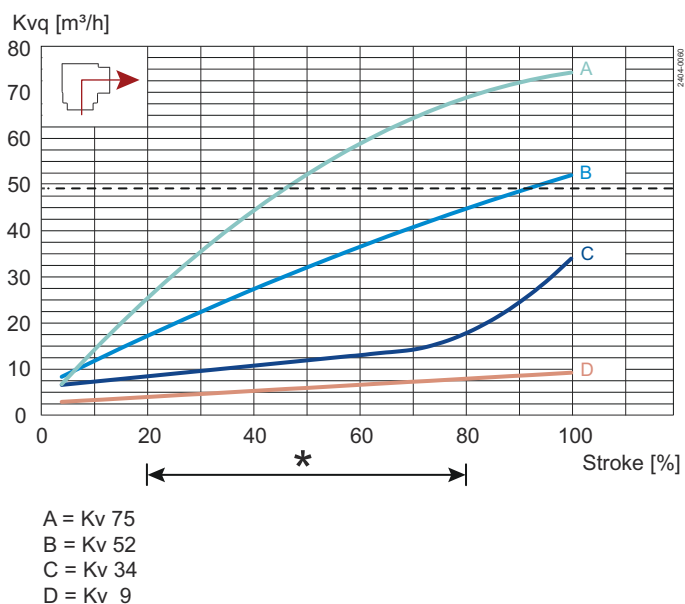


Figure 4. Valve size ISO 2"/DN50

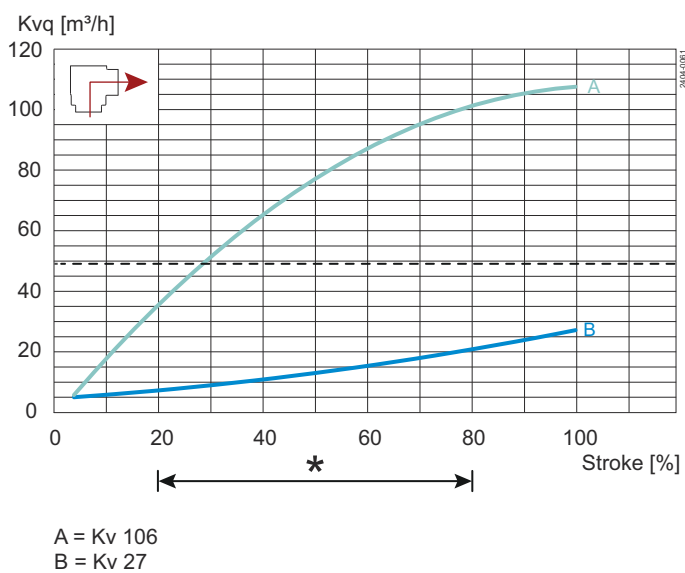


Figure 5. Valve size ISO 2,5"/DN65

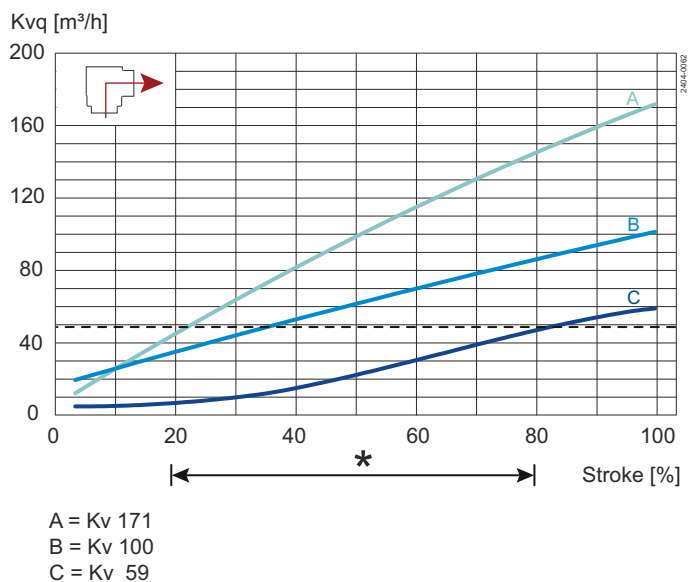


Figure 6. Valve size ISO 3"/DN80

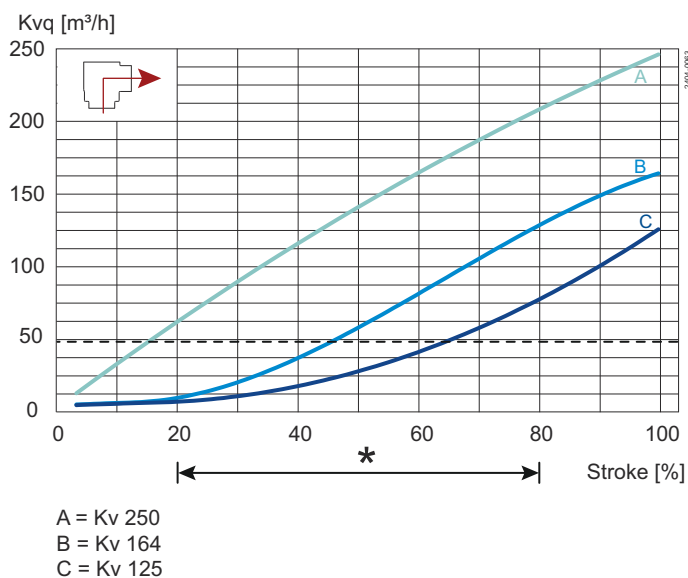


Figure 7. Valve size ISO 4"/DN100

* Recommended working area



Note! For the diagrams the following applies

Medium: Water (20° C)

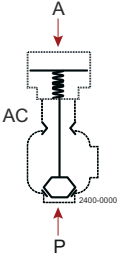
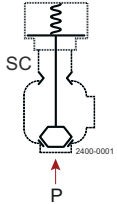
----- (dotted line) = Kv 49

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

Pressure data

Shut-off valves

Max. pressure in bar without leakage at the valve seat

Actuator / Valve body combination and direction of pressure	Air pressure [bar]	Plug position	Valve size [mm]				
			DN40/38	DN50/51	DN65/63.5	DN80/76.1	DN100/101.6
	6	NO	7.60	9.60	5.60	7.20	4.80
		NC	6.29	7.20	4.20	6.40	4.20
A = Air P = Product pressure AC = Air closes SC = Spring closes							

Dimensions (mm)

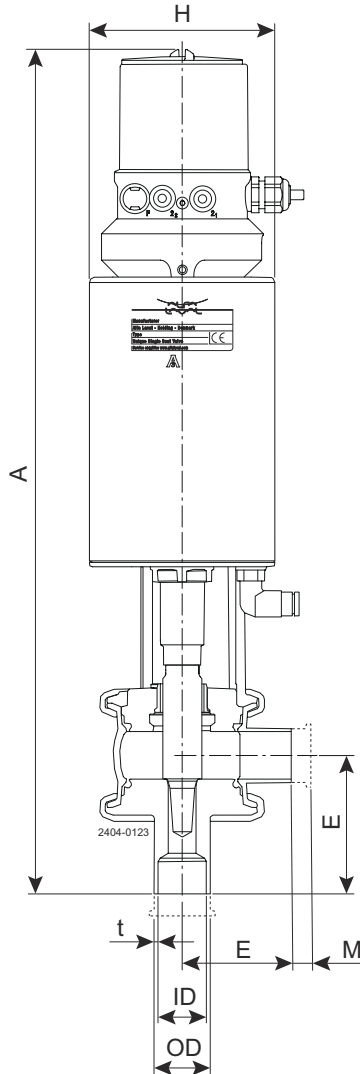


Figure 8. Needle valve

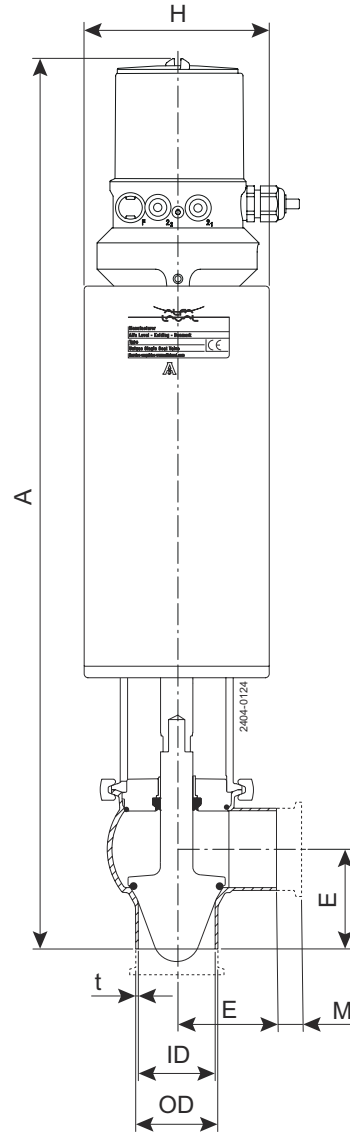


Figure 9. RV-ST valve

Size	25 ¹	38	51	63.5	76.1	101.6	DN ¹	DN	DN	DN	DN	DN
	mm	mm	mm	mm	mm	mm	25	40	50	65	80	100
A (with positioner 8694)	449	450	499	525	558	603	451	451	500	525	562	606
A (with positioner 8692)	486	487	536	562	595	640	488	488	537	562	599	643
OD	25	38	51	63.5	76.1	101.6	29	41	53	70	85	104
ID	21.8	34.8	47.8	60.3	72.9	97.6	26	38	50	66	81	100
t	1.6	1.6	1.6	1.6	1.6	2	2	1.5	1.5	2	2	2
E	50	49.5	61	81	86	119	50	49.5	61	78	86	120
H	85	85	115	115	157.5	157.5	85	85	115	115	157.5	157.5
M/ISO clamp	21	21	21	21	21	21						
M/DIN clamp							21	21	21	28	28	28
M/DIN male							22	22	23	25	25	30
M/SMS male	20	20	20	24	24	35						
Weight (kg)	3.1	7.3	9.5	10.5	16.4	18.6	3.2	7.3	9.5	10.5	16.4	18.6

¹ Dimensions for Needle valve

Air Connections Compressed air:

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

Electrical connections

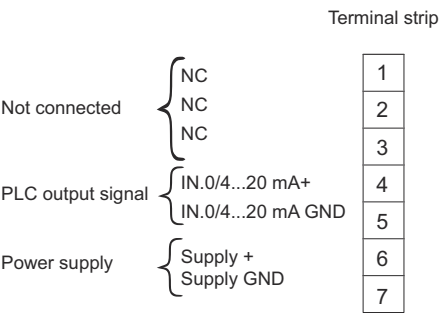


Figure 10. Positioner 8694
without display

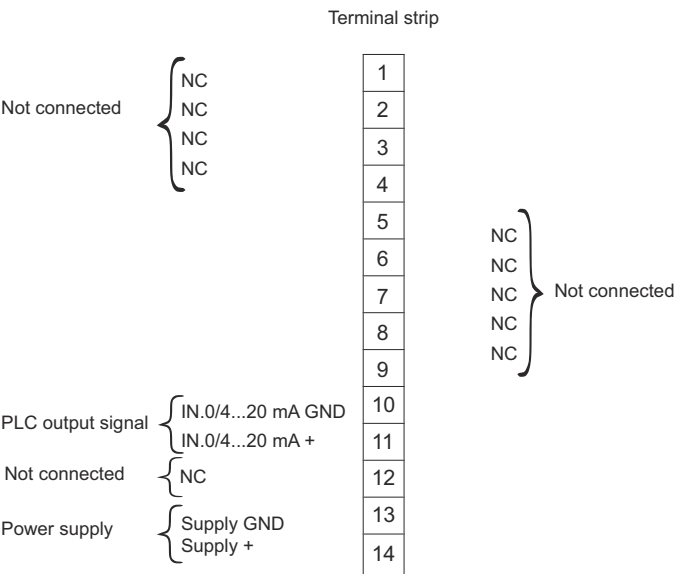


Figure 11. Positioner 8692
without display

Alfa Laval Unique RV-P

Regulating valves

Introduction

The Alfa Laval Unique RV-P Regulating Valve is an automatic hygienic regulating valve with an electro-pneumatic actuator for use in applications that require precision control of flow as well as pressure, temperature, and tank fluid levels.

Application

The Unique RV-P Regulating Valve is designed for precise flow control in the dairy, food, beverage, biotechnology, pharmaceutical and many other industries.

Benefits

- Precision flow control
- Advanced hygienic valve design
- Dedicated protection
- Reliable operation
- Large operating range

Standard design

Built on the Alfa Laval Unique SSV platform, the Unique RV-P Regulating Valve consists of valve body, valve plug, lip seal, and an external normally open (NO) actuator with bonnet. The actuator is fitted to the valve body by means of a clamp. The Kv value is flexible as lower element can be exchanged. Manual and aseptic versions are available. Upon request, the valve can also be supplied with a normally closed (NC) actuator.

Working principle

The Alfa Laval Unique RV-P Regulating Valve is controlled from a remote location by means of compressed air. An actuator with an integrated IP converter IP converter transforms the electrical signal to a pneumatic signal. This signal conversion is based on a highly accurate and reliable contactless AMR sensor, making it insensitive to vibrations and pressure shocks. The pneumatic signal is transmitted to the integrated positioner which operates by means of the force-balance principle, ensuring that the position of the actuator piston is directly proportional to the input signal. Signal range and zero point can be adjusted individually. The actuator can be used for split-range operation by using a different measuring spring.



Certificates

 Authorized to carry the 3A symbol

TECHNICAL DATA

Valves

Max. product pressure:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Temperature range:	-10 °C to 140 °C (EPDM)
Flow range Kv ($\Delta P = 1 \text{ bar}$):	0.5 to 110 m ³ /h
Max. pressure drop:	500 kPa (5 bar)

Actuator

Air quality

Air connection:	6/4 air tube with air fitting R1/8" (BSP)
Max. pressure:	600 kPa (6 bar)
Working pressure:	400 kPa (4 bar)
Max. size of particles:	0.01 mm
Max. oil content:	0.08 ppm
Dew point:	10 °C below ambient temp. or lower
Max. water content:	7.5 g/kg

I/P converter

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

PHYSICAL DATA

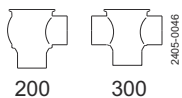
Materials, Valves

Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301(304)
Product wetted seals:	EPDM
External finish:	Semi-bright (blasted)
Internal finish:	Bright (polished) RA<0.8 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 1.4 and 6 bar

Air consumption at steady state condition:	With 0.6 bar signal pressure and supply pressures up to 6 bar $\leq 100 \text{ l/h}$
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Ambient temperature:	-25 °C to +70 °C
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Protection class:	IP 66
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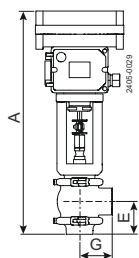
Flow sizes/tube connections

Kv	Seat diam. (mm)	Tube connections (mm)		Actuator (type no.)
		ISO	DIN/DN	
0.5 E	6	38	40	3277-5
1.0 E	10	38	40	3277-5
2 E	12	38	40	3277-5
4 E	14	38	40	3277-5
8 E	23	38	40	3277-5
16 E	29	38	40	3277-5
25 E	38	51	50	3277-5
32 E	48.5	51	50	3277-5
40 E	42	63.5	65	3277-5
64 L	51	63.5	65	3277-5
75 L	51	76.1	80	3277-5
110 L	72	101.6	100	3277-5

Options

- Male parts or clamp liners in accordance with required standard
- Product wetted seals of HNBR or Fluorinated rubber (FPM)
- Profibus communication
- Aseptic configuration Max 8 bar

Dimensions (mm)



Size	38	51	63.5	76.1	101.6		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	410	423	405	439	463	481	412	425	411	447	465	483
A- aseptic	411	426	412	446	470	488	414	427	418	454	472	490
E	56	63	67	85	96	96	57	64	70	89	98	98
G	49.5	61	81	86	119	119	49.5	62	78	87	120	120
H	168	168	168	168	168	280	168	168	168	168	168	280
OD	38	51	63.5	76.1	101.6	101.6	41	53	70	85	104	104
ID	34.8	47.8	60.3	72.9	97.6	97.6	38	50	66	81	100	100
t	1.6	1.6	1.6	1.6	2	2	1.5	1.5	2	2	2	2
M/ISO clamp	21	21	21	21	21	21	-	-	-	-	-	-
M/DIN clamp	-	-	-	-	-	-	21	21	28	28	28	28
M/DIN male	-	-	-	-	-	-	22	23	25	25	30	30
M/SMS male	20	20	24	24	35	35	-	-	-	-	-	-
Weight kg	8.2	9.3	9.7	11.2	15.4	24.9	8.2	9.3	9.7	11.2	15.4	24.9

Capacity diagram

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

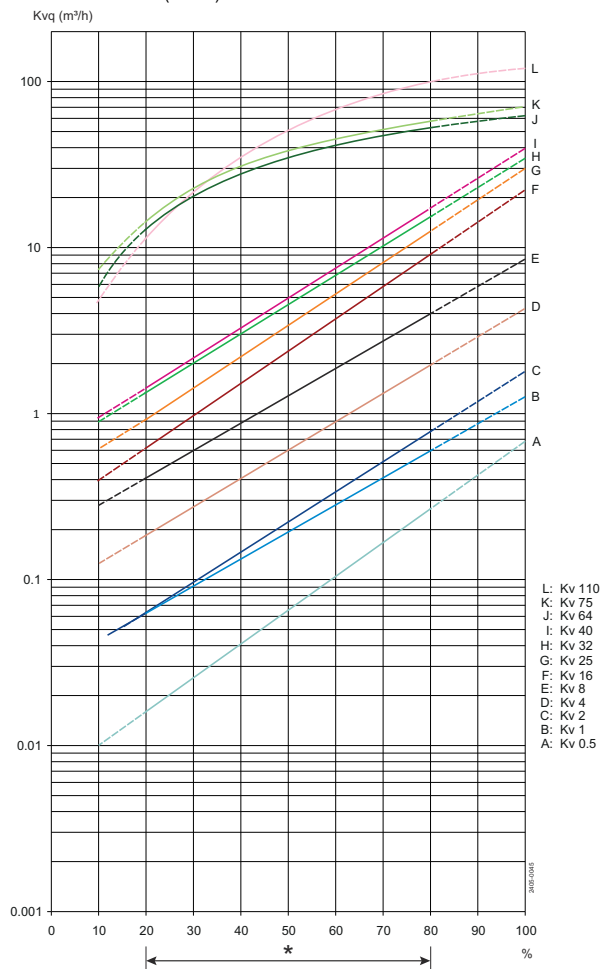


Figure 1. Standard

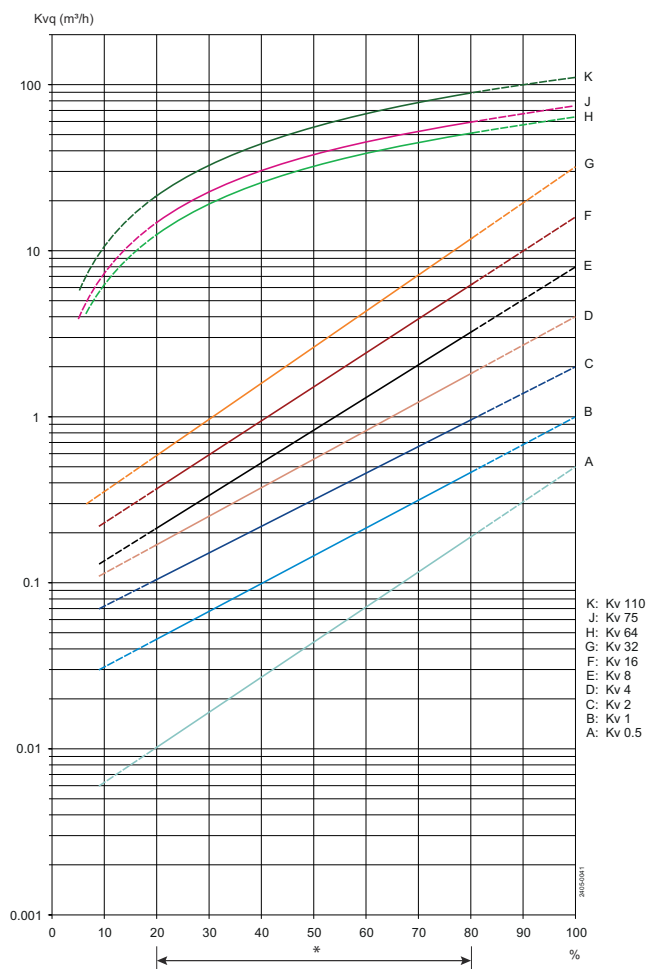


Figure 2. Aseptic

*Recommended working area



Note! For the diagram the following applies:

Medium: Water (20 °C).

Measurement: In accordance with VDI 2173.

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

Conversion Table

100 kPa = 1 bar = 14.5 PSI

10 mm = 0.39 inch

10 m^3/h = 44.03 US GPM

Pressure drop calculation

The Kv designation is the flow rate in m^3/h at a pressure drop of 1 bar when the valve is fully open (water at 20°C or similar liquids). To select the Kv value it is necessary to calculate the Kv_q value using the following formula:

$$Kv_q = \frac{Q}{\sqrt{\Delta p}}$$

Where:

Kv_q = Kv value at specific flow and specific pressure drop

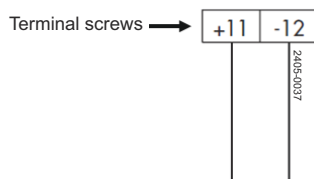
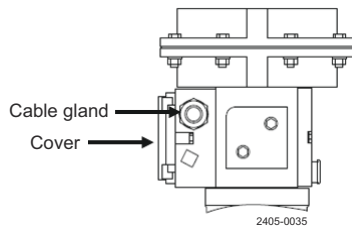
Q = Flow rate (m^3/h)

ΔP = Pressure drop over valve (bar)

Electrical connection

Electrical connection - Analogue 4-20 mA

Positioner 3725



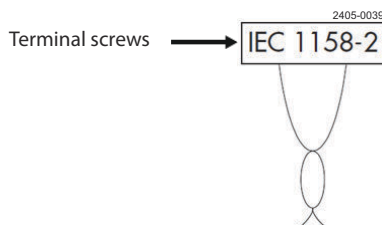
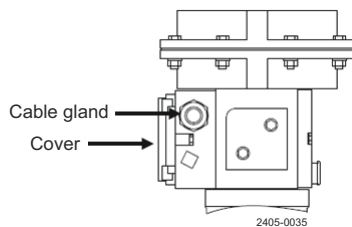
4-20 mA control signal

Route the two-wire line to the screw terminals marked "11 and 12", whereby the correct polarity has to be ensured

1. Open the cover of the positioner for electrical connection
2. Fit the cable through the cable gland and connect the cable wires to the terminal screws. (+11 and -12)
3. Tighten the cable gland and close the cover of the positioner

Electrical connection - Profibus PA

Positioner 3730-4



Bus control signal

Route the two-wire bus line to the screw terminals marked "IEC 1158-2", whereby no polarity has to be observed

1. Open the cover of the positioner for electrical connection
2. Fit the bus cable through the cable gland and connect the cable wires to the terminal screws. (IEC 1158-2)
3. Tighten the cable gland and close the cover of the positioner

By searching on positioner type 3730-4 you can either retrieve the GSD files for PROFIBUS PA communication directly from the World Wide Web server of Samson or the PROFIBUS User Organization

Alfa Laval CPM

Regulating valves

Introduction

The Alfa Laval CPM Constant-Pressure Modulating Valve is a pneumatic regulating valve that maintains a constant pressure in hygienic process lines at the valve inlet or outlet. Safe, reliable and easy to clean, these regulating valves provide accurate pressure control, quickly adjusting position to maintain the pressure at pre-set values without any need for electronic control.

Application

This pneumatic regulating valve maintains uniform inlet or outlet pressure in hygienic process lines for the dairy, food, beverage, personal care and many other industries. Typical applications include filling and bottling equipment.

Benefits

- Safe, effective pressure control
- Self-draining design
- Excellent valve cleanability
- Easy to install, simple to operate
- High hygienic level

Standard design

The CPM Constant-Pressure Modulating Valve is available in three versions: the CPMI-2, the CPMO-2, and the CPM-I-D60. 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. The CPM-I-D60 consists of a valve body in two parts, an upper body and a lower body, as well as an inlet tube, cover, valve plug with diaphragm unit, and clamps. The cover and valve bodies are clamped together. ATEX version is also available.

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.



TECHNICAL DATA

Pressure

Max. product pressure:	1000 kPa (10 bar)
Min. product pressure:	0 kPa (0 bar)
Air pressure (CPMI-2/CPMO-2):	0 to 800 kPa (0 to 8 bar)
Air pressure (CPM-I-D60):	0 to 600 kPa (0 to 6 bar)

Temperature range:

With upper diaphragm NBR and lower PTFE/EPDM:	-10 °C to +95 °C
With upper diaphragm PTFE/EPDM and lower PTFE/EPDM:	-10 °C to +140 °C

ATEX

Classification:	II 3 G D ¹
-----------------	-----------------------

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

Flow

Flow Kv 23, fully open ($\Delta p = 1$ bar):	Approx 23 m ³ /h
Flow Kv 7 ($\Delta p = 1$ bar):	Approx 7 m ³ /h
Flow Kv 9 ($\Delta p = 1$ bar):	Approx 9 m ³ /h
Flow Kv2/15, low capacity ($\Delta p = 1$ bar):	Approx 2 m ³ /h
(Alternative size):	(regulating area). Approx. 15 m ³ /h. (CIP area)
Flow range Kv60, fully open ($\Delta p = 1$ bar) (CPM-I-D60):	Approx 60 m ³ /h

PHYSICAL DATA

Materials

Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
Lower diaphragm:	PTFE covered EPDM rubber
Upper diaphragm	NBR

Surface finish choose from the following:

Standard	
Internal/external semi-bright:	Ra ≤ 1.6 µm
Optional	
Inside/outside	Ra ≤ 0.8 µm or 0.5 µm

Air Connections

R 1/4" (BSP), internal thread:

Options

- Male parts or clamp liners in accordance with required standard.
- Air pressure regulating valve kit, 0-8 bar
- Air throttling valve for adjustment of regulating speed for the CPM-2 valve
- Booster for product pressure exceeding the available air pressure (Product pressure = 1.8 x air pressure)
- US 3A version available on request for CPM-2 valves only

Material grades CPM-2

- Upper diaphragm of PTFE covered EPDM and O-ring of FPM covered EPDM (for temperature 95-140 °C)
- Both diaphragms of solid PTFE and O-ring of FPM (for temperatures above 140 °C)

Material grades CPM-I-D60

- Upper diaphragm of PTFE covered EPDM
- Valve body seal rings of NBR or FPM
- Guide O-ring of FPM (for temperatures above 95 °C)

Principle

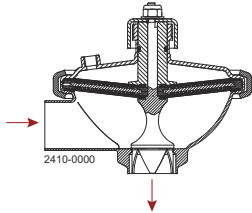


Figure 1. CPMI-2: Reduced product pressure

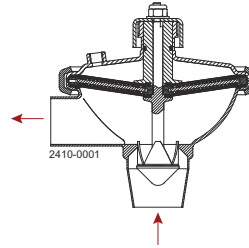


Figure 2. CPMO-2

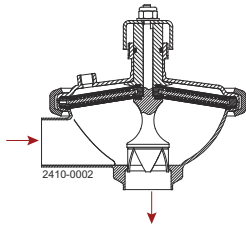


Figure 3. CPMI-2: Increased product pressure

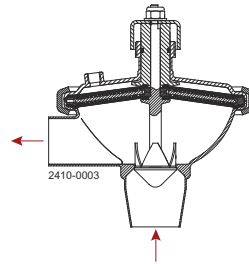


Figure 4. CPMO-2

CPMI-2 and CPM-I-D60 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. CPM-I-D60: The diaphragm unit consists of two flexible diaphragms supported by 12 stainless steel sectors in between them.



Note!

For further details, see also instructions ESE01825 and ESE01834.

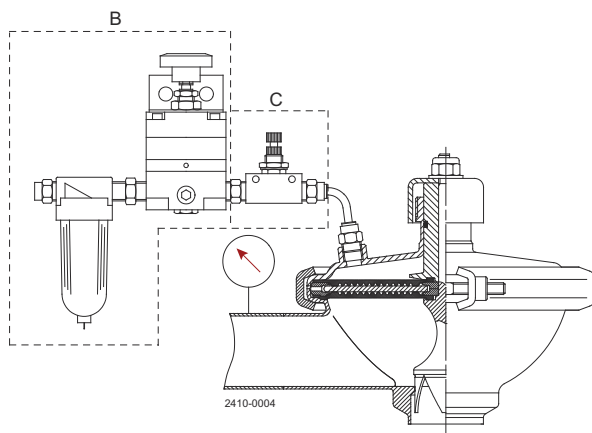


Figure 5. CPMI-2 with pressure regulating valve and pressure gauge

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

Pressure drop/capacity diagrams

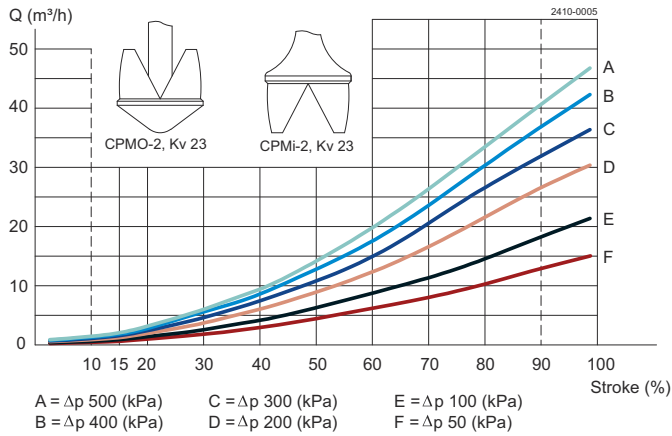


Figure 6. CPM-2, Kv 23



Note!

For all diagrams the following applies:

Medium: Water (20 °C)

Measurement: In accordance with VDI 2173

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

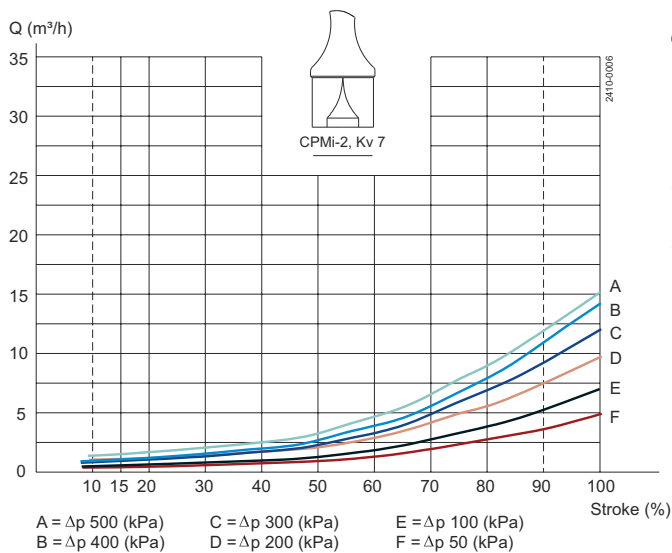


Figure 7. CPMi-2, Kv 7

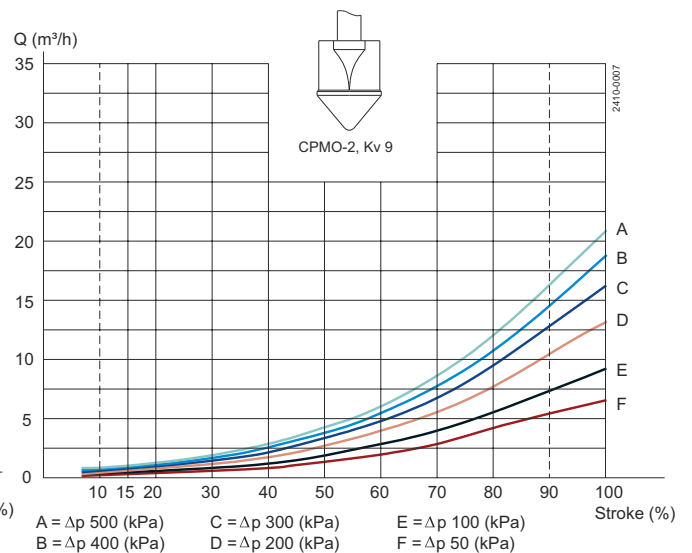


Figure 8. CPMO-2, Kv 9

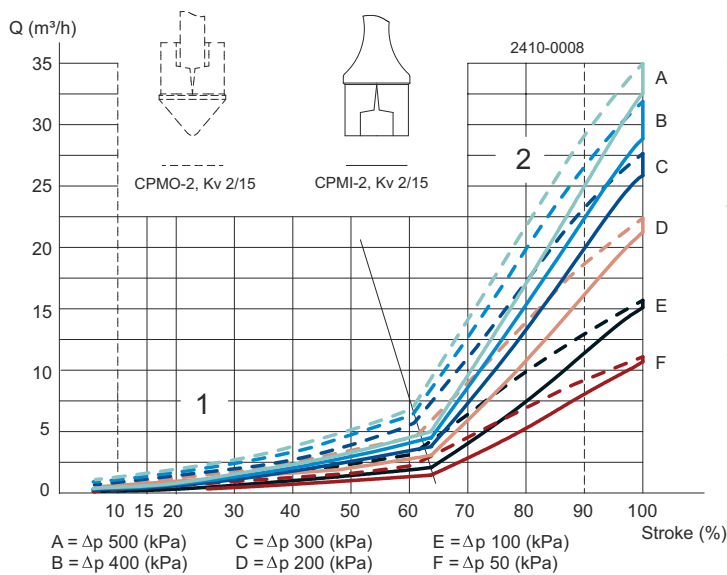


Figure 9. CPM-2, Kv 2/15

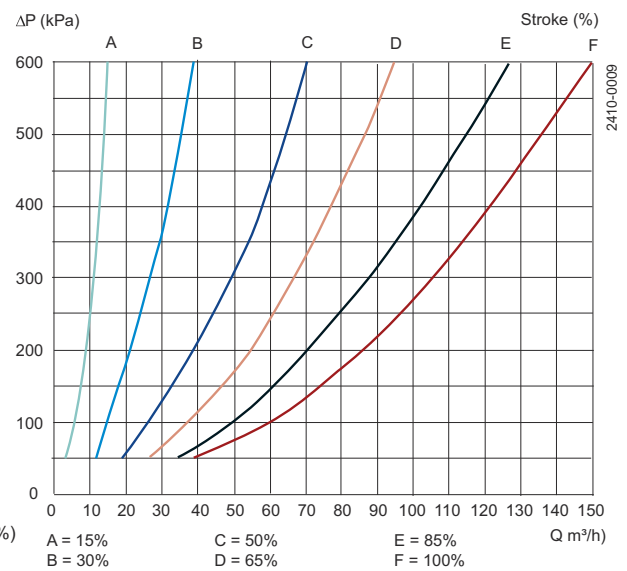


Figure 10. CPM-I-D, Kv 60

Example 1:

Pressure drop $\Delta p = 200$ kPa

Flow $Q = 8$ m³/h

Select: CPM-2, Kv 23 which at working point will be 48% open.

Example 2:

CPMI-2: Pressure drop $\Delta p = 300$ kPa

Flow $Q = 1$ m³/h

Select: CPMI-2, Kv 2/15 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 $\Delta p = 300$ kPa

2. Flow = 50m³/h

The intersection is on the 50% curve.



Note!

Always try to get as close as possible to the 50% open curve. If the CPM-I-D60 is too big select from the CPMI-2 curves.

Dimensions (mm)

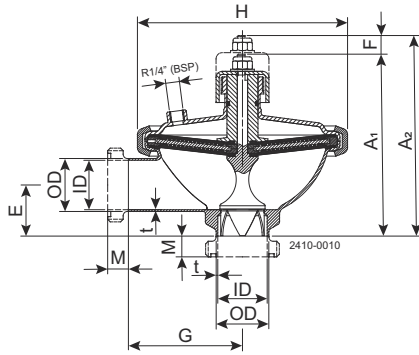


Figure 11. CPMI-2

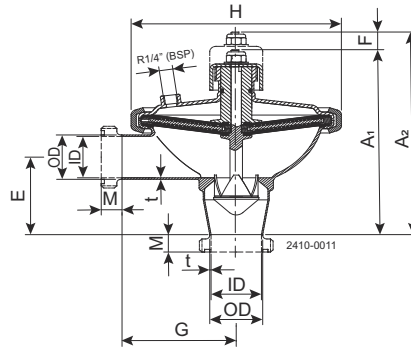


Figure 12. CPMO-2

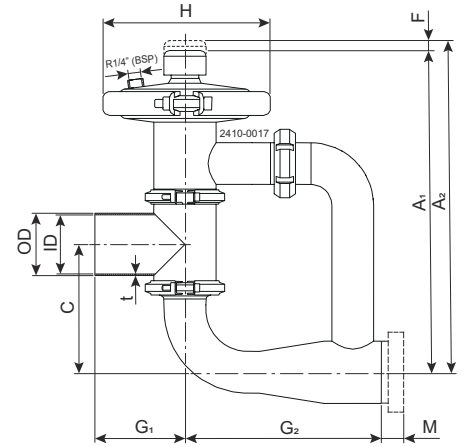


Figure 13. CPM-I-D60

Size	CPMI-2			CPMO-2			CPM-I-D60
	Kv 23	Kv 7	Kv 2/15	Kv 23	Kv 9	Kv 2/15	76 mm
A1	175.1	175.1	175.1	211	175.1	175.1	413.2
A2	193.4	193.4	193.4	229.3	229.3	193.4	430
C	-	-	-	-	-	-	155
OD (Inch/DN)	50.8/53	50.8/53	50.8/53	50.8/53	50.8/53	50.8/53	76
ID (Inch/DN)	47.6/50	47.6/50	47.6/50	47.6/50	47.6/50	47.6/50	72
t (Inch/DN)	1.6/1.5	1.6/1.5	1.6/1.5	1.6/1.5	1.6/1.5	1.6/1.5	2
E (Inch/DN)	49.2/50	49.2/50	49.2/50	86.3/89.2	49.2/50	49.2/50	
F	18.3	18.3	18.3	18.3	18.3	18.3	16.8
G	110	110	110	110	110	110	
G1	-	-	-	-	-	-	110
G2	-	-	-	-	-	-	240
H	203	203	203	203	203	203	200
M/ISO clamp	21	21	21	21	21	21	21
M/ISO male	21	21	21	21	21	21	21
M/DIN male	22	22	22	22	22	22	30
M/SMS male	20	20	20	20	20	20	24
M/BS male	22	22	22	22	22	22	22
Seat diameter	42	31	31	42	31	31	
Weight (kg)	5.5	5.5	5.5	5.5	5.5	5.5	10

Alfa Laval SB Tank Pressure Regulator

Regulating valves

Introduction

The Alfa Laval SB Tank Pressure Regulator maintains the working pressure in the vapour space, or at the top, of a process tank during filling, processing and emptying. It generally connects directly to the gas pipe or Cleaning-in-Place (CIP) pipe that leads in to the tank top, or is incorporated into a flow panel. This ensures process safety and effectiveness as well as safeguards product integrity.

Application

This control valve typically regulates the pressure in tanks used in the dairy, food, beverage, brewery and many other industries. The valve easily integrates with an Alfa Laval SCANDI BREW® tank top system.

Benefits

- Reliable, constant tank pressure control
- Variable pressure setting
- Optimized cleaning
- Built-in pressure gauge
- Fully cleanable with Cleaning-in-Place system

Standard design

The pressure regulator comprises a single valve unit including pressure exhaust valve, pressure supply valve and connection for pressure gauge. On top is a vent port with outlet connection. A tank connection at the side branch is normally connected to the pipe leading to the tank top. It is also possible to incorporate the pressure regulator in a flow panel.

Working principle

The valve unit has a variable setting, which enables adjustment of the relieving pressure to match the required working pressure in the tank. When tank top pressure exceeds the preset pressure, the regulator releases gas through the vent port—either for atmospheric discharge or for collection. If the tank top pressure decreases, a gas supply connection at the bottom of the valve allows gas to flow into the tank.



TECHNICAL DATA

Nominal size	Pressure range	Max. Filling/emptying speed	Working capacity of fermentation ¹
1"	0.2-4.0 bar	25 m³/h	100 m³
1½"	0.2-4.0 bar	50 m³/h	200 m³
2"	0.2-4.0 bar	100 m³/h	400 m³
3"	0.2-4.0 bar	200 m³/h	800 m³

¹ At max. fermentation rate 2.4 deg. Plato / 24 hrs.

PHYSICAL DATA

Materials

Product wetted steel parts:	EN 1.4307 (AISI 304L)
Product wetted seals:	EPDM

Connections

Connections

Union IDF acc. ISO 2853
Union SMS Swedish Standard Union
lamp ferrule acc. ISO 2852

Cleaning in place (CIP)

Cleaning of the Tank Pressure Regulator is necessary before the next batch. The Tank Pressure Regulator is incorporated in the tank CIP procedure by means of the CIP adaptor. Before cleaning, the CIP adaptor is mounted on the pressure regulator whereby gas supply valve and pressure relief valve are forced open and fully cleaned in bypass. During the CIP procedure, all functions are blocked. See schematic drawing of the regulator.

Options

Pos. 1: CIP bend

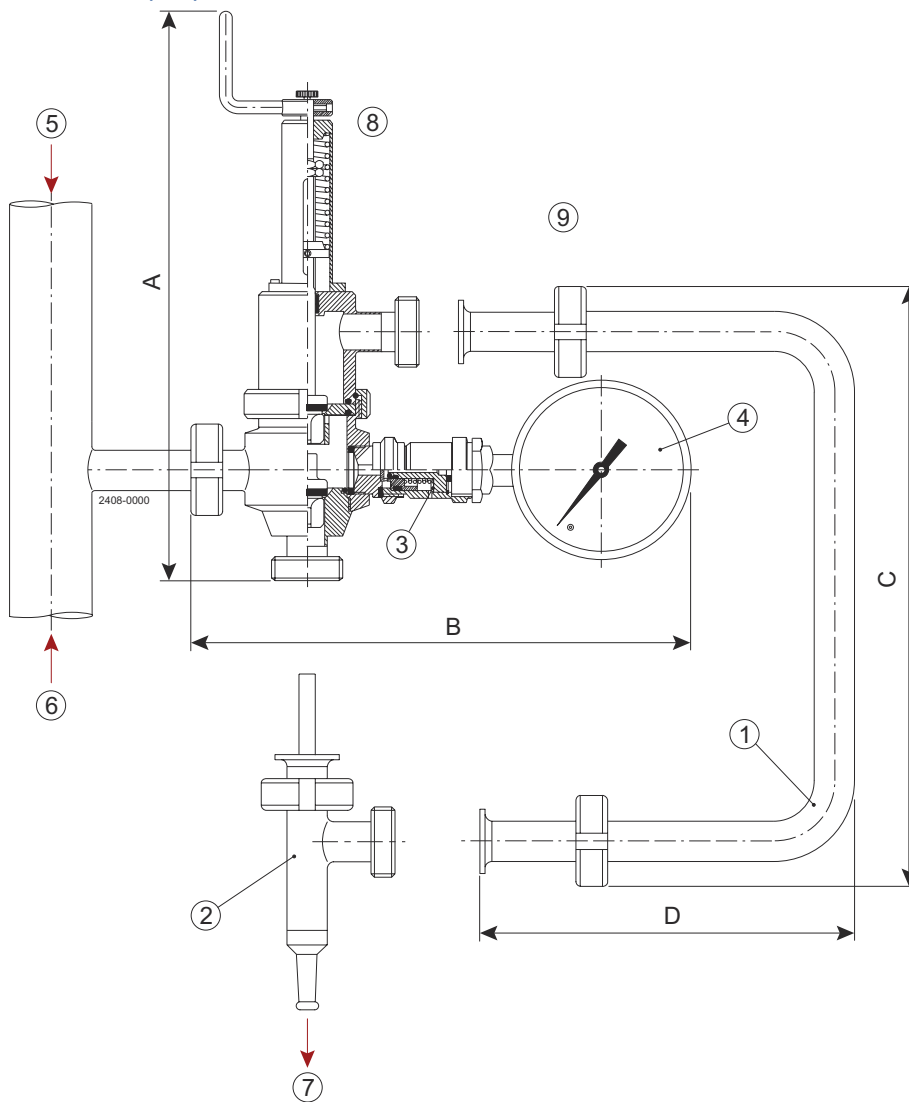
Pos. 2: CIP T-piece

Pos. 3: Protection valve for pressure gauge

Pos. 4: Pressure gauge

Mounting bracket

Dimensions (mm)



- 5 - CO₂
- 6 - CIP pipe to tank top
- 7 - CIP
- 8 - Variable pressure setting
- 9 - Pressure regulator with CIP adapter

Size	A	B
25	390	345
38	440	390
51	540	390
76.1	620	380

Size	Connection	C	D
25	DIN	305	215
40	DIN	355	220
50	DIN	435	230
80	DIN	500	230
25	SMS	290	205
38	SMS	355	210
51	SMS	425	215
76.1	SMS	480	215
25	Clamp	345	220
38	Clamp	385	225
51	Clamp	460	230
76.1	Clamp	500	230
25	IDF	300	210

Size	Connection	C	D
38	IDF	355	215
51	IDF	430	220
76.1	IDF	475	220

Alfa Laval SB Pressure Exhaust Valve

Regulating valves

Introduction

The Alfa Laval SB Pressure Exhaust Valve is a pneumatic regulating valve that automatically releases pressure in a hygienic process tank when it exceeds the set pressure. To ensure safe pressure regulations at all times, the set pressure can easily be adjusted manually or from a remote location that is connected to the central control system.

Application

This pneumatic regulating valve is designed for use in process tanks or vessels for hygienic applications in the brewery, food, dairy, beverage and many other industries.

Benefits

- Reliable control of tank top pressure
- Easy to integrate with SCANDI BREW® safety valves and top plates
- Fully cleanable with Cleaning-in-Place system
- Easy to integrate into existing installations
- Low investment due to simplified installation

Standard design

The Alfa Laval SB Pressure Exhaust Valve consists of an AISI 316L stainless steel body, EPDM seals, and fittings for 4/6 mm 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)
38mm	1-4 bar
51mm	0,5-4 bar

PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4404 (AISI 316L)
Product wetted seals:	EPDM
Product wetted polymers:	Polypropelen

Connection

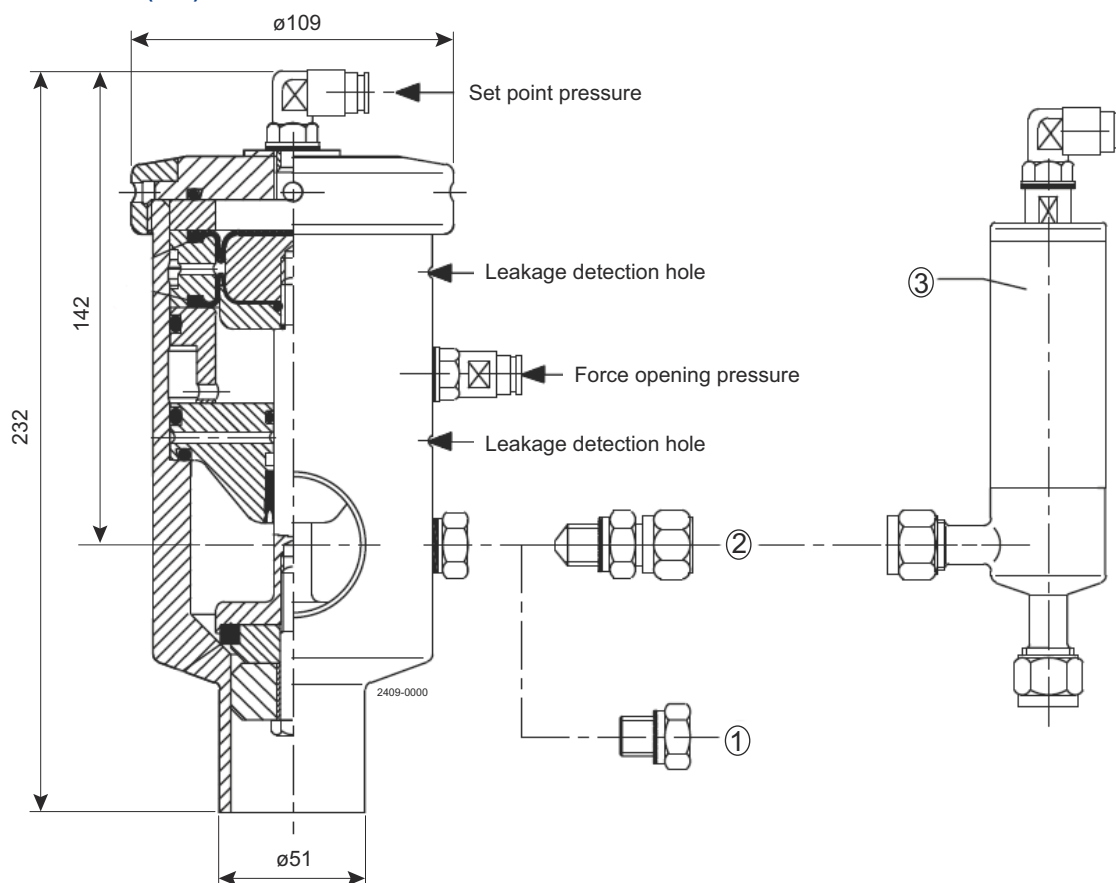
Weld End acc. ISO 2037

Unions DIN 11851

Cleaning In Place (CIP)

After force-opening of the Pressure Exhaust Valve by an air signal to the lower part of the membrane set, the valve is fully cleanable either by means of an optional CIP supply valve to the cleaning nozzle on the valve housing or simultaneously in line with cleaning of vent/recovery mains.

Dimensions (mm)



Pos. 1: Cleaning nozzle

Pos. 2: Closing plug

Pos. 3: Pneumatic CIP supply valve

Pos. 1 and 2 included in valve

Unique RV-P

Regulating valves

Valve Model Specification: Standard valve
ALSIS Code: 5370

Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: $Ra \leq 0.8 \mu m$
Outside surface finish: Blasted
Actuation: Pneumatic NC and NO

Item no.	Size		Plug type	Flow Kv	Dimension (mm)			
	inch	DN		(m3/h)	A	E	G	
DIN tube, normally closed								
9615223214	38.0	40.0	E	4.0	412	57	49.5	
9615223216	38.0	40.0	E	16.0	412	57	49.5	
9615223215	38.0	40.0	E	8.0	412	57	49.5	
9615223211	38.0	40.0	E	0.5	412	57	49.5	
9615223212	38.0	40.0	E	1.0	412	57	49.5	
9615223213	38.0	40.0	E	2.0	412	57	49.5	
9615223217	51.0	50.0	E	32.0	425	64	61	
8010001809	51.0	50.0	E	25.0	425	64	61	
9615223218	63.5	65.0	L	64.0	411	70	78	
8010001813	63.5	65.0	L	40.0	411	70	78	
9615223219	76.1	80.0	L	75.0	447	89	86	
9615223220	101.6	100.0	L	110.0	465	98	120	
DIN tube, normally open								
9615223204	38.0	40.0	E	4.0	412	57	49.5	
9615223205	38.0	40.0	E	8.0	412	57	49.5	
9615223206	38.0	40.0	E	16.0	412	57	49.5	
9615223201	38.0	40.0	E	0.5	412	57	49.5	
9615223202	38.0	40.0	E	1.0	412	57	49.5	
9615223203	38.0	40.0	E	2.0	412	57	49.5	
9615223207	51.0	50.0	E	32.0	425	64	61	
8010001810	51.0	50.0	E	25.0	425	64	61	
9615223208	63.5	65.0	L	64.0	411	70	78	
8010001814	63.5	65.0	L	40.0	411	70	78	
9615223209	76.1	80.0	L	75.0	447	89	86	
9615223210	101.6	100.0	L	110.0	465	98	120	
Inch tube, normally closed								
9615223114	38.0	40.0	E	4.0	410	56	49.5	
9615223113	38.0	40.0	E	2.0	410	56	49.5	
9615223115	38.0	40.0	E	8.0	410	56	49.5	
9615223116	38.0	40.0	E	16.0	410	56	49.5	
9615223111	38.0	40.0	E	0.5	410	56	49.5	
9615223112	38.0	40.0	E	1.0	410	56	49.5	
9615223117	51.0	50.0	E	32.0	423	63	61	
8010001806	51.0	50.0	E	25.0	423	63	61	
9615223118	63.5	65.0	L	64.0	405	67	81	
8010001811	63.5	65.0	L	40.0	405	67	81	
9615223119	76.1	80.0	L	75.0	439	85	86	
9615223120	101.6	100.0	L	110.0	481	96	119	

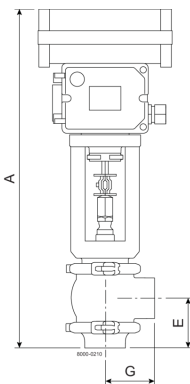
For further information - please see PD-sheet.

Regulating valves

Unique RV-P

Valve Model Specification: Standard valve
ALSIS Code: 5370

Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: $Ra \leq 0.8 \mu m$
Outside surface finish: Blasted
Actuation: Pneumatic NC and NO

Item no.	Size		Plug type	Flow Kv	Dimension (mm)			
	inch	DN		(m3/h)	A	E	G	
Inch tube, normally open								
9615223105	38.0	40.0	E	8.0	410	56	49.5	
9615223102	38.0	40.0	E	1.0	410	56	49.5	
9615223104	38.0	40.0	E	4.0	410	56	49.5	
9615223103	38.0	40.0	E	2.0	410	56	49.5	
9615223106	38.0	40.0	E	16.0	410	56	49.5	
9615223101	38.0	40.0	E	0.5	410	56	49.5	
9615223107	51.0	50.0	E	32.0	423	63	61	
8010001808	51.0	50.0	E	25.0	423	63	61	
9615223108	63.5	65.0	L	64.0	405	67	81	
8010001812	63.5	65.0	L	40.0	405	67	81	
9615223109	76.1	80.0	L	75.0	439	85	86	
9615223110	101.6	100.0	L	110.0	463	96	119	

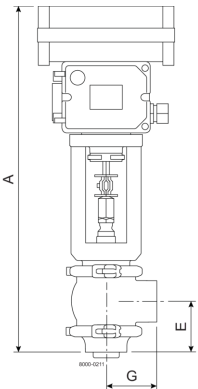
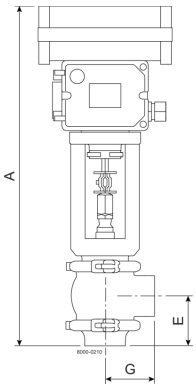
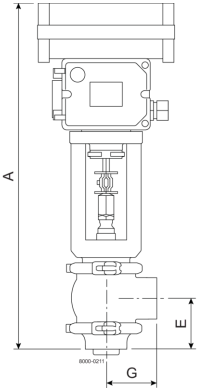
For further information - please see PD-sheet.

Unique RV-P-A

Regulating valves

Valve Model Specification: Aseptic valve
ALSIS Code: 5370

Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: $Ra \leq 0.8 \mu m$
Outside surface finish: Blasted
Actuation: Pneumatic NC and NO

Item no.	Size		Plug type	Flow Kv	Dimension (mm)			
	inch	DN		(m3/h)	A	E	G	
DIN tube, normally closed								
9615223411	38.0	40.0	E	0.5	414	57	49.5	
9615223413	38.0	40.0	E	2.0	414	57	49.5	
9615223414	38.0	40.0	E	4.0	414	57	49.5	
9615223412	38.0	40.0	E	1.0	414	57	49.5	
9615223415	38.0	40.0	E	8.0	414	57	49.5	
9615223416	38.0	40.0	E	16.0	414	57	49.5	
9615223417	51.0	50.0	E	32.0	427	64	61	
9615223418	63.5	65.0	L	64.0	418	70	78	
9615223419	76.1	80.0	L	75.0	454	89	86	
9615223420	101.6	100.0	L	110.0	472	98	120	
DIN tube, normally open								
9615223401	38.0	40.0	E	0.5	414	57	49.5	
9615223402	38.0	40.0	E	1.0	414	57	49.5	
9615223404	38.0	40.0	E	4.0	414	57	49.5	
9615223403	38.0	40.0	E	2.0	414	57	49.5	
9615223405	38.0	40.0	E	8.0	414	57	49.5	
9615223406	38.0	40.0	E	16.0	414	57	49.5	
9615223407	51.0	50.0	E	32.0	427	64	61	
9615223408	63.5	65.0	L	64.0	418	70	78	
9615223409	76.1	80.0	L	75.0	454	89	86	
9615223410	101.6	100.0	L	110.0	472	98	120	
Inch tube, normally closed								
9615223316	38.0	40.0	E	16.0	411	56	49.5	
9615223311	38.0	40.0	E	0.5	411	56	49.5	
9615223312	38.0	40.0	E	1.0	411	56	49.5	
9615223314	38.0	40.0	E	4.0	411	56	49.5	
9615223313	38.0	40.0	E	2.0	411	56	49.5	
9615223315	38.0	40.0	E	8.0	411	56	49.5	
9615223317	51.0	50.0	E	32.0	426	63	61	
9615223318	63.5	65.0	L	64.0	412	57	81	
9615223319	76.1	80.0	L	75.0	446	85	86	
9615223320	101.6	100.0	L	110.0	470	96	119	

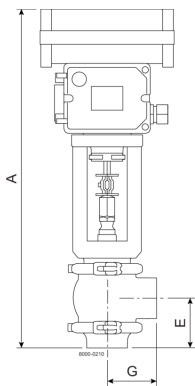
For further information - please see PD-sheet.

Regulating valves

Unique RV-P-A

Valve Model Specification: Aseptic valve
ALSIS Code: 5370

Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: $Ra \leq 0.8 \mu m$
Outside surface finish: Blasted
Actuation: Pneumatic NC and NO

Item no.	Size		Plug type	Flow Kv	Dimension (mm)			
	inch	DN		(m3/h)	A	E	G	
Inch tube, normally open								
9615223301	38.0	40.0	E	0.5	411	56	49.5	
9615223303	38.0	40.0	E	2.0	411	56	49.5	
9615223304	38.0	40.0	E	4.0	411	56	49.5	
9615223302	38.0	40.0	E	1.0	411	56	49.5	
9615223305	38.0	40.0	E	8.0	411	56	49.5	
9615223306	38.0	40.0	E	16.0	411	56	49.5	
9615223307	51.0	50.0	E	32.0	426	63	61	
9615223308	63.5	65.0	L	64.0	412	57	81	
9615223309	76.1	80.0	L	75.0	446	85	86	
9615223310	101.6	100.0	L	110.0	470	96	119	

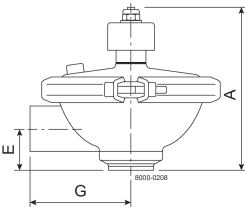
For further information - please see PD-sheet.

CPM-I

Regulating valves

Valve Model Specification: Constant pressure valve
 ALSIS Code: 5284

Material: 1.4404 (316L)
 Connection Type: Welding ends
 Seals: EPDM
 Inside surface finish: $Ra \leq 1.6 \mu m$
 Outside surface finish: Blasted
 Actuation: Pneumatic NC

Item no.	Tube standard	Size		Flow Kv	Dimension (mm)			
		inch	DIN	(m3/h)	A	E	G	
CPMI-2								
9612305505	DIN tube		50.0	23.0	175.1 - 193.4	50.4	110.0	
9612305507	DIN tube		50.0	2.0/15.0	175.1 - 193.4	50.4	110.0	
9612305519	DIN tube		50.0	7.0	175.1 - 193.4	50.4	110.0	
9612305501	Inch tube	51.0		23.0	175.1 - 193.4	49.2	110.0	
9612305503	Inch tube	51.0		2.0/15.0	175.1 - 193.4	49.2	110.0	
9612305517	Inch tube	51.0		7.0	175.1 - 193.4	49.2	110.0	

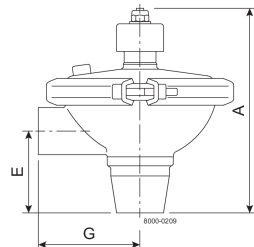
For further information - please see PD-sheet.

Regulating valves

CPM-O

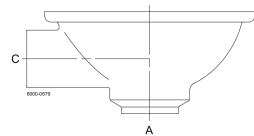
Valve Model Specification: Constant pressure valve
ALSIS Code: 5284

Material: 1.4404 (316L)
Connection Type: Welding ends
Seals: EPDM
Inside surface finish: $Ra \leq 1.6 \mu m$
Outside surface finish: Blasted
Actuation: Pneumatic NC

Item no.	Tube standard	Size		Flow Kv	Dimension (mm)			
		inch	DIN	(m3/h)	A	E	G	
CPMO-2								
9612305506	DIN tube		50.0	23.0	210.0 - 229.3	86.3	110.0	
9612305508	DIN tube		50.0	2.0/15.0	175.1 - 193.4	50.4	110.0	
9612305520	DIN tube		50.0	9.0	175.1 - 229.3	50.4	110.0	
9612305502	Inch tube	51.0		23.0	210.0 - 229.3	89.2	110.0	
9612305518	Inch tube	51.0		9.0	175.1 - 229.3	50.4	110.0	
9612305504	Inch tube	51.0		2.0/15.0	175.1 - 193.4	50.4	110.0	

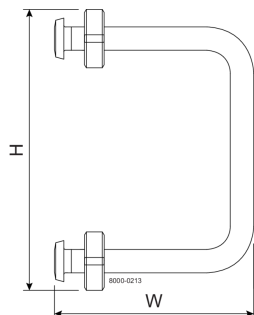
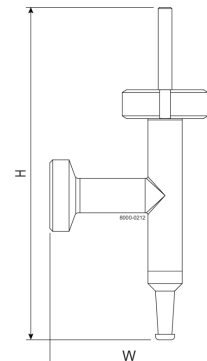
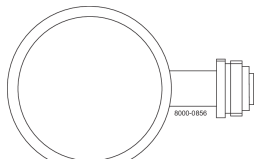
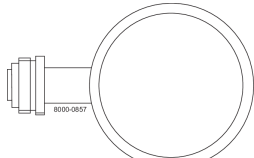
For further information - please see PD-sheet.

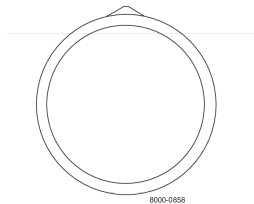
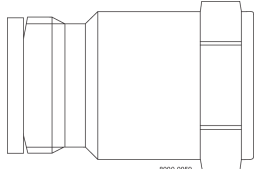
The regulating valves not mentioned in the code number sheets, should be ordered as below
 ALSIS code: 5284

Item no.	Size		Type	Options	
	mm	DN			
Diaphragm					
			CPMI/O-2	Replacement to solid PTFE upper and lower diaphragm and Fluorinated rubber (FPM) O-ring	
			CPMI/O-2	Replacement to PTFE covered EPDM and Fluorinated rubber (FPM) O-ring	
Internal - Product wetted parts					
	51.0	50.0	CPMI-2/CPMO-2	Internal (Product wetted parts) Ra ≤ 0.5 µm	
	51.0	50.0	CPMI-2/CPMO-2	Internal (Product wetted parts) Ra ≤ 0.8 µm	
Internal/External - Complete valve					
	51.0	50.0	CPMI-2/CPMO-2	Internal/External (Complete valve) Ra ≤ 0.8 µm	
	51.0	50.0	CPMI-2/CPMO-2	Internal/External (Complete valve) Ra ≤ 0.5 µm	
Male part					
	51.0	50.0	CPMI/O-2	Male part standards (included in the price) SMS, ISO/IDF, DS, BS, DIN, ISO clamp. Please state which type of male part you want and to which outlet it should be connected.	
	76.0		CPMI-D60		
Valve body seal					
			CPMI-D60	Replacement to PTFE	
			CPMI-D60	Replacement to seals of Nitrile (NBR)	
			CPMI-D60	Replacement to seals of Fluorinated rubber (FPM)	

NOTE! Other options on request.

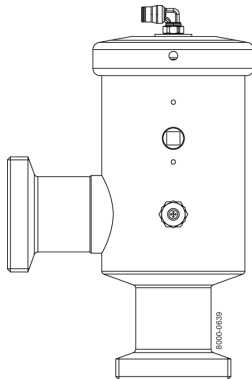
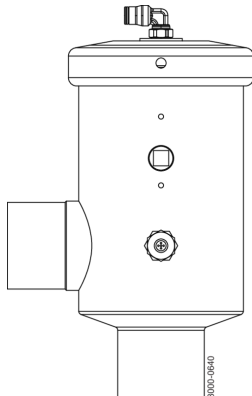
NOTE! CPMI-D60 cannot be delivered with ID polishing.

Item no.	Connection	Size	Pressure	Dimension (mm)		
		mm	Bar	H	W	
CIP Bend, Outside: Shot blasted						
9615107201	Clamp	25.0		345.0	220.0	
9615102901	Clamp	38.0		385.0	225.0	
9615104001	Clamp	51.0		460.0	230.0	
9615113501	Clamp	76.1		500.0	230.0	
9615107202	DIN	25.0		305.0	215.0	
9615102902	DIN	40.0		355.0	220.0	
9615104002	DIN	50.0		435.0	230.0	
9615113502	DIN	80.0		500.0	230.0	
9615107203	IDF	25.0		300.0	210.0	
9615102903	IDF	38.0		355.0	215.0	
9615104003	IDF	51.0		430.0	220.0	
9615113503	IDF	76.1		475.0	220.0	
9615107204	SMS	25.0		290.0	205.0	
9615102904	SMS	38.0		355.0	210.0	
9615104004	SMS	51.0		425.0	215.0	
9615113504	SMS	76.1		480.0	215.0	
Cip T-Piece, Outside: Ra ≤ 1.6 μm						
9615148301	Clamp	25.0		260.0	140.0	
9615148401	Clamp	38.0		290.0	170.0	
9615148501	Clamp	51.0		325.0	185.0	
9615148601	Clamp	76.1		325.0	180.0	
9615148302	DIN	25.0		245.0	120.0	
9615148402	DIN	40.0		270.0	155.0	
9615148502	DIN	50.0		305.0	175.0	
9615148602	DIN	80.0		315.0	170.0	
9615148303	IDF	25.0		255.0	125.0	
9615148403	IDF	38.0		285.0	160.0	
9615148503	IDF	51.0		315.0	175.0	
9615148603	IDF	76.1		315.0	170.0	
9615148304	SMS	25.0		240.0	115.0	
9615148404	SMS	38.0		275.0	165.0	
9615148504	SMS	51.0		310.0	180.0	
9615148604	SMS	76.1		315.0	170.0	
Pressure gauge - inlet 3 o'clock						
9615142201			0 - 1.6	150.0	56.0	
9615142202			0 - 2.5	150.0	56.0	
9615142203			0 - 4.0	150.0	56.0	
9615142204			0 - 6.0	150.0	56.0	
Pressure gauge - inlet 9 o'clock						
9615142205			0 - 2.5	150.0	56.0	
9615142206			0 - 2.5	150.0	56.0	
9615142207			0 - 2.5	150.0	56.0	
9615142208			0 - 6.0	150.0	56.0	

Item no.	Connection	Size	Pressure	Dimension (mm)		
		mm	Bar	H	W	
Pressure gauge - inlet 12 o'clock						
9615142209			0 - 1.6	106.0	93.0	
9615142210			0 - 2.5	106.0	93.0	
9615142211			0 - 4.0	106.0	93.0	
9615142212			0 - 6.0	106.0	93.0	
Safety valve for pressure gauge						
9615096001			0 - 1.6	45.0	60.0	
9615096002			0 - 2.5	45.0	60.0	
9615096003			0 - 4.0	45.0	60.0	
9615096004			0 - 6.0	45.0	60.0	

Valve model:
ALSIS Code: 5920

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

Item no.	Size		Dimension (mm)		
	mm	DN	H	W	
Male part Acc. DIN 11851					
9615091301 9615088501		DN40 DN50	255 215	170 135	
Welding Ends Acc. ISO 2037					
9615091302 9615088502	38 51		195 235	115 145	

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Safety valves

Product leaflet

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Ordering leaflet

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Alfa Laval Safety Valve

Safety valves

Introduction

The Alfa Laval Safety Valve is a versatile hygienic spring-loaded relief valve that prevents pressure buildup in process tanks, vessels and equipment due to blocked discharge, thermal expansion, chemical reactions, or a combination of these events.

Application

This safety valve is ideal for use in the dairy, food, beverage, biotechnology, pharmaceutical and many other industries.

Benefits

- Safe, reliable operation
- Hygienic design
- Prevents unsanitary leakage and overflow
- Safeguards both personnel and equipment against accidents due to overpressure
- Optional manual or automated overwrite for valve cleaning

Standard design

The Alfa Laval Safety Valve comes in sizes from DN25 to DN100 with a spring-loaded set pressure range from 0.2 to 12 bar. The valve can be operated either pneumatically or manually. It is delivered with PED certificate and complies with PED 2014/68/EU and EN 4126-1, fluid group II (non-hazardous fluids). It is available for pressure regulation of both liquids and gases. Please note that manual pressure regulation of gases has a reduced pressure range.

Working principle

The Alfa Laval Safety Valve prevents inadmissible overpressures of fluids in tanks, containers and plant sections. It is factory-configured with the specified set pressure that is greater than the operating pressure. If the operating pressure rises above the set pressure, the valve opens against the spring force to relieve pressure.

The valve should be installed in a vertical position for optimal performance. If mounted in a horizontal position, the set pressure will be somewhat lower than specified due to the lack of weight from the piston. The highest effect is obtained using DN80 and DN100.



TECHNICAL DATA

Temperature

Temperature range:	+4 °C to +95 °C
Max. sterilisation temperature, dry steam:	140 °C (Max 30 min)

PHYSICAL DATA

Materials

Product wetted parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
Seals:	EPDM
External finish:	Ra 1.5-2.5 µm
Internal finish:	Ra 0.8 µm
Connections:	Inlet: Liner/nut DIN 11851 Outlet: Male DIN 11851

Option:

Inductive sensor for feedback is available for standard and pneumatic lifting - see instruction manual for detail.

Dimensions (mm)

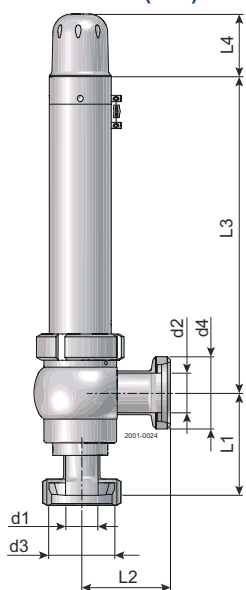


Figure 1. Standard DN25

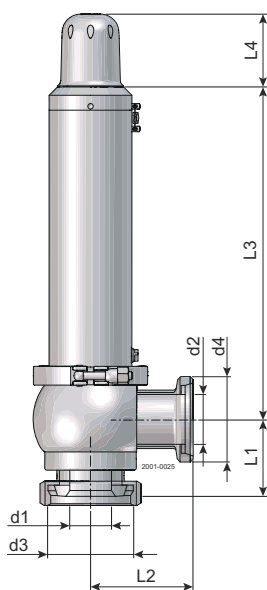


Figure 2. Standard DN40-DN100

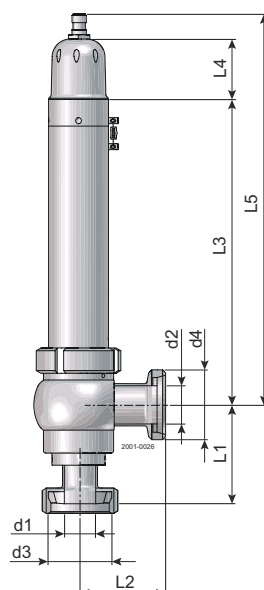


Figure 3. Standard DN25 with inductive sensor for feedback

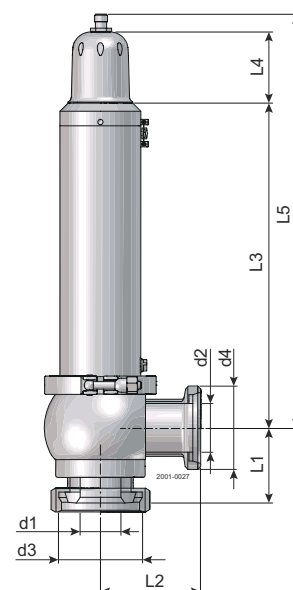


Figure 4. Standard DN40-DN100 with inductive sensor for feedback

Standard

Size	d1	d2	d3	d4	L1	L2	L3	L4	Kg
DN25	26	32	Rd52x1/6	Rd58x1/6	82	72	253	50	6.8
DN40	32	38	Rd65x1/6	Rd65x1/6	68	82	255	66	9.1
DN50	38	50	Rd78x1/6	Rd78x1/6	70	93	301	66	1.3
DN65	50	66	Rd95x1/6	Rd95x1/6	85	105	402	66	15.0
DN80	66	81	Rd110x1/4	Rd110x1/4	100	115	407.5	66	22.0
DN100	81	100	Rd130x1/4	Rd130x1/4	130	130	418	66	28.2

Standard with inductive sensor for feedback

Size	d1	d2	d3	d4	L1	L2	L3	L4	L5	Kg
DN25	26	32	Rd52x1/6	Rd58x1/6	82	72	253	50	324	6.8
DN40	32	38	Rd65x1/6	Rd65x1/6	68	82	255	66	338	9.1
DN50	38	50	Rd78x1/6	Rd78x1/6	70	93	301	66	384	1.3
DN65	50	66	Rd95x1/6	Rd95x1/6	85	105	402	66	484	15.0
DN80	66	81	Rd110x1/4	Rd110x1/4	100	115	407.5	66	489	22.0
DN100	81	100	Rd130x1/4	Rd130x1/4	130	130	418	66	501	28.2

Dimensions (mm)

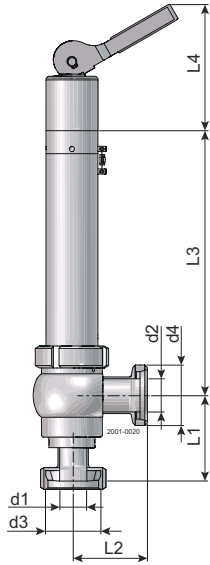


Figure 5. Manual lifting DN25

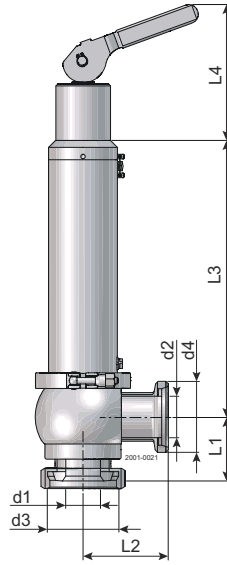


Figure 6. Manual lifting DN40-DN100

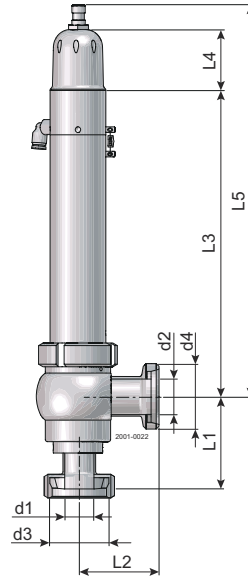


Figure 7. Pneumatic lifting DN25 with inductive sensor for feedback

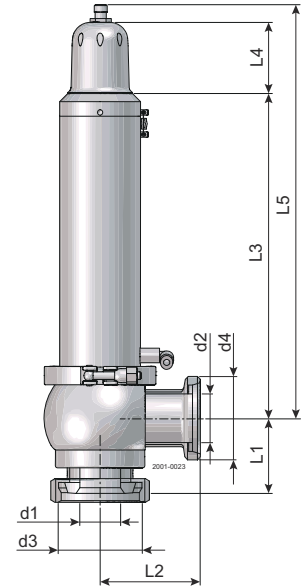


Figure 8. Pneumatic lifting DN40-DN100 with inductive sensor for feedback

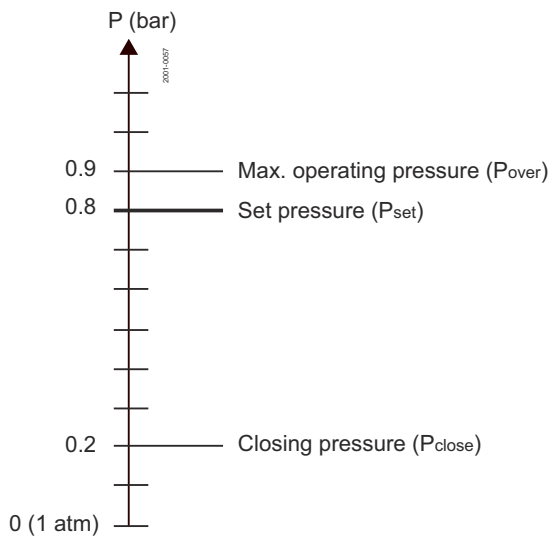
Manual lifting

Size	d1	d2	d3	d4	L1	L2	L3	L4	Kg
DN25	26	32	Rd52x1/6	Rd58x1/6	82	72	253	141-182	7.5
DN40	32	38	Rd65x1/6	Rd65x1/6	68	82	255	152-232	10.3
DN50	38	50	Rd78x1/6	Rd78x1/6	70	93	301	154-234	15.5
DN65	50	66	Rd95x1/6	Rd95x1/6	85	105	402	153-233	16.2
DN80	66	81	Rd110x1/4	Rd110x1/4	100	115	407.5	152.5-232.5	23.2
DN100	81	100	Rd130x1/4	Rd130x1/4	130	130	418	152-232	29.6

Pneumatic lifting with inductive sensor for feedback

Size	d1	d2	d3	d4	L1	L2	L3	L4	L5	Kg
DN25	26	32	Rd52x1/6	Rd58x1/6	82	72	253	50	324	6.8
DN40	32	38	Rd65x1/6	Rd65x1/6	68	82	255	66	338	9.1
DN50	38	50	Rd78x1/6	Rd78x1/6	70	93	301	66	384	1.3
DN65	50	66	Rd95x1/6	Rd95x1/6	85	105	402	66	484	15
DN80	66	81	Rd110x1/4	Rd110x1/4	100	115	407.5	66	489	22
DN100	81	100	Rd130x1/4	Rd130x1/4	130	130	418	66	501	28.2

Opening and closing characteristics for incompressible fluids (Liquid)



Max. operating pressure (P_{over}):

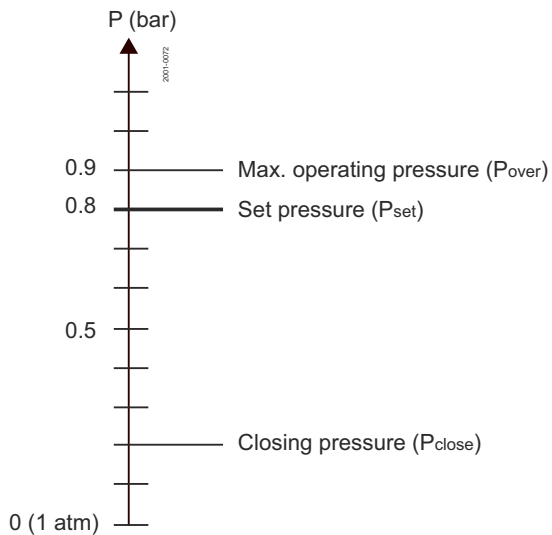
10 % of set pressure or 0.1 bar, whichever is the greater.

Closing pressure (P_{close}):

Maximum 20% or 0.6 bar below set pressure, whichever is the greater.

(Example: Set pressure = 0.8 bar)

Opening and closing characteristics for compressible fluids (Gas)



Max. operating pressure (P_{over}):

10 % of set pressure or 0.1 bar, whichever is the greater.

Closing pressure (P_{close}):

Maximum 15% or 0.3 bar below set pressure, whichever is the greater.

(Example: Set pressure = 0.8 bar)

Blow-off performance chart

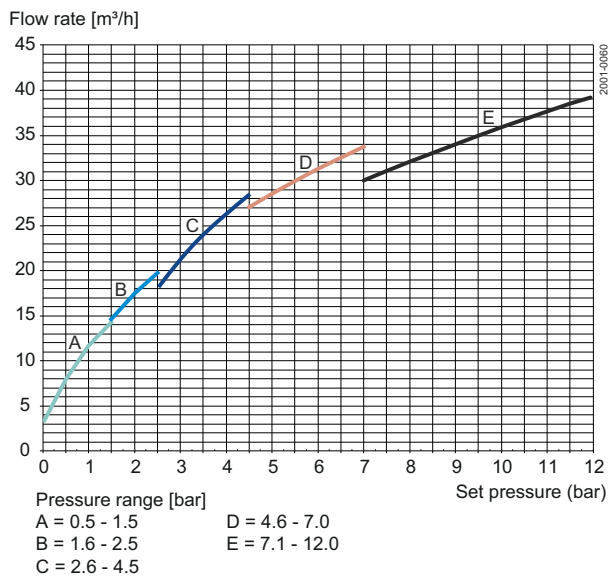


Figure 9. DN25 set pressure: 0.2 - 12.0 bar for liquids (water 20 °C)

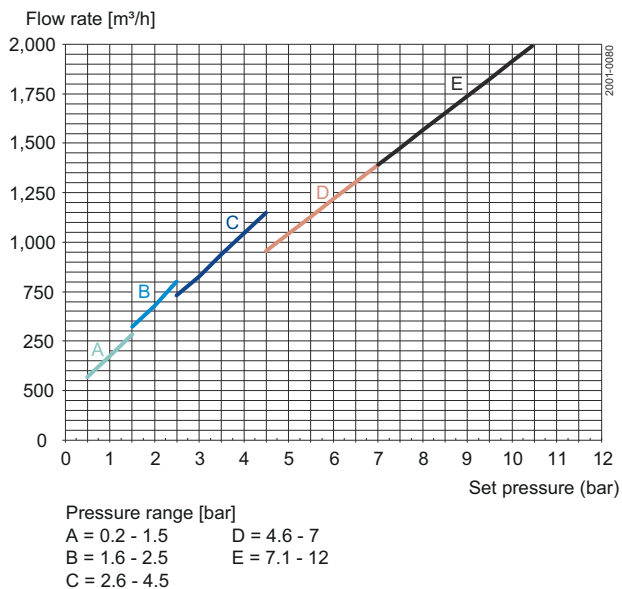


Figure 10. DN 25 set pressure: 0.2 - 12 bar for gases (air 20 °C)



Note!

DN25 for gas application up to 1,5 bar fulfills the DIN4126-1 requirements. For higher pressures the valve is approved by TÜV.

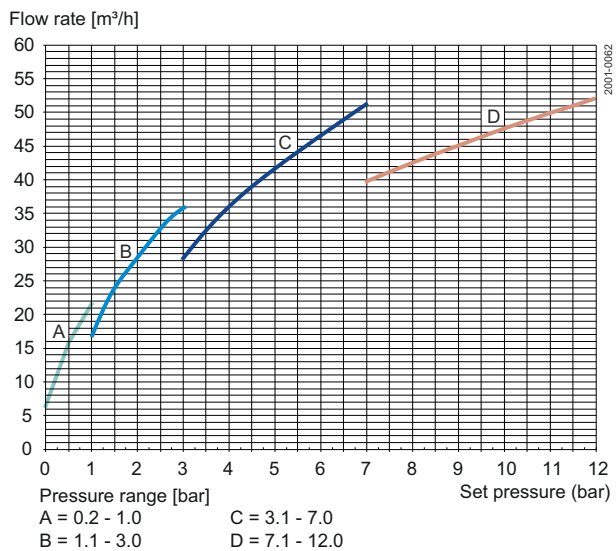


Figure 11. DN 40 set pressure: 0.2 - 12.0 bar for liquids (water 20 °C)

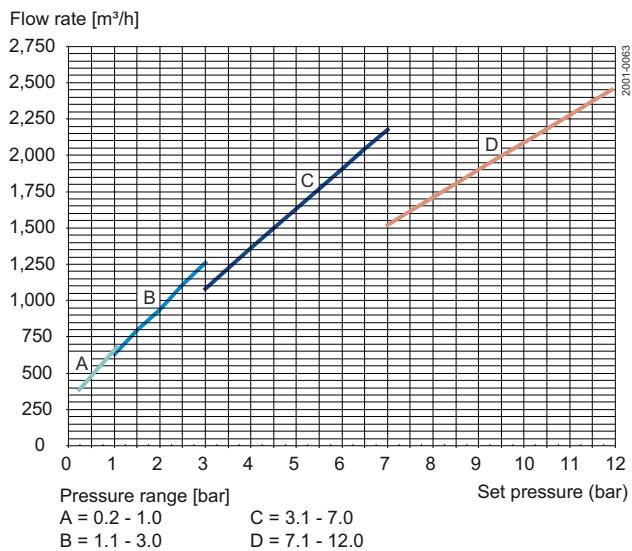


Figure 12. DN 40 set pressure: 0.2 - 12.0 bar for gases (air 20 °C)

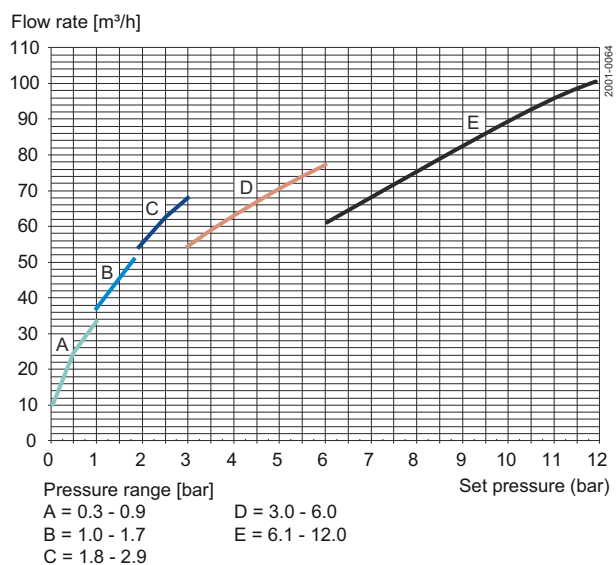


Figure 13. DN 50 set pressure: 0.3 - 12.0 bar for liquids (water 20 °C)

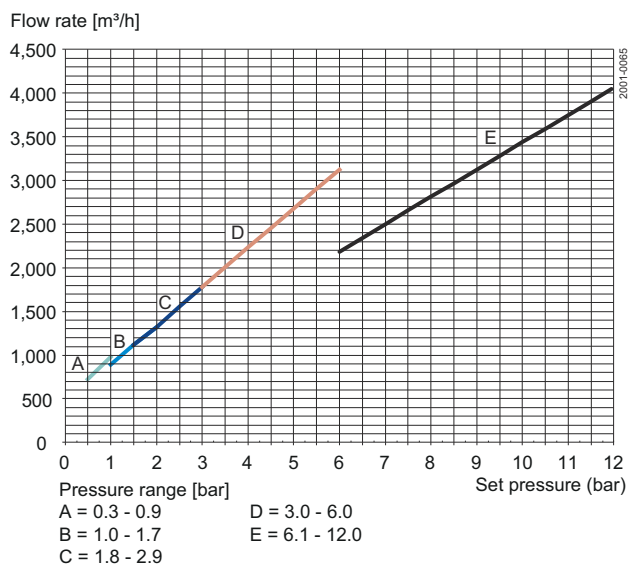


Figure 14. DN50 set pressure: 0.3 - 12.0 bar for gases (air 20 °C)

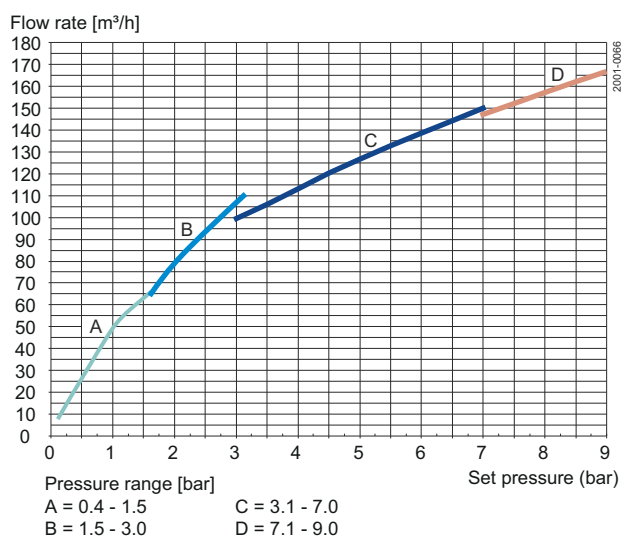


Figure 15. DN65 set pressure: 0.4 - 9.0 bar for liquids (water 20 °C)

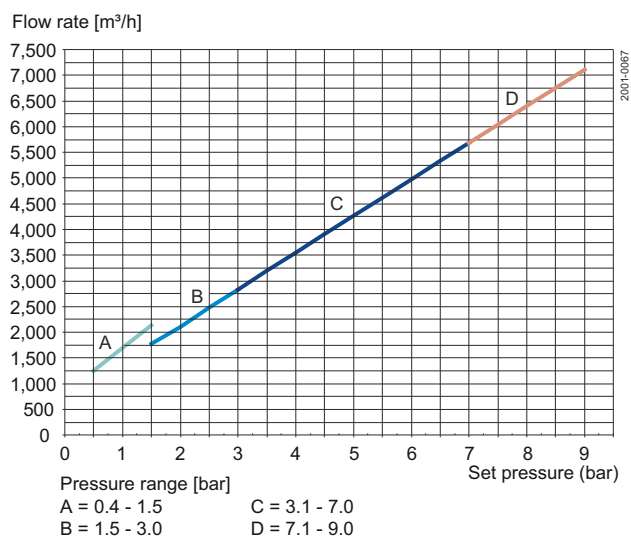


Figure 16. DN65 set pressure: 0.4 - 9.0 bar for gases (air 20 °C)

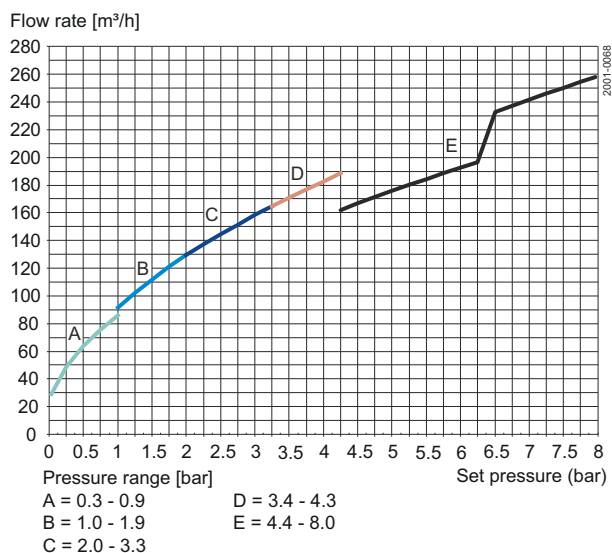


Figure 17. DN80 set pressure: 0.3 - 8.0 bar for liquids (water 20 °C)

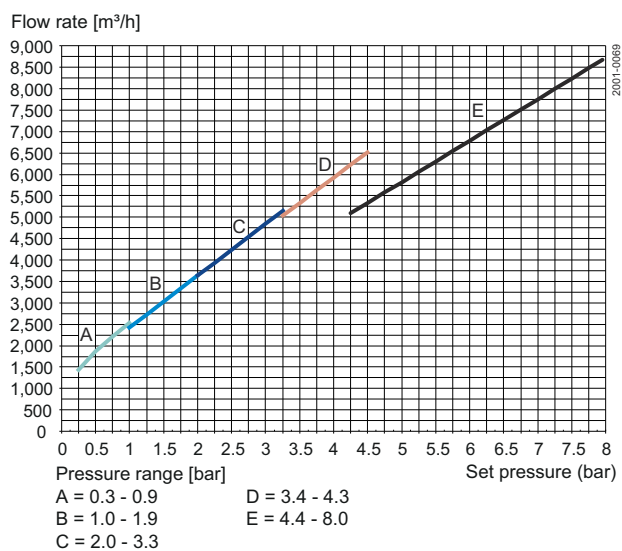


Figure 18. DN80 set pressure: 0.3 - 8.0 bar for gases (air 20 °C)

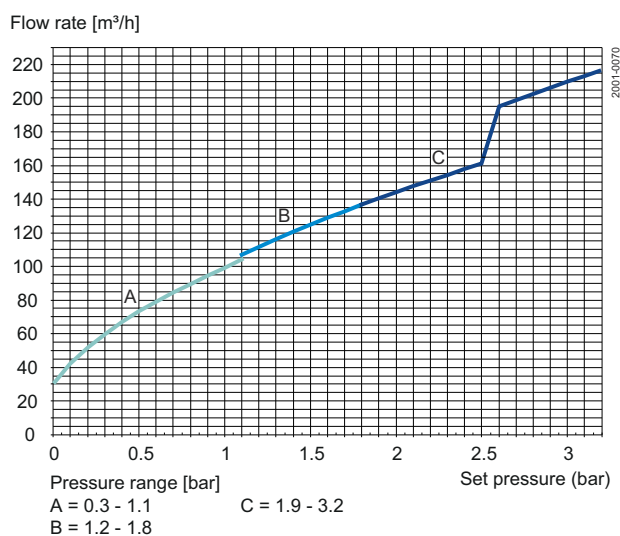


Figure 19. DN100 set pressure: 0.3 - 3.2 bar for liquids (water 20 °C)

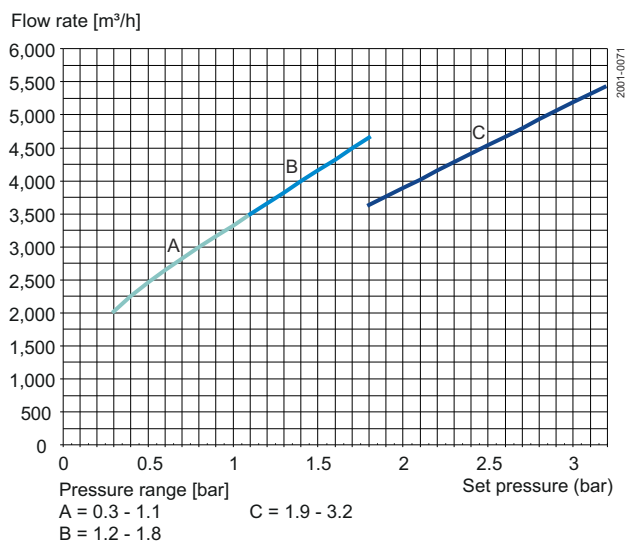


Figure 20. DN100 set pressure: 0.3 - 3.2 bar for gases (air 20 °C)

Alfa Laval SB Anti Vacuum Valve

Safety valves

Introduction

The Alfa Laval SB Anti Vacuum Valve is a compact safety valve that protects tanks from collapse or implosion due to internal vacuum conditions. These conditions occur during emptying, cool-rinsing after hot-cleaning, or caustic cleaning in a 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

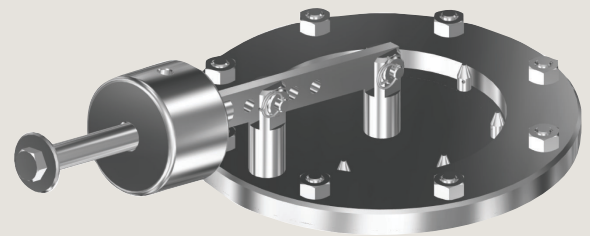
- Greater process safety
- Low initial cost of investment
- Compact design
- Superior hygiene
- Easy installation

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 < 0.8 µm; 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
100 mm	50 - 500 mmH ₂ O	6 bar
150 mm	25 - 500 mmH ₂ O	6 bar
200 mm	25 - 500 mmH ₂ O	6 bar
250 mm	25 - 300 mmH ₂ O	4 bar
300 mm	25 - 500 mmH ₂ O	4 bar
400 mm	25 - 100 mmH ₂ O	4 bar

PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4404 (AISI 316L) with 3.1 cert.
Product wetted steel surfaces:	Surface roughness Ra<0.8 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.

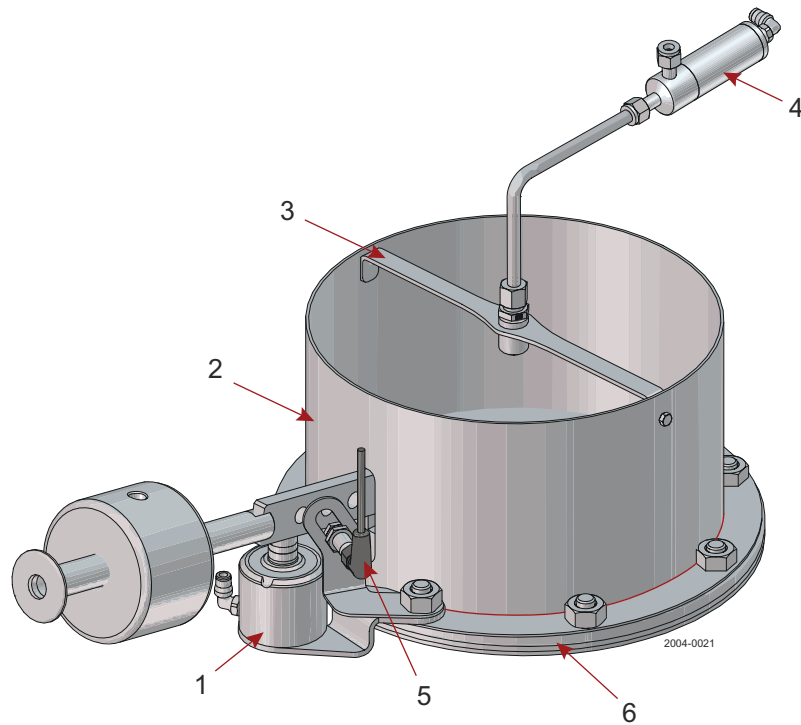
CIP Kit 2- Force opener; splash guard; CIP nozzle; CIP closing valve

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 (mm)

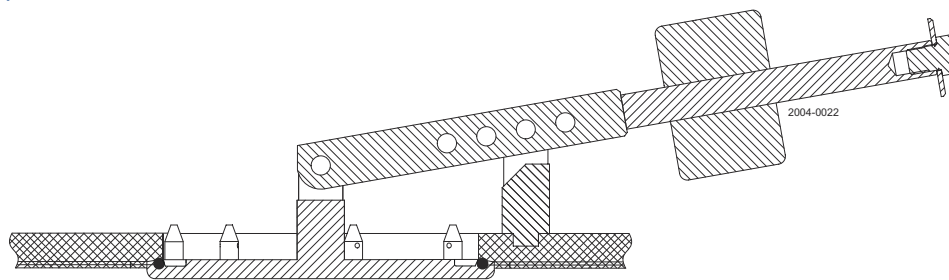


Figure 1. Integrated Valve

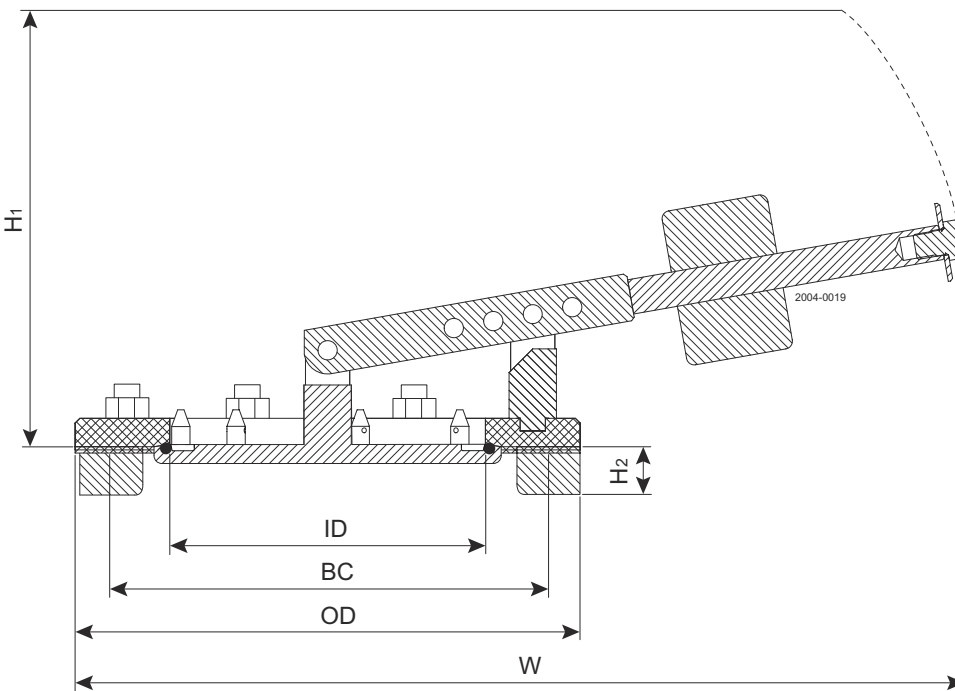


Figure 2. Flange Mounted Valve

ID = Active diameter

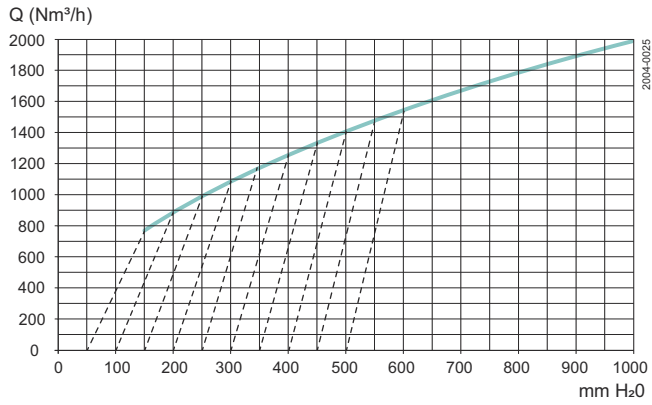
BC = Bolt circle

OD = Outside diameter

Interface requirements (mm)

Nominal size	ID	BC	OD	Bolts	H1	H2	W
100	100	165	200	4xM16	310	30	510
150	150	230	270	8xM16	325	30	550
200	200	280	320	8xM16	310	30	570
250	250	330	370	8xM16	325	30	600
300	300	380	420	12xM16	500	30	940
400	400	515	560	12xM16	490	30	1010

Opening pressures

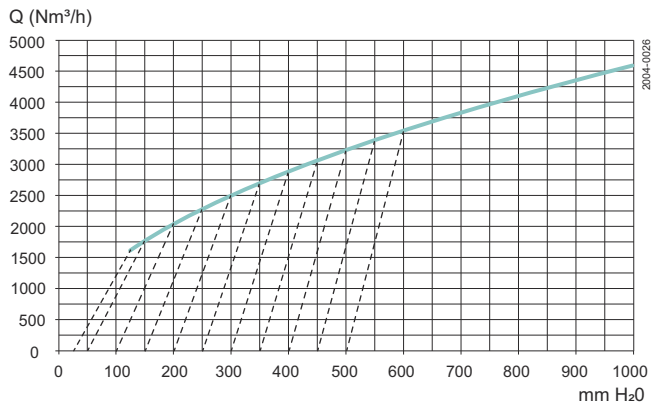


Nominal size : 100mm

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve

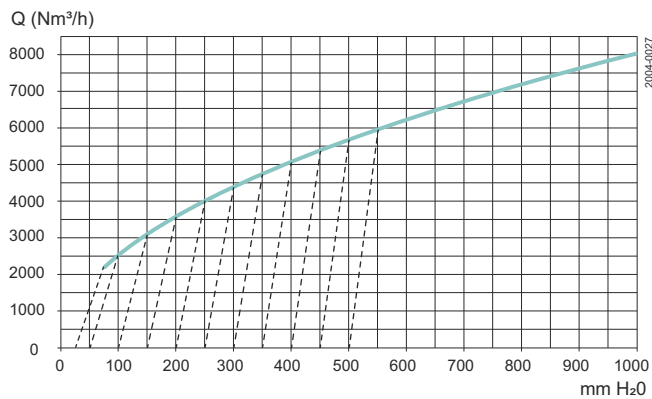


Nominal size : 150mm

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve

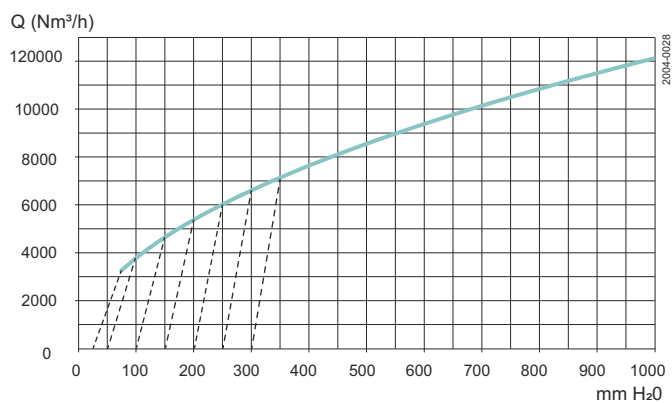


Nominal size : 200mm

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve

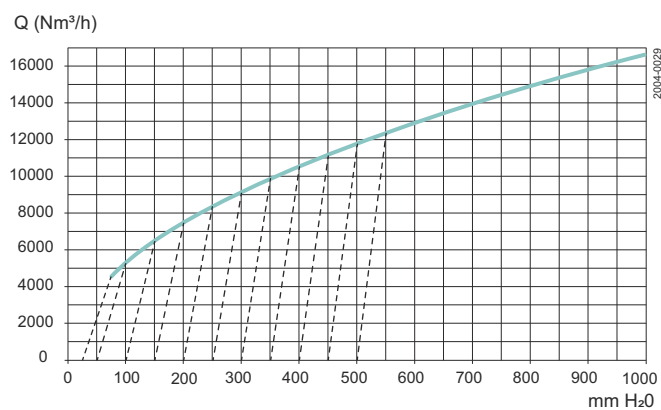


Nominal size : 250mm

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve

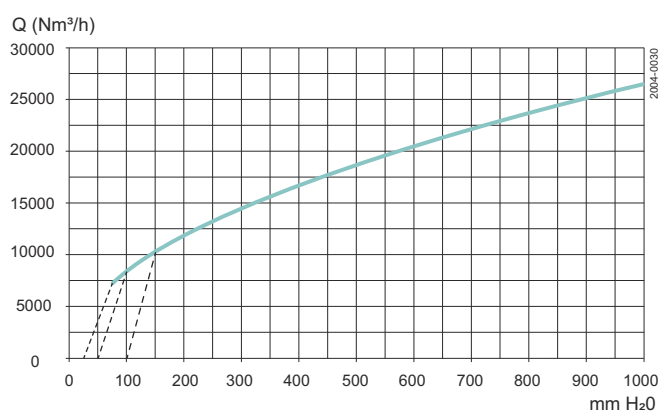


Nominal size : 300mm

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve



Nominal size : 400mm

Volumetric Flow Capacity

Medium: Air

- - - - Preset opening pressure to fully open valve

Alfa Laval SB Anti Vacuum House

Safety valves

Introduction

The Alfa Laval SB Anti Vacuum House is a safety valve housing that minimizes the risk of implosion in closed process tanks or vessels that are subject to vacuum conditions while emptying the tank, cool rinsing after hot-cleaning, or caustic cleaning in a 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 50 mmH₂O / 5 mbar 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"	50 mmH ₂ O	4.5 bar
3"	50 mmH ₂ O	4.5 bar
4"	50 mmH ₂ O	4.5 bar
6"	50 mmH ₂ O	4.5 bar

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	CO ₂ House	Pressure Exhaust	Pressure Relief Valve
2"	X	X	
3"	X	X	X
4"	X	X	X
6"	X	X	X

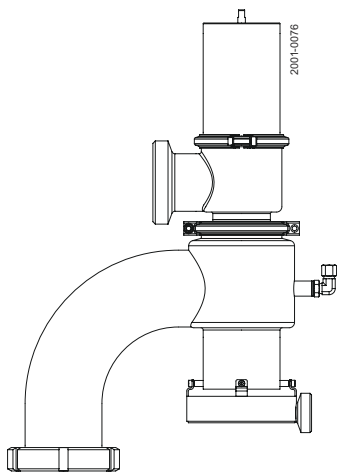


Figure 1. Anti Vacuum House with CO₂ House

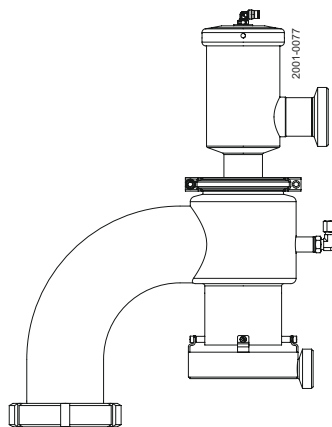


Figure 2. Anti Vacuum House with Pressure Exhaust

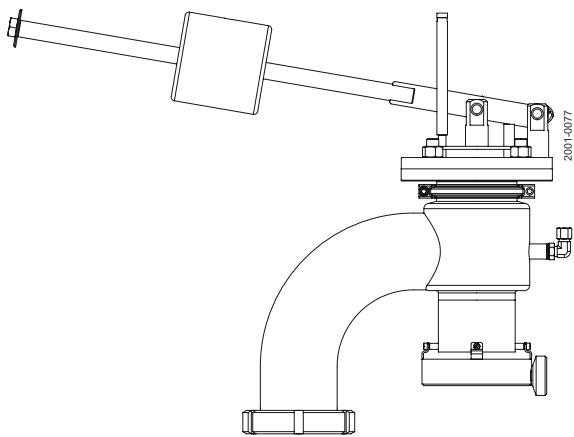


Figure 3. Anti Vacuum House with Pressure Relief Valve

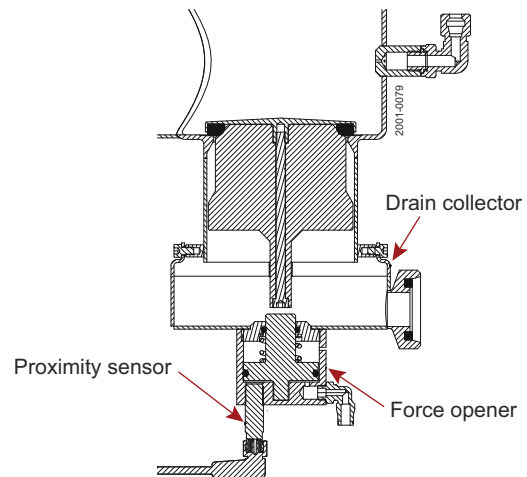
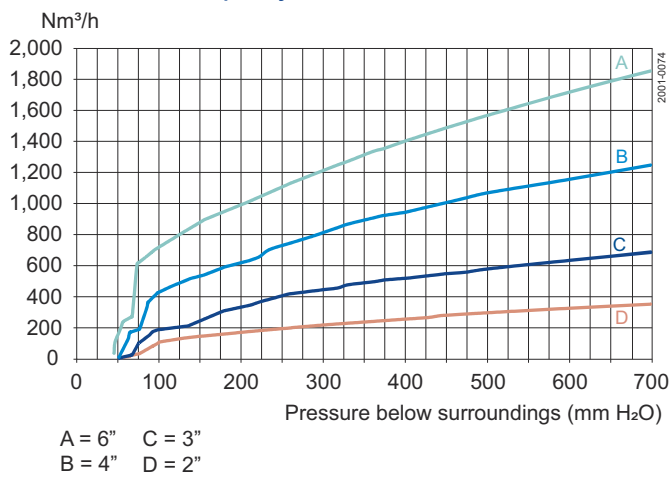


Figure 4. Cross section of Anti Vacuum House with Force opener, Proximity sensor and Drain collector

Volumetric Flow Capacity



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: 0.1 bar above for working pressures < 1 bar, and 10% above for working pressures ≥ 1 bar. 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
75mm	0.2 - 3.5 bar
100mm	0.2 - 2.5 bar
150mm	0.4 - 1.5 bar

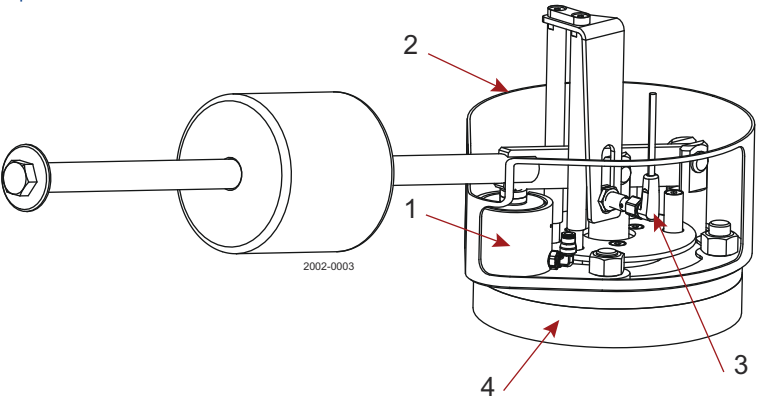
PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4404 (AISI 316L) with 3.1 cert.
Product wetted steel surfaces:	Surface roughness Ra< 0.8 µm
Product wetted seals:	EPDM

Cleaning In Place (CIP)

The Pressure Relief Valve is cleaned in closed position by the tank cleaning head, but this will not include the valve seating. To include the valve seating in the cleaning cycle, there is the option to equip the valve with a pneum. force opener and a splash guard.

Options



Options:

- Pos. 1: Force opener: force opening during cleaning cycle
- Pos. 2: Splash guard: containing CIP liquid during valve seat cleaning
- Pos. 3: Proximity sensor: for operation detection
- Pos. 4: Welding flange: for installation

Dimensions (mm)

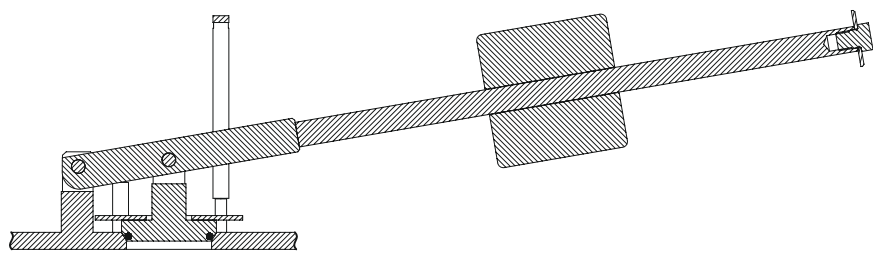


Figure 1. Integrated Valve

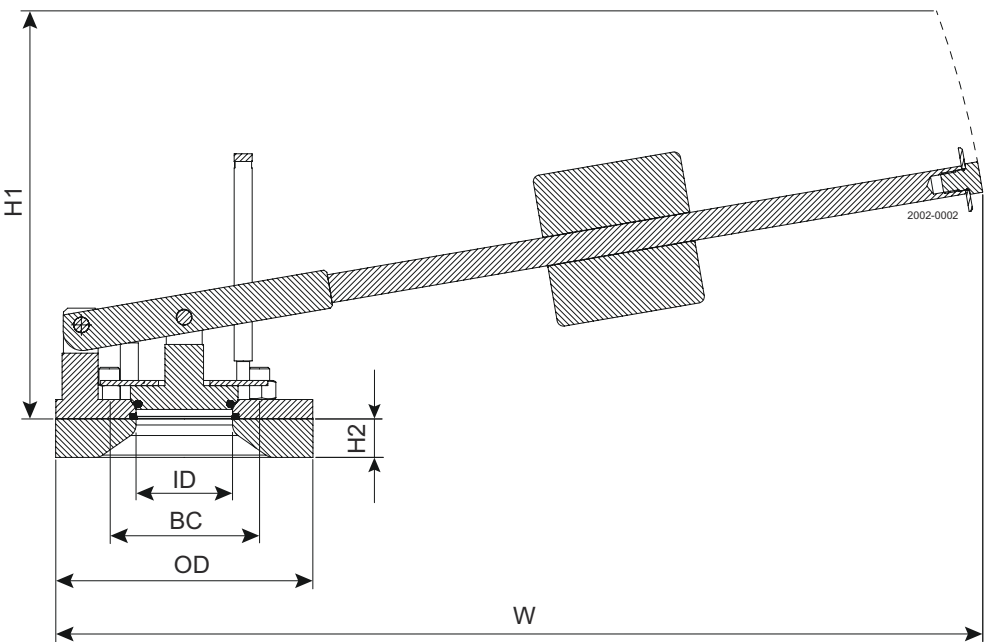


Figure 2. Flange Mounted Valve

ID = Active diameter

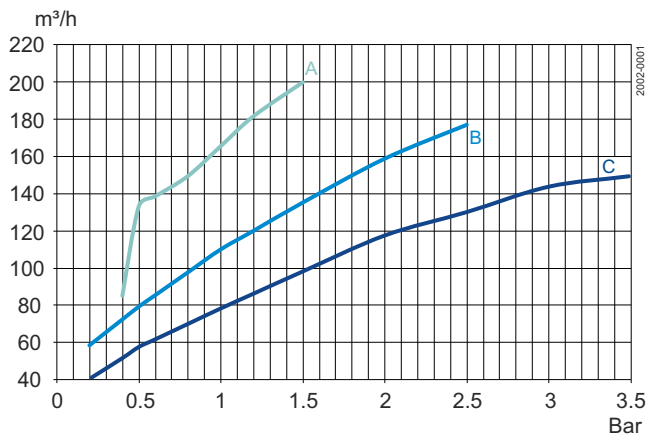
BC = Bolt circle

OD = Outside diameter

Interface requirements (mm)

Nominal Size	ID	BC	OD	Bolts	H1	H2	W
75	75	165	200	4xM16	375	30	740
100	100	165	200	4xM16	375	30	740
150	150	230	270	8xM16	430	30	1050

Discharge Capacity



A = DN150

B = DN100

C = DN75

In accordance with EN 4126-1

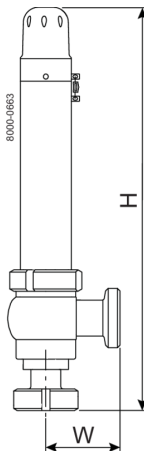
Capacity measured at:

$\Delta P = 10\%$ Set pressure ≥ 1 bar

$\Delta P = 0,1$ Set pressure < 1 bar

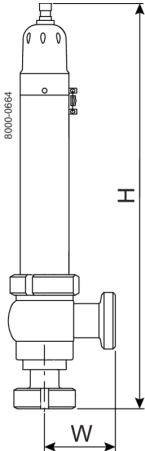
Medium: water (20°C)

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

Item no.	Size	Pressure	Dimension (mm)		
	DN	(Bar)	H	W	
9615250205	DN25	3.0	385.0	72.0	
9615250801	DN40	3.0	389.0	82.0	
9615251208	DN50	3.0	437.0	93.0	
9615251711	DN65	3.0	553.0	105.0	
9615252208	DN80	3.0	573.5	115.0	
9615252603	DN100	3.0	614.0	130.0	

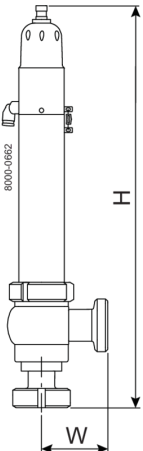
ALSIS Code: 5932

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

Item no.	Size	Pressure	Dimension (mm)		
	DN	(Bar)	H	W	
9615252905	DN25	3.0	406.0	72.0	
9615253501	DN40	3.0	406.0	82.0	
9615253908	DN50	3.0	454.0	93.0	
9615254411	DN65	3.0	569.0	105.0	
9615254908	DN80	3.0	589.0	115.0	
9615255303	DN100	3.0	631.0	130.0	

ALSIS Code: 5932

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

Item no.	Size	Pressure	Dimension (mm)		
	DN	Bar	H	W	
9615258901	DN40	3.0	406.0	82.0	
9615259308	DN50	3.0	454.0	93.0	
9615259811	DN65	3.0	569.0	105.0	
9615260308	DN80	3.0	589.0	115.0	
9615260703	DN100	3.0	631.0	130.0	

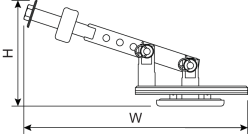
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Material: 1.4404 (316L)
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm
Standard: DIN

Item no.	Size	Pressure	Dimension (mm)		
	DN	(Bar)	H	W	
9615255605	DN25	3.0	517.0	72.0	
9615256201	DN40	3.0	555.0	82.0	
9615256608	DN50	3.0	605.0	93.0	
9615257111	DN65	3.0	720.0	105.0	
9615257608	DN80	3.0	740.0	115.0	
9615258003	DN100	3.0	780.0	130.0	

Safety valve
ALSIS Code: 5916

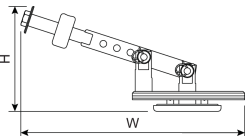
Material: 1.4404
Seals: NBR
Inside surface finish: $Ra \leq 0.8 \mu m$
Outside surface finish: $Ra \leq 1.6 \mu m$

Item no.	Size	Opening pressure	Fully open at	Dimension (mm)		SCANDI BREW
	DN	mm H ₂ O	mm H ₂ O	H	W	
9615053901	100	50	150	310.0	510.0	
9615053902	100	100	200	310.0	510.0	
9615053903	100	150	250	310.0	510.0	
9615053904	100	200	300	310.0	510.0	
9615053905	100	250	350	310.0	510.0	
9615053906	100	300	400	310.0	510.0	
9615053907	100	350	450	310.0	510.0	
9615053908	100	400	500	310.0	510.0	
9615053909	100	450	550	310.0	510.0	
9615053910	100	500	600	310.0	510.0	
9615055001	150	25	125	325.0	550.0	
9615055002	150	50	150	325.0	540.0	
9615055003	150	100	200	325.0	540.0	
9615055004	150	150	250	325.0	540.0	
9615055005	150	200	300	325.0	540.0	
9615055006	150	250	350	325.0	540.0	
9615055007	150	300	400	325.0	540.0	
9615055008	150	350	420	325.0	540.0	
9615055009	150	400	500	325.0	540.0	
9615055010	150	450	550	325.0	540.0	
9615055011	150	500	600	325.0	540.0	
9615064301	200	25	75	310.0	570.0	
9615064302	200	50	100	310.0	570.0	
9615064303	200	100	150	310.0	570.0	
9615064304	200	150	200	310.0	570.0	
9615064305	200	200	250	310.0	570.0	
9615064306	200	250	300	310.0	570.0	
9615064307	200	300	350	310.0	570.0	
9615064308	200	350	400	310.0	570.0	
9615064309	200	400	450	310.0	570.0	
9615064310	200	450	500	310.0	570.0	
9615064311	200	500	550	310.0	570.0	
9615064501	250	25	75	325.0	600.0	
9615064502	250	50	100	325.0	600.0	
9615064503	250	100	150	325.0	600.0	
9615064504	250	150	200	325.0	600.0	
9615064505	250	200	250	325.0	600.0	
9615064506	250	250	300	325.0	600.0	
9615064507	250	300	350	325.0	600.0	
9615064701	300	25	75	500.0	600.0	
9615064702	300	50	100	500.0	940.0	
9615064703	300	100	150	500.0	940.0	
9615064704	300	150	200	500.0	940.0	
9615064705	300	200	250	500.0	940.0	
9615064706	300	250	300	500.0	940.0	
9615064707	300	300	350	500.0	940.0	
9615064708	300	350	400	500.0	940.0	
9615064709	300	400	450	500.0	940.0	
9615064710	300	450	500	500.0	940.0	
9615064711	300	500	550	500.0	940.0	
9615064901	400	25	75	490.0	1010.0	

For specific flow (Nm³/h) please see the PD leaflet in Anytime

Safety valve
ALSIS Code: 5916

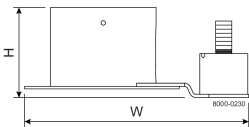
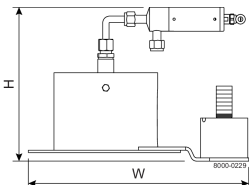
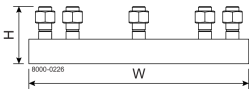
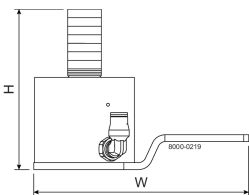
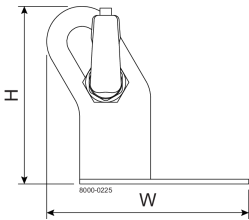
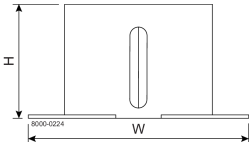
Material: 1.4404
Seals: NBR
Inside surface finish: Ra ≤ 0.8 µm
Outside surface finish: Ra ≤ 1.6 µm

Item no.	Size	Opening pressure	Fully open at	Dimension (mm)		
	DN	mm H ₂ O	mm H ₂ O	H	W	
SCANDI BREW						
9615064902	400	50	100	490.0	1010.0	
9615064903	400	100	150	490.0	1010.0	

For specific flow (Nm3/h) please see the PD leaflet in Anytime

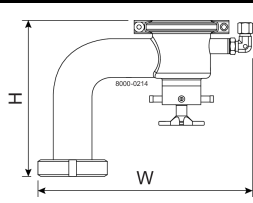
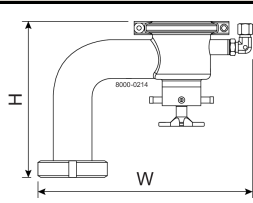
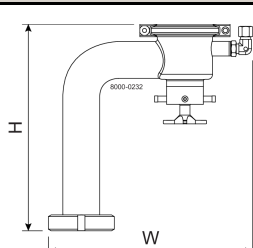
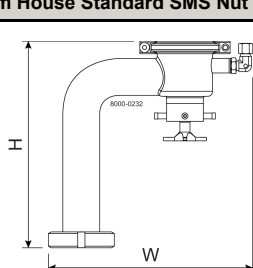
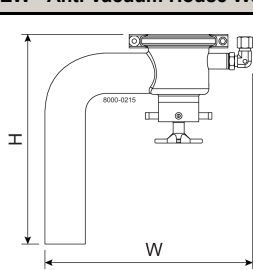
ALSIS Code: 5919

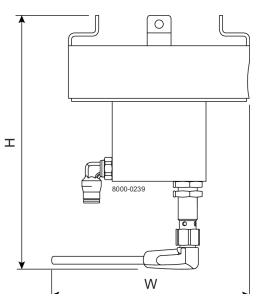
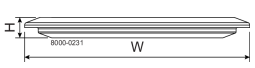
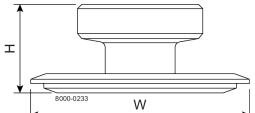
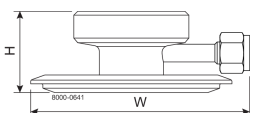
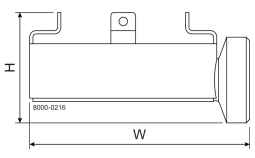
Material: 1.4307 (304L)
 Seals: EPDM
 Inside surface finish: $Ra \leq 0.8 \mu m$
 Outside surface finish: $Ra \leq 1.6 \mu m$

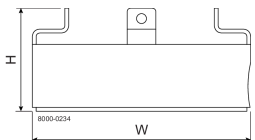
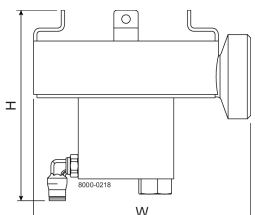
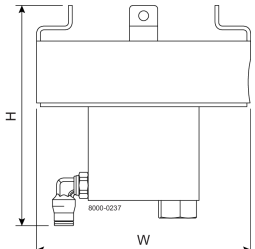
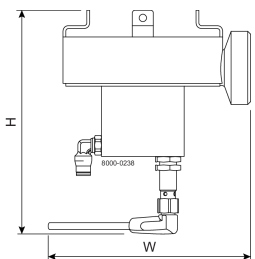
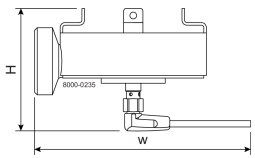
Item no.	Size	Dimension (mm)		
		H	W	
SCANDI BREW - AVV CIP Kit 1				
9615140901	100	111.0	277.0	
9615140902	150	114.0	347.0	
9615140903	200	165.0	389.0	
9615140904	250	164.0	441.0	
9615140905	300	175.0	502.0	
9615140906	400	175.0	607.0	
SCANDI BREW - AVV CIP Kit 2				
9615141001	100	193.0	277.0	
9615141002	150	196.0	347.0	
9615141003	200	247.0	389.0	
9615141004	250	246.0	441.0	
9615141005	300	257.0	502.0	
9615141006	400	257.0	607.0	
SCANDI BREW - AVV Counter Flange				
9615085401	100	70.0	200.0	
9615085402	150	70.0	270.0	
9615085403	200	70.0	320.0	
9615085404	250	70.0	370.0	
9615085405	300	70.0	420.0	
9615085406	400	70.0	560.0	
SCANDI BREW - AVV Force Opener				
9615068201	100	95.0	141.0	
9615068202	150	95.0	124.0	
9615068203	200	95.0	118.0	
9615068204	250	95.0	122.0	
9615068205	300	95.0	128.0	
9615068206	400	95.0	97.0	
SCANDI BREW - AVV Proximity switch				
9615070101	100	75.5	85.5	
9615070102	150	75.0	70.0	
9615070103	200	82.0	62.5	
9615070104	250	89.0	67.0	
9615070105	300	89.5	64.0	
SCANDI BREW - Splash Guard				
9615068801	100	100.0	194.0	
9615068901	150	100.0	264.0	
9615069001	200	150.0	314.0	
9615069101	250	150.0	364.0	
9615069201	300	175.0	414.0	
9615069301	400	175.0	554.0	

Safety valve
ALSIS Code: 5916

Material: 1.4404
Seals: EPDM
Outside surface finish: Blasted
Inside surface finish: Blasted

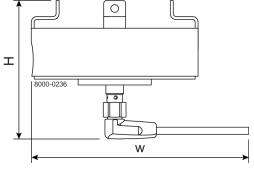
Item no.	Size	Operating range	Flow	Dimension (mm)		
	DN	mm WG	Nm3/h	H	W	
SCANDI BREW - Anti Vacuum House Short DIN Nut & Liner acc. DIN 11851						
9615110502	51.0	50 - 500	0 - 300	206.0	284.0	
9615070502	76.1	50 - 500	0 - 580	258.0	370.0	
9615070902	101.6	50 - 500	0 - 1080	319.0	436.0	
9615071306	DN 150	50 - 500	0 - 1850	363.0	567.0	
SCANDI BREW - Anti Vacuum House Short SMS Nut & Liner						
9615110505	51.0	50 - 500	0 - 300	287.0	284.0	
9615070505	76.1	50 - 500	0 - 580	336.0	370.0	
9615070905	101.6	50 - 500	0 - 1080	401.0	436.0	
SCANDI BREW - Anti Vacuum House Standard DIN Nut & Liner acc. DIN 11851						
9615110501	51.0	50 - 500	0 - 300	287.0	284.0	
9615070501	76.1	50 - 500	0 - 580	336.0	370.0	
9615070901	101.6	50 - 500	0 - 1080	401.0	436.0	
9615071305	DN 150	50 - 500	0 - 1850	429.0	567.0	
SCANDI BREW - Anti Vacuum House Standard SMS Nut & Liner						
9615110504	51.0	50 - 500	0 - 300	287.0	284.0	
9615070504	76.1	50 - 500	0 - 580	336.0	370.0	
9615070904	101.6	50 - 500	0 - 1080	401.0	436.0	
SCANDI BREW - Anti Vacuum House Weld End						
9615110503	51.0	50 - 500	0 - 300	267.0	267.0	
9615070503	76.1	50 - 500	0 - 580	316.0	316.0	
9615070903	101.6	50 - 500	0 - 1080	378.0	378.0	
9615071303	DN 150	50 - 500	0 - 1850	399.0	399.0	

Item no.	Size	Connection	Dimension (mm)		
	DN		H	W	
SCANDI BREW					
9615073908	DN150	Weld end	162.0	230.0	
9615073902	Ø51.0	Weld end	159.0	114.0	
9615073904	Ø76.1	Weld end	172.0	145.0	
9615073906	Ø101.6	Weld end	162.0	145.0	
SCANDI BREW - AVH Blindplate					
9615074801	DN150	Blind plate	28.0	183.0	
9615121101	Ø51.0	Blind plate	8.0	91.0	
9615121401	Ø75.0	Blind plate	8.0	119.0	
9615140803	Ø76.1 - Ø101.6	DIN 25 Male Part	37.0	114.0	
SCANDI BREW - AVH Blindplate with Connection					
9615140808	DN150	DIN 40 Male Part	61.0	183.0	
9615140809	DN150	DIN 50 Male Part	63.0	183.0	
9615140810	DN150	DIN 65 Male Part	68.0	183.0	
9615140811	DN150	DIN 80 Male Part	73.0	183.0	
9615140801	Ø51.0	DIN 25 Male Part	37.0	100.0	
9615140802	Ø51.0	DIN 40 Male Part	41.0	106.0	
9615140804	Ø76.1 - Ø101.6	DIN 40 Male Part	41.0	120.0	
9615140805	Ø76.1 - Ø101.6	DIN 50 Male Part	43.0	126.0	
9615140806	Ø76.1 - Ø101.6	DIN 65 Male Part	48.0	134.0	
9615140807	Ø76.1 - Ø101.6	DIN 80 Male Part	53.0	141.0	
SCANDI BREW - AVH Blindplate with Connection & CIP					
9615147109	DIN150	DIN 50 Male Part	63.0	183.0	
9615147111	DIN150	Pressure Relief Valve Ø75	73.0	183.0	
9615122001	DN150	Pressure Relief Valve Ø100	94.0	200.0	
9615122002	DN150	Pressure Relief Valve Ø100	94.0	200.0	
9615147101	Ø51.0	DIN 25 Male Part	73.0	200.0	
9615147102	Ø51.0	DIN 40 Male Part	41.0	106.0	
9615147103	Ø76.1 - Ø101.6	DIN 25 Male Part	37.0	114.0	
9615147104	Ø76.1 - Ø101.6	DIN 40 Male Part	41.0	120.0	
9615147105	Ø76.1 - Ø101.6	DIN 50 Male Part	43.0	126.0	
9615147106	Ø76.1 - Ø101.6	DIN 65 Male Part	48.0	134.0	
9615147107	Ø76.1 - Ø101.6	DIN 80 Male Part	53.0	141.0	
9615121901	Ø76.1 - Ø101.6	Pressure Relief Valve Ø75	73.0	200.0	
9615121902	Ø76.1 - Ø101.6	Pressure Relief Valve Ø100	73.0	200.0	
SCANDI BREW - AVH Drain Collector - DIN, SMS					
9615072807	DN150	DIN 25 Male Part	70.0	250.0	
9615072812	DN150	SMS ø25	64.0	243.0	
9615072801	Ø51.0	DIN 25 Male Part	67.0	134.0	
9615072809	Ø51.0	SMS ø25	61.0	127.0	
9615072803	Ø76.1	DIN 25 Male Part	80.0	165.0	
9615072810	Ø76.1	SMS ø25	74.0	161.0	
9615072805	Ø101.6	DIN 25 Male Part	70.0	165.0	
9615072811	Ø101.6	SMS ø25	64.0	158.0	

Item no.	Size	Connection	Dimension (mm)		
	DN		H	W	
SCANDI BREW - AVH Drain Collector - Weld					
9615072808	DN150	Weld end	67.0	230.0	
9615072802	Ø51.0	Weld end	54.0	114.0	
9615072804	Ø76.1	Weld end	67.0	145.0	
9615072806	Ø101.6	Weld end	67.0	145.0	
SCANDI BREW - AVH Drain Collector with Force Opener - DIN, SMS					
9615073915	DN150	DIN 25	121.0	250.0	
9615073920	DN150	SMS ø25	121.0	243.0	
9615073909	Ø51.0	DIN 25	118.0	134.0	
9615073917	Ø51.0	SMS ø25	118.0	127.0	
9615073911	Ø76.1	DIN 25	131.0	165.0	
9615073918	Ø76.1	SMS ø25	131.0	158.0	
9615073913	Ø101.6	DIN 25	121.0	165.0	
9615073919	Ø101.6	SMS ø25	121.0	158.0	
SCANDI BREW - AVH Drain Collector with Force Opener - Weld					
9615073916	DN150	Weld end	121.0	230.0	
9615073910	Ø51.0	Weld end	118.0	114.0	
9615073912	Ø76.1	Weld end	131.0	145.0	
9615073914	Ø101.6	Weld end	121.0	145.0	
SCANDI BREW - AVH Drain Collector with Prox Switch & Force Opener					
9615073907	DN150	DIN 25	162.0	250.0	
9615073924	DN150	SMS ø25	162.0	243.0	
9615073901	Ø51.0	DIN 25	159.0	134.0	
9615073921	Ø51.0	SMS ø25	159.0	127.0	
9615073903	Ø76.1	DIN 25	172.0	165.0	
9615073922	Ø76.1	SMS ø25	172.0	158.0	
9615073905	Ø101.6	DIN 25	162.0	165.0	
9615073923	Ø101.6	SMS ø25	162.0	158.0	
SCANDI BREW - AVH Drain Collector with Prox Switch - DIN, SMS					
9615074507	DN150	DIN 25	98.0	250.0	
9615074512	DN150	SMS ø25	98.0	250.0	
9615074501	Ø51.0	DIN 25	95.0	134.0	
9615074509	Ø51.0	SMS ø25	95.0	134.0	
9615074503	Ø76.1	DIN 25	108.0	165.0	
9615074510	Ø76.1	SMS ø25	108.0	165.0	
9615074505	Ø101.6	DIN 25	98.0	165.0	
9615074511	Ø101.6	SMS ø25	98.0	165.0	

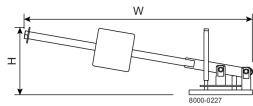
ALSIS Code: 5919

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

Item no.	Size	Connection	Dimension (mm)		
	DN		H	W	
SCANDI BREW - AVH Drain Collector with Prox Switch - Weld					
9615074508	DN150	Weld end	98.0	230.0	
9615074502	Ø51.0	Weld end	95.0	114.0	
9615074504	Ø76.1	Weld end	108.0	145.0	
9615074506	Ø101.6	Weld end	98.0	145.0	

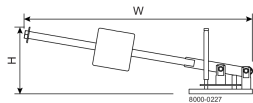
Safety valve
ALSIS Code: 5916

Material: 1.4404
Seals: EPDM
Inside surface finish: Ra ≤ 0.8 µm

Item no.	Size	Opening pressure	Flow	Dimension (mm)		
	mm	Bar	m3/h	H	mm	
SCANDI BREW						
9615062801	76.1	0.2	40.4	375.0	740.0	
9615062802	76.1	0.3	45.8	375.0	740.0	
9615062803	76.1	0.4	51.6	375.0	740.0	
9615062804	76.1	0.5	57.6	375.0	740.0	
9615062805	76.1	0.6	61.7	375.0	740.0	
9615062806	76.1	0.7	65.8	375.0	740.0	
9615062807	76.1	0.8	70.0	375.0	740.0	
9615062808	76.1	0.9	74.1	375.0	740.0	
9615062809	76.1	1.0	78.3	375.0	740.0	
9615062810	76.1	1.1	82.2	375.0	740.0	
9615062811	76.1	1.2	86.2	375.0	740.0	
9615062812	76.1	1.3	90.2	375.0	740.0	
9615062813	76.1	1.4	94.1	375.0	740.0	
9615062814	76.1	1.5	98.1	375.0	740.0	
9615062815	76.1	1.6	102.0	375.0	740.0	
9615062816	76.1	1.7	105.8	375.0	740.0	
9615062817	76.1	1.8	109.7	375.0	740.0	
9615062818	76.1	1.9	113.6	375.0	740.0	
9615062819	76.1	2.0	117.4	375.0	740.0	
9615062820	76.1	2.1	119.9	375.0	740.0	
9615062821	76.1	2.2	122.4	375.0	740.0	
9615062822	76.1	2.3	125.0	375.0	740.0	
9615062823	76.1	2.4	127.5	375.0	740.0	
9615062824	76.1	2.5	130.0	375.0	740.0	
9615062825	76.1	2.6	132.7	375.0	740.0	
9615062826	76.1	2.7	135.4	375.0	740.0	
9615062827	76.1	2.8	138.2	375.0	740.0	
9615062828	76.1	2.9	140.9	375.0	740.0	
9615062829	76.1	3.0	143.6	375.0	740.0	
9615062830	76.1	3.1	144.8	375.0	740.0	
9615062831	76.1	3.2	145.9	375.0	740.0	
9615062832	76.1	3.3	147.0	375.0	740.0	
9615062833	76.1	3.4	148.2	375.0	740.0	
9615062834	76.1	3.5	149.3	375.0	740.0	
9615064201	101.6	0.2	58.4	375.0	740.0	
9615064202	101.6	0.3	65.3	375.0	740.0	
9615064203	101.6	0.4	72.2	375.0	740.0	
9615064204	101.6	0.5	79.1	375.0	740.0	
9615064205	101.6	0.6	85.3	375.0	740.0	
9615064206	101.6	0.7	91.4	375.0	740.0	
9615064207	101.6	0.8	97.6	375.0	740.0	
9615064208	101.6	0.9	103.8	375.0	740.0	
9615064209	101.6	1.0	109.9	375.0	740.0	
9615064210	101.6	1.1	115.0	375.0	740.0	
9615064211	101.6	1.2	120.0	375.0	740.0	
9615064212	101.6	1.3	125.1	375.0	740.0	
9615064213	101.6	1.4	130.1	375.0	740.0	
9615064214	101.6	1.5	135.2	375.0	740.0	
9615064215	101.6	1.6	139.8	375.0	740.0	
9615064216	101.6	1.7	144.4	375.0	740.0	
9615064217	101.6	1.8	149.0	375.0	740.0	

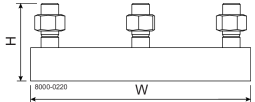
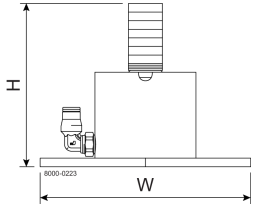
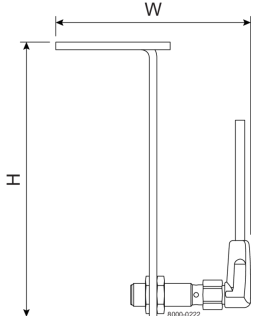

Safety valve
 ALSIS Code: 5916

Material: 1.4404
 Seals: EPDM
 Inside surface finish: Ra ≤ 0.8 µm

Item no.	Size	Opening pressure	Flow	Dimension (mm)		
	mm	Bar	m3/h	H	mm	
SCANDI BREW						
9615064218	101.6	1.9	153.7	375.0	740.0	
9615064219	101.6	2.0	158.3	375.0	740.0	
9615064220	101.6	2.1	162.4	375.0	740.0	
9615064221	101.6	2.2	166.1	375.0	740.0	
9615064222	101.6	2.3	169.7	375.0	740.0	
9615064223	101.6	2.4	173.4	375.0	740.0	
9615064224	101.6	2.5	177.8	375.0	740.0	
9615064601	Ø100	0.4	85.2	430.0	1050.0	
9615064602	Ø100	0.5	133.3	430.0	1050.0	
9615064603	Ø100	0.6	138.7	430.0	1050.0	
9615064604	Ø100	0.7	144.2	430.0	1050.0	
9615064605	Ø100	0.8	149.6	430.0	1050.0	
9615064606	Ø100	0.9	157.6	430.0	1050.0	
9615064607	Ø100	1.0	165.7	430.0	1050.0	
9615064608	Ø100	1.1	173.7	430.0	1050.0	
9615064609	Ø100	1.2	181.8	430.0	1050.0	
9615064610	Ø100	1.3	187.8	430.0	1050.0	
9615064611	Ø100	1.4	193.9	430.0	1050.0	
9615064612	Ø100	1.5	200.0	430.0	1050.0	

ALSIS Code: 5919

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

item no.	Size	Connection	Dimension (mm)		
			H	W	
SCANDI BREW - PRV Counter Flange					
9615052001 9615070601 9615066801	76.1 101.6 Ø150		70.0 70.0 70.0	200.0 200.0 270.0	
SCANDI BREW - PRV Force Opener					
9615065701 9615066201	Ø75 - Ø100 Ø150		95.0 95.0	152.0 124.0	
SCANDI BREW - PRV Proximity Switch					
9615063301 9615063501	Ø100 Ø150		155.0 145.0	100.0 100.0	
SCANDI BREW - PRV Splash Guard					
9615054401 9615050201	Ø75 - Ø100 Ø150		102.0 102.0	242.0 302.0	

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Sampling valves

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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

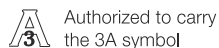
- Safe, hygienic and contamination-free sampling
- Highly reliable operation
- Easy to operate and maintain
- Double seat with enhanced cleanability
- Modular design and easy to upgrade
- Sterilization possible

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).

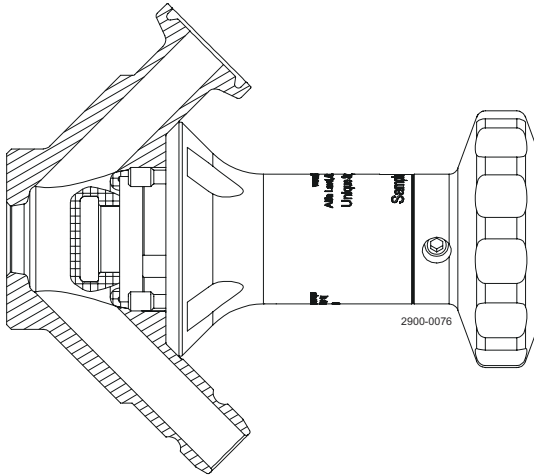
Certificates



Working principle

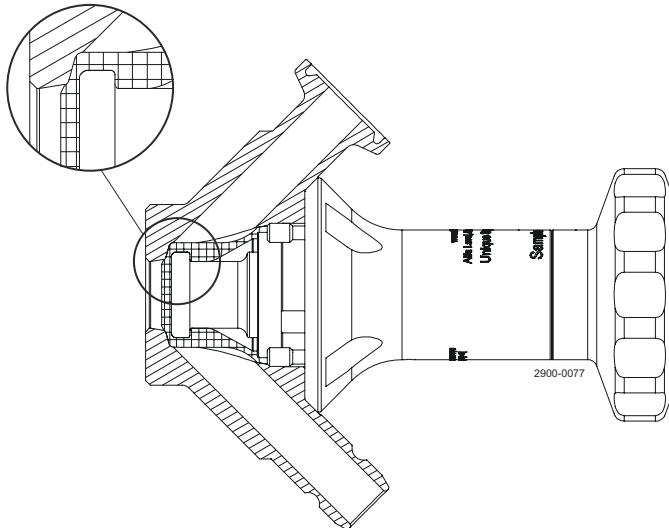
The Alfa Laval Unique Sampling Valve (Double Seat), with its patented technology, is designed for truly sterile sampling and ensures higher cleanability and sterilization of the valve seat and pipe connections. The double-seat sampling valve has three positions: open, shut and sterilization. It can be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

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



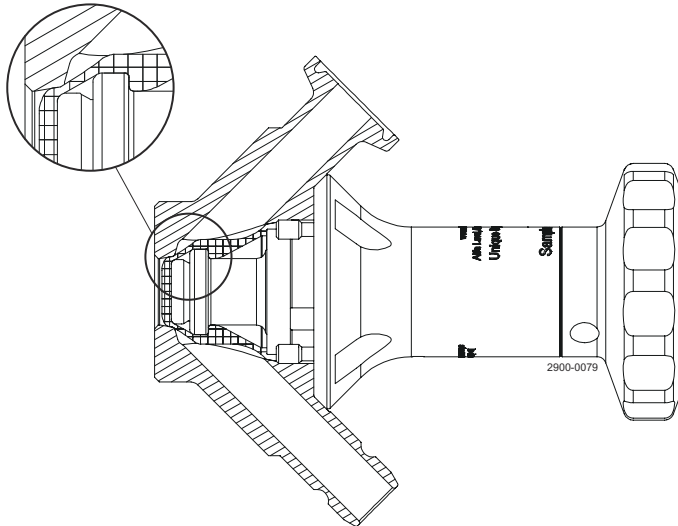
Manual valve: rotate the handle in a counterclockwise direction to open the valve. Pneumatic valve: open the valve by activating the actuator. This retracts the valve stem and membrane seal, which enables the product to flow freely through the open valve.

- **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:	1°C - 130°C
Max. sterilisation temperature, dry steam (2 bar):	121°C

Steam must be dry, since condensate will damage the membrane seal. It is recommended that the membrane seal is changed every 500 samples/sterilisations or in accordance with working conditions or experience.

Pressure	
Max. working pressure:	600 kPa (6 bar)
Min. working pressure:	0 kPa (0 bar)

ATEX	
Classification	II 2 G D ¹

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

PHYSICAL DATA

Materials	
Valve body:	1.4404 (316L) with 3.1 cert
Actuator:	1.4301 (304), 1.4404 (316L)
Membrane seal:	EPDM, silicone

The valve is available in three sizes:

- **Size 4** for low-viscosity products such as water, beer, wine and liquid milk. Viscosity: (cP) 0-100. Max. particle size: 2,5 mm (0.098 in).
- **Size 10** for high-viscosity products such as fruit yoghurt, syrup and ice cream. Viscosity: (cP) 0-1000. Max. particle size: 7 mm (0.276 in).
- **Size 25** is for products with very high viscosity such as jam. Max. particle size: 20 mm (0.787 in).

Valve bodies:

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

Valve heads:

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

Accessories:

See Unique Sampling Valve - Accessories ordering leaflet.

Dimensions (mm)

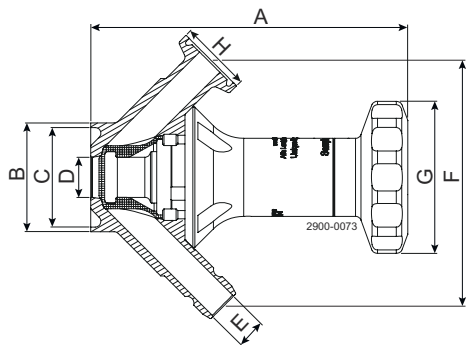


Figure 1. Handle with valve body: Collared pipe welding

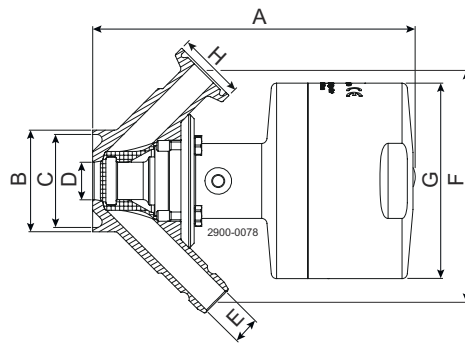


Figure 2. Pneumatic with valve body: Collared pipe welding

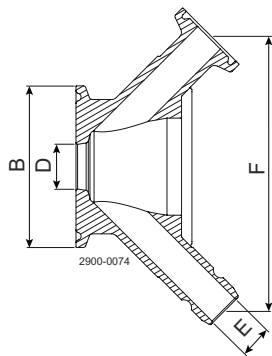


Figure 3. Valve body: Clamp

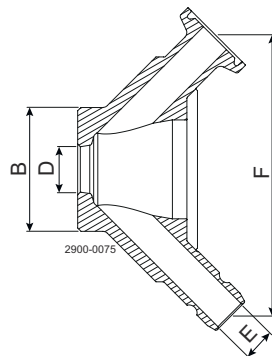


Figure 4. Valve body: Tank welding

Valve size		Size 4														
Valve Head		Handle Double Seat							Pneumatic Double seat							
Valve body	Tank	Tri-clamp	Collarded pipe						Tank	Tri-clamp	Collarded pipe					
			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50
Nominal size																
A	87.9	87.6	87.6	87.6	87.6	87.6	87.6	87.6	141.4	141.1	141.1	141.1	141.1	141.1	141.1	141.1
B	29	50.5	25	38	51	29	41	53	29	50.5	25	38	51	29	41	53
C	-	-	21.8	34.8	47.8	26	38	50	-	-	21.8	34.8	47.8	26	38	50
D	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
E	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
F	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7
G	46	46	46	46	46	46	46	46	54	54	54	54	54	54	54	54
H	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Weight (kg)	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

Valve size		Size 10														
Valve Head		Handle Double Seat							Pneumatic Double Seat							
Valve body	Tank	Tri-clamp	Collarded pipe						Tank	Tri-clamp	Collarded pipe					
			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50
Nominal size																
A	111.4	110.9	112.6	110.6	110.6	110.6	110.6	110.6	179.9	179.4	180.1	179.1	179.1	179.1	179.1	179.1
B	38	50.5	25	38	51	29	41	53	38	50.5	25	38	51	29	41	53
C	-	-	21.8	34.8	47.8	26	38	50	-	-	21.8	34.8	47.8	26	38	50
D	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
E	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
F	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8

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
G	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
H	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Weight (kg)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3

Valve size		Size 25									
Valve Head		Pneumatic Double Seat									
Valve body	Tank	Tri-clamp		Collarded pipe							
Nominal size				ISO 51		ISO 63.5		DIN 50		DIN 65	
A	363.9		363.9	367.9		366.9		367.9		365.9	
B	70		77.5	51		63.5		53		70	
C	-		-	47.8		60.3		50		66	
D	25		25	25		25		25		25	
E	25		25	25		25		25		25	
F	143		143	143		143		143		143	
G	127		127	127		127		127		127	
H	50.5		50.5	50.5		50.5		50.5		50.5	
Weight (kg)	13.5		13.5	13.5		13.5		13.5		13.5	

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

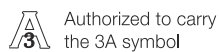
Standard design

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.

Certificates



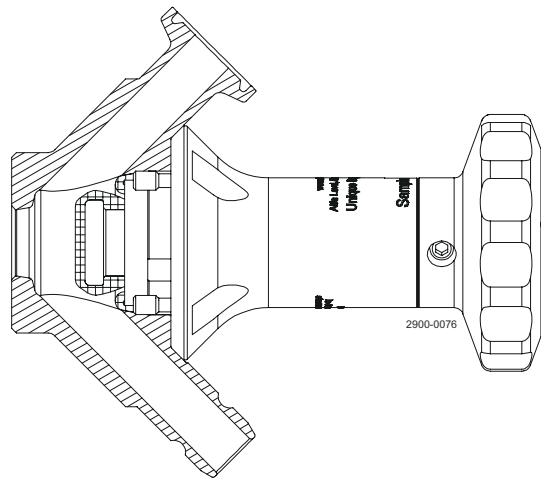
Authorized to carry
the 3A symbol



Working principle

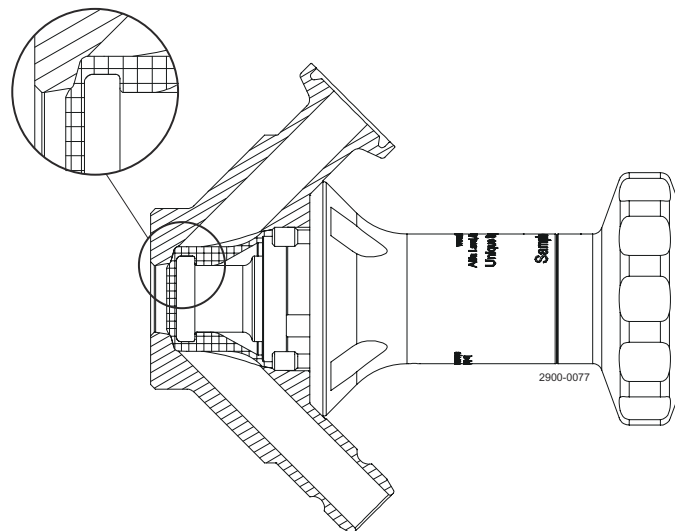
The Alfa Laval Unique Sampling Valve (Single Seat) is designed for standard hygienic sampling. The single-seat sampling valve has two positions: open and shut.

- **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:	1°C - 130°C
Max. sterilisation temperature, dry steam (2 bar):	121°C

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:	600 kPa (6 bar)
Min. working pressure:	0 kPa (0 bar)

ATEX

Classification size 4 & 10 Manually

II 2 G D¹

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

PHYSICAL DATA

Materials

Valve body:	1.4404 (316L) with 3.1 cert.
Actuator:	1.4301 (304), 1.4404 (316L)
Membrane seal:	EPDM, silicone

The valve is available in three sizes:

- **Size 4** for low-viscosity products such as water, beer, wine and liquid milk. Viscosity: (cP) 0-100. Max. particle size: 2.5 mm (0.098 in).
- **Size 10** for high-viscosity products such as fruit yoghurt, syrup and ice cream. Viscosity: (cP) 0-1000. Max. particle size: 7 mm (0.276 in).
- **Size 25** is for products with very high viscosity such as jam. Max. particle size: 20 mm (0.787 in).

Valve bodies:

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

Valve heads:

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

Accessories:

See Unique Sampling Valve - Accessories ordering leaflet.

Dimensions (mm)

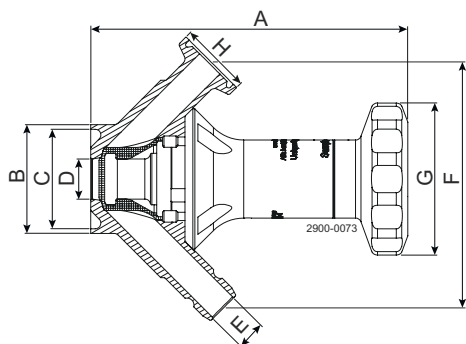


Figure 1. Handle with valve body: Collared pipe welding

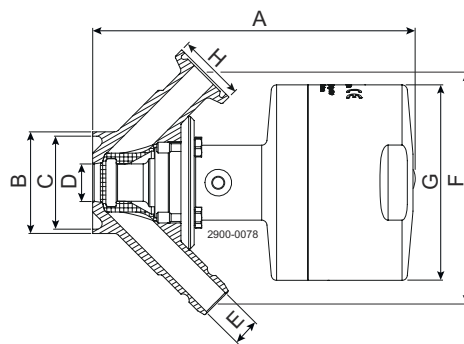


Figure 2. Pneumatic with valve body: Collared pipe welding

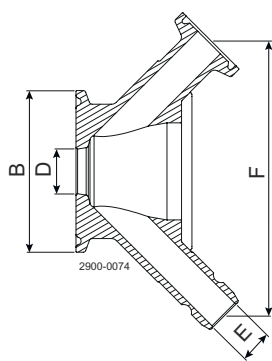


Figure 3. Valve body: Tri-clamp

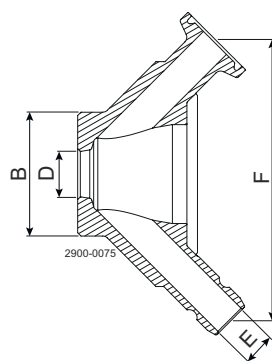


Figure 4. Valve body: Tank welding

Valve size									Size 4							
Valve Head		Handle Single Seat							Pneumatic Single Seat							
Valve body	Tank	Tri-clamp	Collarded pipe						Tank	Tri-clamp	Collarded pipe					
			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50
Connection size																
A	87.9	87.6	87.6	87.6	87.6	87.6	87.6	87.6	92.8	92.5	92.5	92.8	92.5	92.5	92.5	92.5
B	29	50.5	25	38	51	29	41	53	29	50.5	25	38	51	29	41	53
C	-	-	21.8	34.8	47.8	26	38	50	-	-	21.8	34.8	47.8	26	38	50
D	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
E	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
F	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7	78.7
G	46	46	46	46	46	46	46	46	54	54	54	54	54	54	54	54
H	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Weight (kg)	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3

Valve size										Size 10							
Valve Head		Handle Single Seat								Pneumatic Single Seat							
		Tri-clamp	Collarded pipe						Tank	Tri-clamp	Collarded pipe						
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	111.4	110.9	112.6	110.6	110.6	110.6	110.6	110.6	121.9	121.4	122.1	121.1	121.7	121.7	121.7	121.7	
B	38	50.5	25	38	51	29	41	53	38	50.5	25	38	51	29	41	53	
C	-	-	21.8	34.8	47.8	26	38	50	-	-	21.8	34.8	47.8	26	38	50	
D	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
E	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
F	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	
G	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.2	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	
H	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
Weight (kg)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	

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	275.1	275.1	279.1	278.1	279.1	277.1	
B	70	77.5	51	63.5	53	70	
C	-	-	47.8	60.3	50	66	
D	25	25	25	25	25	25	
E	25	25	25	25	25	25	
F	143	143	143	143	143	143	
G	127	127	127	127	127	127	
H	50.5	50.5	50.5	50.5	50.5	50.5	
Weight (kg)	8.2	8.2	8.2	8.2	8.2	8.2	

Alfa Laval Unique Sampling Valve - Accessories - Pressure Relief Valve

Sampling valves

Introduction

The Alfa Laval Pressure Relief Valve is a hygienic sampling accessory for overpressure protection when using the Alfa Laval Unique Sampling Valve. It controls steam pressure and temperature during sterilization of the valve. This safeguards your sampling valve and process lines against overpressure.

Application

This pressure relief valve for steam sterilization is designed for use during steam sterilization of the Unique Sampling Valve before and after taking representative samples from hygienic process lines across the food, beverage, personal care, pharmaceutical and many other industries.

Benefits

- Cost-effective, hygienic design
- Overpressure protection during Sterilization-in-Place
- Quick, thorough and safe steam sterilization
- Easy to clean

Standard design

This spring-loaded pressure relief valve for the Alfa Laval Unique Sampling Valve consists of a valve body, membrane seal, stem, spring, nozzle and handle. Constructed of insulating material for ease of handling during steam sterilization, it is positioned on the outlet of the sampling valve during Sterilization-in-Place.

Working principle

The Alfa Laval Pressure Relief Valve maintains the correct pressure and temperature during Sterilization-in-Place before and after taking representative samples. When using the pressure relief valve, sterilization typically takes place within two minutes using clean steam. The pressure relief valve is pre-set to a pressure of 2 bar, ensuring a temperature of 121°C, the recommended temperature for sterilization. Before taking a sample, pull the quick release handle to ensure that no steam pressure is present in the sampling valve, thereby ensuring operator safety.



TECHNICAL DATA

Temperature	
Temperature range:	1°C - 130°C
Max. sterilisation temperature, dry steam:	130°C

Pressure	
Max. working pressure:	600 kPa (6 bar)
Min. working pressure:	0 kPa (0 bar)

PHYSICAL DATA

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

Dimensions (mm)

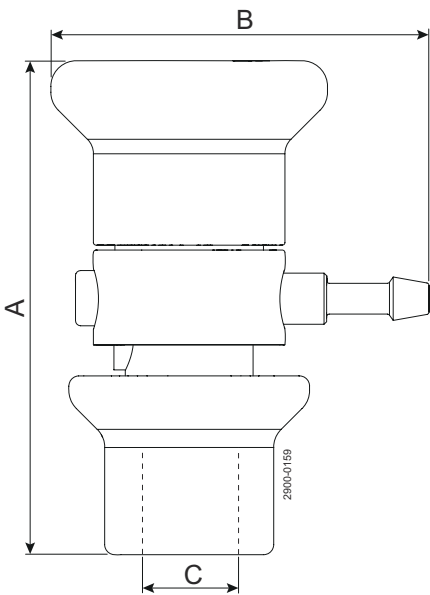


Figure 1. Size 4 and 10:

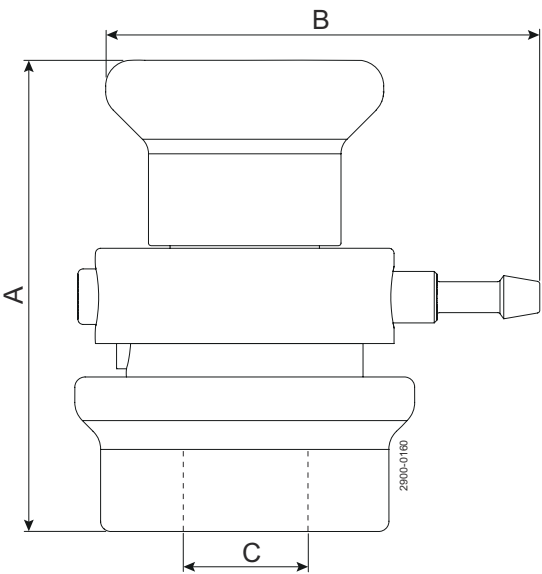


Figure 2. Size 25:

Size 4 and 10:			Size 25:		
A	B	C	A	B	C
96.5	70.7	14	91.5	90.3	30

Alfa Laval Unique Sampling Valve - Accessories - Non Return Valve

Sampling valves

Introduction

The Alfa Laval Non-return Valve is a hygienic sampling accessory for backflow protection when using with the Alfa Laval Unique Sampling Valve. It is a spring-loaded, non-return valve that prevents backflow of product from the sampling valve into the steam line when performing steam sterilization.

Application

This non-return valve for backflow protection is designed for automated processes when using the Unique Sampling Valve in applications across the food, beverage, personal care, pharmaceutical and many other industries.

Benefits

- Highly reliable
- Easy to install
- Protection for sampling valve and process equipment

Standard design

This non-return valve for use with the Alfa Laval Unique Sampling Valve consists of a nut, inlet piece, o-ring, piston, guide ring, spring, body and plug.

Working principle

The Alfa Laval Non-Return Valve is used when performing steam sterilization on the Alfa Laval Unique Sampling Valve. The non-return valve allows steam to pass through the sampling valve and blocks the product when taking a sample.



TECHNICAL DATA

Temperature	
Temperature range:	1°C - 130°C
Max. sterilisation temperature, dry steam:	130°C

Pressure	
Max. working pressure:	600 kPa (6 bar)
Min. working pressure:	0 kPa (0 bar)

PHYSICAL DATA

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

Dimensions (mm)

Size 4 and 10:

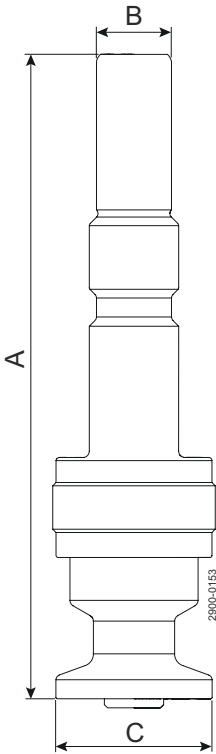


Figure 1. For steam generator

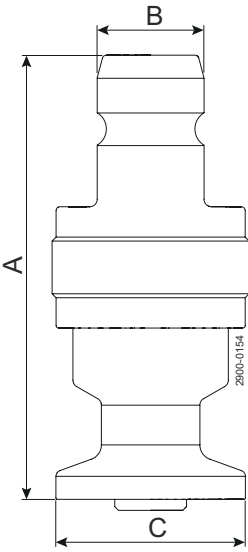


Figure 2. For Quick connection

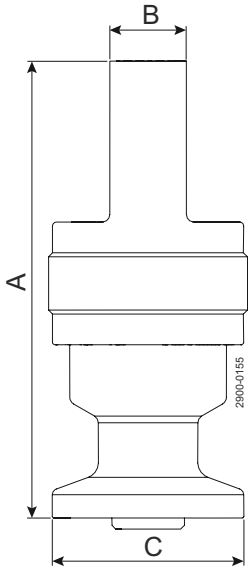


Figure 3. For tube welding

Size 25:

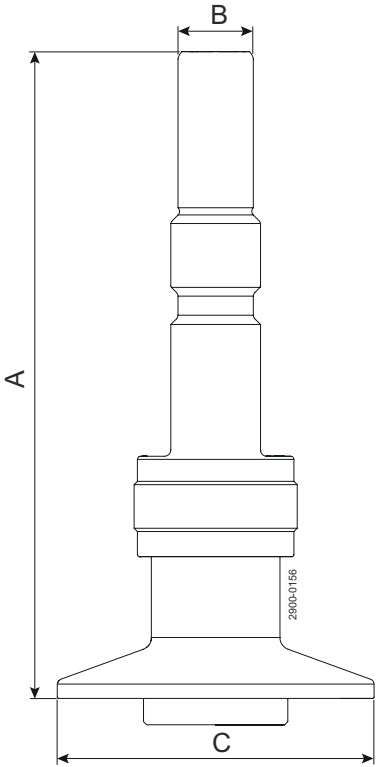


Figure 4. For steam generator

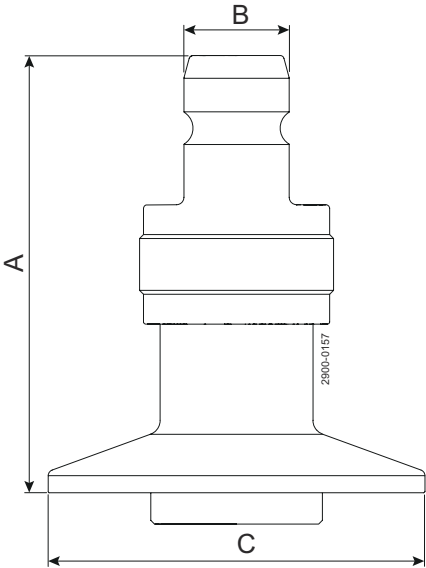


Figure 5. For Quick connection

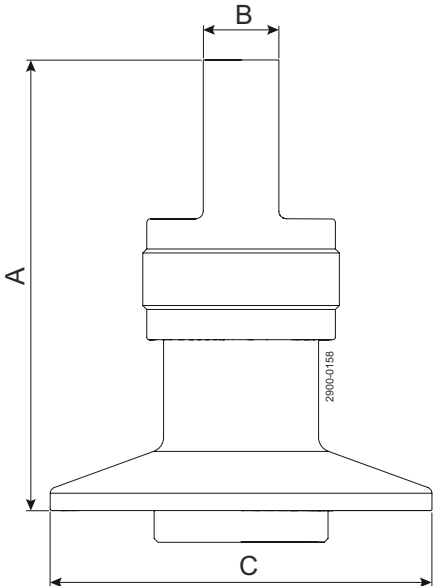


Figure 6. For tube welding

Inlet size	Size 4 and 10			Size 25		
	A	B	C	A	B	C
For steam generator	103.1	12	25	103.1	12	50.5
For Quick connection	58.6	14	25	58.6	14	50.5
For tube welding	59.6	10	25	59.6	10	50.5

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: 1°C - 130°C

Pressure

Max. working pressure: 600 kPa (6 bar)

Min. working pressure: 0 kPa (0 bar)

PHYSICAL DATA

Materials

Product wetted parts: 1.4404 (316L)

Other parts: 1.4301 (304), PA 6.6 30% GF

Dimensions (mm)

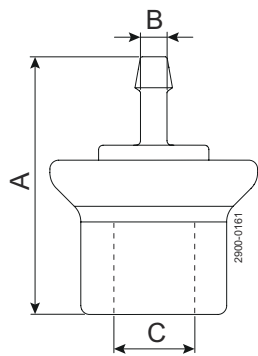


Figure 1. Hose Connection

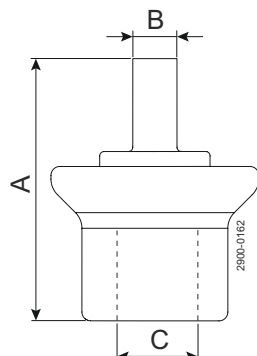


Figure 2. Tube welding

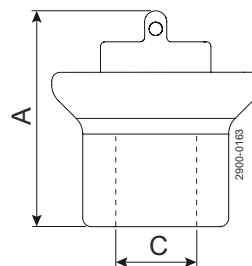


Figure 3. Blind cap

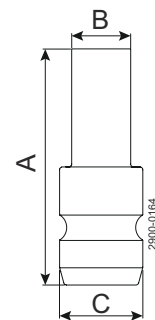


Figure 4. Male connection

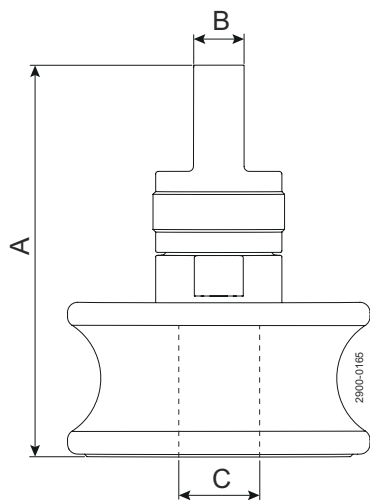


Figure 5. Female quick connection w. non return valve

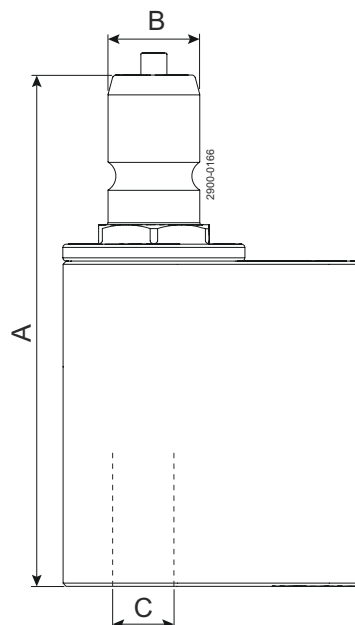


Figure 6. Male quick connection w. non return valve

Type	A	B	C
Quick connection w. hose connection ø6	58	6	14
Quick connection w. hose connection ø8	58	8	14
Quick connection w tube welding	59	10	14
Quick connection w. blind cab	49	-	14
Male connection	40	10	14
Female quick connection w. non return valve	77	10	14
Male quick connection w. non return valve	78.6	14	10

Alfa Laval SB Membrane Sampling Valve

Sampling valves

Introduction

The Alfa Laval SB Membrane Sampling Valve is a hygienic valve that enables representative sampling of products from tanks and pipework under sterile conditions. It provides the high accuracy, exceptional repeatability and excellent reliability required for high-quality, cost-effective sampling.

Application

This hygienic sampling valve is suitable for use in the hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Hygienic and sterilizable to ensure hygienic sampling at low investment cost
- No sampling contamination risk due to effective Sterilization-in-Place before and after each sampling
- Flexible sampling methods: manual activation, manual with micro port for hypodermic needle, or pneumatic versions
- Safe, reliable sampling procedures

Standard design

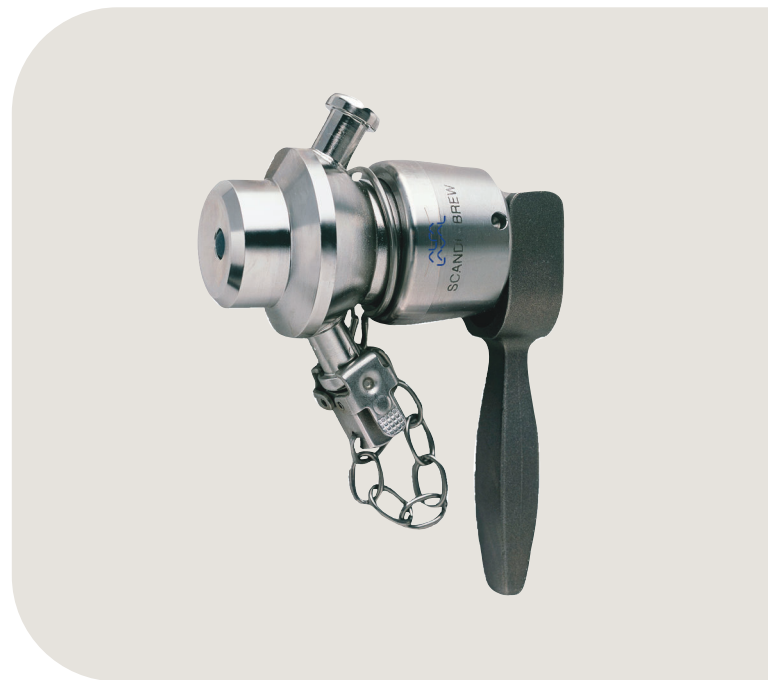
The membrane sampling valve consists of a valve body, a membrane seal which works as a stretchable plug, and an actuator and/or handle to open and close the valve. To minimize the risk of contamination, the valve is sterilized in place using alcohol or steam. The membrane forms a seal directly against the product to ensure representative sampling and provide accurate, repeatable results without any risk of secondary contamination.

The valve is available in three different actuator designs:

- Manual - For manual activation
- Manual + Micro Port - For manual activation or sampling using a hypodermic needle to penetrate the membrane for sample taking
- Manual + Pneumatic - For manual or pneumatic activation when the valve is connected to pipes for automatic sampling

Supplied with pipe outlet connections, the valve is available with three different types of connection: tank, pipe and threaded.

All types are available for manual or pneumatic operation, or a combination of both. The two connections are hose pieces



designed as clip-on. The standard valve is equipped with one clip-on closing cap.

Working principle

Before opening the Alfa Laval SB Membrane Sampling Valve, the closing cap should be placed on the upper hose to avoid any product leaving the upper port. When the handle is turned to the horizontal position, the sample starts to flow through the lower outlet. When the handle is turned back to the vertical position, the valve shuts and the handle can be removed, if required. Samples can be taken using a special valve type with a micro port; removal of the red cap enables the insertion of a hypodermic needle through a central channel and into the membrane to take a sample with the valve in the shut position. After sampling, flush the valve with water or alcohol. The valve can be sterilized using alcohol or steam.

TECHNICAL DATA

Temperature	
Temperature range:	1 C° - 130 C°
Max sterilisation temperature dry steam (2 bar):	121 C°

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

Pressure	
Product pressure:	1000 kPa (10 bar)

PHYSICAL DATA

Materials	
Valve body:	1.4404 (AISI 316L) with 3.1 cert.
Other metallic parts:	1.4307 (AISI 304L)
Membrane:	1 pcs. silicone and 1 pcs. EPDM supplied with valve

Accessories

See SB Membrane Sampling Valve Accessories ordering leaflet.

Special Versions

Instead of being clip-on type, the two outlets of the valve can be supplied with Swagelok. Other type is available on request.

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

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

The valve body is available in the following constructions:

- Type T for direct welding into tank
- Type P for direct welding into pipe
- Type S for socket mounting. Valve body with male part in 3/8" BSP
- Other types are available on request, f.inst. 1/2" BSP, NW 10, NW 15

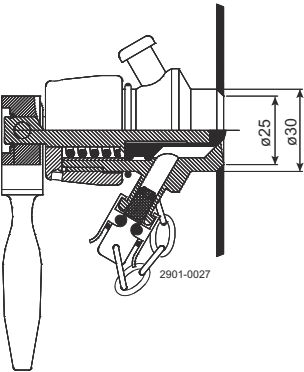


Figure 1. Type T

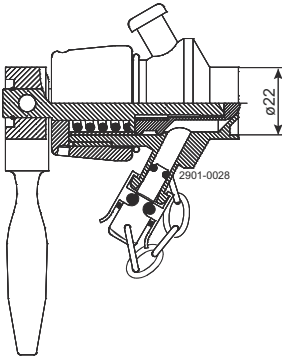


Figure 2. Type P

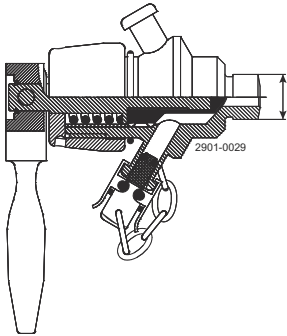
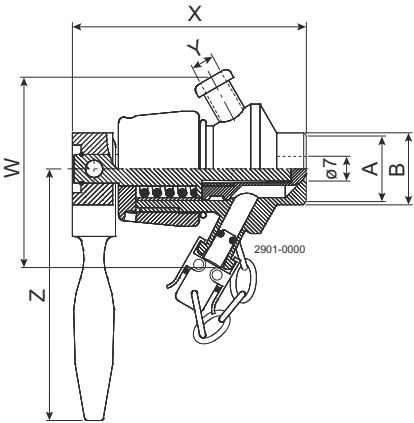


Figure 3. Type S

Dimensions (mm)



	Type T	Type P 1"	Type P DIN/NW25	Type S
A	ø25	-	-	-
B	ø30	ø25	ø29	3/8" BSP
X	81	82.5	82.5	94
Y	6.8	6.8	6.8	6.8
Z	87.5	87.5	87.5	87.5
W	65.2	65.2	65.2	65.2

Alfa Laval SB Micro Sampling Port

Sampling valves

Introduction

The Alfa Laval SB Micro Sampling Port enables representative hygienic and microbiological samples to be taken under sterile conditions in small volumes from tanks and pipework. To help ensure product safety, the sampling port features a straightforward hygienic design with minimal components to make collecting samples mid-stream easy, convenient and accurate.

Application

The SB Micro Sampling Port is specially designed for use within the brewery, food, dairy, beverage and many other industries.

Benefits

- Safe, simple, aseptic sampling
- Small sample size
- Minimum impact to product
- Superior hygiene
- Versatile mounting
- Easy to clean

Standard design

The sampling port consists of a housing made as a socket for direct welding into the tank wall or pipework, a rubber plug which is positioned by a press screw, o-ring, chain and closing cap. There are three types: Type P, Type PC, and Type T (see page 2).

Working principle

Before sampling, sterilize the plug with alcohol, for instance. The inner part of the rubber plug will automatically be cleaned during either tank or pipe cleaning.

To take a sample, simply unscrew the closing cap and insert a one-millimetre 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 plug, the rubber plug is released. Mount the new plug, then remount the press screw tightly.



TECHNICAL DATA

Temperature

Temperature range, silicone:	1 °C - 110 °C
Temperature range, natural rubber:	1 °C - 90 °C

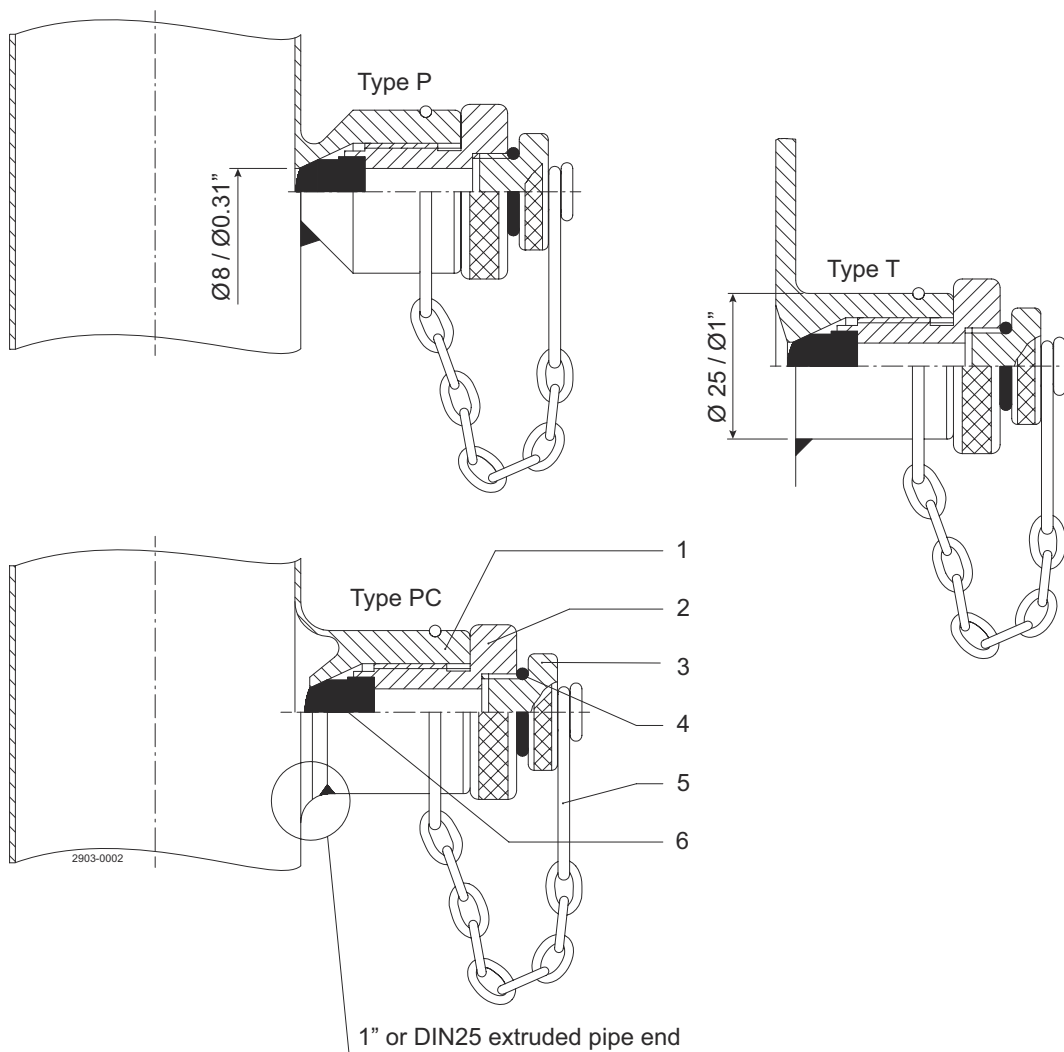
Pressure

Max. product pressure:	6 bar
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PHYSICAL DATA

Materials

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



Pos.1: Welding socket

Pos.2: Press screw

Pos.3: Closing cap

Pos.4: O-ring

Pos.5: Chain

Pos.6: Rubber plug

The different types of sockets are mounted as follows:

- Socket, Type T, is welded into a 25 mm diameter hole in a tank wall
- Socket, Type P, is welded on a pipewall and thereafter a 8 mm hole is drilled
- Socket, Type PC, is available for welding onto extruded pipe ends equal to 1" as well as DN25

Dimensions (mm)

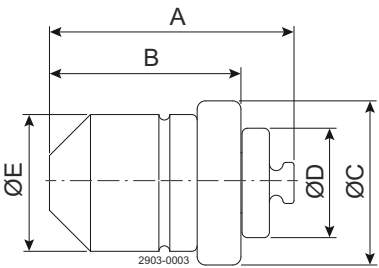


Figure 1. Type P

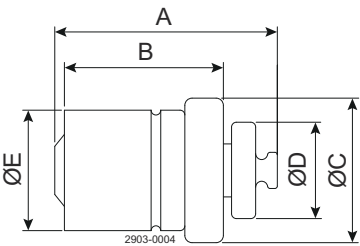


Figure 2. Type PC

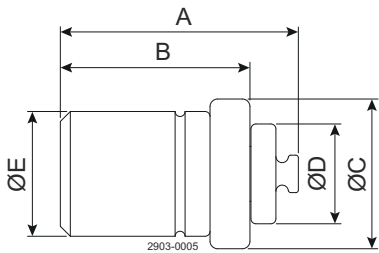


Figure 3. Type T

	A	B	ØC	ØD	ØE
Type P	44.7	35	30	20	25
Type PC	46.2	33	30	20	25
Type T	47.7	38	30	20	25

Alfa Laval SB Micro Sampling Port Type M

Sampling valves

Introduction

The Alfa Laval SB Micro Sampling Port Type M enables representative hygienic and microbiological samples to be taken in small volumes from tanks and pipework under sterile conditions. To help ensure product safety, the sampling port features a straightforward hygienic design with minimal components to make collecting samples easy, convenient and accurate.

Application

The sampling port is specially designed for use within the brewery, food, dairy, beverage and many other industries.

Benefits

- Simple, hygienic design
- Safe sampling
- Small sample size
- Minimum impact to product
- Easy to clean

Standard design

The SB Micro Sampling Port Type M consists of a housing made as a socket for direct welding into the tank wall or pipework, a threaded nipple, a membrane and a perforated disc that keeps the membrane in place. The membrane forms a seal directly against the product to ensure representative sampling and provide accurate, repeatable results without any risk of secondary contamination.

Working principle

Before sampling, sterilize the valve membrane with alcohol, for instance. The inner portion of the rubber membrane is automatically cleaned during tank or pipework cleaning.

To take a sample, simply unscrew the closing cap and insert a hypodermic needle through the membrane.

Replacement of the rubber membrane should only take place when the tank is empty, and pressure has been released. To remove the old membrane, unscrew the threaded nipple and remove the perforated disc. Replace the old membrane with a new one, and remount the components firmly in place.



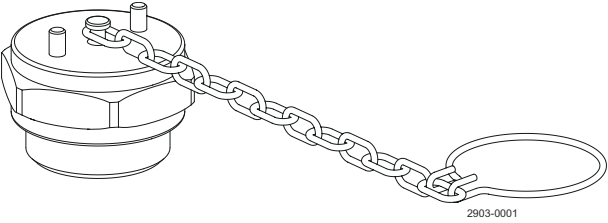
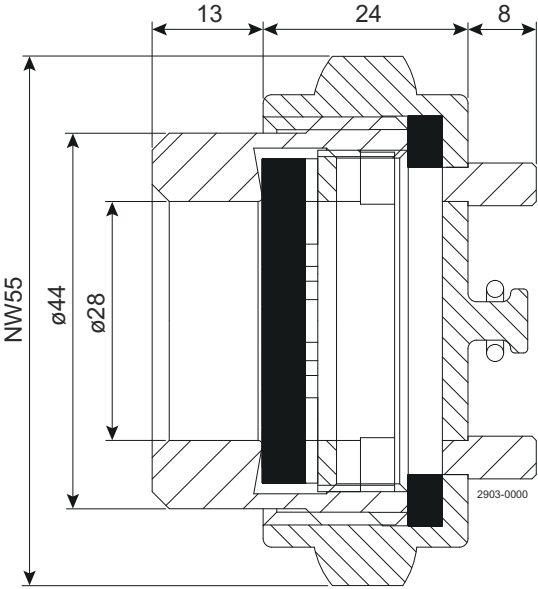
TECHNICAL DATA

Temperature	
Temperature range:	1°C - 90°C
Pressure	
Max. product pressure:	10 bar

PHYSICAL DATA

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

Dimensions (mm)



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.

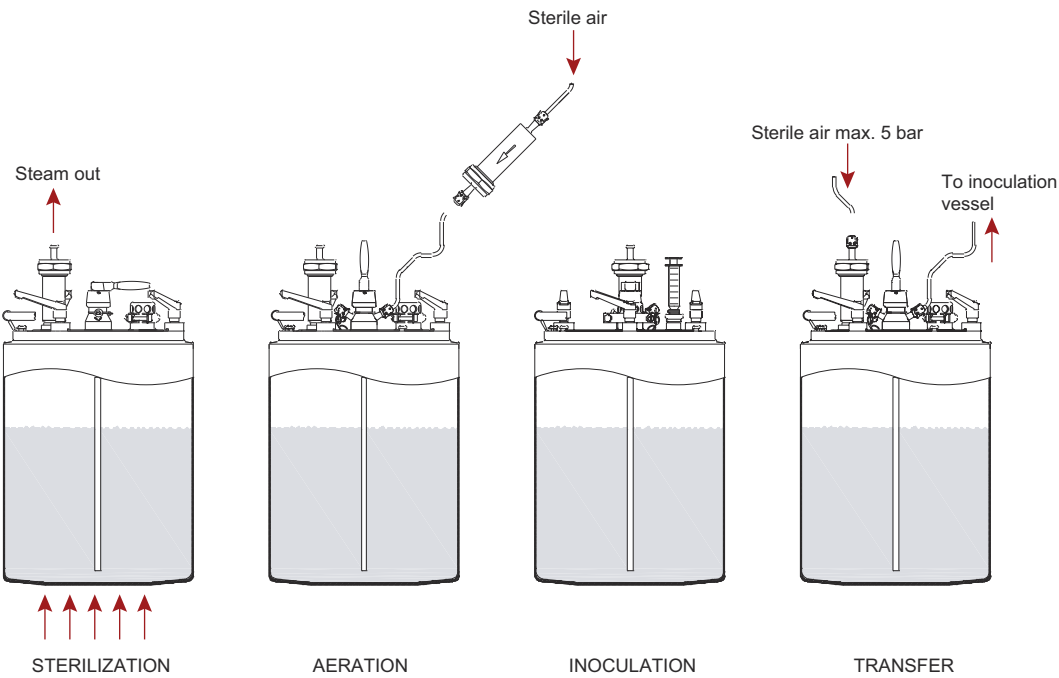


TECHNICAL DATA

Net volume	Total volume	Recommend transfer pressure	Allowable pressure
25 l	33 l	2-3 bar	6 bar

PHYSICAL DATA

Materials	
Product wetted steel parts:	EN 1.4307 (AISI 304L)
Product wetted seals:	EPDM
Product wetted o-ring:	Silicone

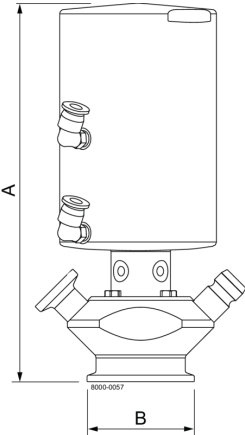


Unique Sampling Valve - Double Seat Valve

Sampling valves

Valve ports: Tri-Clamp/Quick
ALSIS Code: 5349

Material: 1.4404 (316L)
Inside surface finish: Ra 0.8 µm
Outside surface finish: Polished

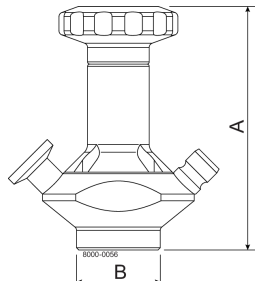
Item no.	Size	Max. working pressure	Connection	Dimension (mm)		
	bar	bar		A	B	
Double Seat actuator						
9614095004	Size 4	0-6	Collared pipe - DN25	141.1	29.0	
9614095040	Size 4	0-6	Collared pipe - DN25	141.1	29.0	
9614095006	Size 4	0-6	Collared pipe - DN40	141.1	41.0	
9614095042	Size 4	0-6	Collared pipe - DN40	141.1	41.0	
9614095008	Size 4	0-6	Collared pipe - DN50	141.1	53.0	
9614095044	Size 4	0-6	Collared pipe - DN50	141.1	53.0	
9614095003	Size 4	0-6	Collared pipe - ISO 25 mm	141.1	25.0	
9614095039	Size 4	0-6	Collared pipe - ISO 25 mm	141.1	25.0	
9614095005	Size 4	0-6	Collared pipe - ISO 38 mm	141.1	38.0	
9614095041	Size 4	0-6	Collared pipe - ISO 38 mm	141.1	38.0	
9614095007	Size 4	0-6	Collared pipe - ISO 51 mm	141.1	51.0	
9614095043	Size 4	0-6	Collared pipe - ISO 51 mm	141.1	51.0	
9614095002	Size 4	0-6	Tank mounted	141.4	29.0	
9614095038	Size 4	0-6	Tank mounted	141.4	29.0	
9614095001	Size 4	0-6	Tri-Clamp	141.1	50.5	
9614095037	Size 4	0-6	Tri-Clamp	141.1	50.5	
9614095406	Size 10	0-6	Collarded pipe	179.1	41.0	
9614095404	Size 10	0-6	Collared pipe - DN25	179.1	29.0	
9614095440	Size 10	0-6	Collared pipe - DN25	179.1	29.0	
9614095442	Size 10	0-6	Collared pipe - DN40	179.1	41.0	
9614095408	Size 10	0-6	Collared pipe - DN50	179.1	53.0	
9614095444	Size 10	0-6	Collared pipe - DN50	179.1	53.0	
9614095403	Size 10	0-6	Collared pipe - ISO 25 mm	180.1	25.0	
9614095439	Size 10	0-6	Collared pipe - ISO 25 mm	180.1	25.0	
9614095405	Size 10	0-6	Collared pipe - ISO 38 mm	179.1	38.0	
9614095441	Size 10	0-6	Collared pipe - ISO 38 mm	179.1	38.0	
9614095407	Size 10	0-6	Collared pipe - ISO 51 mm	179.1	51.0	
9614095443	Size 10	0-6	Collared pipe - ISO 51 mm	179.1	51.0	
9614095402	Size 10	0-6	Tank mounted	179.9	38.0	
9614095438	Size 10	0-6	Tank mounted	179.9	38.0	
9614095401	Size 10	0-6	Tri-Clamp	179.4	50.5	
9614095437	Size 10	0-6	Tri-Clamp	179.4	50.5	
9614095526	Size 25	0-6	Collarded pipe	366.9	63.5	
9614095504	Size 25	0-6	Collared pipe - DN50	367.9	53.0	
9614095525	Size 25	0-6	Collared pipe - DN50	367.9	53.0	
9614095506	Size 25	0-6	Collared pipe - DN65	366.9	70.0	
9614095527	Size 25	0-6	Collared pipe - DN65	366.9	70.0	
9614095503	Size 25	0-6	Collared pipe - ISO 51 mm	367.9	51.0	
9614095524	Size 25	0-6	Collared pipe - ISO 51 mm	367.9	51.0	
9614095505	Size 25	0-6	Collared pipe - ISO 63.5 mm	366.9	63.5	
9614095502	Size 25	0-6	Tank mounted	363.9	70.0	
9614095523	Size 25	0-6	Tank mounted	363.9	70.0	
9614095501	Size 25	0-6	Tri-Clamp	363.9	77.5	
9614095522	Size 25	0-6	Tri-Clamp	363.9	77.5	

Sampling valves

Unique Sampling Valve - Double Seat Valve

Valve ports: Tri-Clamp/Quick
ALSIS Code: 5349

Material: 1.4404 (316L)
Inside surface finish: Ra 0.8 µm
Outside surface finish: Polished

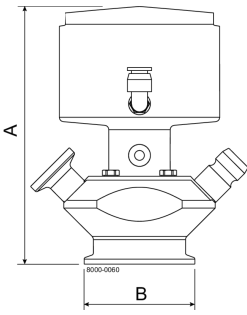
Item no.	Size	Max. working pressure	Connection	Dimension (mm)		
	bar	bar		A	B	
Double Seat handle						
9614094903	Size 4	0-6	Collarded pipe	87.6	25.0	
9614094904	Size 4	0-6	Collarded pipe	87.6	29.0	
9614094905	Size 4	0-6	Collarded pipe	87.6	38.0	
9614094906	Size 4	0-6	Collarded pipe	87.6	41.0	
9614094907	Size 4	0-6	Collarded pipe	87.6	51.0	
9614094908	Size 4	0-6	Collarded pipe	87.6	53.0	
9614094939	Size 4	0-6	Collarded pipe	87.6	25.0	
9614094940	Size 4	0-6	Collarded pipe	87.6	29.0	
9614094941	Size 4	0-6	Collarded pipe	87.6	38.0	
9614094942	Size 4	0-6	Collarded pipe	87.6	41.0	
9614094943	Size 4	0-6	Collarded pipe	87.6	51.0	
9614094944	Size 4	0-6	Collarded pipe	87.6	53.0	
9614095206	Size 4	0-6	Collarded pipe	110.6	41.0	
9614094902	Size 4	0-6	Tank	87.6	29.0	
9614094938	Size 4	0-6	Tank	87.6	29.0	
9614094901	Size 4	0-6	Tri-Clamp	87.9	50.5	
9614094937	Size 4	0-6	Tri-Clamp	87.9	50.5	
9614095203	Size 10	0-6	Collarded pipe	112.6	25.0	
9614095204	Size 10	0-6	Collarded pipe	110.6	29.0	
9614095205	Size 10	0-6	Collarded pipe	110.6	38.0	
9614095207	Size 10	0-6	Collarded pipe	110.6	51.0	
9614095208	Size 10	0-6	Collarded pipe	110.6	53.0	
9614095239	Size 10	0-6	Collarded pipe	112.6	25.0	
9614095240	Size 10	0-6	Collarded pipe	110.6	29.0	
9614095241	Size 10	0-6	Collarded pipe	110.6	38.0	
9614095242	Size 10	0-6	Collarded pipe	110.6	41.0	
9614095243	Size 10	0-6	Collarded pipe	110.6	51.0	
9614095244	Size 10	0-6	Collarded pipe	110.6	53.0	
9614095202	Size 10	0-6	Tank mounted	111.4	38.0	
9614095238	Size 10	0-6	Tank mounted	111.4	38.0	
9614095201	Size 10	0-6	Tri-Clamp	110.9	50.5	
9614095237	Size 10	0-6	Tri-Clamp	110.9	50.5	

Unique Sampling Valve - Single Seat Valve

Sampling valves

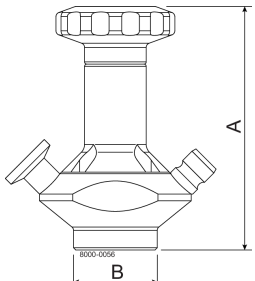
Valve ports: Tri-Clamp/Quick
ALSIS Code: 5349

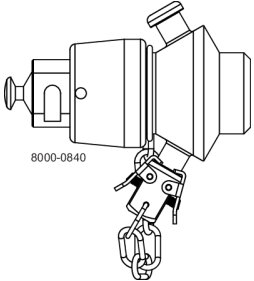
Material: 1.4404 (316L)
Inside surface finish: Ra 0.8 µm
Outside surface finish: Polished

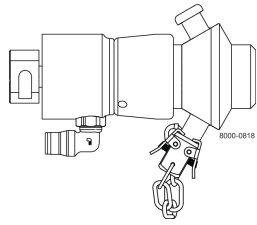
Item no.	Size	Max. working pressure	Connection	Dimension (mm)		
		bar		A	B	
Single Seat actuator						
9614030908	Size 4	0-6	Collared pipe	92.5	53.0	
9614030904	Size 4	0-6	Collared pipe - DN25	92.5	29.0	
9614030940	Size 4	0-6	Collared pipe - DN25	92.5	29.0	
9614030906	Size 4	0-6	Collared pipe - DN40	92.5	41.0	
9614030942	Size 4	0-6	Collared pipe - DN40	92.5	41.0	
9614030944	Size 4	0-6	Collared pipe - DN50	92.5	53.0	
9614030903	Size 4	0-6	Collared pipe - ISO 25 mm	92.5	25.0	
9614030939	Size 4	0-6	Collared pipe - ISO 25 mm	92.5	25.0	
9614030905	Size 4	0-6	Collared pipe - ISO 38 mm	92.8	38.0	
9614030941	Size 4	0-6	Collared pipe - ISO 38 mm	92.8	38.0	
9614030907	Size 4	0-6	Collared pipe - ISO 51 mm	92.5	51.0	
9614030943	Size 4	0-6	Collared pipe - ISO 51 mm	92.5	51.0	
9614030902	Size 4	0-6	Tank	92.8	38.0	
9614030938	Size 4	0-6	Tank mounted	92.8	38.0	
9614030901	Size 4	0-6	Tri-Clamp	92.5	50.5	
9614030937	Size 4	0-6	Tri-Clamp	92.5	50.5	
9614095304	Size 10	0-6	Collared pipe	121.7	29.0	
9614095307	Size 10	0-6	Collared pipe	121.7	51.0	
9614095340	Size 10	0-6	Collared pipe - DN25	121.7	29.0	
9614095306	Size 10	0-6	Collared pipe - DN40	121.7	41.0	
9614095342	Size 10	0-6	Collared pipe - DN40	121.7	41.0	
9614095308	Size 10	0-6	Collared pipe - DN50	121.7	53.0	
9614095344	Size 10	0-6	Collared pipe - DN50	121.7	53.0	
9614095303	Size 10	0-6	Collared pipe - ISO 25 mm	122.1	25.0	
9614095339	Size 10	0-6	Collared pipe - ISO 25 mm	122.1	25.0	
9614095305	Size 10	0-6	Collared pipe - ISO 38 mm	121.1	38.0	
9614095341	Size 10	0-6	Collared pipe - ISO 38 mm	121.1	38.0	
9614095343	Size 10	0-6	Collared pipe - ISO 51 mm	121.7	51.0	
9614095302	Size 10	0-6	Tank mounted	121.9	38.0	
9614095338	Size 10	0-6	Tank mounted	121.9	38.0	
9614095301	Size 10	0-6	Tri-Clamp	121.4	50.5	
9614095337	Size 10	0-6	Tri-Clamp	121.4	50.5	
9614095627	Size 25	0-6	Collared pipe	277.1	70.0	
9614095604	Size 25	0-6	Collared pipe - DN50	279.1	53.0	
9614095625	Size 25	0-6	Collared pipe - DN50	279.1	53.0	
9614095606	Size 25	0-6	Collared pipe - DN65	277.1	70.0	
9614095603	Size 25	0-6	Collared pipe - ISO 51 mm	279.1	51.0	
9614095624	Size 25	0-6	Collared pipe - ISO 51 mm	279.1	51.0	
9614095605	Size 25	0-6	Collared pipe - ISO 63.5 mm	278.1	63.5	
9614095626	Size 25	0-6	Collared pipe - ISO 63.5 mm	278.1	63.5	
9614095602	Size 25	0-6	Tank	275.1	70.0	
9614095623	Size 25	0-6	Tank mounted	275.1	70.0	
9614095601	Size 25	0-6	Tri-Clamp	275.1	77.5	
9614095622	Size 25	0-6	Tri-Clamp	275.1	77.5	

Valve ports: Tri-Clamp/Quick
 ALSIS Code: 5349

Material: 1.4404 (316L)
 Inside surface finish: Ra 0.8 µm
 Outside surface finish: Polished

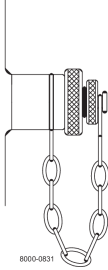
Item no.	Size	Max. working pressure	Connection	Dimension (mm)		
		bar		A	B	
Single Seat handle						
9614094803	Size 4	0-6	Collarded pipe	87.6	25.0	
9614094804	Size 4	0-6	Collarded pipe	87.6	29.0	
9614094805	Size 4	0-6	Collarded pipe	87.6	38.0	
9614094806	Size 4	0-6	Collarded pipe	87.6	41.0	
9614094807	Size 4	0-6	Collarded pipe	87.6	51.0	
9614094839	Size 4	0-6	Collarded pipe	87.6	25.0	
9614094840	Size 4	0-6	Collarded pipe	87.6	29.0	
9614094842	Size 4	0-6	Collarded pipe	87.6	41.0	
9614094841	Size 4	0-6	Collarded pipe	87.6	38.0	
9614094843	Size 4	0-6	Collarded pipe	87.6	51.0	
9614094844	Size 4	0-6	Collarded pipe	87.6	53.0	
9614094808	Size 4	0-6	Collared pipe - DN50	87.6	53.0	
9614094802	Size 4	0-6	Tank	87.6	29.0	
9614094838	Size 4	0-6	Tank	87.6	29.0	
9614094801	Size 4	0-6	Tri-Clamp	87.9	50.5	
9614094837	Size 4	0-6	Tri-Clamp	87.9	50.5	
9614095103	Size 10	0-6	Collarded pipe	112.6	25.0	
9614095104	Size 10	0-6	Collarded pipe	110.6	29.0	
9614095105	Size 10	0-6	Collarded pipe	110.6	38.0	
9614095106	Size 10	0-6	Collarded pipe	110.6	38.0	
9614095107	Size 10	0-6	Collarded pipe	110.6	51.0	
9614095108	Size 10	0-6	Collarded pipe	110.6	53.0	
9614095139	Size 10	0-6	Collarded pipe	112.6	25.0	
9614095140	Size 10	0-6	Collarded pipe	110.6	29.0	
9614095141	Size 10	0-6	Collarded pipe	110.6	38.0	
9614095142	Size 10	0-6	Collarded pipe	110.6	38.0	
9614095143	Size 10	0-6	Collarded pipe	110.6	51.0	
9614095144	Size 10	0-6	Collarded pipe	110.6	53.0	
9614095102	Size 10	0-6	Tank mounted	111.4	29.0	
9614095138	Size 10	0-6	Tank mounted	111.4	29.0	
9614095101	Size 10	0-6	Tri-Clamp	110.9	50.5	
9614095137	Size 10	0-6	Tri-Clamp	110.9	50.5	

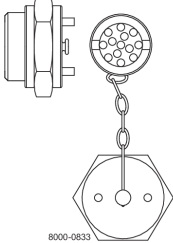
Item no.	Specification	
Membrane sample valve		
9615094107	MSV Manuel Type T 0-10 bar	
9615094108	MSV Manuel Type P (DN25) 0-10 bar	
9615094109	MSV Manuel Type P (Ø25/1") 0-10 bar	
9615094110	MSV Manuel Type P (Ø12-10mm) 0-10 bar	
9615094111	MSV Manuel Type S (3/8"BSP) 0-10 bar	

Item no.	Specification	
Pneumatic membrane sample valve		
9615094606	MSV Pneumatic Type T 0-10 bar	
9615094607	MSV Pneumatic Type P (DN25) 0-10 bar	
9615094608	MSV Pneumatic Type P (Ø25/1") 0-10 bar	
9615094609	MSV PneumaticTypeP(Ø12-10mm) 0-10 bar	
9615094610	MSV Pneumatic Type S (3/8"BSP) 0-10bar	
9615094616	MSV Pneumatic Type T 0-10bar Swage	
9615094617	MSV Pneumatic Type P (DN25) 0-10bar Swage	
9615094618	MSV PneumaticTypeP(Ø25/1") 0-10bar Swage	
9615094619	MSV Pneumatic Type P (Ø12-10mm) 0-10bar Swage	
9615094620	MSV Pneumatic Type S (3/8"BSP) 0-10bar Swage	

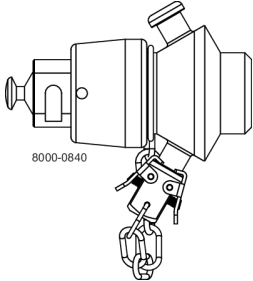
ALSIS Code: 5917

Material: 1.4404
Product wetted surface finish: Ra ≤ 0.8 µm

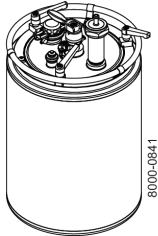
Item no.	Specification	
Micro Sample Port		
9615122501	Type T w/red silicone plug	
9615122502	Type T w/green rubber plug	
9615122701	Type P w/red silicone plug	
9615122702	Type P w/green rubber plug	
9615123301	Type PC 1" w/red silicone plug	
9615123302	Type PC 1" w/green rubber plug	
9615126501	Type PC DN 25 w/red silicone plug	
9615126502	Type PC DN 25 w/green rubber plug	

Item no.	Specification	
Micro Sampling Port, Type M		
9615139401	Micro Sample Port, Type M (max. 10 bar) (max. 145 psi)	 8000-0833

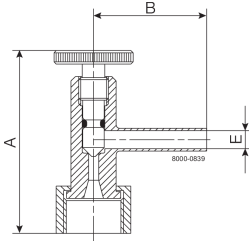
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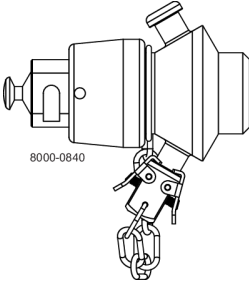
Item no.	Specification	
Membrane sample valve		
9615094406	MSV Manuel+Micro port Type T 6.1-10bar	
9615094407	MSV Manuel+Micro port Type P (DN25) 6.1-10 bar	
9615094408	MSV Manuel+Micro port Type P (Ø25/1") 6.1-10 bar	
9615094409	MSV Manuel+Micro port Type P (Ø12-10mm) 6.1-10 bar	
9615094410	MSV Manuel+Micro port Type S (3/8"BSP) 6.1-10 bar	

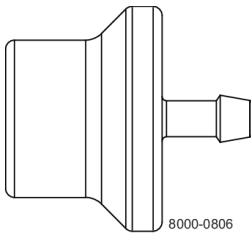
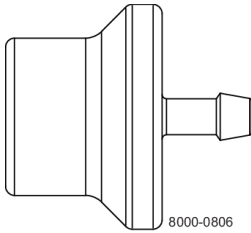
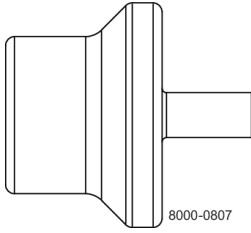
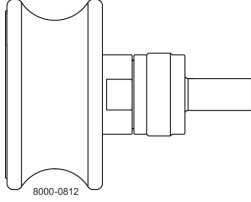
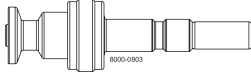
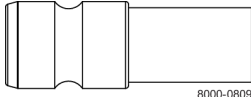
ALSIS Code: 5915


Item no.	Specification	
Carlsberg Flask		
9615126101	Carlsberg Flask, Complete with two 3 msilicone hoses with clip-on and extra aeration filter	

ALSIS Code: 5278
Sampling cocks/valves/plug

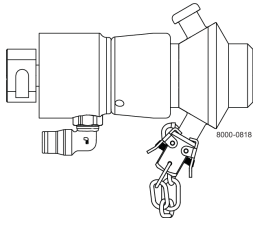
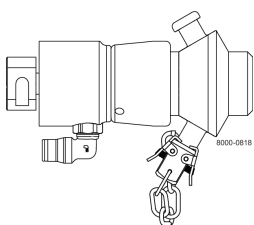
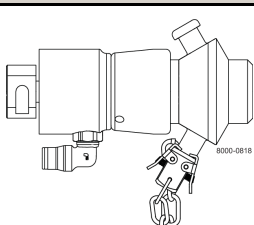
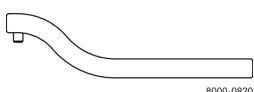
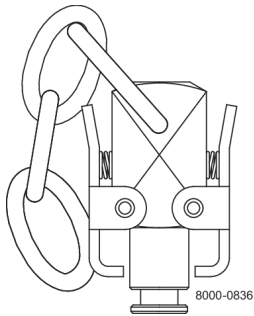
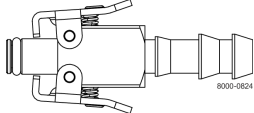
Item no.	Size	Dim. A	Dim. B	Dim. E	
	mm	mm	mm	mm	
Sampling valve Type 20					
3135000201	19.1	81.0	50.0	10.0	

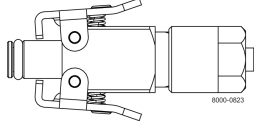
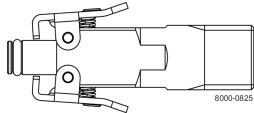
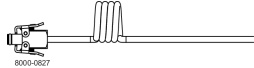
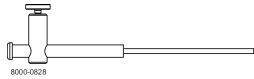
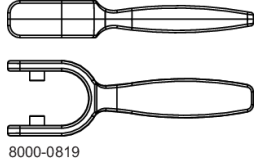
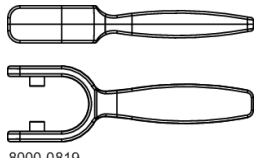
Item no.	Description	
MSV Manuel Type CB Flask 0-10 bar		
9615094112	MSV Manuel Type CB Flask 0-10 bar	

Item no.	Description	
Female - Hose connection ID 0.24 in hose		
9614195601	Female - Hose connection ID 0.24 in hose	
Female - Hose connection ID 8 mm hose		
9614195602	Female - Hose connection ID 8 mm hose	
Female - Tube for welding ODØ 0.39 - IDØ 0.31		
9614195603	Female - Tube for welding ODØ 0.39 - IDØ 0.31	
Female quick connect with non return valve		
9614195606	Female quick connect with non return valve	
For quick coupling		
9614195502 9614195505	For quick coupling For quick coupling	
Male - Tube for welding ODØ 0.39 - IDØ 0.31		
9614195605	Male - Tube for welding ODØ 0.39 - IDØ 0.31	

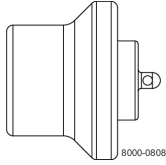
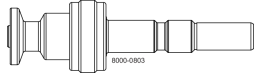
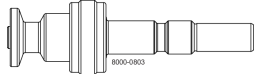
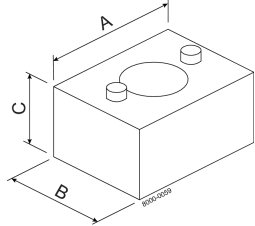
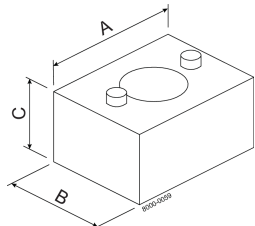
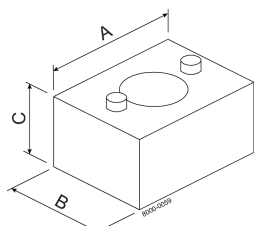

Item no.	Description	
Male quick connect with non return valve		
9614195607	Male quick connect with non return valve	

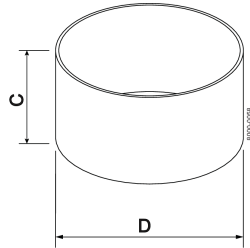
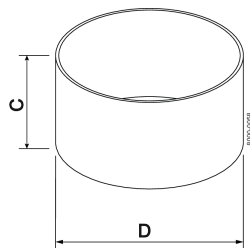
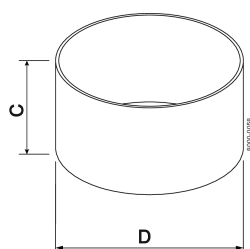
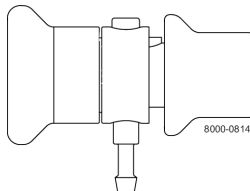
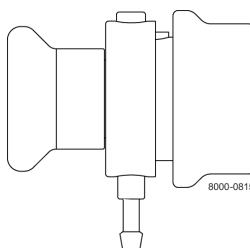
ALSIS Code: 5935

Item no.	Description	
Actuator Manual		
9615146301	Actuator Manual	
Actuator Manual W. Micro Port		
9615146401	Actuator Manual W. Micro Port	
Actuator Pneumatic		
9615146501	Actuator Pneumatic	
Assembling tool		
9615119801	Assembling tool	
Clip on Closing cap		
9615101201	Clip on Closing cap	
Clip-on 316L for CIP hose		
9615132402	Clip-on 316L for CIP hose	

Item no.	Description	
Clip-on 316L for Ø3/Ø6mm silicone hose		
9615132401	Clip-on 316L for Ø3/Ø6mm silicone hose	
Clip-on cap with 1/4" BSP male 316L		
9615132403	Clip-on cap with 1/4" BSP male 316L	
Coil outlet with clip-on		
9615118501	Coil outlet with clip-on	
Isobaric hand bottling device		
9615132601	Isobaric hand bottling device	
Quick opening key		
9615119001	Quick opening key	
Quick opening key, twin step		
9615119301	Quick opening key, twin step	

ALSIS Code: 5349

Item no.	Description	
Blind cap		
9614195604	Blind cap	 8000-0808
For steam generator		
9614195501 9614195504	For steam generator For steam generator	 8000-0803
For tube - welding		
9614195503 9614195506	For tube - welding For tube - welding	 8000-0803
Hold tool, size 4		
9614023901	Hold tool, size 4	 8000-0209
Hold tool, size 10		
9614023902	Hold tool, size 10	 8000-0209
Hold tool, size 25		
9614023903	Hold tool, size 25	 8000-0209
M5 Proximity switch 0.059 in		
9611995020	M5 Proximity switch 0.059 in	 8000-0810

Item no.	Description	
Mount tool, size 4		
9614025801	Mount tool, size 4	
Mount tool, size 10		
9614025802	Mount tool, size 10	
Mount tool, size 25		
9614025803	Mount tool, size 25	
Pressure relief valve 4/10		
9614195701	Pressure relief valve 4/10	
Pressure relief valve 25		
9614195702	Pressure relief valve 25	

ALSIS Code: 5349

Item no.	Description	
Steam Generator		
8010006440	Steam Generator	

Shutter valves

Product leaflet	
Koltek Valves	292
Ordering leaflet	
MH 53	298
AH 53	299
Handles Shutter Valve	300
Actuator for KH	301
KH Actuator Accessories	302
Koltek Valves options	303

Alfa Laval Koltek Valves

Shutter valves

Introduction

The Alfa Laval Koltek Valve can be either manually or pneumatically operated. The valve is suitable for use with products that are highly viscous, contain large particles, or have strict requirements to minimize pressure loss.

Application

The koltek valve is designed for use in the food, chemical, pharmaceutical and many other industries.

Benefits

- Flexible in-line valve with three-port flow diversion
- Minimized pressure loss
- Hygienic design
- Capable of handling products highly viscous, contain large particles, or have strict requirements to minimize pressure loss

Standard design

The koltek valve consists of a rigid body with an internal cylindrical bore, a PTFE shutter and three ports for pipe connection. The two lids have guide rings or bearings for an internal shaft, which supports and positions the shutter. The stainless-steel handle for manual operation or the actuator for automatic operation is fitted to turn the shaft. The actuator consists of a system of cylinders and one or two main pistons interconnected with a toothed bar which interacts with a gear wheel on the valve shaft. The system is insensitive to pressure shocks in the valve.

Working principle

The Alfa Laval Koltek Valve is operated by means of a handle or an actuator. A spring system presses the shutter against the inside cylindrical surface of the valve body thus ensuring complete tightness.

The air-actuated valve can be fitted with an Alfa Laval ThinkTop® V50 or V70 control unit, or an indication unit installed laterally for remote indication of the valve position.

The manually operated valve can be fitted with indication units (used for Alfa Laval LKLA actuators) installed laterally. The valve actuator is available in two versions: a single-acting actuator or a double-acting actuator. The single-acting



actuator operates with one main piston whereas the double-acting actuator operates with two main pistons.

TECHNICAL DATA

Temperature

Max. temperature:	110°C
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Pressure

Max. pressure against shutter:	300 kPa (3 bar)
Max. pressure behind shutter:	1000 kPa (10 bar)
Air pressure for actuator:	Max. 800 kPa (8 bar) Min. 500 kPa (5 bar)

ATEX

Classification:	II 2 G D ¹
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¹ This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

Air Connections

Compressed air:

R 1/8" (BSP), internal thread

PHYSICAL DATA

Materials

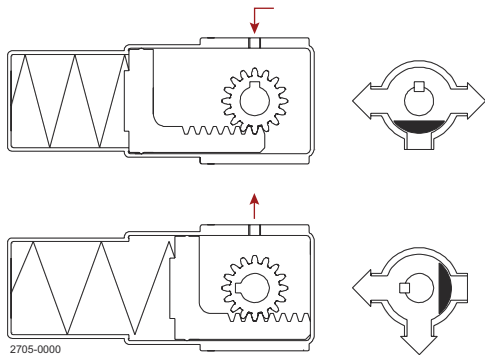
Product wetted steel parts:	1.4404 (316L.)
Product wetted seals:	Shutter in PTFE EPDM
Actuator seals:	NBR

Actuator functions

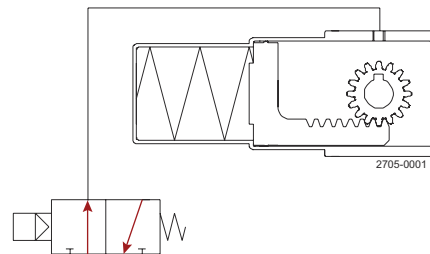
Actuator type 630:

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

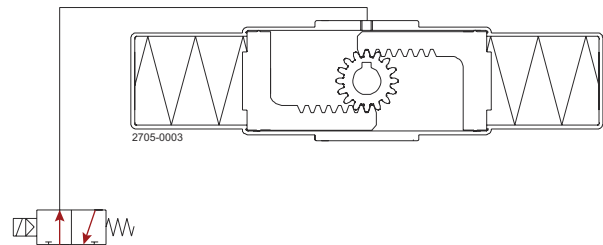
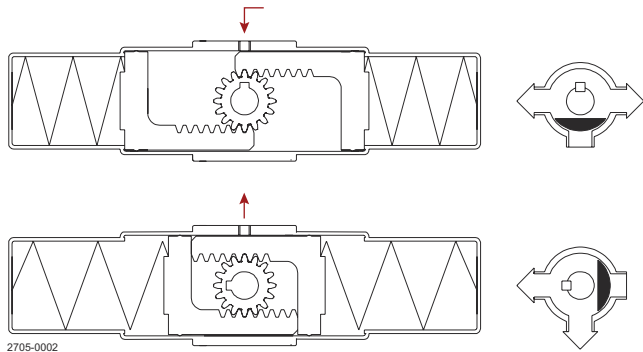
Sizes 12.7-51mm/DN25-50:



Pneumatic connections



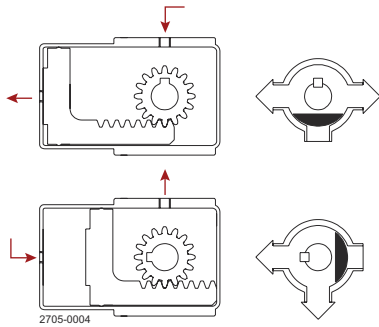
Sizes 63.5-76.1mm/DN65:



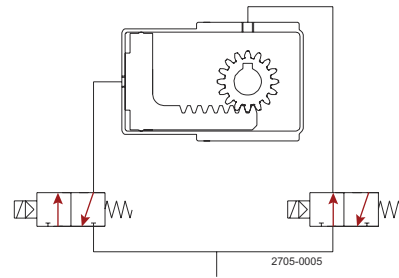
Actuator type 631:

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

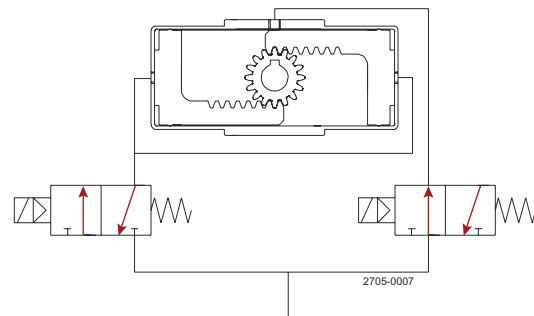
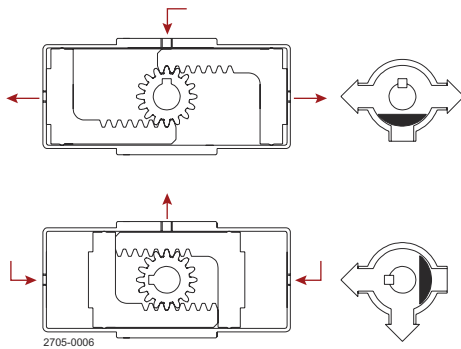
Sizes 12.7-76.1mm/DN25-65:



Pneumatic connections



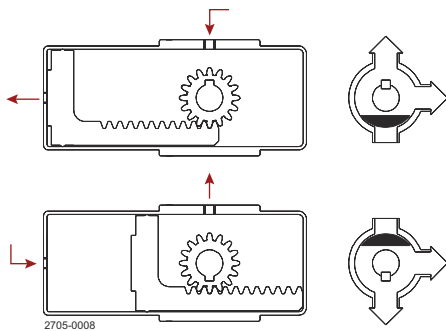
Sizes 101.6mm/DN80-100:



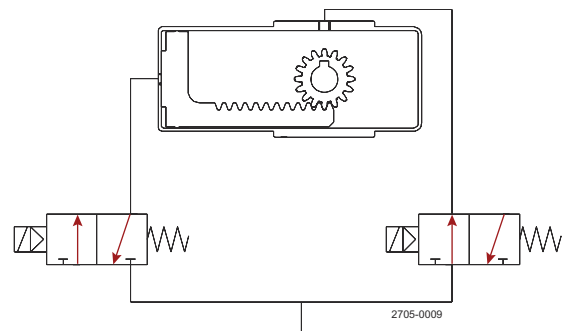
Actuator type 632:

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

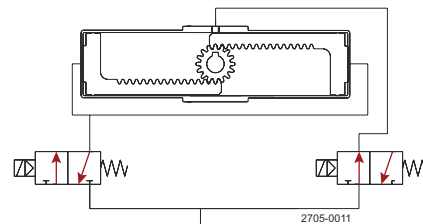
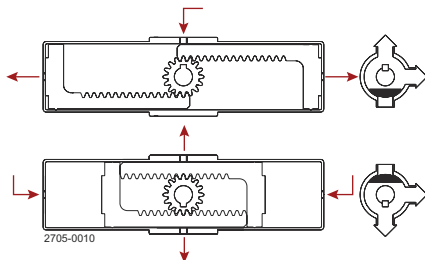
Sizes 12.7-76.1mm/DN25-65:



Pneumatic connections



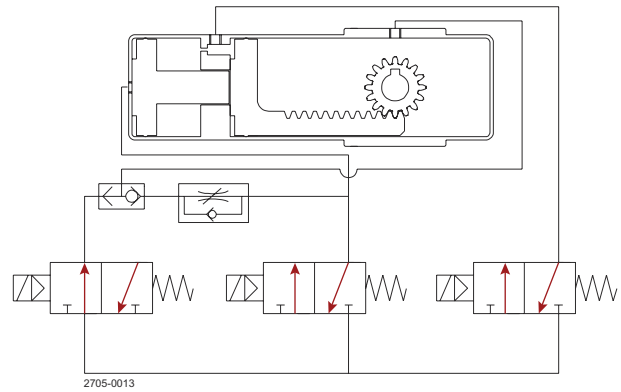
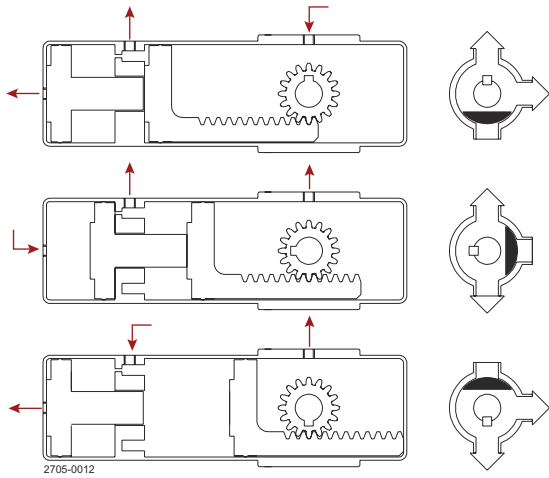
Sizes 101.6mm/DN80-100:



Actuator type 633:

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

Sizes 12.7-76.1mm/DN25-65:



Dimensions (mm)

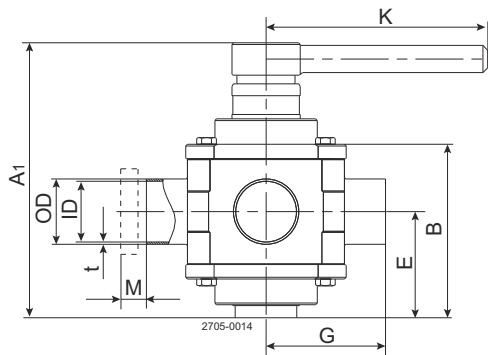


Figure 1. MH53 with handle

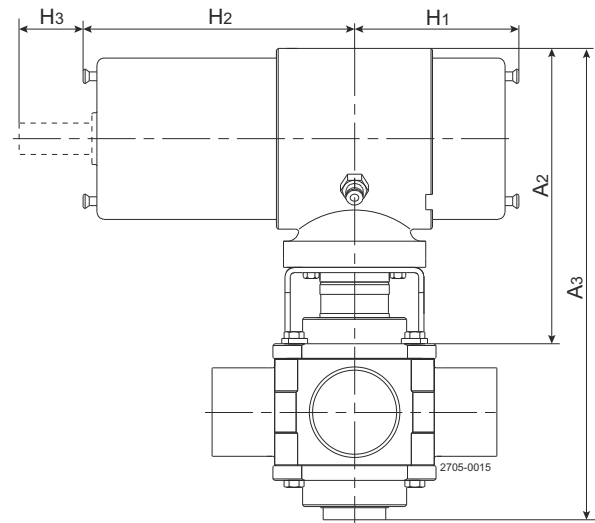


Figure 2. MH53 with actuator, type KH631

Valves:

Size	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100
	mm	mm	mm	mm	mm	mm	DN	DN	DN	DN	DN	DN
A ₁	116	149	161	179	204	292	116	150	161	204	272	292
B	65	90	102	118	137	195	65	90	102	137	174	195
OD	25.4	38.1	50.8	63.5	76	101.6	29	41	53	70	85	104
ID	22.1	34.8	47.5	60.2	72	97.6	26	38	50	66	81	100
t	1.65	1.65	1.65	1.65	2	2	1.5	1.5	1.5	2	2	2
E	42	56	62	70	80	117	42	56	62	80	107	117
G	55	70	82	105	110	155	64.5	80	82.5	100.5	115.5	130.5
K	130	130	180	180	235	330	130	130	180	235	330	330
M/DIN male							22	22	23	25	25	30
M/SMS male	15	20	20	24	24	35						
Weight (kg)	1.8	3.3	4.8	6.9	10.5	25.0	1.8	3.3	4.8	10.5	22.0	25.0

Actuators

Size		25mm	38mm	51mm	63.5mm	76.1mm	89mm	101.6mm
		DN25	DN40	DN50		DN65	DN80	DN100
A ₂		170	170	170	172	178	194	194
A ₃		233	260	273	290	315	369	389
H ₁	KH630	57	57	57	285	285		
H ₁	KH631	57	57	57	57	57	119	119

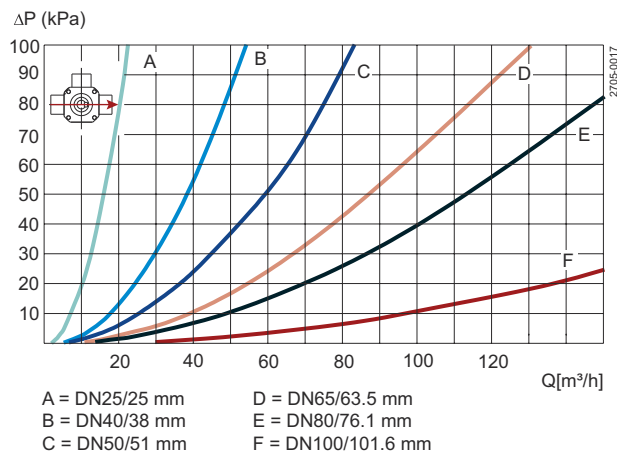
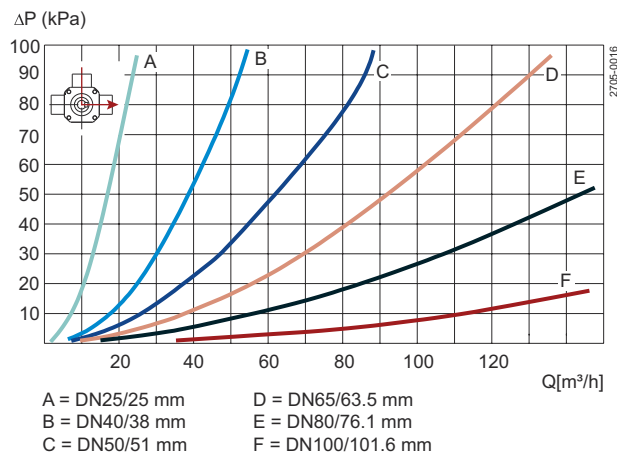
Size		25mm	38mm	51mm	63.5mm	76.1mm	89mm	101.6mm
		DN25	DN40	DN50		DN65	DN80	DN100
H ₁	KH632	95	95	95	95	95	194	194
H ₁	KH633	95	95	95	95	95	281	281
H ₂	KH630	326	326	326	285	285		
H ₂	KH631	119	119	119	119	119	119	119
H ₂	KH632	157	157	157	157	157	194	194
H ₂	KH633	243	243	243	243	243	281	281
H ₃		43	43	43	43	43	43	43

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.

Pressure drop/capacity diagrams



Note! For the diagram the following applies:

Medium: Water (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:

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

Where

Q = Flow in m³/h.

K_v = m³/h at a pressure drop of 1 bar (see table above).

Δp = Pressure drop in bar over the valve.

How to calculate the pressure drop for an ISO 2.5" shut-off valve if the flow is 40 m³/h

2.5" shut-off valve, where $K_v = 111$ (See table above).

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


$$40 = 111 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{40}{111} \right)^2 = 0.13 \text{ bar}$$

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


Options

- Male parts or clamp liners in accordance with required standard.
- Control and Indication: IndiTop, ThinkTop V50 or ThinkTop V70 .
- Bottom fitted indication unit.
- Rebuilding to double acting value for high viscosity product or quick operation.

 **Note!** For further details, see also instruction IM 70735.

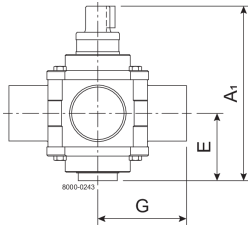
Bottom fitted indication units (together with bracket for indication unit)

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

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

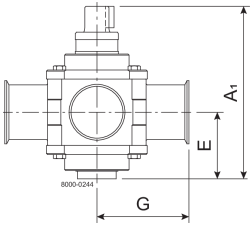
ALSIS Code: 5276

Material: 1.4404 (316L)
 Connection Type: Welding ends
 Seals: EPDM
 Inside surface finish: $Ra \leq 0.8 \mu m$
 Outside surface finish: Blasted
 Actuation: Manual

Item no.	Valve size (mm)		Dimension (mm)			
	Inch tube	DIN tube	A1	E	G	
MH53 with 3 welding ends						
9612260113	25		116.0	42.0	55.0	
9612260114	38		149.0	56.0	70.0	
9612260115	51		161.0	62.0	82.0	
9612260116	63.5		179.0	70.0	105.0	
9612260117	76.1		204.0	80.0	110.0	
9612260118	101.6		292.0	117.0	155.0	
9612444707		40	149.0	56.0	80.0	
9612444711		50	161.0	62.0	82.5	
9612444715		65	204.0	80.0	110.5	
9612260168		80	272.0	107.0	115.5	
9612444703		25	116.0	42.0	64.5	
9612444719		100	292.0	117.0	130.5	

AL SIS Code: 5276

Material: 1.4404 (316L)
Connection Type: Clamp ends
Seals: EPDM
Inside surface finish: Ra ≤ 0.4 μm
Outside surface finish: Ra ≤ 0.4 μm
Actuation: Manual

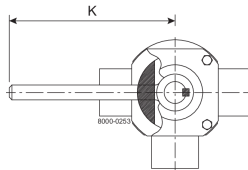
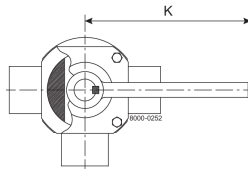
Item no.	Valve size (mm)	Dimension (mm)			
	Inch tube	A1	E	G	
MH53 with 3 clamp ends					
9612445017	12.7	116.0	42.0	48.5	
9612445023	19	116.0	42.0	48.5	
9612260182	25	116.0	42.0	58.0	
9612260186	38	149.0	56.0	74.5	
9612260190	51	161.0	62.0	87.0	

Handles Shutter Valve

Shutter valves

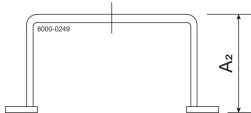
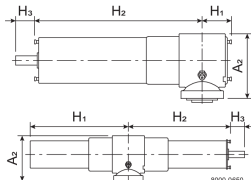
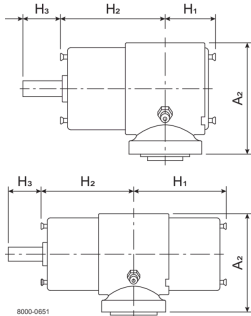
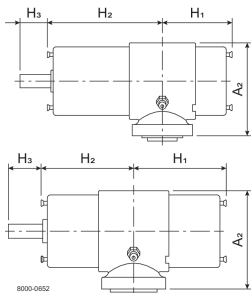
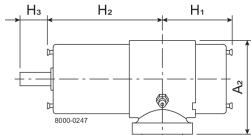
Valve Model Specification: Koltek valve
Operating parts for MH, DH and AH valves
ALSIS Code: 5277

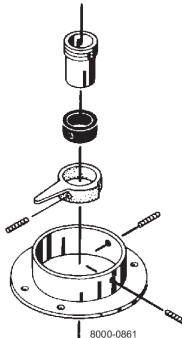
Material: 1.4301 (304)

Item no.	Valve size (mm)		Dim. K	
	Inch tube	DIN tube	mm	
For 3 ports, DIN valves				
9612436207 9612436208 9612436209 9612449003		12.7 - 40.0 50 65 80.0 - 100.0	130.0 180.0 235.0 330.0	
For 3 ports, Inch valves				
9612436201 9612436202 9612436203 9612449001	12.7 - 38.0 51.0 - 63.5 76.1 101.6		130.0 180.0 235.0 330.0	

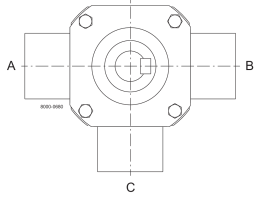
Bonnets and brackets for MH, DH and AH valves/actuators
 Product code: 5275, 5289

Material: 1.4301 (304)

Item no.	Valve size (mm)		Dim. A2	Dim. H1	Dim. H2	Dim. H3	
	Inch tube	DIN tube	mm	mm	mm	mm	
Bonnet							
9612495901	12.7 - 25.0	25	44.0				
9612496001	38	40	44.0				
9612496101	51	50	44.0				
9612496201	63.5		68.0				
9612505101	76.1	65	52.0				
9612480801	101.6	100	68.0				
9612505201		80	46.0				
KH630 - 2 pos. 90° - Spring return - For indication							
9612482102	12.7 - 51.0	25.0 - 50.0	129.0	57.0	326.0	43.0	
9612494602	63.5 - 76.1	65	129.0	285.0	285.0	43.0	
KH631 - 2 pos. 90° - Air/Air - For indication							
9612479203	12.7 - 76.1	25.0 - 65.0	129.0	119.0	119.0	43.0	
9612480603	101.6	80.0 - 100.0	129.0	57.0	119.0	43.0	
KH632 - 2 pos. 180° - Air/Air - For indication							
9612479204	12.7 - 76.1	25.0 - 65.0	129.0	95.0	157.0	43.0	
9612480604	101.6	80.0 - 100.0	129.0	194.0	194.0	43.0	
KH633 - 3 pos. 90°							
9612495301	12.7 - 76.1	25.0 - 65.0	129.0	95.0	243.0		

Item no.	Valve size (mm)		
	Inch tube	DIN tube	
Bracket for indication unit			
9612506201	12.7 - 25.0	25	
9612506202	38	40	
9612506203	51.0 - 76.1	50.0 - 65.0	
9612506204	80.0 - 100.6	80.0 - 100.0	

The Shutter valves not mentioned in the code number sheets, should be ordered as below:
 ALSIS code: 5276

Item no.	Valve size, mm		ItemLongRemark	
	Inch tube	DIN tube		
Male part				
	1.0" 38.0 51.0 63.5 76.1 101.6	DN25 DN40 DN50 DN65 DN80 DN100	Male part standards (included in the price) SMS, ISO/IDF, DS, BS, DIN, ISO clamp. Please state which type of male part you want	
Seal				
			Replacement to seals of Fluorinated rubber (FPM) Replacement to seals of Nitrile (NBR)	

NOTE! Limit stop is only available for MH52 and MH53

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Single seat valves

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Alfa Laval Unique SSV Standard

Single seat valves

Introduction

The Alfa Laval Unique SSV Standard is a versatile, reliable pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination.

Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety. It is built on the well-proven Alfa Laval Unique SSV platform. Few moving parts ensure easy maintenance, high reliability and low total cost of ownership. A wide range of optional features enables customization to specific process requirements.

Application

This Unique SSV Standard is designed for use in a broad range of hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Exceptional valve hygiene and durability
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to the defined seal compression
- Enhanced product safety due to the static seal leak detection
- Protection against full vacuum due to the double lip seal

Standard design

The Unique SSV Standard is available in a one- or two-body configuration, with easy-to-configure valve bodies, plugs, actuator and clamp rings. The valve can be configured as a shutoff valve with two working ports or as a changeover valve with up to five ports.

To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

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


Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.



Working principle

The Alfa Laval Unique SSV Standard is operated by means of compressed air from a remote location. The actuator smooths operation and protects process lines against pressure peaks, while directing or diverting fluids. The valve can be controlled using an Alfa Laval ThinkTop®.

Certificates

 Authorized to carry the 3A symbol

TECHNICAL DATA

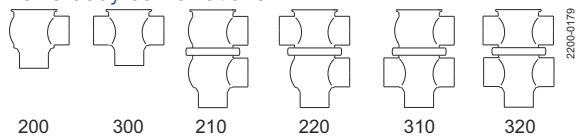
Temperature

Temperature range	-10 °C to +140 °C (EPDM)
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Pressure

Max. product pressure	1000 kPa (10 bar)
Min. product pressure	Full vacuum
Air pressure	500 to 700 kPa (5 to 7 bar)

Valve body combinations



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

Options

- Male parts or clamp liners in accordance with required standard
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic
- Product wetted seals in HNBR or FPM
- Plug seals HNBR, FPM or TR2 plug (floating PTFE design)
- External surface finish bright



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 (mm)

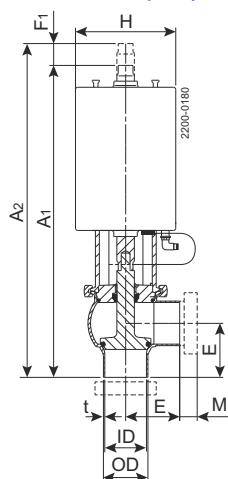


Figure 1. Shut-off valve

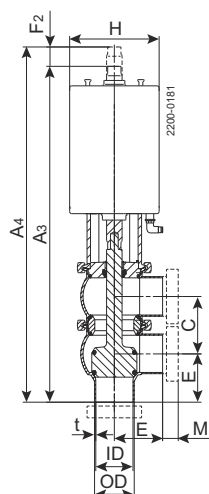


Figure 2. Change-over valve

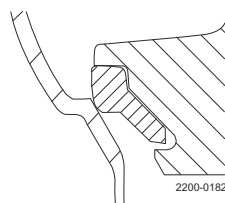


Figure 3. PTFE plug seal (TR2)
Replaceable elastomer plug seal

Nominal size	Inch tubes DN/OD						DIN tubes DN					
	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100
A ₁	313	314	363	389	422	467	315	315	364	389	426	470
A ₂	328	334	388	414	452	497	330	335	389	414	456	500
A ₃	360	374.3	436	475	521	591	367	379	439.6	481	533	596
A ₄	372	391	458	497	548	618	379	396	462	503	560	623
A ₁ High pressure	350	350	391	417	535	579	354	353	393	423	539	580
A ₂ High pressure	364	370	416	442	563	608	368	373	418	448	567	610
A ₃ High pressure	396	411	464	503	633	703	401	414	467	509	645	706
A ₄ High pressure	408	428	486	525	658	728	401	414	467	509	670	732
C	47.8	60.8	73.8	86.3	98.9	123.6	52	64	76	92	107	126
OD	25	38	51	63.5	76.1	101.6	29	41	53	70	85	104
ID	21.8	34.8	47.8	60.3	72.9	97.6	26	38	50	66	81	100
t	1.6	1.6	1.6	1.6	1.6	2	1.5	1.5	1.5	2	2	2
E ₁	50	49.5	61	81	86	119	50	49.5	61	78	86	120
E ₂	50	49.5	61	81	86	119	50	49.5	61	78	86	120
F ₁	15	20	25	25	30	30	15	20	25	25	30	30
F ₁ High pressure	14	20	25	25	29	29	14	20	25	25	29	29
F ₂	12	17	22	22	27	27	12	17	22	22	27	27
F ₂ High pressure	12	17	22	22	26	26	-	-	-	-	26	26
H	85	85	115	115	157.5	157.5	85	85	115	115	157.5	157.5
H High pressure	115	115	157.5	157.5	157.5	157.5	115	115	157.5	157.5	157.5	157.5
M/ISO clamp	21	21	21	21	21	21	-	-	-	-	-	-
M/DIN clamp	-	-	-	-	-	-	21	21	21	28	28	28
M/DIN male	-	-	-	-	-	-	22	22	23	25	25	30
M/SMS male	20	20	20	24	24	35	-	-	-	-	-	-
Weight (kg)												
Stop valve:	3.1	3.3	5.5	6.5	11.3	13.6	3.2	3.4	5.5	6.6	11.8	13.6
Change-over valve	3.9	4.2	7.1	8.5	14	18	4.1	4.5	7.2	8.8	14.9	17.9
Stop Valve: High pressure	4.7	4.8	9.5	10.0	9.8	14.2	4.8	4.9	9.5	10.1	10.2	14.2
Change-over valve: High pressure	4.9	5.1	10.1	10.8	10.9	16.5	5.1	5.3	10.1	11.1	11.8	16.4

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

Please note!

Opening/closing time will be effected by the following:

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

Air Connections Compressed air:

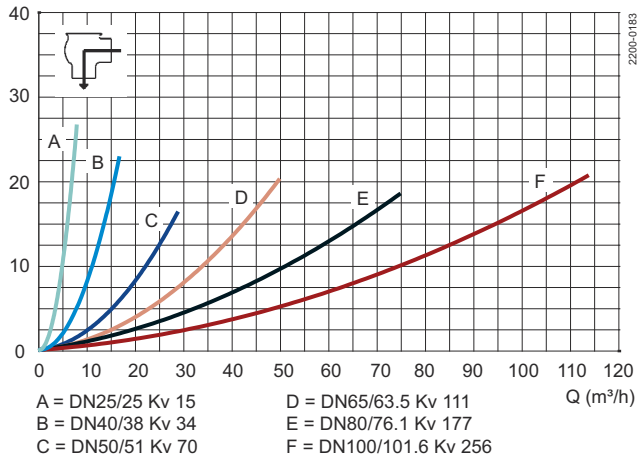
R 1/8" (BSP), internal thread.

Air consumption (litres free air) for one stroke

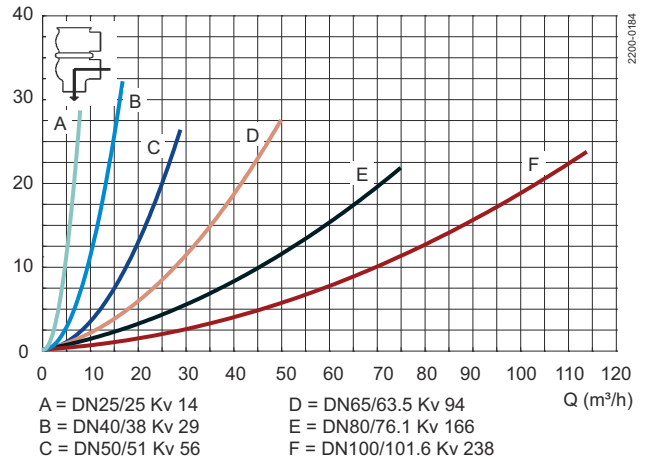
Size	DN25-40 DN/OD 25-38 mm	DN50-65 DN/OD 51-63.5 mm	DN80-100 DN/OD 76.1-101.6 mm
NO and NC	0.2 x air pressure [bar]	0.5 x air pressure [bar]	1.3 x air pressure [bar]
A/A	0.5 x air pressure [bar]	1.1 x air pressure [bar]	2.7 x air pressure [bar]

Pressure drop/capacity diagrams

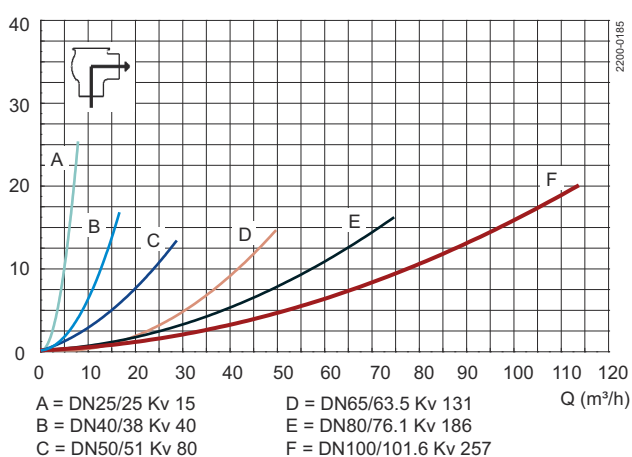
ΔP (kPa)



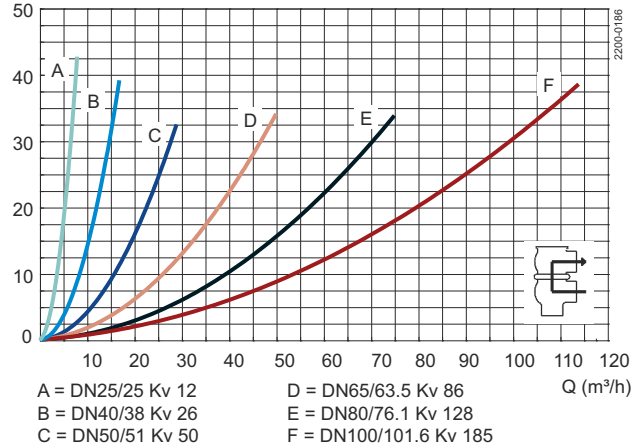
ΔP (kPa)



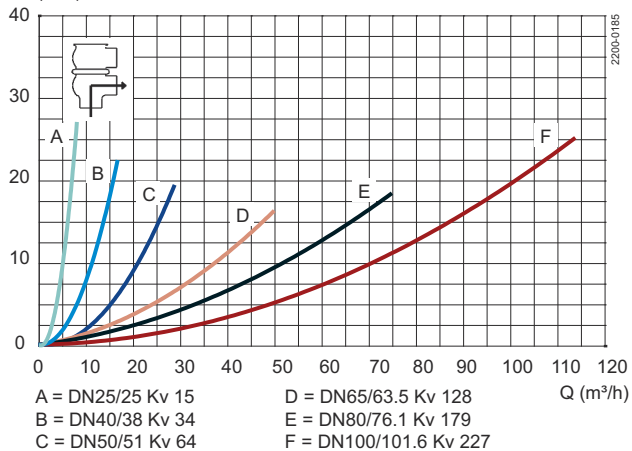
ΔP (kPa)



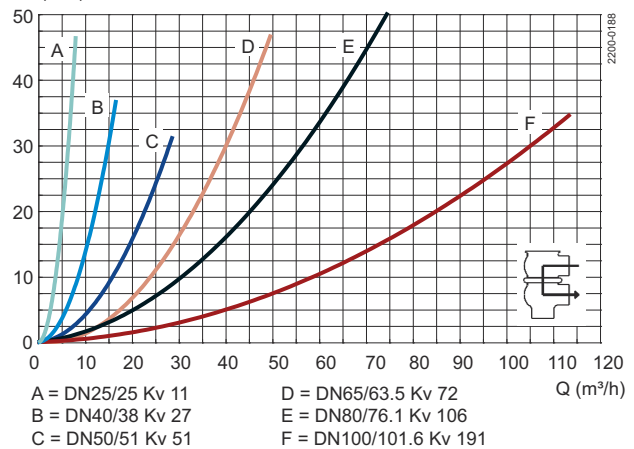
ΔP (kPa)



ΔP (kPa)



ΔP (kPa)



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 in m³/h.

K_v = m³/h at a pressure drop of 1 bar (see table above).

Δp = Pressure drop in bar over the valve.

How to calculate the pressure drop for an ISO 2.5" shut-off valve if the flow is 40 m³/h

2.5" shut-off valve, where K_v = 111 (See table above).

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

$$40 = 111 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{40}{111}\right)^2 = 0.13 \text{ bar}$$

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

Pressure data for Unique Single Seat Valve standard

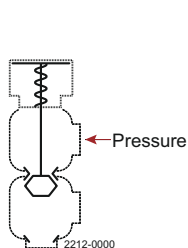


Figure 4. 1

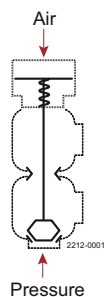


Figure 5. 2

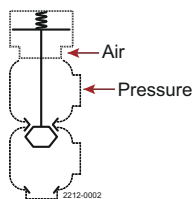


Figure 6. 3

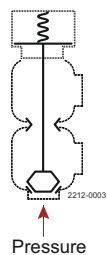


Figure 7. 4

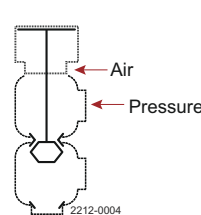


Figure 8. 5



Figure 9. 6

Shut-off and Change-over valves

			Max. pressure in bar without leakage at the valve seat					
			Valve size					
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	DN 25 DN/OD 25 mm	DN 40 DN/OD 38 mm	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 4. 1		NO	10.0	8.2	8.4	4.5	6.8	4.4
	5		9.2	4.4	5.9	3.4	4.4	2.9
Figure 5. 2	6	NO	10.0	7.6	9.6	5.6	7.2	4.8
	7		10.0	10.0	10.0	7.8	10.0	6.7
	5		10.0	5.7	6.8	3.7	4.7	3.0
Figure 6. 3	6	NC	10.0	9.8	10.0	6.1	7.7	5.0
	7		10.0	10.0	10.0	8.5	10.0	6.9
	5		10.0	6.3	7.2	4.2	6.4	4.2
Figure 7. 4	5	NC	10.0	10.0	10.0	10.0	10.0	9.4
	6		10.0	10.0	10.0	10.0	10.0	10.0
	7		10.0	10.0	10.0	10.0	10.0	10.0
Figure 8. 5	5	A/A	10.0	10.0	10.0	10.0	10.0	9.1
	6		10.0	10.0	10.0	10.0	10.0	10.0
	7		10.0	10.0	10.0	10.0	10.0	10.0
Figure 9. 6	5	A/A	10.0	10.0	10.0	10.0	10.0	10.0
	6		10.0	10.0	10.0	10.0	10.0	10.0
	7		10.0	10.0	10.0	10.0	10.0	10.0

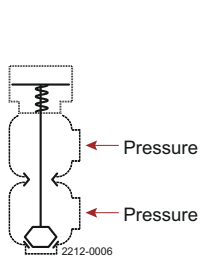


Figure 10. 7

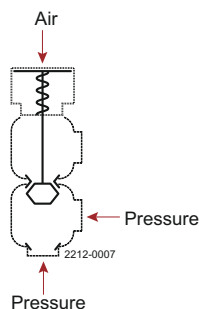


Figure 11. 8

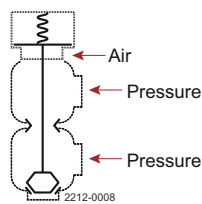


Figure 12. 9

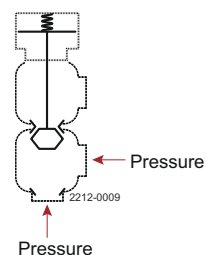


Figure 13. 10

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 (bar)	Plug position	Valve size					
			DN 25 DN/OD 25 mm	DN 40 DN/OD 38 mm	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 10. 7		NO	10.0	10.0	10.0	7.4	9.7	6.3
Figure 11. 8	5		10.0	7.8	10.0	6.1	7.1	4.7
	6	NO	10.0	10.0	10.0	8.3	9.9	6.6
	7		10.0	10.0	10.0	10.0	10.0	8.5
Figure 12. 9	5		10.0	10.0	10.0	6.6	7.5	4.9
	6	NC	10.0	10.0	10.0	9.0	10.0	6.9
	7		10.0	10.0	10.0	10.0	10.0	8.8
Figure 13. 10		NC	10.0	9.7	10.0	6.8	9.1	6.1

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 (bar)	Plug position	Valve size					
			DN 25 DN/OD 25 mm	DN 40 DN/OD 38 mm	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 4. 1		NO	10.0	10.0	10.0	10.0	-	-
Figure 5. 2	6	NO	10.0	10.0	10.0	10.0	-	-
Figure 6. 3	6	NC	10.0	10.0	10.0	10.0	5.0	3.0
Figure 7. 4		NC	10.0	10.0	10.0	9.6	10.0	7.0

Alfa Laval Unique SSV ATEX

Single seat valves

Introduction

The Alfa Laval Unique SSV ATEX 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.

Built on the well-proven Unique SSV platform, it is ATEX-certified for use in environments with an explosive atmosphere. Few moving parts ensure high reliability and low maintenance costs. A wide range of optional features enables customization to specific process requirements.

Application

The Unique SSV ATEX Standard is designed for safe, uninterrupted production in environments with an explosive atmosphere across the dairy, food, beverage, brewery and many other industries.

Benefits

- Supremely reliable and versatile
- Cost effective and modular design
- Extremely strong and durable
- Protection against leakage and bacterial contamination
- Certified for use by 3-A, hygienic standards and ATEX

Standard design

The Alfa Laval Unique SSV ATEX range is available in a one-, two- or three-body configuration, with easy-to-configure valve bodies, plug, sealing, actuator and clamp rings. The valve can be configured as a shutoff valve with two to four working ports or as a changeover valve with up to six 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.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSV ATEX Standard is a hygienic pneumatic single seat valve that is remotely operated by



means of compressed air. The actuator smooths operation and protects process lines against pressure peaks. The valve can be controlled using an Alfa Laval ThinkTop® Basic Intrinsically Safe.

Certificates



Authorized to carry the 3A symbol



TECHNICAL DATA

Temperature

Temperature range:	-10 °C to +135 °C (EPDM)
Ambient temperature:	10 °C to +40 °C

Pressure

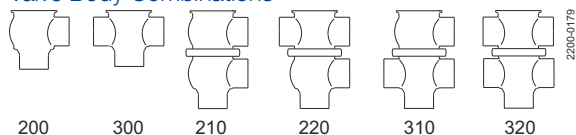
Max. product pressure:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure, actuator:	500 to 700 kPa (5 to 7 bar)

ATEX

Classification:	II 2 G D c T4 ¹
-----------------	----------------------------

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

Valve Body Combinations



Actuator function

- Pneumatic downward movement, spring return
- Pneumatic upward movement, spring return
- Pneumatic upward and downward movement A/A

PHYSICAL DATA

Materials - valve/actuator

Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 0.8 µm
Product wetted seals:	EPDM
Other seals:	NBR
Actuator stem:	PAGG PAGI/GT, MH, 14-250, CF40
Spring:	Coated steel

Options

- Male parts or clamp liners in accordance with required standard
- Control and Indication: ThinkTop Basic Intrinsically Safe
- Product wetted seals in HNBR or FPM (Note! Temperature range 10 °C to +135 °C for ATEX Versions)
- Plug seals in HNBR or FPM (Note! Temperature range 10 °C to +135 °C for ATEX Versions)
- External surface finish bright



Note! For further details, see instruction manual ESE00674.

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
- Tank Outlet valve
- Tangential valve

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (mm)

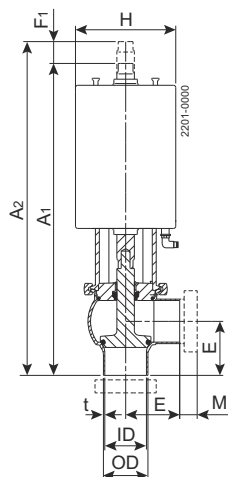


Figure 1. Shut-off valve

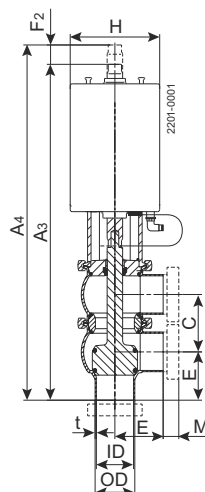


Figure 2. Change-over valve

Nominal size	Inch tubes DN/OD						DIN tubes DN					
	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100
A ₁ ¹	313	314	363	389	422	467	315	315	365	389	427	470
A ₂ ¹	328	334	388	414	452	497	330	335	390	414	457	500
A ₃ ¹	360 ²	374	436	475	521	591	367 ²	379	440.6	481	534	596
A ₄ ¹	372 ²	391	458	497	548	618	379 ²	396	463	503	561	623
C	47.8	60.8	73.8	86.3	98.9	123.6	52	64	76	92	107	126
OD	25	38	51	63.5	76.1	101.6	29	41	53	70	85	104
ID	21.8	34.8	47.8	60.3	72.9	97.6	26	38	50	66	81	100
t	1.6	1.6	1.6	1.6	1.6	2	1.5	1.5	1.5	2	2	2
E	50	49.5	61	81	86	119	50	49.5	62	78	87	120
F ₁	15	20	25	25	30	30	15	20	25	25	30	30
F ₂	12 ²	17	22	22	27	27	12 ²	17	22	22	27	27
H	85	85	ø115	ø115	ø155	ø155	85	85	ø115	ø115	ø155	ø155
H (high pressure)	85	ø115	ø155	ø155	ø155	ø155	85	ø115	ø155	ø155	ø155	ø155
M (ISO clamp)	21	21	21	21	21	21	-	-	-	-	-	-
M (DIN clamp)	-	-	-	-	-	-	21	21	21	28	28	28
M (DIN male)	-	-	-	-	-	-	22	22	23	25	25	30
M (SMS male)	20	20	20	24	24	35	-	-	-	-	-	-
Weight (kg)												
Shut-off valve	3.1	3.3	5.5	6.5	11.3	13.6	3.2	3.4	5.5	6.6	11.8	13.6
Change-over valve	3.9	4.2	7.1	8.5	14	18	4.1	4.5	7.2	8.8	14.9	17.9

¹ For exact A₁ - A₄ dimensions, please refer to information in Anytime configurator.

² Only available with replaceable elastomer plug seal.



Note!

Opening/closing time will be effected by the following:

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

Air Connections Compressed air:

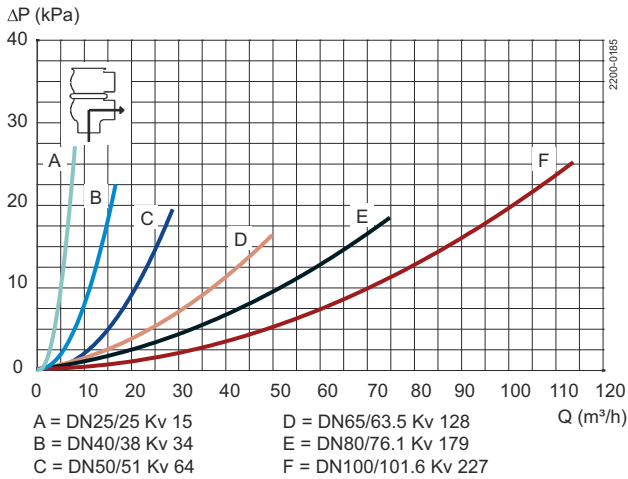
R 1/8" (BSP), internal thread.

Air consumption (litres free air) for one stroke

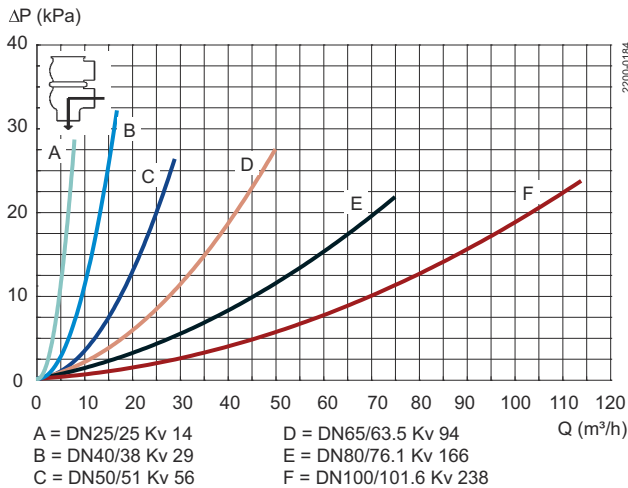
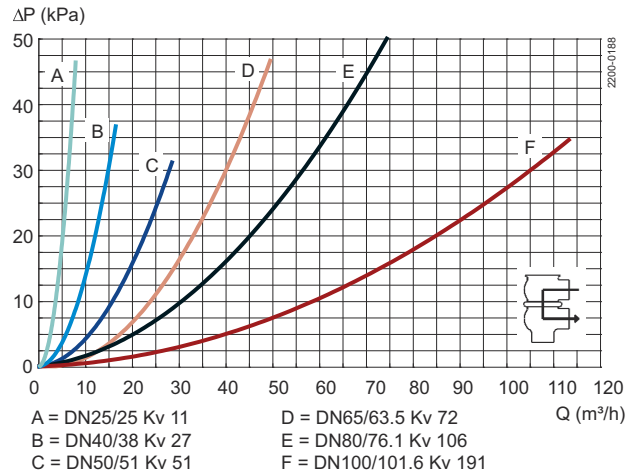
Size	DN25-40 DN/OD 25-38 mm	DN50-65 DN/OD 51-63.5 mm	DN80-100 DN/OD 76.1-101.6 mm
NO and NC	0.2 x air pressure [bar]	0.5 x air pressure [bar]	1.3 x air pressure [bar]
A/A	0.5 x air pressure [bar]	1.1 x air pressure [bar]	2.7 x air pressure [bar]

Pressure drop/capacity diagrams

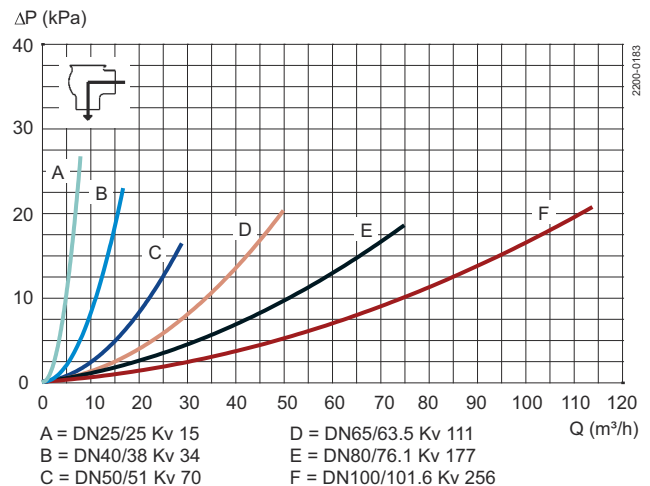
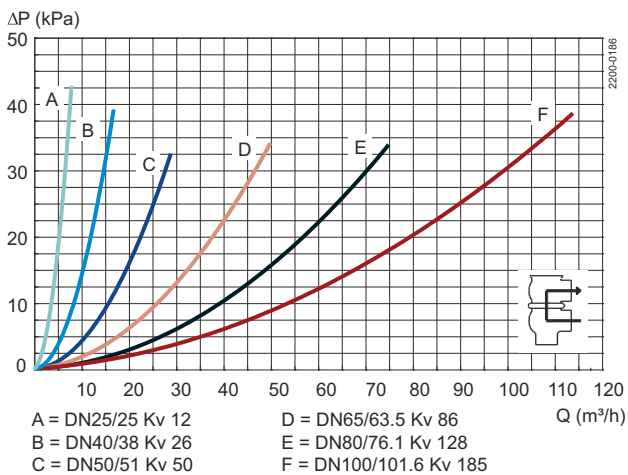
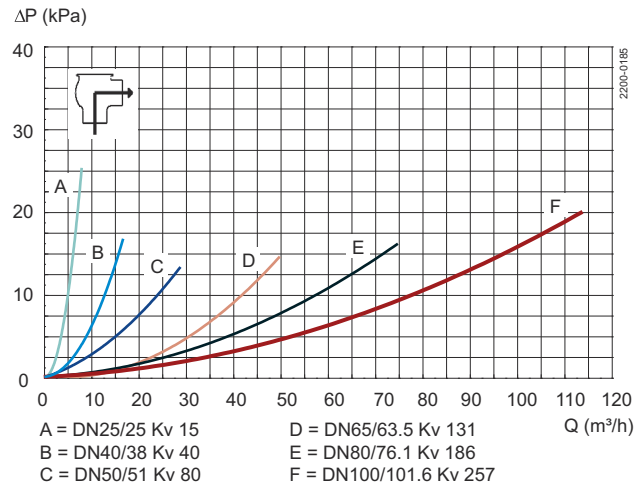
Change-over Valves



Change-over Valves



Shut-off Valves



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:

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

Where

Q = Flow in m^3/h .

$K_v = m^3/h$ at a pressure drop of 1 bar (see table above).

Δp = Pressure drop in bar over the valve.

How to calculate the pressure drop for an ISO 2.5" shut-off valve if the flow is $40 m^3/h$

2.5" shut-off valve, where $K_v = 111$ (See table above).

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

$$40 = 111 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{40}{111} \right)^2 = 0.13 \text{ bar}$$

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

Pressure data for Unique Single Seat ATEX Valve

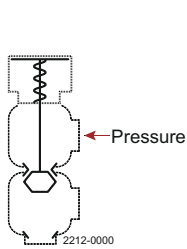


Figure 3. 1

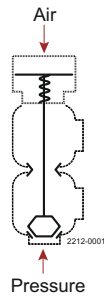


Figure 4. 2

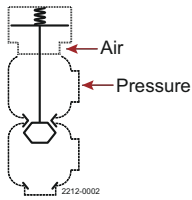


Figure 5. 3

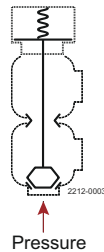


Figure 6. 4

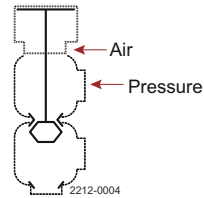


Figure 7. 5

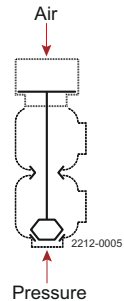


Figure 8. 6

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 (bar)	Plug position	Valve size					
			DN 25 DN/OD 25 mm	DN 40 DN/OD 38 mm	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 3. 1		NO	10.0	8.2	8.4	4.5	6.8	4.4
	5		9.2	4.4	5.9	3.4	4.4	2.9
Figure 4. 2	6	NO	10.0	7.6	9.6	5.6	7.2	4.8
	7		10.0	10.0	10.0	7.8	10.0	6.7
	5		10.0	5.7	6.8	3.7	4.7	3.0
Figure 5. 3	6	NC	10.0	9.8	10.0	6.1	7.7	5.0
	7		10.0	10.0	10.0	8.5	10.0	6.9
Figure 6. 4		NC	10.0	6.3	7.2	4.2	6.4	4.2
	5		10.0	10.0	10.0	10.0	10.0	9.4
Figure 7. 5	6	A/A	10.0	10.0	10.0	10.0	10.0	10.0
	7		10.0	10.0	10.0	10.0	10.0	10.0
	5		10.0	10.0	10.0	10.0	10.0	9.1
Figure 8. 6	6	A/A	10.0	10.0	10.0	10.0	10.0	10.0
	7		10.0	10.0	10.0	10.0	10.0	10.0

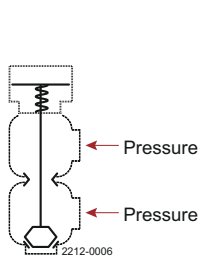


Figure 9. 7

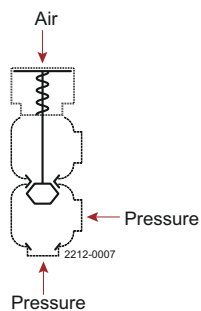


Figure 10. 8

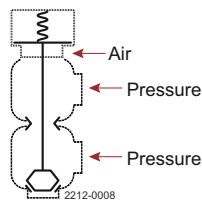


Figure 11. 9

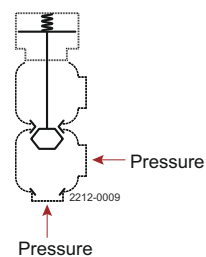


Figure 12. 10

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 (bar)	Plug position	Valve size					
			DN 25 DN/OD 25 mm	DN 40 DN/OD 38 mm	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 9. 7		NO	10.0	10.0	10.0	7.4	9.7	6.3
Figure 10. 8	5		10.0	7.8	10.0	6.1	7.1	4.7
	6	NO	10.0	10.0	10.0	8.3	9.9	6.6
Figure 11. 9	7		10.0	10.0	10.0	10.0	10.0	8.5
	5		10.0	10.0	6.8	6.6	7.5	4.9
	6	NC	10.0	10.0	10.0	9.0	10.0	6.9
Figure 12. 10	7		10.0	10.0	10.0	10.0	10.0	8.8
		NC	10.0	9.7	10.0	6.8	9.1	6.1

Alfa Laval Unique SSV DN125 and DN150

Single seat valves

Introduction

The Alfa Laval Unique SSV DN125 and DN150 Valves are versatile and reliable pneumatic single seat valves with a single contact surface between the plug and the seat to minimize the risk of contamination.

With a modular, hygienic design, the single seat valve meets the highest process demands in terms of hygiene and safety. Few moving parts ensure high reliability and low maintenance costs. A wide range of optional features enables customization to specific process requirements.

Application

The Alfa Laval Unique SSV DN125 and DN 150 is designed for use in a broad range of hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Cost effective and versatile
- Easily handles highly viscous fluids and large particles
- Durable, long-lasting construction
- Compliant with 3-A and hygienic standards

Standard design

The Alfa Laval Unique SSV DN125 and DN150 range 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 or three working ports and 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. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

To facilitate installation the valve is partially assembled when delivered. The standard valve has weld ends; it is also available with optional fittings. Due to the valve size and weight, the use of support equipment is recommended when handling and installing the valve (see the instruction manual for guidelines). However, Alfa Laval is not able to supply the recommended support equipment.

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



Working principle

The Alfa Laval Unique SSV 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: -10 °C to +140 °C (EPDM)

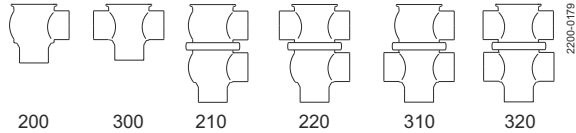
Pressure

Max. product pressure: 1000 kPa (10 bar)

Min. product pressure: Full vacuum

Air pressure, actuator
- Sizes DN125-150 600 to 800 kPa (6 to 8 bar)

Valve body combinations



Actuator function

- Pneumatic downward movement, spring return (NO-lower seat)
- Pneumatic upward movement, spring return (NC-lower seat)

PHYSICAL DATA

Materials

Product wetted steel parts: 1.4401 (316L)

Other steel parts: 1.4301 (304)

Plug stem sizes DN125-150: 1.4401 (316L)

Product wetted seals: EPDM

Other seals: NBR

Options

- Male parts in accordance with required standard
- Control and Indication (ThinkTop)
- Surface roughness, product wetted parts: $Ra \leq 0.8 \mu m$
- Product wetted seals of NBR or FPM
- Service tools for actuator
- Plug seals NBR/FPM

Dimensions (mm)

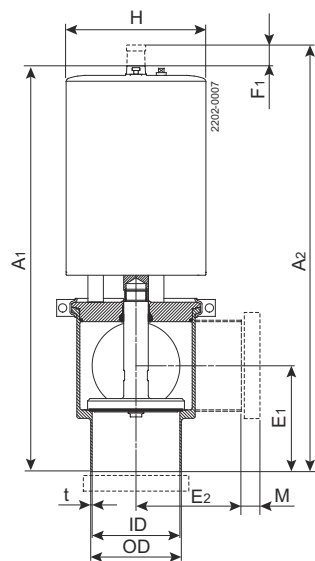


Figure 1. Shut-off

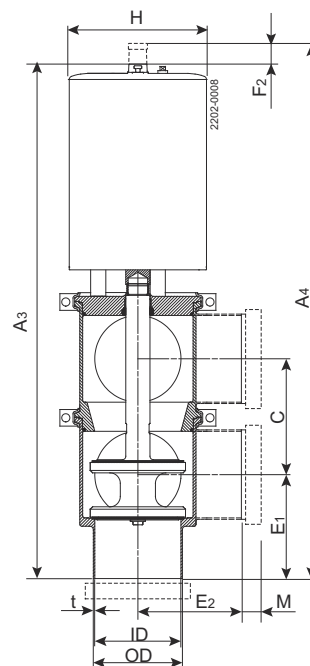


Figure 2. Change-over valve

Nominal size	DIN DN			
	125		150	
	NC	NO	NC	NO
A ₁	571	573	584	586
A ₂	614	618	627	631
A ₃	740	737	777	775
A ₄	781	778	818	816
C	167	167	192	192
OD	129	129	154	154
ID	125	125	150	150
t	2.0	2.0	2.0	2.0
E ₁	150	150	150	150
E ₂	150	150	150	150
F ₁	43	45	43	45
F ₂	41	41	41	41
H	199	199	199	199
M/DIN male	46	46	50	50
Weight (kg) - Shut-off valve	40.3	40.3	40.9	40.9
Weight (kg) - Change-over valve	50	50	51.3	51.3

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.

Actuator function

Air consumption (litres free air) for one stroke		
Size	DN 125-150	DN 125-150
Shut-off / Change-over valve Actuator function	1.5 x Air pressure (bar)	2.2 x Air pressure (bar)
	NC	NO
Shut-off / Change-over valve Actuator function	3.6 x Air pressure (bar)	2.9 x Air pressure (bar)
	NC (Support air for closing)	NO (Support air for opening)

Pressure drop/capacity diagrams

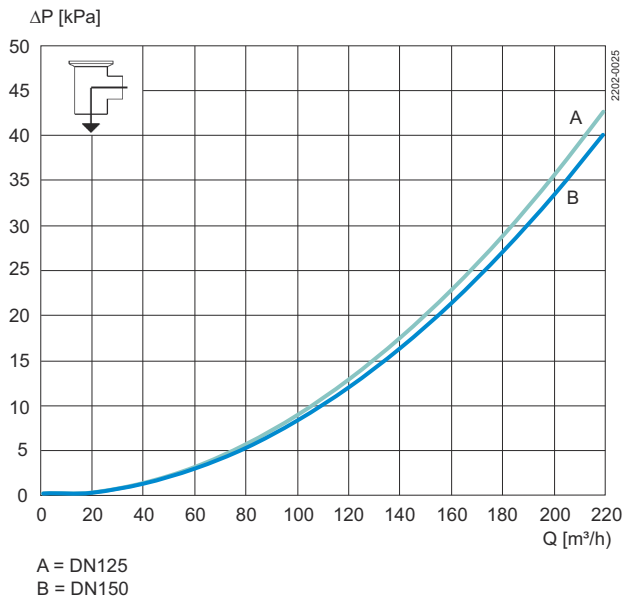


Figure 3. Shut-off

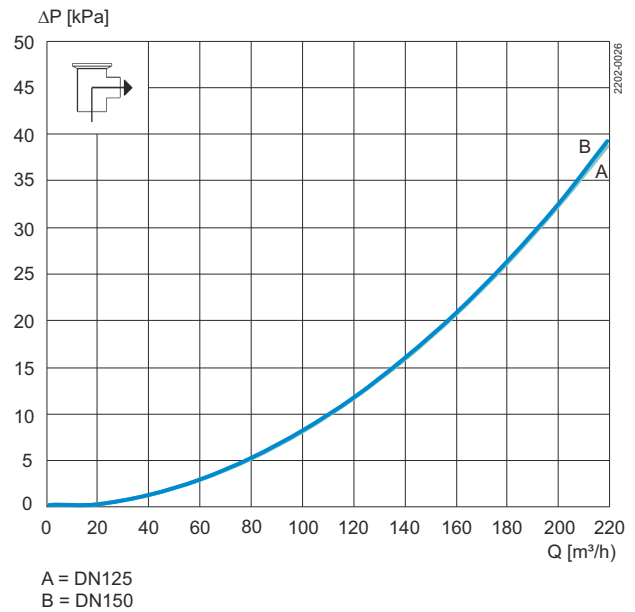


Figure 4. Shut-off

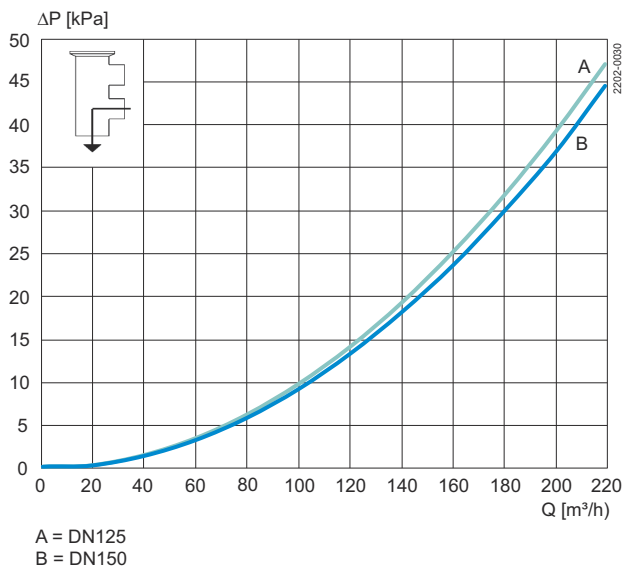


Figure 5. Change-over valve

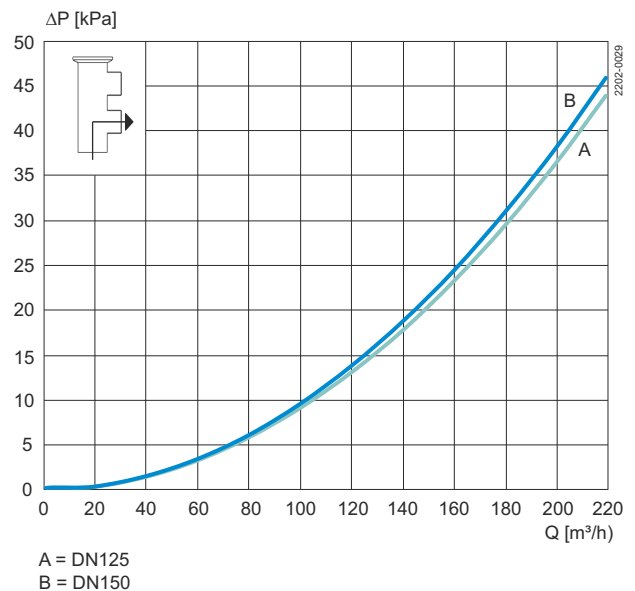


Figure 6. Change-over valve

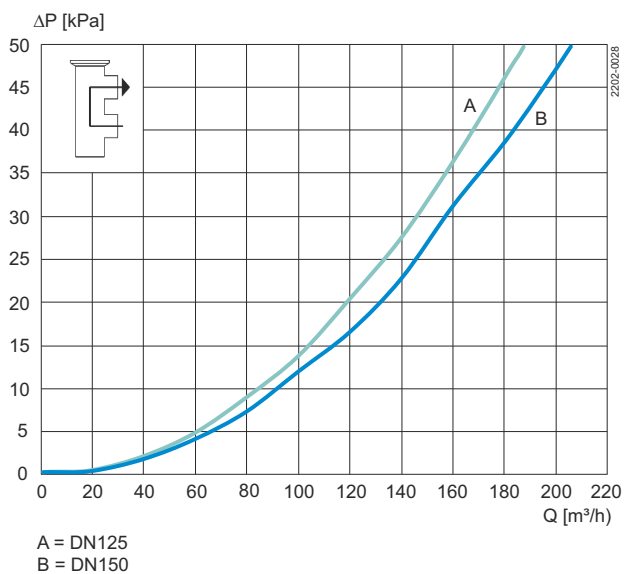


Figure 7. Change-over valve

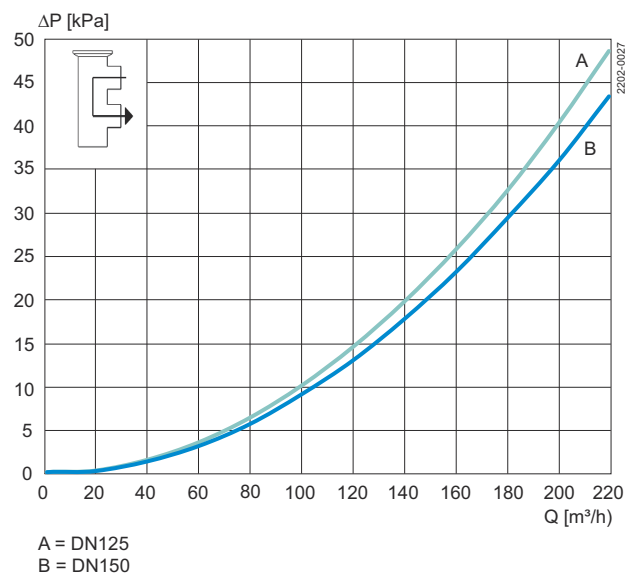


Figure 8. Change-over valve

Pressure data for Unique Single Seat Valve DN125 and DN150

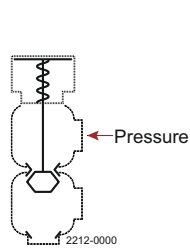


Figure 9. 1

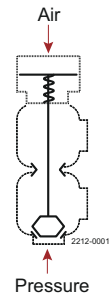


Figure 10. 2

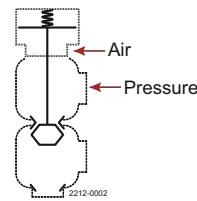


Figure 11. 3

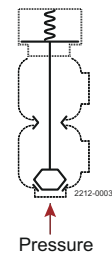


Figure 12. 4

Shut-off and Change-over valves

Actuator / Valve body combination and direction of pressure	Max. pressure without leakage at the valve seat		
	Air pressure (bar)	Actuator type/function	Valve Size DN 125-150
Figure 9. 1		NO	5.2
Figure 10. 2	8	NO	8.7
	6	NO	4.4
Figure 11. 3	8	NC	8.1
	6	NC	3.7
Figure 12. 4		NC	5.2

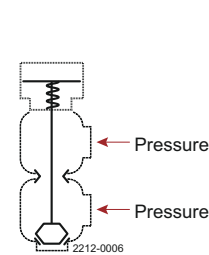


Figure 13. 5

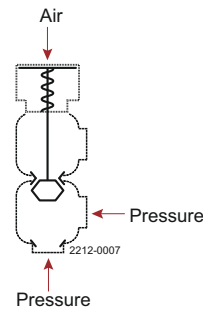


Figure 14. 6

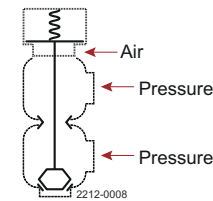


Figure 15. 7

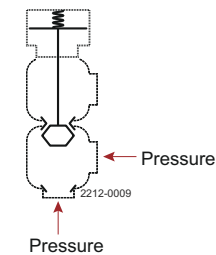


Figure 16. 8

Shut-off and Change-over valves

Actuator / Valve body combination and direction of pressure	Max. pressure in bar against which the valve can open		
	Air pressure (bar)	Actuator type/function	Valve size DN 125-150
Figure 13. 5		NO	8.8
Figure 14. 6	6	NO	8.1
	6	NO	min. 10
Figure 15. 7	6	NC	7.8
Figure 16. 8		NC	8.9

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, standard lip seal: -10 °C to +140 °C (EPDM)

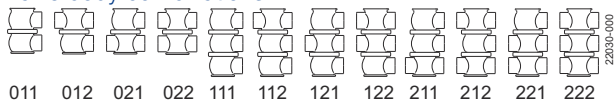
Pressure

Max. product pressure: 1000 kPa (10 bar)

Min. product pressure: Full vacuum

Air pressure: 500 to 700 kPa (5 to 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: 1.4404 (316L)

Other steel parts: 1.4301 (304)

External surface finish: Semi-bright (blasted)

Internal surface finish: Bright (polished), Ra < 0.8 µm

Product wetted seals: EPDM

Other seal: NBR

Options

- Male parts or clamp liners in accordance with required standard
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic
- Product wetted seals in HNBR or FPM
- Plug seals HNBR, FPM or TR2 plug (floating PTFE design)
- High pressure actuator
- Maintainable actuator
- External surface finish bright



Note!

For further details, see instruction 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.

- Long stroke valve
- Manually operated valve

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (mm)

Nominal size	Inch tubes DN/OD						DIN tubes DN					
	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100
A ₁	338	355	411	436	483	532	346	361	416	448	500	538
A ₂	350	376	437	462	514	563	358	382	442	474	531	569
A ₃	386	420	489	526	586	660	398	429	496	544	611	668
A ₄	397	436	515	548	613	687	409	445	518	566	638	695
C	47.8	60.8	73.8	86.3	98.9	123.6	52	64	76	92	107	126
OD	25	38	51	63.5	76.1	101.6	29	41	53	70	85	104
ID	21.8	34.8	47.8	60.3	72.9	97.6	26	38	50	66	81	100
t	1.6	1.6	1.6	1.6	1.6	2	1.5	1.5	1.5	2	2	2
E	50	49.5	61	81	86	119	50	49.5	62	78	87	120
F ₁	12	21	26	26	31	31	12	21	26	26	31	31
F ₂	11	16	22	22	27	27	11	16	22	22	27	27
G	23.9	30.4	40.5	43.15	49.45	62	26	32	38	46	53.5	63

Nominal size	Inch tubes DN/OD						DIN tubes DN					
	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100
H	ø85	ø85	ø115	ø115	ø157	ø157	ø85	ø85	ø115	ø115	ø157	ø157
H (high pressure)	ø85	ø115	ø157	ø157	ø157	ø157	ø85	ø115	ø157	ø157	ø157	ø157
M (ISO clamp)	21	21	21	21	21	21	-	-	-	-	-	-
M (DIN clamp)	-	-	-	-	-	-	21	21	21	28	28	28
M (DIN male)	-	-	-	-	-	-	22	22	23	25	25	30
M (SMS male)	20	20	20	24	24	35	-	-	-	-	-	-
Weight (kg)												
Shut-off valve	4.3	4.4	7.3	8.9	14.4	18.3	4.4	4.6	7.3	9.2	15.3	18.2
Change-over valve	5.2	5.4	8.7	11.0	17.1	22.6	5.4	5.7	8.7	11.4	18.5	22.5

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

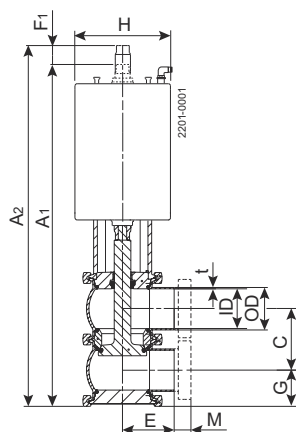


Figure 1. Shut-off valve

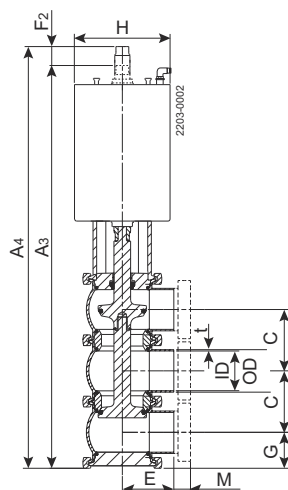


Figure 2. Change-over valve

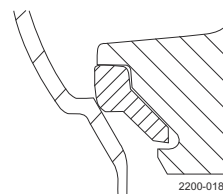


Figure 3. PTFE plug seal (TR2)

Please note!

Opening/closing time will be effected by the following:

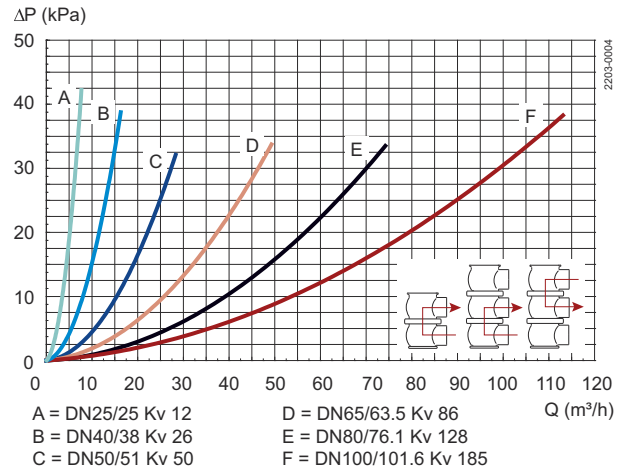
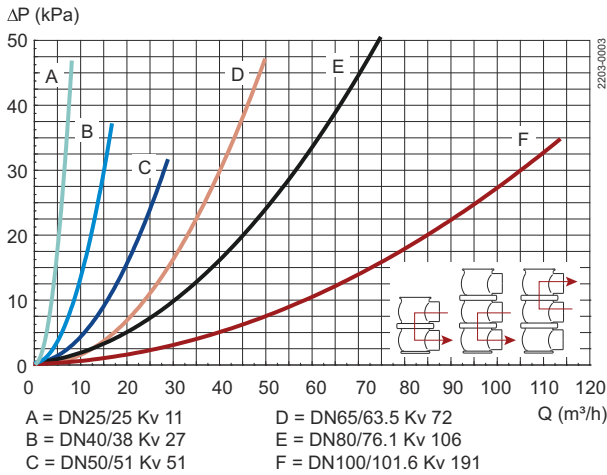
- The air supply (air pressure).
- The length and dimensions of the air hoses.
- Number of valves connected to the same air hose.
- Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.

Air Connections Compressed air:

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

Air consumption (litres free air) for one stroke			
Size	DN25-40 DN/OD 25-38 mm	DN50-65 DN/OD 51-63.5 mm	DN80100 DN/OD 76.1101.6 mm
NO and NC	0.2 x air pressure [bar]	0.5 x air pressure [bar]	1.3 x air pressure [bar]
A/A	0.5 x air pressure [bar]	1.1 x air pressure [bar]	2.7 x air pressure [bar]

Pressure drop/capacity diagrams



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:

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

Where

Q = Flow in m³/h.

Kv = m³/h at a pressure drop of 1 bar (see table above).

Δp = Pressure drop in bar over the valve.

How to calculate the pressure drop for an ISO 2.5" shut-off valve if the flow is 40 m³/h

2.5" shut-off valve, where Kv = 111 (See table above).

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

$$40 = 111 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{40}{111}\right)^2 = 0.13 \text{ bar}$$

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

Pressure data for Unique Single Seat Valve Reverse Acting

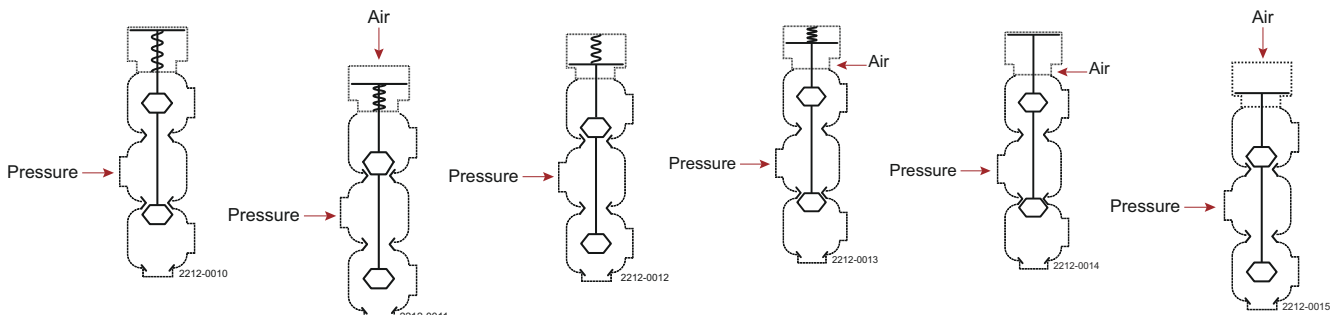


Figure 4. 1

Figure 5. 2

Figure 6. 3

Figure 7. 4

Figure 8. 5

Figure 9. 6

Shut-off and Change-over valves

			Max. pressure in bar without leakage at the valve seat					
Actuator/valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size					
			DN25	DN40	DN50	DN65	DN80	DN100
			DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD
Change-over valve			25 mm	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm
Figure 4. 1		NC	10.0	8.2	8.4	4.5	6.8	4.4
Figure 5. 2	6	NC	10.0	7.6	9.6	5.6	7.2	4.8
Figure 6. 3		NO	10.0	6.3	7.2	4.2	6.4	4.2
Figure 7. 4	6	NO	10.0	10.0	10.0	6.1	7.7	5.0
Figure 8. 5	6	A/A	10.0	10.0	10.0	10.0	9.0	5.8
Figure 9. 6	6	A/A	10.0	10.0	10.0	10.0	8.5	5.6

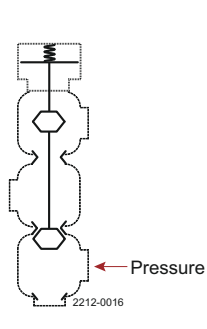


Figure 10. 7

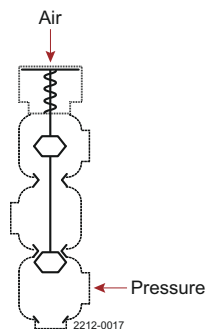


Figure 11. 8

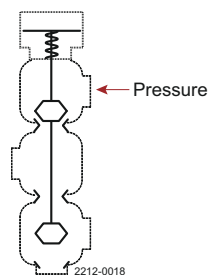


Figure 12. 9

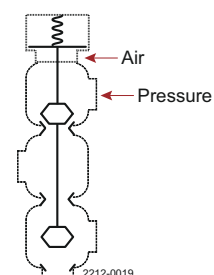


Figure 13. 10

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 (bar)	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			25 mm	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm
Figure 10. 7		NO	10.0	9.7	10.0	6.8	4.6	3.1
Figure 11. 8	6	NC	10.0	10.0	10.0	8.3	9.9	6.6
Figure 12. 9		NC	10.0	10.0	10.0	7.4	4.9	3.2
Figure 13. 10	6	NO	10.0	10.0	10.0	9.0	10.0	6.9

Alfa Laval Unique SSV Long Stroke

Single seat valves

Introduction

The Alfa Laval Unique SSV Long Stroke is versatile, reliable pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination. Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety. Built on the well-proven Unique SSV platform, it is especially suitable for use with highly viscous products and products containing particles and/or suspended solids due to its larger opening.

Application

This Unique SSV Long Stroke is designed for use in a broad range of hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Exceptional valve hygiene and durability
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to the defined seal compression
- Enhanced product safety thanks to the static seal leak detection
- Protection against full vacuum due to the double lip seal

Standard design

The Unique SSV Long Stroke is available in a one- or two-body configuration, with easy-to-configure valve bodies, plugs, actuator and clamp rings. The valve can be configured as a shut-off valve with two or three working ports or as a changeover valve with up to five ports.

To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

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

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.



Working principle

The Alfa Laval Unique SSV Long Stroke is operated by means of compressed air from a remote location. The actuator smooths operation and protects process lines against pressure peaks. The valve can be controlled using an Alfa Laval ThinkTop®.

Certificates



Authorized to carry
the 3A symbol

TECHNICAL DATA

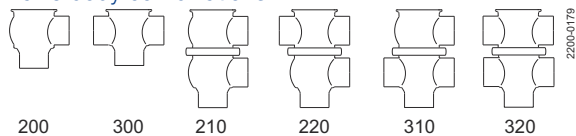
Temperature

Temperature range:	-10 °C to +140 °C (EPDM)
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Pressure

Max. product pressure:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	500 to 700 kPa (5 to 7 bar)

Valve body combinations



Actuator function

- Pneumatic downward movement, spring return
- Pneumatic upward movement, spring return
- Pneumatic upward and downward movement (AA)

PHYSICAL DATA

Materials

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

Options

- Male parts or clamp liners in accordance with required standard
- Control and Indication: ThinkTop and ThinkTop Basic
- Product wetted seals in HNBR or FPM
- TR2 plug (floating PTFE design)
- Service tool for plug seals
- External surface finish bright



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 (mm)

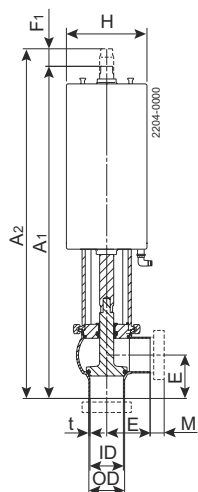


Figure 1. Shut-off valve

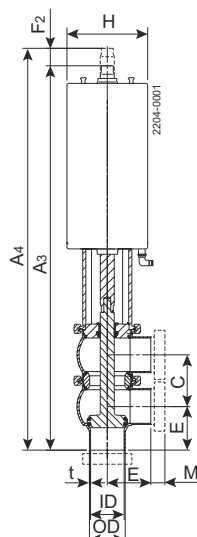


Figure 2. Change-over valve

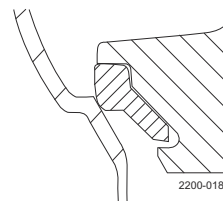


Figure 3. PTFE plug seal (TR2)

Size	Inch tubes DN/OD					DIN tubes DN				
	38	51	63.5	76.1	101.6	40	50	65	80	100
A ₁	415	423	442	539	592	414	422	439	535	591
A ₂	440	460	486	597	656	442	461	488	597	657
A ₃	458	488	533	645	718	456	487	531	641	717
A ₄	484	527	569	689	777	485	528	572	697	779
C	60.8	73.8	86.3	98.9	123.6	64	76	92	107	126.4
OD	38	51	63.5	76.1	102	41	53	70	85	104
ID	34.8	47.8	60.3	72.9	97.6	38	50	66	81	100
t	1.6	1.6	1.6	1.6	2	1.5	1.5	2	2	2
E ₁	49.5	61	81	86	119	49.5	61	78	86	120
E ₂	49.5	61	81	86	119	49.5	61	78	86	120
F ₁	25	37	44	58	64	28	39	49	62	66
F ₂	26	39	36	44	59	29	41	41	56	62
H	115	115	115	154	154	115	115	115	154	154
M (ISO clamp)	21	21	21	21	21	-	-	-	-	-
M (/DIN clamp)	-	-	-	-	-	21	21	28	28	28
M (DIN male)	-	-	-	-	-	22	23	25	25	30
M (SMS male)	20	20	24	24	35	-	-	-	-	-
Weight (kg)										
Shut-off valve	6.1	6.6	7.5	14.8	17.2	6.2	6.6	7.6	15.3	17.2
Change-over valve	6.8	7.9	9.8	17.9	22.2	7	7.9	10.1	18.8	22.1

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

Please note!

Opening/closing time will be affected by the following:

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

Air Connections Compressed air:

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

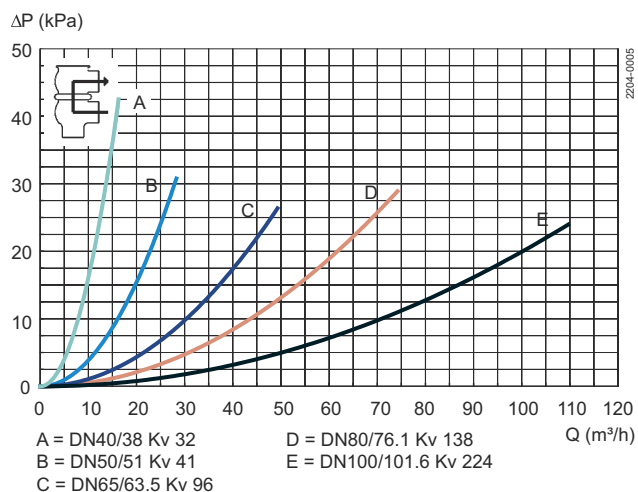
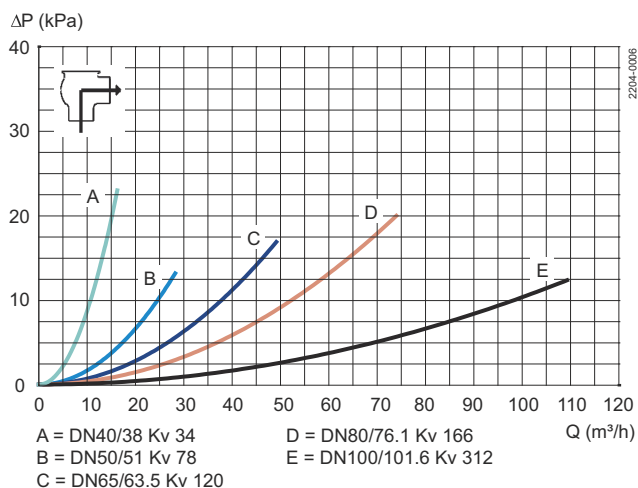
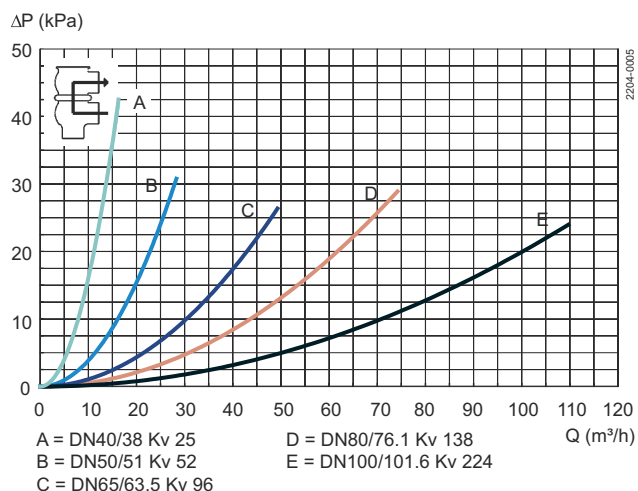
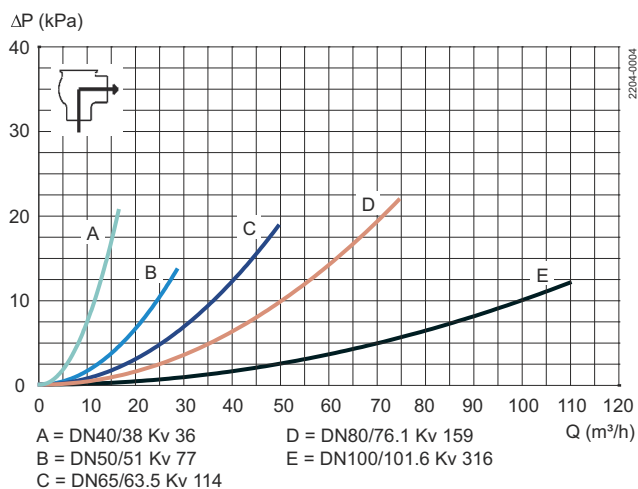
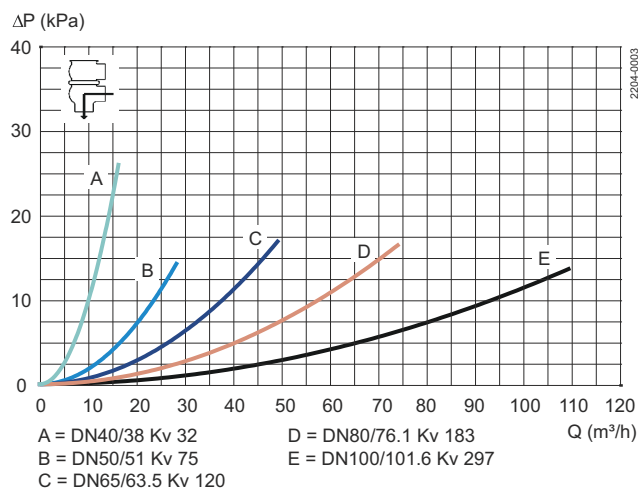
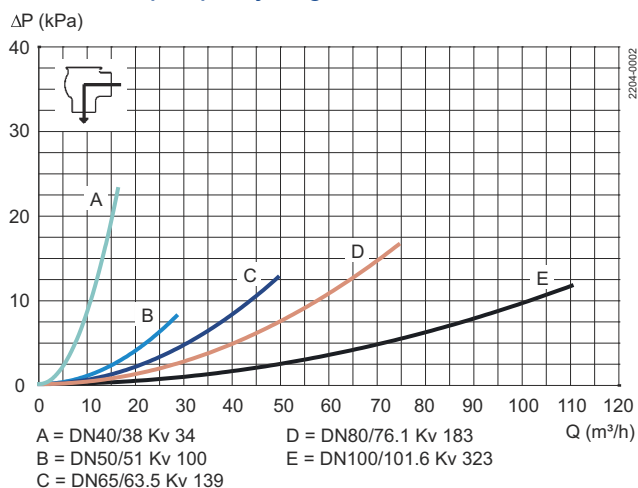
Max. size of solids (mm)	Valve size (DN/OD)				
	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm
Shut-off valve	21	32	40	54	58
Change-over valve (plug up/lower body)	22	35	32	43	54
Change-over valve (plug down/between bodies)	12	15	23	30	40

Max. size of solids (mm)	Valve size (DN/OD)				
	DN40	DN50	DN65	DN80	DN100
Shut-off valve	24	34	45	62	61
Change-over valve (plug up/lower body/between bodies)	25	37	37	52	57
Change-over valve (plug down/between bodies)	12	15	23	30	40

Air consumption (litres free air) for one stroke

Size	DN40-65 DN/OD 38-63.5 mm	DN80-100 DN/OD 76.1-101.6 mm
	NO and NC 0.8 x air pressure [bar] A/A 1.4 x air pressure [bar]	2 x air pressure [bar] 3.9 x air pressure [bar]

Pressure drop/capacity diagrams





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.

Pressure drop can also be calculated with the following formula:

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

Where

Q = Flow in m³/h.

K_v = m³/h at a pressure drop of 1 bar (see table above).

Δ p = Pressure drop in bar over the valve.

2.5" shut-off valve, where K_v = 111 (See table above).

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

$$40 = 111 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{40}{111}\right)^2 = 0.13 \text{ bar}$$

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

Pressure data for Unique Single Seat Valve Long Stroke

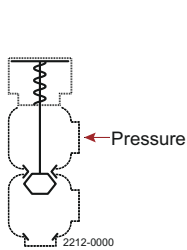


Figure 4. 1

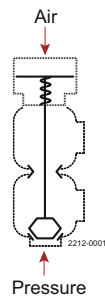


Figure 5. 2

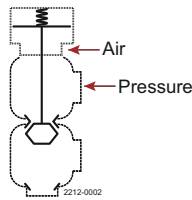


Figure 6. 3

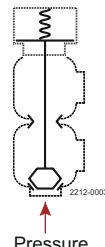


Figure 7. 4

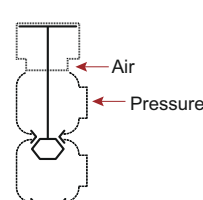


Figure 8. 5

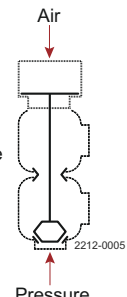


Figure 9. 6

Shut-off and Change-over valves

			Max. pressure in bar without leakage at the valve seat				
			Valve size				
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	DN 40 DN/OD 38 mm	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 4. 1		NO	10.0	8.9	4.8	7.1	4.6
Figure 5. 2	6	NO	10.0	8.6	5.0	6.8	4.4
Figure 6. 3	6	NC	10.0	9.9	5.4	7.2	4.6
Figure 7. 4		NC	10.0	7.6	4.4	6.7	4.4
Figure 8. 5	6	A/A	10.0	10.0	10.0	10.0	10.0
Figure 9. 6	6	A/A	10.0	10.0	10.0	10.0	10.0

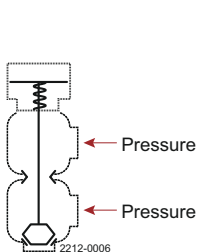


Figure 10. 7

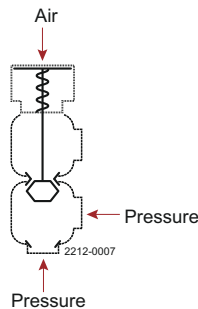


Figure 11. 8

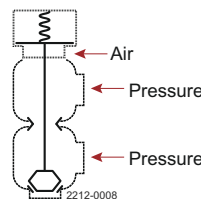


Figure 12. 9

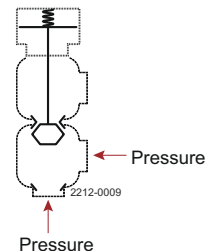


Figure 13. 10

Shut-off and Change-over valves

			Max. pressure in bar against which the valve can open				
			Valve size				
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	DN 40 DN/OD 38 mm	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 10. 7		NO	10.0	10.0	8.1	10.0	6.7
Figure 11. 8	6	NO	10.0	10.0	8.0	9.7	6.5
Figure 12. 9	6	NC	10.0	10.0	8.7	10.0	6.7
Figure 13. 10		NC	10.0	10.0	7.5	9.6	6.4

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.

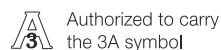
The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

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



TECHNICAL DATA

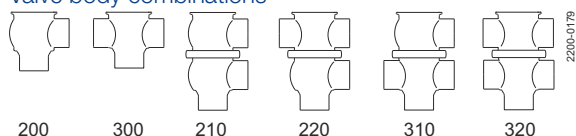
Temperature	
Temperature range:	-10 °C to +140 °C (EPDM)
Max. sterilization temperature (<1 min):	150 °C/380 kPa (3.8 bar)
Pressure	
Pressure range:	0-800 kPa (0-8 bar)
Max. sterilization temperature:	150 °C/380 kPa (3.8 bar)
Air pressure:	500-700 kPa (5-7 bar)



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:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 0.8 µm
Product wetted seal:	EPDM
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



Note!

For further details, see instruction ESE00529.

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.

- Manually operated valve
- Two Step valve
- Tangential valve
- Tank Outlet valve

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (mm)

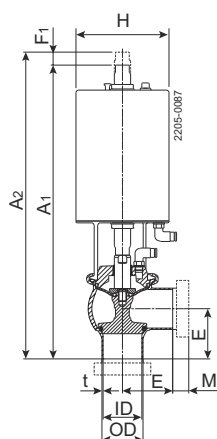


Figure 1. Shut-off valve

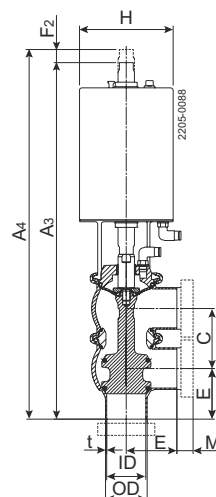


Figure 2. Change-over valve

Nominal size	DN/OD						DIN/DN					
	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100
A ₁	308	314	367	394	432	482	312	316	369	397	436	484
A ₂	319	325	382	409	451	501	323	327	384	412	455	503
A ₃	356	375	441	480	531	606	364	380	444.5	489	543	610
A ₄	364	384	454	493	547	622	372	389	458	502	559	626
C	47.8	60.8	73.8	86.3	98.9	123.6	52	64	76	92	107	126
OD	25	38	51	63.5	76.1	101.6	29	41	53	70	85	104
ID	21.8	34.8	47.8	60.3	72.9	97.6	26	38	50	66	81	100
t	1.6	1.6	1.6	1.6	1.6	2	1.5	1.5	1.5	2	2	2
E	50	49.5	61	81	86	119	50	49.5	61	78	86	120
F ₁	11	11	15	15	19	19	11	11	15	15	19	19
F ₂	8	9	13	13	16	16	8	9	13	13	16	16
H	85	85	114.9	114.9	154.3	154.3	85	85	114.9	114.9	154.3	154.3
M/ISO clamp	21	21	21	21	21	21	-	-	-	-	-	-
M/DIN clamp	-	-	-	-	-	-	21	21	21	28	28	28
M/DIN male	-	-	-	-	-	-	22	22	23	25	25	30
M/SMS male	20	20	20	24	24	35	-	-	-	-	-	-
Weight (kg)												
Shut off valve	3.1	3.3	5.6	6.6	11.5	14	3.2	3.4	5.6	6.8	11.9	13.9
Change-over valve	3.9	4.2	7.2	8.7	14.2	18.4	4.1	4.5	7.1	9	15.1	18.3

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



Note!

Opening/closing time will be affected by the following:

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

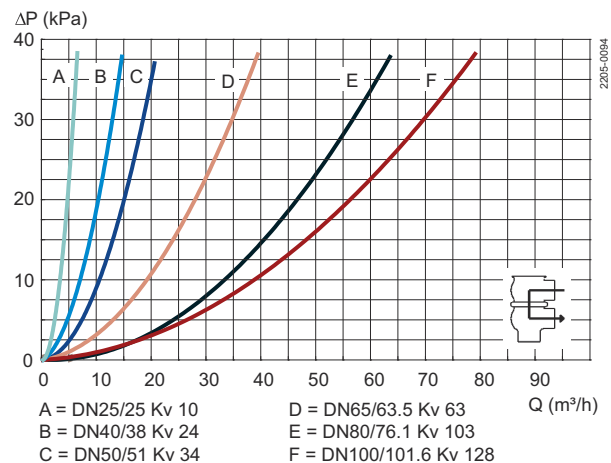
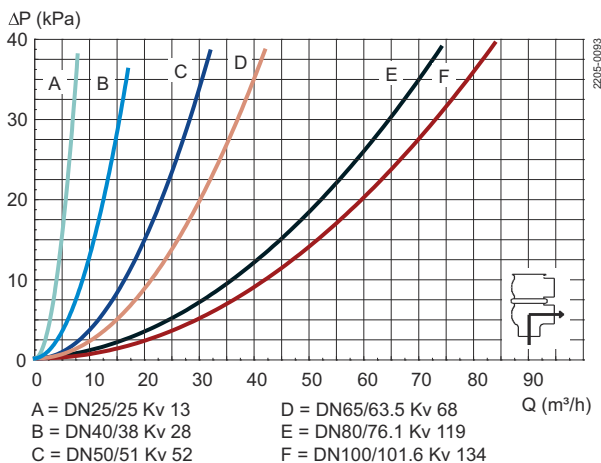
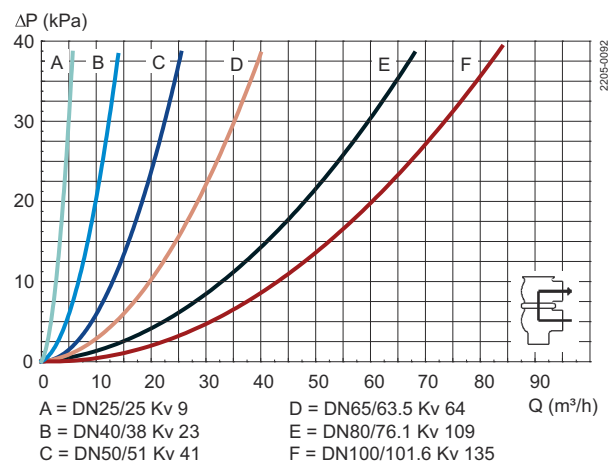
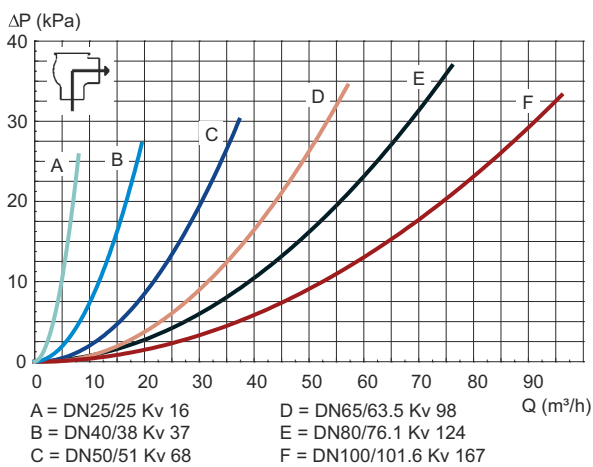
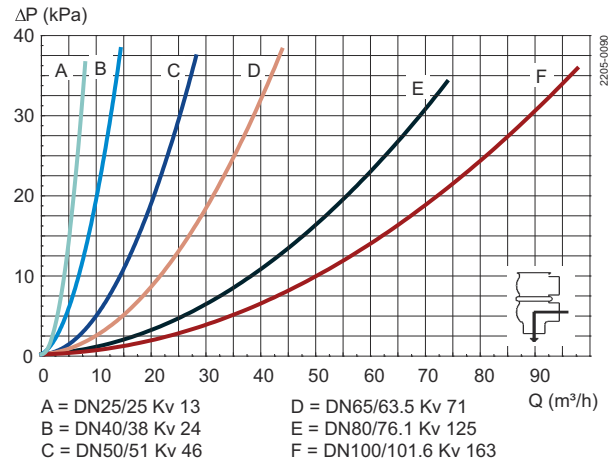
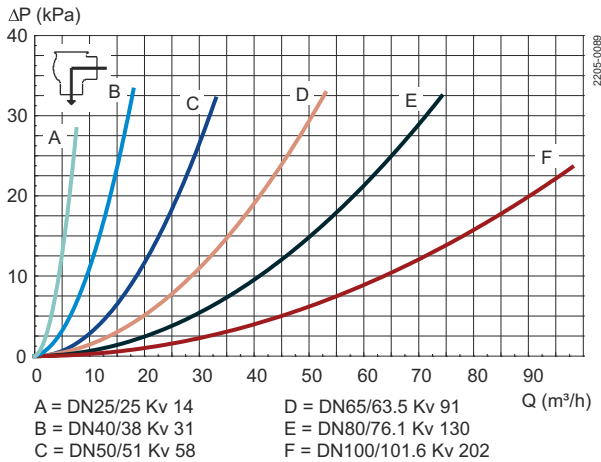
Air Connections Compressed air:

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

Air consumption (litres free air) for one stroke

Size	DN25-40 DN/OD 25-38 mm	DN50-65 DN/OD 51-63.5 mm	DN80-100 DN/OD 76.1-101.6 mm
NO and NC	0.2 x air pressure [bar]	0.5 x air pressure [bar]	1.3 x air pressure [bar]
A/A	0.5 x air pressure [bar]	1.1 x air pressure [bar]	2.7 x air pressure [bar]

Pressure drop/capacity diagrams



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.

Pressure drop can also be calculated with the following formula:

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

Where

Q = Flow in m³/h.

$K_v = m^3/h$ at a pressure drop of 1 bar (see table above).

Δp = Pressure drop in bar over the valve.

Where

Q = Flow in m^3/h .

$K_v = m^3/h$ at a pressure drop of 1 bar (see table above).

Δp = Pressure drop in bar over the valve.

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

2.5" shut-off valve, where $K_v = 111$ (See table above).

$40 = 111 \times \sqrt{\Delta p}$

$$\Delta p = \left(\frac{40}{111} \right)^2 = 0.13 \text{ bar}$$

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

Pressure data for Unique Single Seat Valve Aseptic

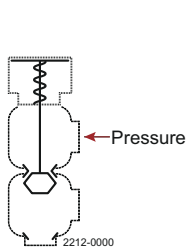


Figure 3. 1

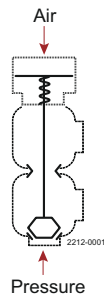


Figure 4. 2

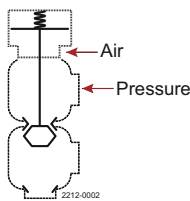


Figure 5. 3

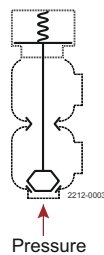


Figure 6. 4

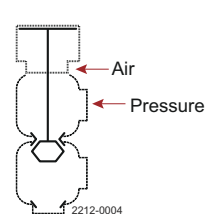


Figure 7. 5

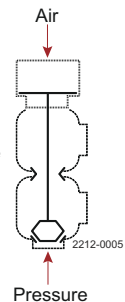


Figure 8. 6

Shut fully closed. Max. static pressure without leakage

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size					
			DN 25 DN/OD 25 mm	DN 40 DN/OD 38 mm	DN 50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 3. 1		NO	8.0	6.0	8.0	4.4	7.5	5.5
Figure 4. 2	6	NO	8.0	7.6	8.0	5.6	7.2	4.8
Figure 5. 3	6	NC	8.0	8.0	8.0	6.8	7.5	5.0
Figure 6. 4		NC	8.0	6.3	7.2	4.2	6.4	4.2
Figure 7. 5	6	A/A	8.0	8.0	8.0	8.0	8.0	8.0
Figure 8. 6	6	A/A	8.0	8.0	8.0	8.0	8.0	8.0

Shut fully closed. Options with high pressure actuator - Max. static pressure without leakage

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size					
			DN 25 DN/OD 25 mm	DN 40 DN/OD 38 mm	DN 50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 3. 1		NO	8.0	8.0	8.0	8.0	-	-
Figure 4. 2	6	NO	8.0	8.0	8.0	8.0	-	-
Figure 5. 3	6	NC	8.0	8.0	8.0	8.0	8.0	4.1
Figure 6. 4		NC	8.0	8.0	8.0	8.0	8.0	7.0

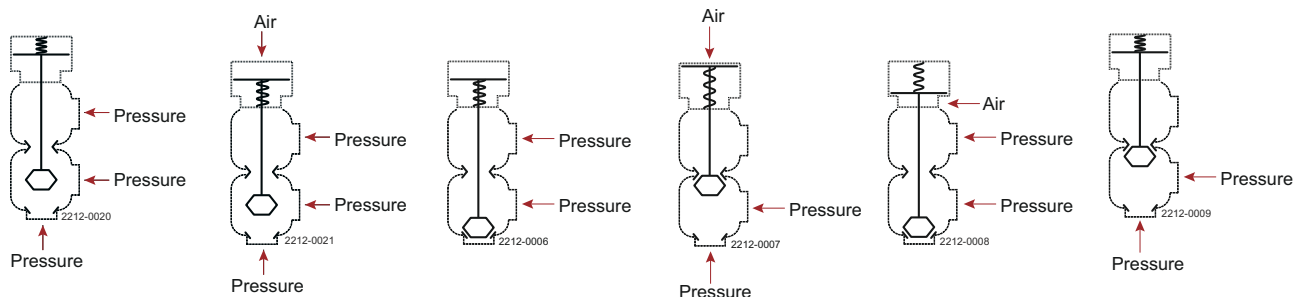


Figure 9. 1

Figure 10. 2

Figure 11. 3

Figure 12. 4

Figure 13. 5

Figure 14. 6

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

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size					
			DN 25	DN 40	DN50	DN 65	DN 80	DN 100
			DN/OD 25 mm	DN/OD 38 mm	DN/OD 51 mm	DN/OD 63.5 mm	DN/OD 76.1 mm	DN/OD 101.6 mm
Figure 9. 1		NC	6.5	6.5	8.0	8.0	7.3	7.6
Figure 10. 2	6	NO	8.0	8.0	8.0	8.0	7.9	8.0

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 (bar)	Plug position	Valve size					
			DN 25	DN 40	DN50	DN 65	DN 80	DN 100
			DN/OD 25 mm	DN/OD 38 mm	DN/OD 51 mm	DN/OD 63.5 mm	DN/OD 76.1 mm	DN/OD 101.6 mm
Figure 11. 3		NO	8.0	8.0	8.0	8.0	8.0	8.0
Figure 12. 4	6	NO	8.0	8.0	8.0	8.0	8.0	8.0
Figure 13. 5	6	NC	8.0	8.0	8.0	8.0	8.0	8.0
Figure 14. 6		NC	8.0	8.0	8.0	5.7	8.0	5.4

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.

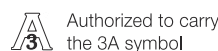
The valve can also be fitted with the Alfa Laval ThinkTop V50 and V70 for sensing and control of the valve.

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



TECHNICAL DATA

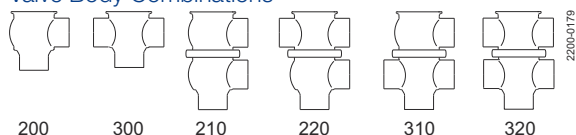
Temperature

Temperature range	-10°C to +140°C (EPDM)
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Pressure

Max. product pressure:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	500 to 700 kPa (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:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 0.8 µm
Other product wetted seals:	EPDM
Other seals:	NBR

Options

- Male parts or clamp liners in accordance with the required standard.
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- Product wetted seals in HNBR or FPM.
- Plug seals HNBR, FPM or TR2 plug (floating PTFE design).
- High pressure actuator (only ISO51, ISO63.5 and DN50, DN65).
- External surface finish bright.



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 (mm)

Nominal size	Inch tubes DN/OD					DIN tubes DN					High Pressure			
											Inch tubes DN/OD		DIN tubes DN	
	38	51	63.5	76.1	101.6	40	50	65	80	100	51	63.5	50	65
A ₁ ¹	382	395	422	458	504	384	397	422	462	506	426	452	427	452
A ₂ ¹	402	420	447	488	534	404	422	447	492	536	451	477	452	477
A ₃ ¹	443	469	508	557	627	448	472.5	514	569	632	500	538	503	544
A ₄ ¹	460	491	530	584	654	465	495	536	596	659	522	560	525	566
C	60.8	73.8	86.3	98.9	123.6	64	76	92	107	126	73.8	86.3	76	92
OD	38	51	63.5	76.1	101.6	41	53	70	85	104	51	63.5	53	70
ID	34.8	47.8	60.3	72.9	97.6	38	50	66	81	100	47.8	60.3	50	66
t	1.6	1.6	1.6	1.6	2	1.5	1.5	2	2	2	1.6	1.6	1.5	2
E	49.5	61	81	86	119	49.5	61	78	86	120	61	81	61	78
F ₁	20	25	25	30	30	20	25	25	30	30	25	25	25	25
F ₂ Min. Two step stroke	3	3	3	2.5	2.5	3	3	3	2.5	2.5	6	6	6	6

¹ For exact A1 - A4 dimensions, please refer to informations in Anytime configurator.

Nominal size	Inch tubes DN/OD					DIN tubes DN					High Pressure			
											Inch tubes DN/OD		DIN tubes DN	
	38	51	63.5	76.1	101.6	40	50	65	80	100	51	63.5	50	65
F ₃ Max. Two step stroke	6	11	11	14	14	6	11	11	14	14	9	9	9	9
F ₄	17	22	22	27	27	17	22	22	27	27	22	22	22	22
F ₅ Two step stroke	6.5	11	11	14	14	6.5	11	11	14	14	9	9	9	9
H	115	115	115	154	154	115	115	115	154	154	154	154	154	154
M (ISO clamp)	21	21	21	21	21						21	21		
M (DIN clamp)	-	-	-	-	-	21	21	28	28	28			21	28
M (DIN male)	-	-	-	-	-	22	23	25	25	30			23	25
M (SMS male)	20	20	24	24	35						20	24		
Weight (kg)														
Stop valve	7	7.3	8.3	14.4	16.7	7	7.3	8.3	14.9	16.7	8.6	9.6	8.6	9.6
Change-over valve	8	8.9	10.3	17	21	8.2	8.9	10.5	17.9	21	10.2	11.6	10.2	11.8

¹ For exact A1 - A4 dimensions, please refer to informations in Anytime configurator.

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

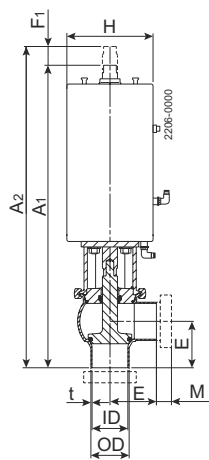


Figure 1. Shut-off valve activated closed

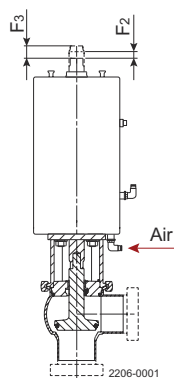


Figure 2. Shut-off valve with two step stroke

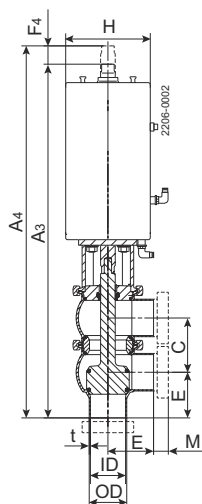


Figure 3. Change-over valve closed

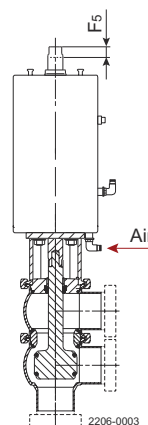


Figure 4. Change-over valve with two step stroke activated

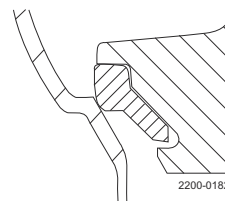


Figure 5. Optional PTFE plug seal (TR2)

Air consumption (litres free air) for one stroke			
Size	DN40 - DN/OD 38 mm	DN50-65 - DN/OD 51-63.5 mm	DN80-100 DN/OD 76.1-101.6 mm
NO and NC	0.5 x air pressure [bar]	0.5 x air pressure [bar]	1.3 x air pressure [bar]



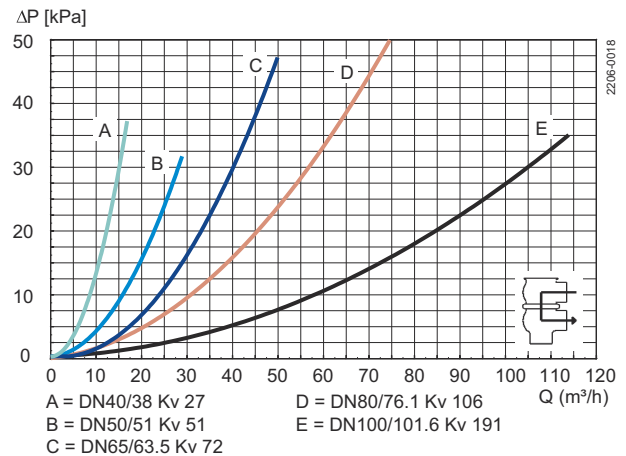
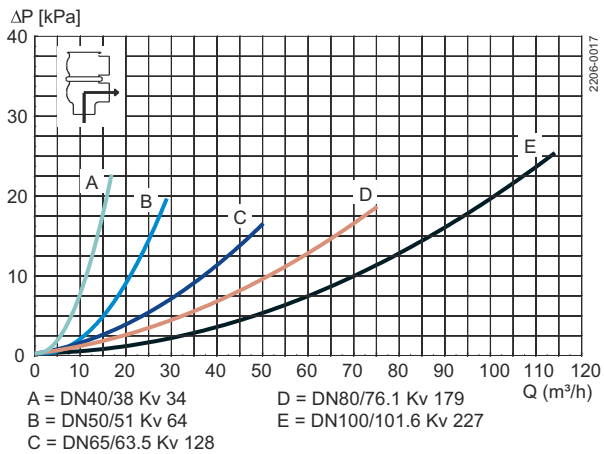
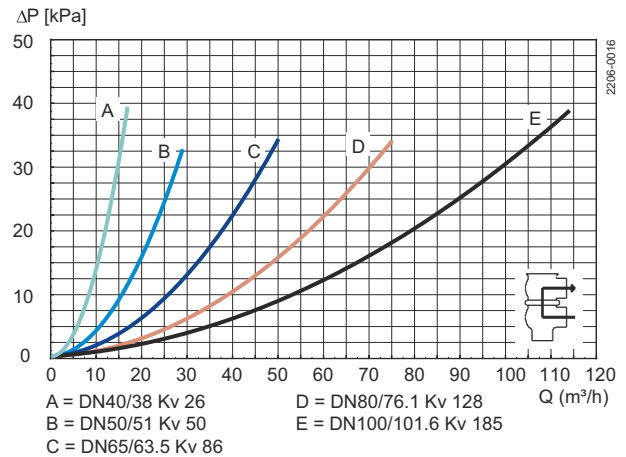
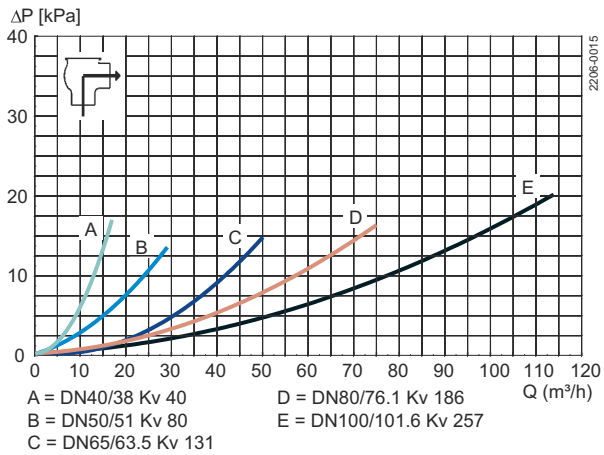
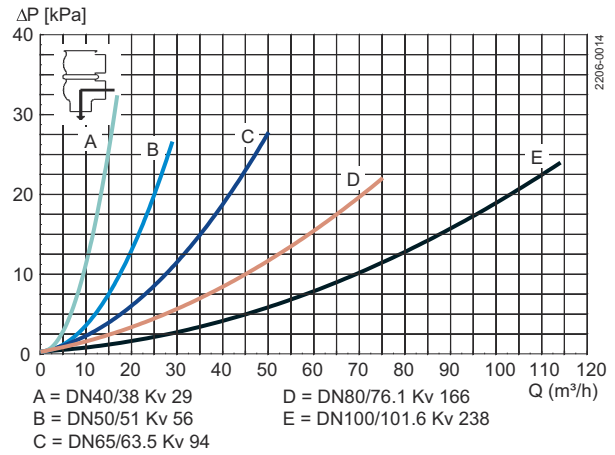
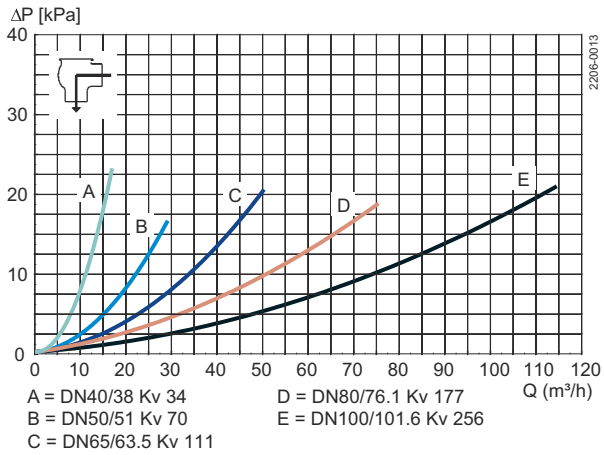
Note!

Vacuum is not recommended in aseptic applications.

Opening/closing time will be affected by the following:

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

Pressure drop/capacity diagrams



Note!

For the diagrams the following applies:

Medium: Water (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:

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

Where

Q = Flow in m³/h.

$K_v = m^3/h$ at a pressure drop of 1 bar (see table above).

Δp = Pressure drop in bar over the valve.

How to calculate the pressure drop for an ISO 2.5" shut-off valve if the flow is 40 m³/h

2.5" shut-off valve, where $K_v = 111$ (See table above).

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

$$40 = 111 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{40}{111}\right)^2 = 0.13 \text{ bar}$$

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

Pressure data for Unique Single Seat Valve Two Step

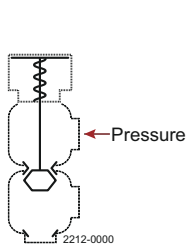


Figure 6. 1

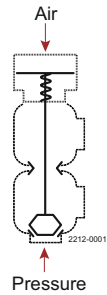


Figure 7. 2

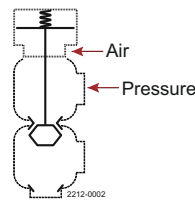


Figure 8. 3

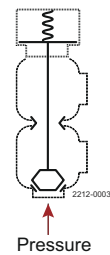


Figure 9. 4

Shut-off and Change-over valves

		Max. pressure in bar without leakage at the valve seat					
		Valve size					
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	DN 40 DN/OD 38 mm	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
1		NO	10.0	8.4	4.5	6.8	4.4
2	6	NO	10.0	9.6	5.6	7.2	4.8
3	6	NC	10.0	10.0	6.1	7.7	5.0
4		NC	10.0	7.2	4.2	6.4	4.2

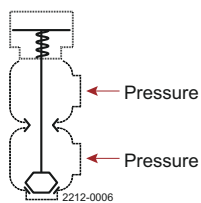


Figure 10. 5

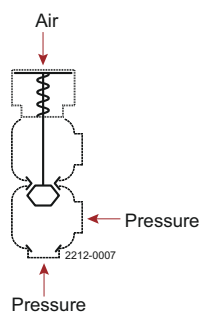


Figure 11. 6

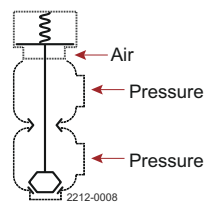


Figure 12. 7

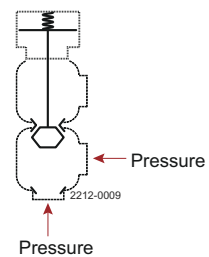


Figure 13. 8

Shut-off and Change-over valves

		Max. pressure in bar against which the valve can open					
		Valve size					
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	DN 40 DN/OD 38 mm	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
5		NO	10.0	10.0	7.4	9.7	6.3
6	6	NO	10.0	10.0	8.3	9.9	6.6
7	6	NC	10.0	10.0	9.0	10.0	6.9
8		NC	9.7	10.0	6.8	9.1	6.1

Shut-off and Change-over valves with high pressure actuator option (option)

Max. pressure in bar without leakage at the valve seat				
Valve size				
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm
1		NO	10.0	10.0
2	6	NO	10.0	10.0
3	6	NC	10.0	10.0
4		NC	10.0	10.0

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®.

TECHNICAL DATA

Temperature

Temperature range: -10 °C to +140 °C (EPDM)

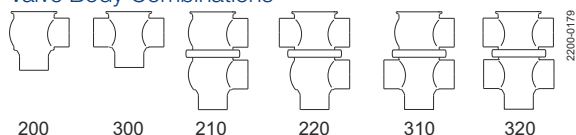
Pressure

Max. product pressure 1000 kPa (10 bar)

Min. product pressure: Full vacuum

Air pressure: 500 to 700 kPa (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:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 0.8 µm
Other product wetted seals:	EPDM
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
- Plug seal HNBR, FPM or TR2 (floating PTFE design)
- High pressure actuator
- NO or A/A actuator
- Maintainable actuator
- External surface finish bright



Note!

For further details, see instruction ESE00609.

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 (mm)

	Nominal Size			
	DN/OD 51 mm	DN/OD 63.5 mm	DN/OD 76.1 mm	DN/OD 101.6 mm
A ₁ ¹	361	374	409	433
A ₂ ¹	386	399	439	463
A ₃ ¹	435	460	507	557
A ₄ ¹	457	482	534	584

¹ For exact A1 - A4 dimensions, please refer to informations in Anytime configurator.

	Nominal Size			
	DN/OD 51 mm	DN/OD 63.5 mm	DN/OD 76.1 mm	DN/OD 101.6 mm
C	73.8	86.3	98.9	123.6
OD	51	63.5	76.1	101.6
ID	47.8	60.3	72.9	97.6
t	1.6	1.6	1.6	2
E	61	81	86	119
G	59.9	66.2	72.5	84.8
F ₁	25	25	30	30
F ₂	22	22	27	27
H	114.9	114.9	154.3	154.3
N	14.3	17.9	21.5	25
M/ISO Clamp	21	21	21	21
M/SMS male	20	24	24	35
Weight (kg)				
Shut-off valve	5.8	6.8	11.7	14.1
Change-over valve	7.4	9	14.5	18.8

¹ For exact A1 - A4 dimensions, please refer to informations in Anytime configurator.

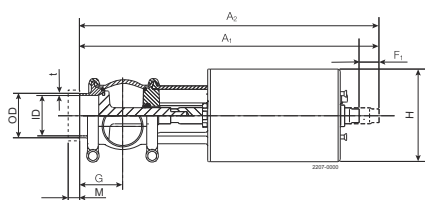


Figure 1. Shut-off valve

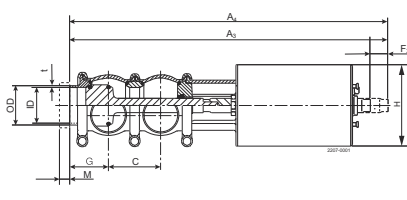


Figure 2. Change-over valve

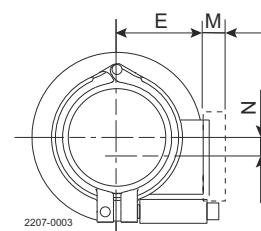
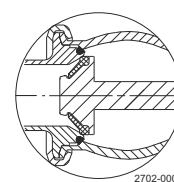


Figure 3. PTFE plug seal (TR2)

Please note!

Opening/closing time will be effected by the following:

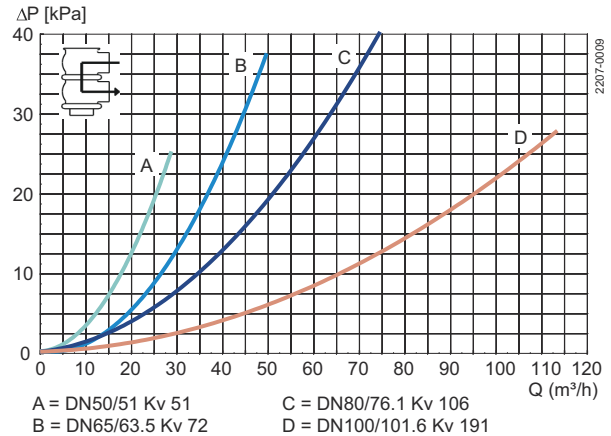
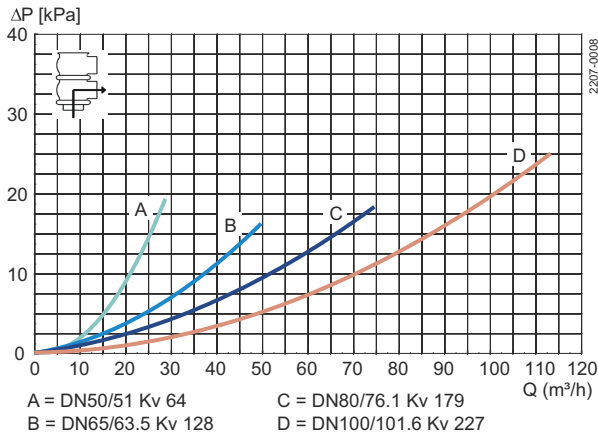
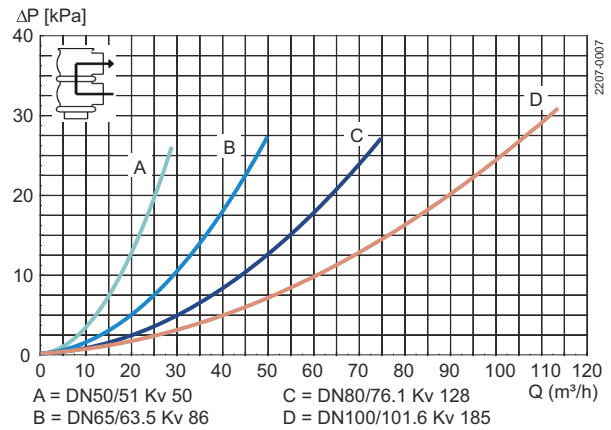
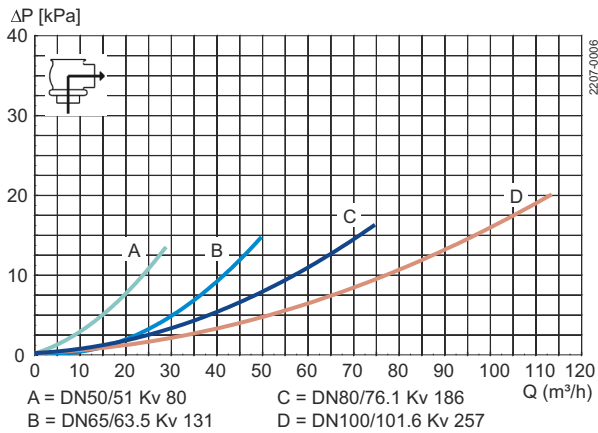
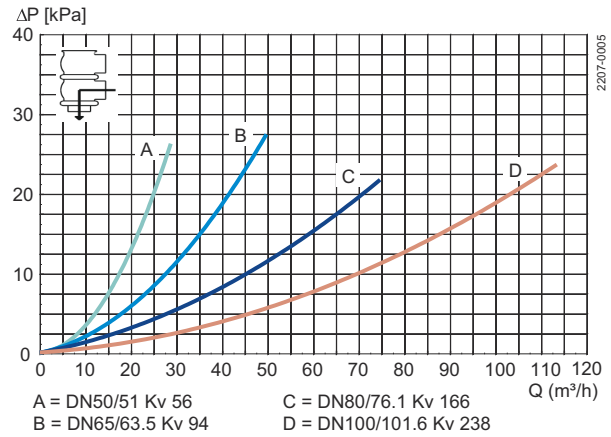
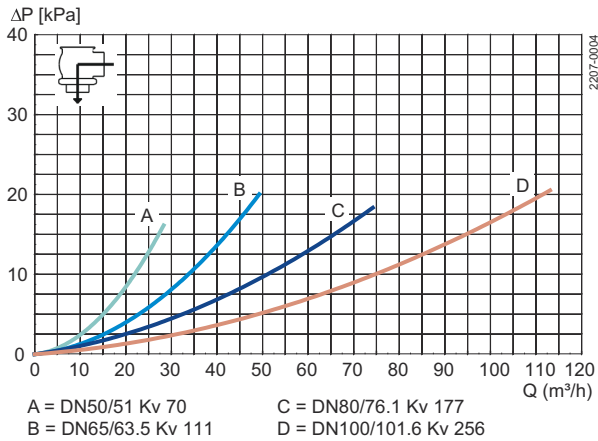
- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure

Air Connections Compressed air:

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

Air Consumption (Litres free air) for one stroke		
Size	DN/OD 51 - 63.5 mm	DN/OD 76.1 - 101.6 mm
NO and NC	0.15 x air pressure [bar]	1.3 x air pressure [bar]
A/A	1.1 x air pressure [bar]	2.7 x air pressure [bar]

Pressure drop/capacity diagrams



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:

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

Where

Q = Flow in m³/h.

Kv = m³/h at a pressure drop of 1 bar (see table above).

Δ p = Pressure drop in bar over the valve.

Where

Q = Flow in m³/h.

Kv = m³/h at a pressure drop of 1 bar (see table above).

Δ p = Pressure drop in bar over the valve.

2.5" shut-off valve, where Kv = 111 (See table above).

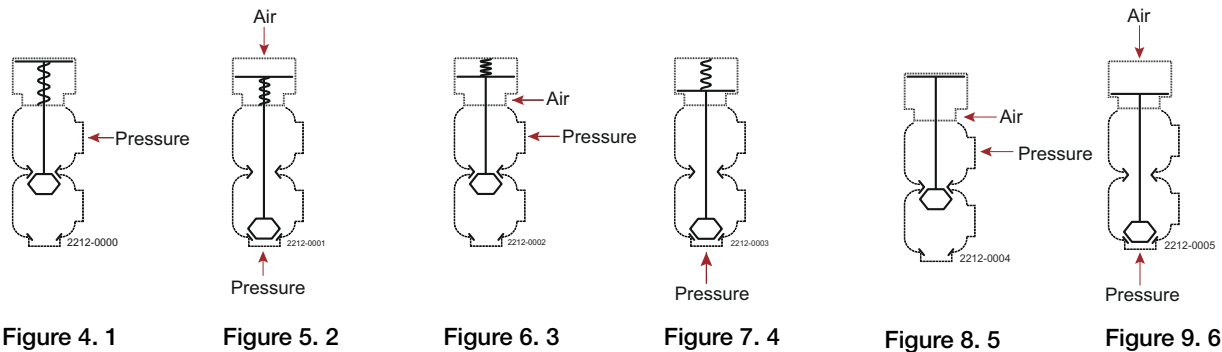
$$40 = 111 \times \sqrt{\Delta p}$$

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

$$\Delta p = \left(\frac{40}{111} \right)^2 = 0.13 \text{ bar}$$

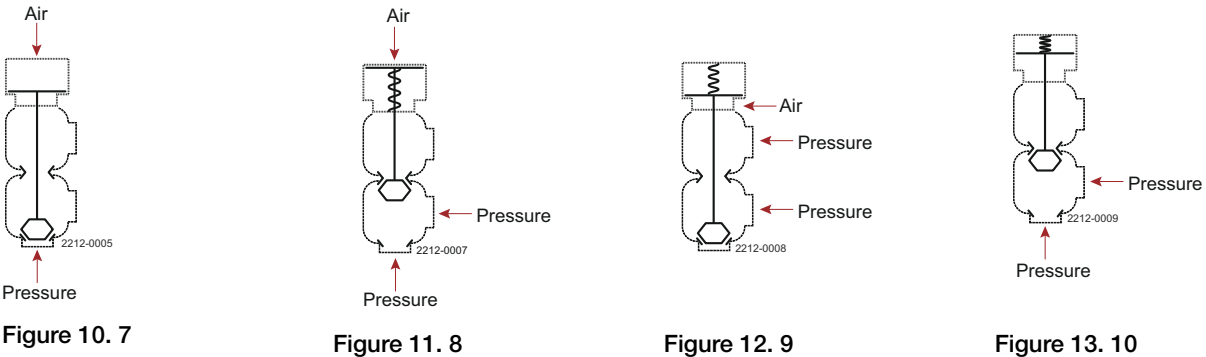
(This is approx. the same pressure drop by reading the y-axis above)

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



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 (bar)	Plug position	Valve size			
			DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 4. 1		NO	8.4	4.5	6.8	4.4
Figure 5. 2	6	NO	9.6	5.6	7.2	4.8
Figure 6. 3	6	NC	10.0	6.1	7.7	5.0
Figure 7. 4		NC	7.2	4.2	6.4	4.2
Figure 8. 5	6	A/A	10.0	10.0	10.0	10.0
Figure 9. 6	6	A/A	10.0	10.0	10.0	10.0



Shut-off and change-over valves

			Max. pressure in bar against which the valve can open			
			Valve size			
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 10. 7		NO	10.0	7.7	9.7	6.3
Figure 11. 8	6	NO	10.0	6.3	9.9	6.6
Figure 12. 9	6	NC	10.0	9.0	10.0	6.9
Figure 13. 10		NC	10.0	6.8	9.1	6.1

Shut-off and change-over valves with high pressure actuator option

			Max. pressure in bar against which the valve can open			
			Valve size			
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
Figure 4. 1		NO	10.0	10.0	-	-
Figure 5. 2	6	NO	10.0	10.0	-	-
Figure 6. 3	6	NC	10.0	10.0	5.0	3.0
Figure 7. 4		NC	10.0	10.0	10.0	7.0

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®.

TECHNICAL DATA

Temperature	
Max. product pressure in tank:	750 kPa (7.5 bar) if max. 20°C
	650 kPa (6.5 bar) if max. 100°C
	450 kPa (4.5 bar) if max. 150°C
Temperature range:	-10°C to +140°C (EPDM)
Pressure	
Max. product pressure in pipeline:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	500 to 700 kPa (5 to 7 bar)

Valve Body Combinations



PHYSICAL DATA

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

Options

- Male parts or clamp liners in accordance with required standard.
- Weld ends or connection types other than Tri-Clamp.
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- Product wetted seals in HNBR or FPM.
- Plug seals HNBR, FPM or TR2 plug (floating PTFE design).
- High pressure actuator.
- Long stroke actuator (not available for Reverse Acting version).
- Maintainable actuator.
- External surface finish bright.



Note!

For further details, see instruction ESE00305.

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.
- Tangential valve.

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (mm)

Size	51 mm	63.5 mm	76.1 mm	101.6 mm	DN 50	DN 65	DN 80	DN 100
A ₁	426	439	479	503	429	445	487	506
A ₂	393	406	446	470	396	412	454	473
A ₃	368	381	416	440	371	387	424	443
A ₄	390	403	443	467	393	409	451	470
A ₅	364	377	412	436	367	383	420	439
C	30	30	30	30	30	30	30	30
OD	51	63.5	76.1	101.6	53	70	85	104
ID	47.8	60.3	72.9	97.6	50	66	81	100
t	1.6	1.6	1.6	2	1.5	2	2	2
E	61	81	86	119	62	82	87	120
E ₁	67	73	79	92	68	76	84	93
F ₁	25	25	30	30	25	25	30	30

Size	51	63.5	76.1	101.6	DN	DN	DN	DN
	mm	mm	mm	mm	50	65	80	100
F ₂	26	26	31	31	26	26	31	31
H	114.9	114.9	154.3	154.3	114.9	114.9	154.3	154.3
J	148	163	178	198	148	163	178	198
S	16	16	21	21	16	16	21	21
M/ISO clamp	21	21	21	21	-	-	-	-
M/DIN clamp	-	-	-	-	21	28	28	28
M/DIN male	-	-	-	-	23	25	25	30
M/SMS male	20	24	24	35	-	-	-	-
Weight (kg)								
Standard	7.1	8.3	13.3	15.9	7.1	8.5	13.8	15.9
Reverse Acting	7.2	8.4	13.5	16.1	7.2	8.6	14	16

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)

1) For exact A₁ - A₄ dimensions, please refer to informations in Anytime configurator.

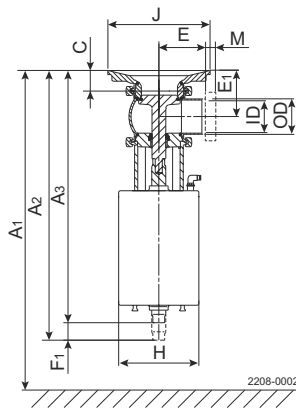


Figure 1. Standard

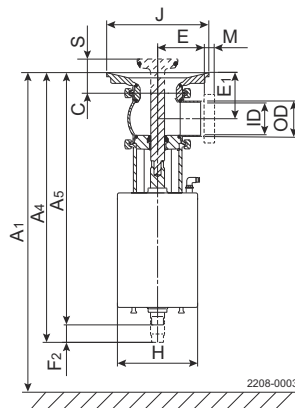


Figure 2. Reverse Acting



Figure 3. PTFE plug seal (TR2)

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.

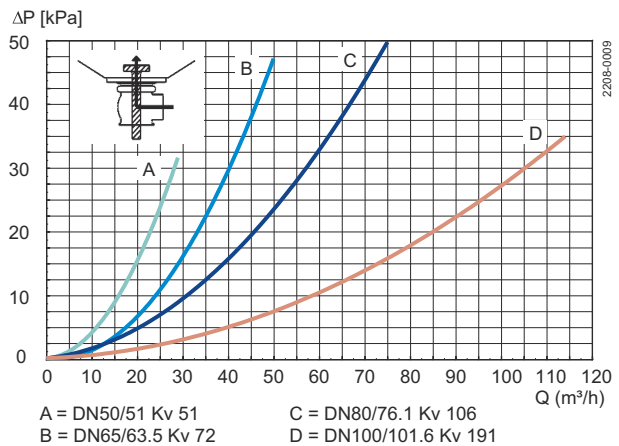
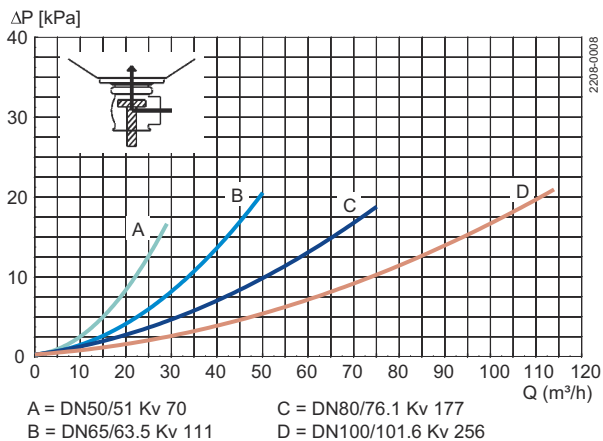
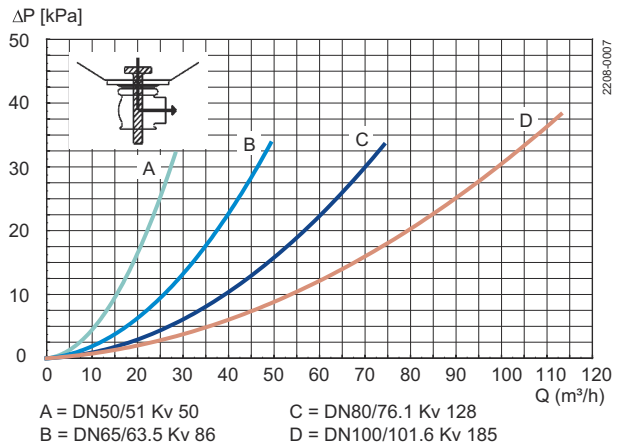
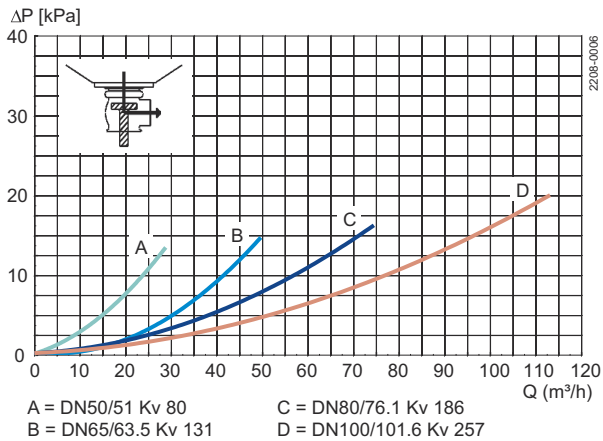
Air Connections Compressed air:

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

Actuator function

Air consumption (litres free air) for one stroke	
DN50-65 DN/ OD 51-63.5 mm	DN80100 DN/ OD 76.1101.6 mm
0.5 x air pressure [bar]	1.3 x air pressure [bar]

Pressure drop/capacity diagrams



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:

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

Where:

Q = Flow in m³/h

Kv = m³/h at a pressure drop of 1 bar (see table above)

Δ p = Pressure drop in bar over the valve

Where:

Q = Flow in m³/h

Kv = m³/h at a pressure drop of 1 bar (see table above)

Δ p = Pressure drop in bar over the valve

2.5" shut-off valve, where Kv = 111 (see table above)

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

$$40 = 111 \times \sqrt{\Delta p}$$

$\Delta p = \left(\frac{40}{111}\right)^2 = 0.13 \text{ bar}$

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

Pressure data for Unique Single Seat Valve Tank Outlet



Figure 4. 1

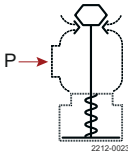


Figure 5. 2

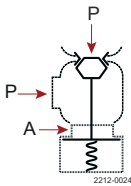


Figure 6. 3

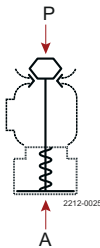


Figure 7. 4

A = Air

P = Product pressure

Shut fully closed

		Max. pressure in bar without leakage at the valve seat			
Actuator / Valve body combination and direction of pressure		Valve size			
		DN50	DN 65	DN 80	DN 100
		DN/OD	DN/OD	DN/OD	DN/OD
		51 mm	63.5 mm	76.1 mm	101.6 mm
1		7.2	4.2	6.4	4.2
2		8.4	4.5	6.8	4.4
		Max. pressure in bar against which the valve can open			
Actuator / Valve body combination and direction of pressure		Valve size			
		DN50	DN 65	DN 80	DN 100
		DN/OD	DN/OD	DN/OD	DN/OD
		51 mm	63.5 mm	76.1 mm	101.6 mm
3	Air pressure (bar)	10.0	9.0	10.0	6.9
4	6	10.0	8.3	9.9	6.6

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.

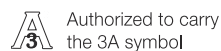
Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.



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®.

Certificates



Authorized to carry
the 3A symbol

TECHNICAL DATA

Temperature

Temperature range:	-10 °C to +140 °C (EPDM)
--------------------	--------------------------

Pressure

Max. product pressure:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	500 to 700 kPa (5 - 7 bar)

Actuator function

- Pneumatic downward movement, spring return
- Pneumatic upward movement, spring return
- Pneumatic upward and downward movement (A/A)

PHYSICAL DATA

Materials

Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 0.8 µm
Product wetted seals:	EPDM
Other seals:	NBR
Plug seal:	TR2 (floating PTFE design)

Options

- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic
- Product wetted seals in HNBR/NBR or FPM
- External surface finish bright



Note!

For further details, see instruction ESE00608.

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.

- Single seat valve
- Reverse acting valve
- Long stroke valve
- Manually operated valve
- Aseptic valve

Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (mm)

	Nominal Size			
	DN/OD 51 mm	DN/OD 63.5 mm	DN/OD 76.1 mm	DN/OD 101.6 mm
A	440	456	560	620
C	200	235	264	321
ID	47	60	73	97
F ₁	50	50	67	67
H	115	115	156	156
Weight (kg)	8.6	11.1	18.6	27.1

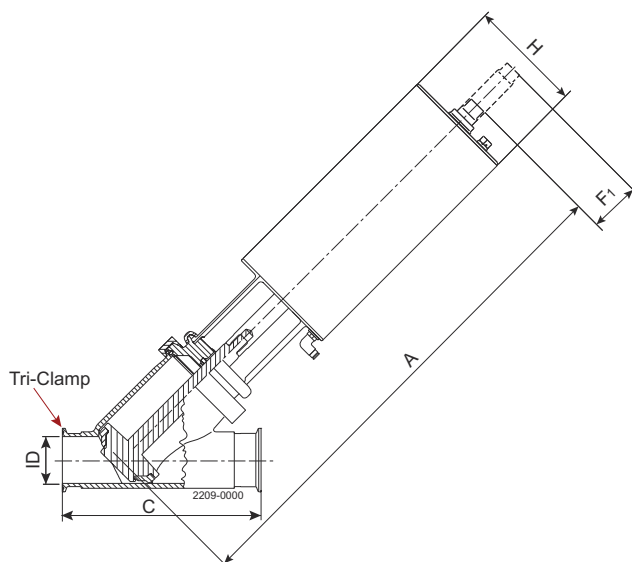


Figure 1. Y-body valve

Please note!

Opening/closing time will be affected by the following:

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

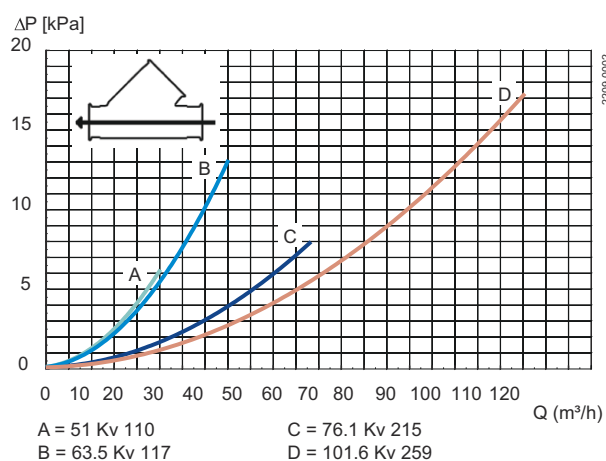
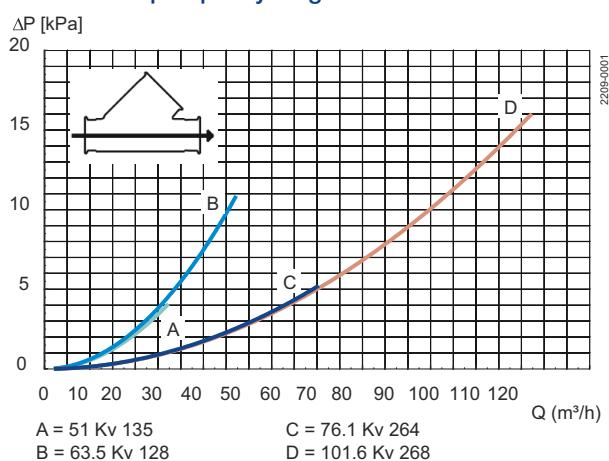
Air Connections Compressed air:

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

Air Consumption (Litres free air) for one stroke

Size	DN/OD	DN/OD
	51 - 63.5 mm	76.1 - 101.6 mm
NO and NC	0.8 x air pressure [bar]	2 x air pressure [bar]
A/A	1.4 x air pressure [bar]	3.9 x air pressure [bar]

Pressure drop/capacity diagrams



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 in m³/h.

Kv = m³/h at a pressure drop of 1 bar (see table above).

Δ p = Pressure drop in bar over the valve.

Where

Q = Flow in m³/h.

Kv = m³/h at a pressure drop of 1 bar (see table above).

Δ p = Pressure drop in bar over the valve.

2.5" shut-off valve, where Kv = 111 (See table above).

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

$$40 = 111 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{40}{111} \right)^2 = 0.13 \text{ bar}$$

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

Pressure data for Unique Single Seat Valve Y-body

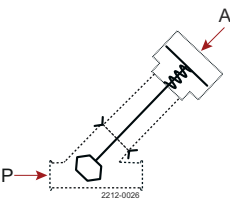


Figure 2. 1

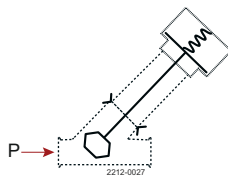


Figure 3. 2

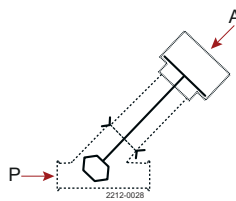


Figure 4. 3

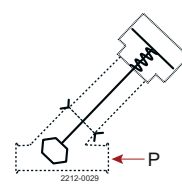


Figure 5. 4

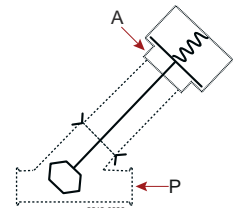


Figure 6. 5

A = Air

P= Product pressure

			Max. pressure in bar against which the valve can open.			
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size			
			DN50	DN 65	DN 80	DN 100
			DN/OD 51 mm	DN/OD 63.5 mm	DN/OD 76.1 mm	DN/OD 101.6 mm
Figure 2. 1	6	NO	4.9	2.7	3.8	2.1
Figure 3. 2		NO	4.4	2.4	3.8	2.1
Figure 4. 3	6	A/A	10.0	7.1	9.4	5.4

			Max. pressure in bar against which the valve can open.			
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size			
			DN50	DN 65	DN 80	DN 100
			DN/OD 51 mm	DN/OD 63.5 mm	DN/OD 76.1 mm	DN/OD 101.6 mm
Figure 5. 4		NO	9.2	5.1	6.5	3.7
Figure 6. 5	6	NC	9.8	5.4	6.5	3.7

Alfa Laval Unique SSV DN125 and DN150

Single seat valves

Introduction

The Alfa Laval Unique SSV DN125 and DN150 Valves are versatile and reliable pneumatic single seat valves with a single contact surface between the plug and the seat to minimize the risk of contamination.

With a modular, hygienic design, the single seat valve meets the highest process demands in terms of hygiene and safety. Few moving parts ensure high reliability and low maintenance costs. A wide range of optional features enables customization to specific process requirements.

Application

The Alfa Laval Unique SSV DN125 and DN 150 is designed for use in a broad range of hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Cost effective and versatile
- Easily handles highly viscous fluids and large particles
- Durable, long-lasting construction
- Compliant with 3-A and hygienic standards

Standard design

The Alfa Laval Unique SSV DN125 and DN150 range 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 or three working ports and 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. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

To facilitate installation the valve is partially assembled when delivered. The standard valve has weld ends; it is also available with optional fittings. Due to the valve size and weight, the use of support equipment is recommended when handling and installing the valve (see the instruction manual for guidelines). However, Alfa Laval is not able to supply the recommended support equipment.

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



Working principle

The Alfa Laval Unique SSV 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: -10 °C to +140 °C (EPDM)

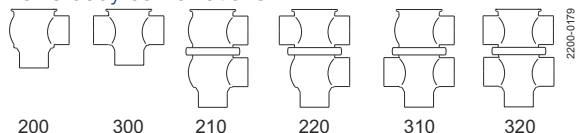
Pressure

Max. product pressure: 1000 kPa (10 bar)

Min. product pressure: Full vacuum

Air pressure, actuator
- Sizes DN125-150 600 to 800 kPa (6 to 8 bar)

Valve body combinations



Actuator function

- Pneumatic downward movement, spring return (NO-lower seat)
- Pneumatic upward movement, spring return (NC-lower seat)

PHYSICAL DATA

Materials

Product wetted steel parts: 1.4401 (316L)

Other steel parts: 1.4301 (304)

Plug stem sizes DN125-150: 1.4401 (316L)

Product wetted seals: EPDM

Other seals: NBR

Options

- Male parts in accordance with required standard
- Control and Indication (ThinkTop)
- Surface roughness, product wetted parts: $R_a \leq 0.8 \mu\text{m}$
- Product wetted seals of NBR or FPM
- Service tools for actuator
- Plug seals NBR/FPM

Dimensions (mm)

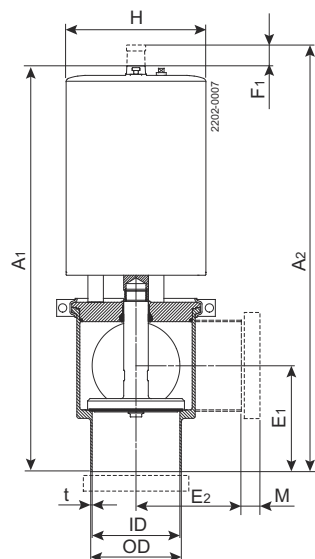


Figure 1. Shut-off

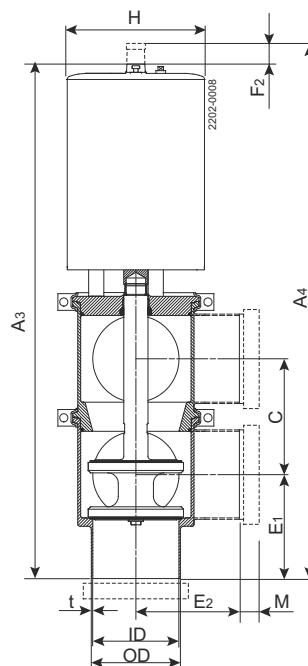


Figure 2. Change-over valve

Nominal size	DIN DN			
	125		150	
	NC	NO	NC	NO
A ₁	571	573	584	586
A ₂	614	618	627	631
A ₃	740	737	777	775
A ₄	781	778	818	816
C	167	167	192	192
OD	129	129	154	154
ID	125	125	150	150
t	2.0	2.0	2.0	2.0
E ₁	150	150	150	150
E ₂	150	150	150	150
F ₁	43	45	43	45
F ₂	41	41	41	41
H	199	199	199	199
M/DIN male	46	46	50	50
Weight (kg) - Shut-off valve	40.3	40.3	40.9	40.9
Weight (kg) - Change-over valve	50	50	51.3	51.3

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.

Actuator function

Air consumption (litres free air) for one stroke		
Size	DN 125-150	DN 125-150
Shut-off / Change-over valve Actuator function	1.5 x Air pressure (bar)	2.2 x Air pressure (bar)
	NC	NO
Shut-off / Change-over valve Actuator function	3.6 x Air pressure (bar)	2.9 x Air pressure (bar)
	NC (Support air for closing)	NO (Support air for opening)

Pressure drop/capacity diagrams

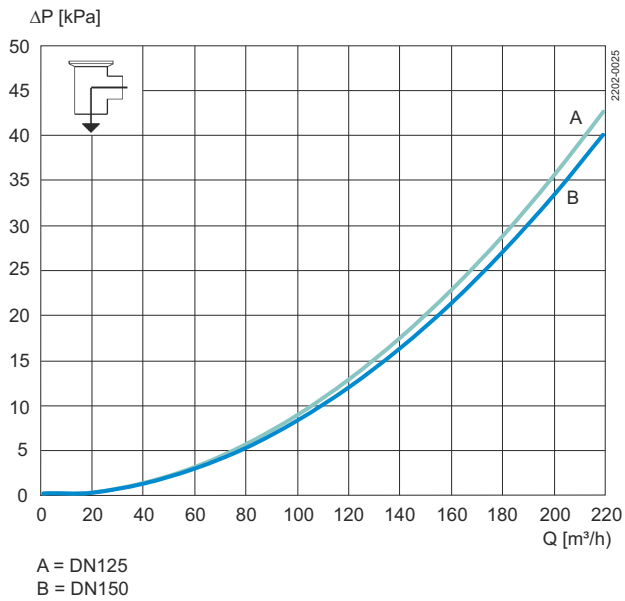


Figure 3. Shut-off

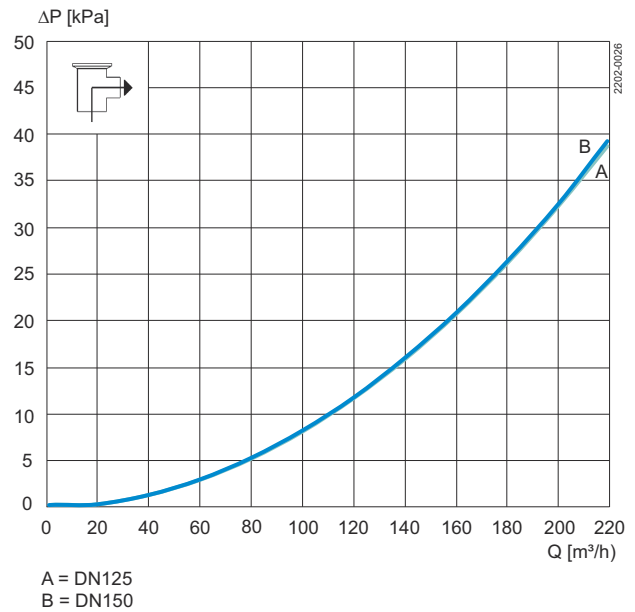


Figure 4. Shut-off

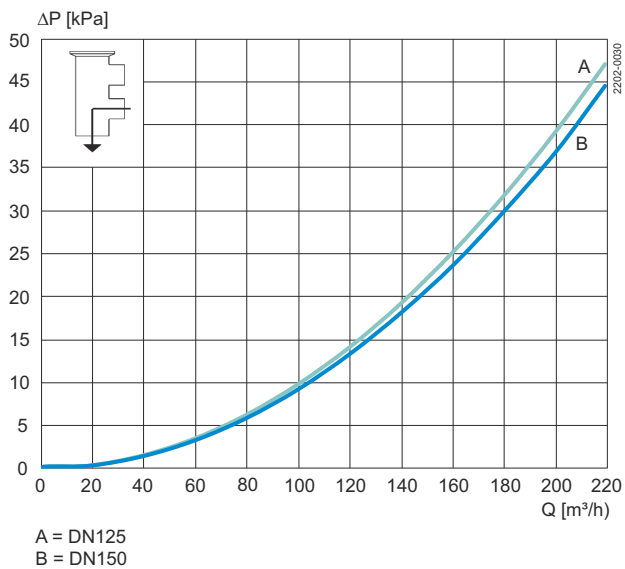


Figure 5. Change-over valve

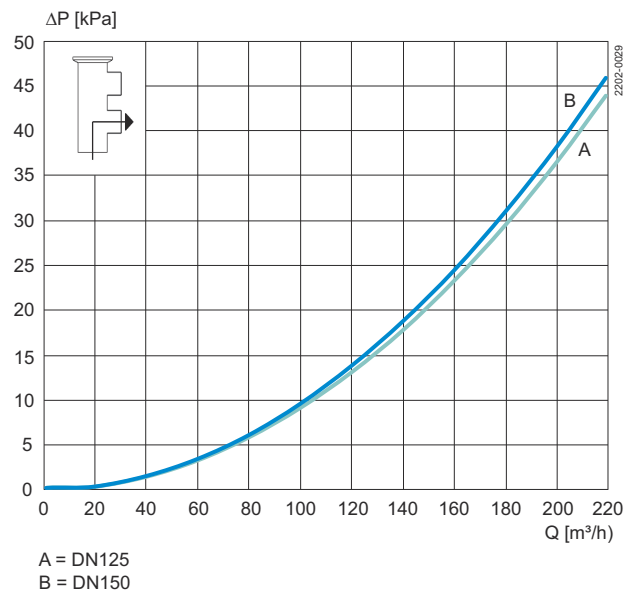


Figure 6. Change-over valve

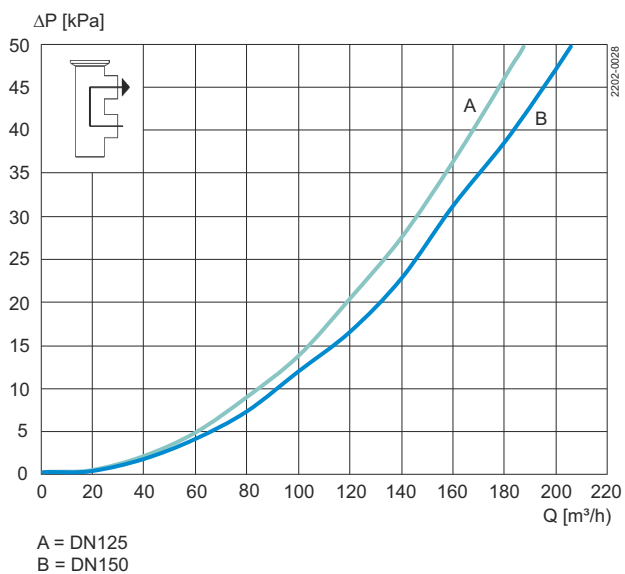


Figure 7. Change-over valve

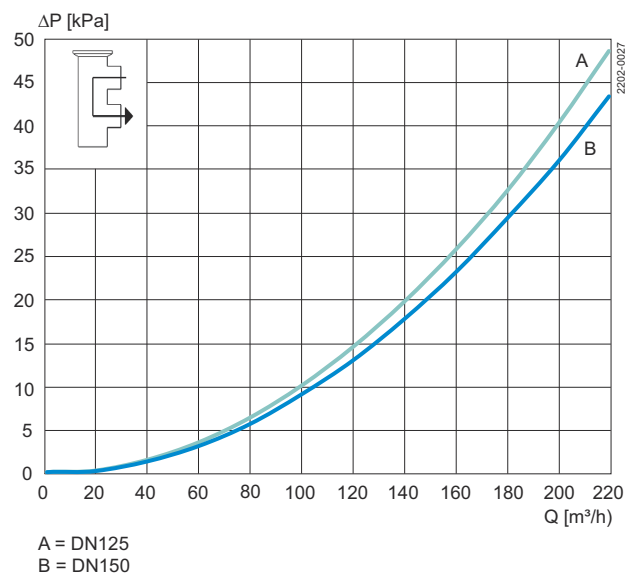


Figure 8. Change-over valve

Pressure data for Unique Single Seat Valve DN125 and DN150

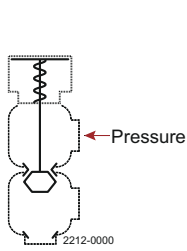


Figure 9. 1

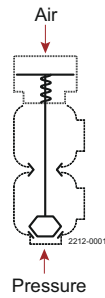


Figure 10. 2

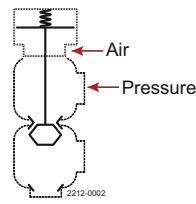


Figure 11. 3

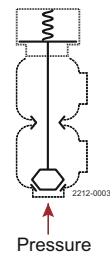


Figure 12. 4

Shut-off and Change-over valves

Actuator / Valve body combination and direction of pressure	Max. pressure without leakage at the valve seat		
	Air pressure (bar)	Actuator type/function	Valve Size DN 125-150
Figure 9. 1		NO	5.2
Figure 10. 2	8	NO	8.7
	6	NO	4.4
Figure 11. 3	8	NC	8.1
	6	NC	3.7
Figure 12. 4		NC	5.2

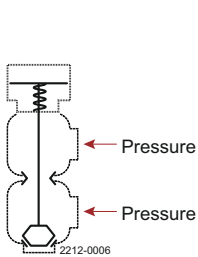


Figure 13. 5

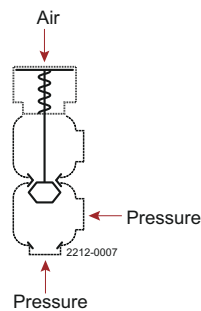


Figure 14. 6

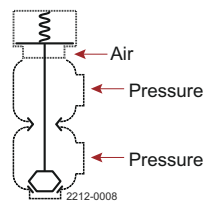


Figure 15. 7

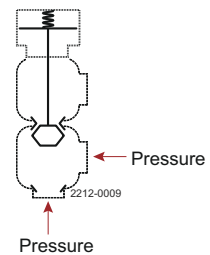


Figure 16. 8

Shut-off and Change-over valves

Actuator / Valve body combination and direction of pressure	Max. pressure in bar against which the valve can open		
	Air pressure (bar)	Actuator type/function	Valve size DN 125-150
Figure 13. 5		NO	8.8
Figure 14. 6	6	NO	8.1
	6	NO	min. 10
Figure 15. 7	6	NC	7.8
Figure 16. 8		NC	8.9

Alfa Laval Unique SSV Manually Operated

Single seat valves

Introduction

The Alfa Laval Unique SSV Manually Operated valve is a versatile, reliable single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination.

Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety. It is built on the well-proven Alfa Laval Unique SSV platform. Few moving parts ensure easy dismantling, high reliability and low maintenance costs. A wide range of optional features, including lockable handles, enables customization to specific process requirements.

Application

The Unique SSV Manually Operated valve is designed for hygienic shutoff, tank outlet or straightforward regulating or dosing purposes across the dairy, food, beverage, brewery and many other industries.

Benefits

- Straightforward reliable design
- Cost effective and highly modular
- Exceptional valve hygiene
- Long service life
- Low total cost of ownership

Standard design

This manually operated single seat valve consists of one or two valve bodies, plug, sealing, crank mechanism, and clamp ring. The plug can be adjusted to a fixed position with a lock screw. Optional lockable handle is available.

The valve can be configured as a shutoff valve with two or three working ports or as a changeover valve with up to five ports. To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The valve seals are optimized for durability and long service life through a defined compression design.

The valve can easily be converted to a pneumatic valve by replacing the crank mechanism with an actuator.

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.



Working principle

The Alfa Laval Unique SSV Manually Operated valve operates manually using a crank mechanism to control pressure and flow through gradual opening and closing.

Certificates



Authorized to carry
the 3A symbol

TECHNICAL DATA

Temperature

Temperature range: -10 °C to +140 °C (EPDM)

Pressure

Max product pressure: 1000 kPa (10 bar)

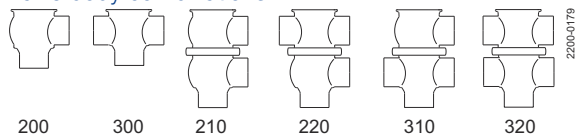
Min. product pressure: Full vacuum

ATEX

Classification II 2 G D¹

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

Valve body combinations



PHYSICAL DATA

Materials

Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 0.8 µm
Other product wetted seals	EPDM

Options

- Male parts or clamp liners in accordance with required standard.
- Product wetted seals in HNBR or FPM
- Plug seal HNBR, FPM or TR2 plug (floating PTFE design - only for Manual Operated Valve)
- External surface finish bright.



Note!

For further details, see instruction ESE00307

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 (mm)

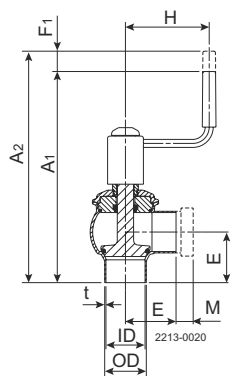


Figure 1. Shut off valve

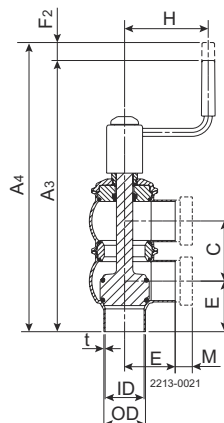


Figure 2. Change-over valve

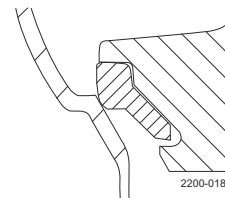


Figure 3. PTFE plug seal (TR2)

Unique Manually Operated Valves

Size	25	38	51	63.5	76.1	101.6	DN	DN	DN	DN	DN	DN
	mm	mm	mm	mm	mm	mm	25	40	50	65	80	100
A ₁ ¹	245	245	259	285	291	337	247	247	260	284	295	338
A ₂ ¹	260	265	284	310	321	367	262	267	285	309	325	368
A ₃ ¹	291	307	332	371	390	460	297	312	336	376	402	464
A ₄ ¹	303	324	354	393	417	487	309	329	358	398	429	491
C	47.8	60.8	73.8	86.3	98.9	123.6	52	64	76	92	107	126
OD	25	38	51	63.5	76.1	101.6	29	41	53	70	85	104
ID	21.8	34.8	47.8	60.3	72.9	97.6	26	38	50	66	81	100
t	1.6	1.6	1.6	1.6	1.6	2	1.5	1.5	1.5	2	2	2
E ₁	50	49.5	61	81	86	119	50	49.5	62	78	87	120
E ₂	50	49.5	61	81	86	119	50	49.5	62	78	87	120
F ₁	15	20	25	25	30	30	15	20	25	25	30	30
F ₂	12	17	22	22	27	27	12	17	22	22	27	27
H	105	105	105	105	105	105	105	105	105	105	105	105
M/ISO clamp	21	21	21	21	21	21	-	-	-	-	-	-
M/DIN clamp	-	-	-	-	-	-	21	21	21	28	28	28
M/DIN male	-	-	-	-	-	-	22	22	23	25	25	30
M/SMS male	20	20	20	24	24	35	-	-	-	-	-	-
Weight (kg)												
Shut off valve	1.8	2.0	2.6	3.6	4.6	7.0	1.9	2.1	2.5	3.7	5.0	6.9
Change-over valve	2.6	3.0	4.2	5.6	7.3	11.4	2.8	3.2	4.2	5.9	8.2	11.2

¹ For exact A1 - A4 dimensions, please refer to informations in Anytime configurator.

Kv-Factors

Valve size	Kv
38mm/DN40	14 ¹ /44
51mm/DN50	75
63.5mm/DN65	106
76.1mm/DN80	171
101.6mm/DN100	250
¹ 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.

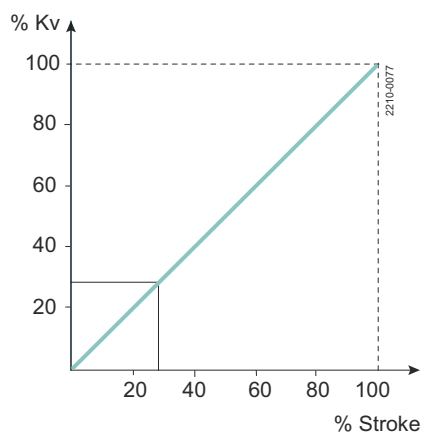


Figure 4. The flow in % of the total flow at a pressure drop of 1 bar

Dimensions (mm) - Unique Manually Regulating Valve

Size	38	51	63.5	76.1	101.6	DN	DN	DN	DN	DN
	mm	mm	mm	mm	mm	40	50	65	80	100
A ₁	176	189	215	221	267	178	191	215	226	269
A ₂	196	214	240	251	297	198	216	240	256	299
OD	38	51	63.5	76.1	101.6	41	53	70	85	104
ID	34.8	47.8	60.3	72.9	97.6	38	50	66	81	100
t	1.6	1.6	1.6	1.6	2	1.5	1.5	2	2	2
E ₁	49.5	61	81	86	119	49.5	62	78	87	120
E ₂	49.5	61	81	86	119	49.5	62	78	87	120
F ₁	20	25	25	30	30	20	25	25	30	30
H	80	80	80	80	80	80	80	80	80	80
M/ISO clamp	21	21	21	21	21	-	-	-	-	-
M/DIN clamp	-	-	-	-	-	21	21	28	28	28
M/DIN male	-	-	-	-	-	22	23	25	25	30
M/SMS male	20	20	24	24	35	-	-	-	-	-
Weight (kg) - Shut-off valve	2.1	2.9	4.0	5.4	8.2	2.2	2.9	4.1	5.9	8.1

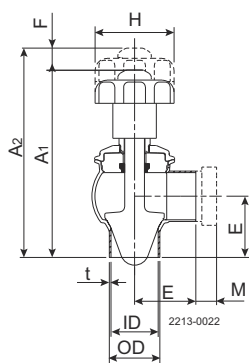


Figure 5. Dimensions

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:	-10 °C to +140 °C (EPDM)
Max. sterilization temperature (<1 min):	150 °C/380 kPa (3.8 bar)

Pressure

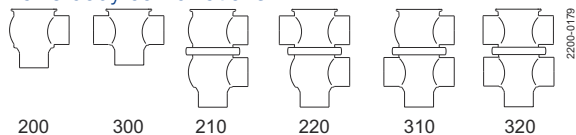
Pressure range:	0-800 kPa (0-8 bar)
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Note!

Vacuum is not recommended in aseptic applications.

Valve body combinations



PHYSICAL DATA

Materials

Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	Bright (polished), Ra < 0.8 µm
Product wetted seal:	EPDM
Other seals:	HNBR
Diaphragm:	PTFE (Product wetted side) / EPDM

Options

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



Note!

For further details, see Unique SSV Aseptic Manually Operated instruction manual.

Other valves in the same basic design

The Unique SSV valve range includes several purpose built valves. Please use the Alfa Laval Anytime configurator for full access to all models and options.

Pressure drop/capacity diagram:

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

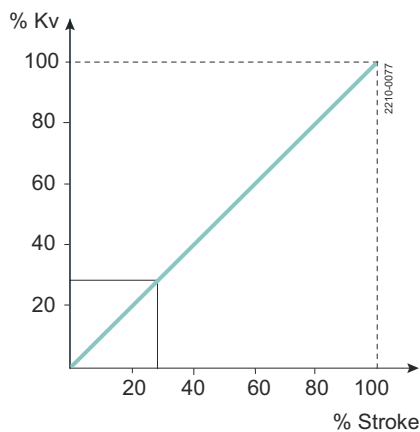
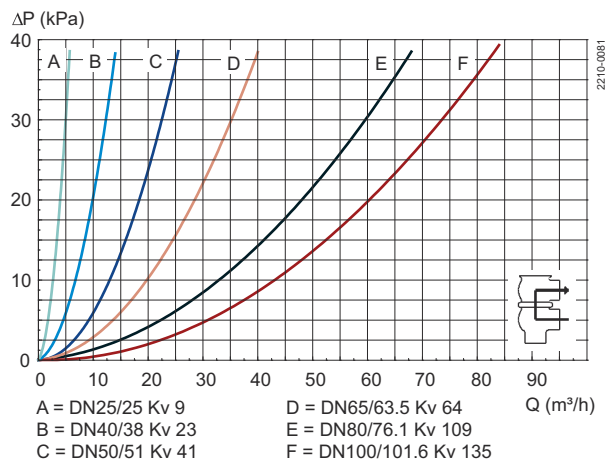
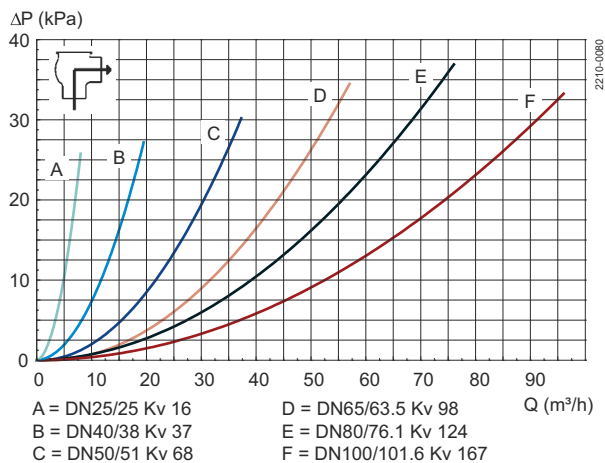
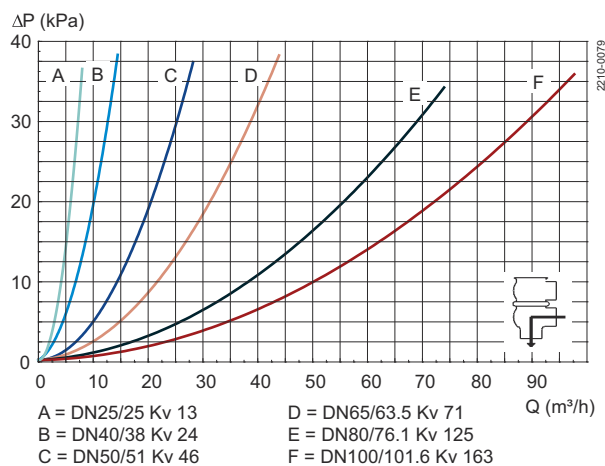
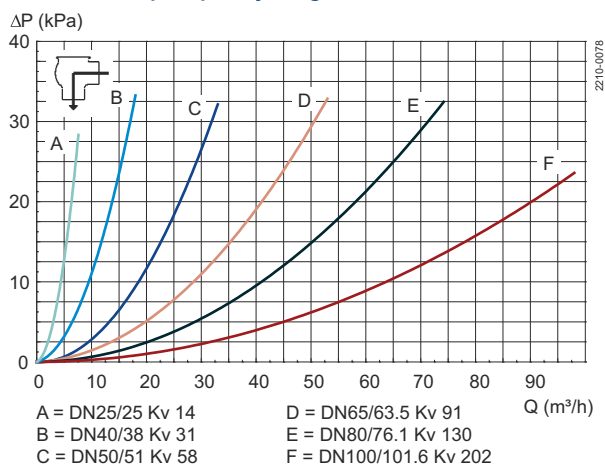
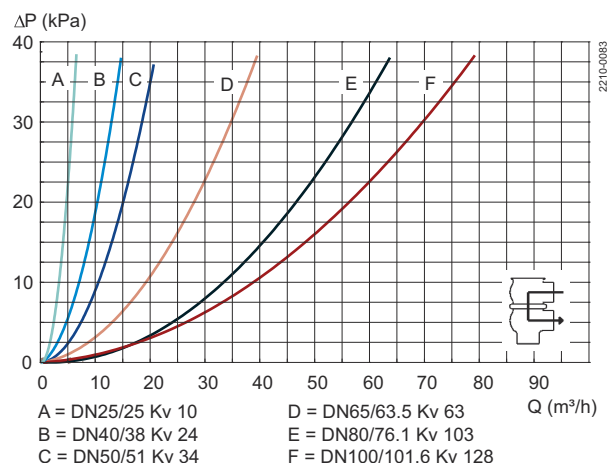
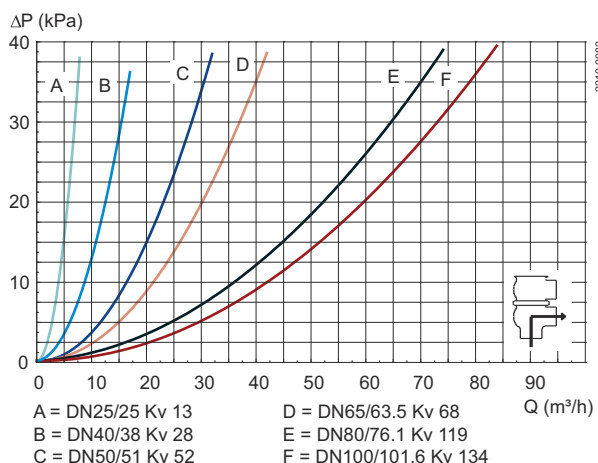


Figure 1. The flow in % of the total flow at a pressure drop of 1 bar

Pressure drop/capacity diagrams





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 (mm)

Dimensions for Unique SSV aseptic manually operated valve

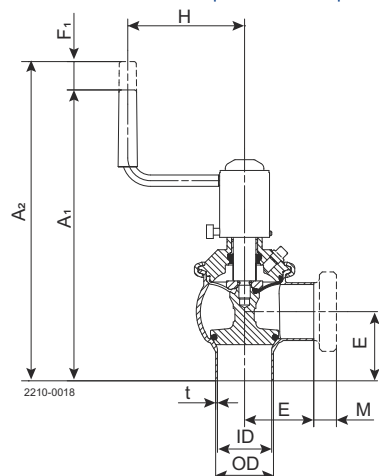


Figure 2. Shut-off valve

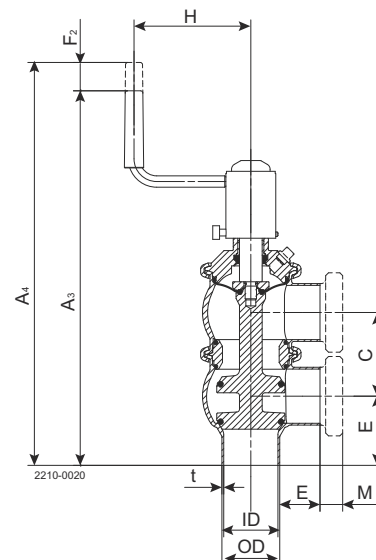


Figure 3. Change-over valve

Size	25	38	51	63.5	76.1	101.6	DN	DN	DN	DN	DN	DN
	mm	mm	mm	mm	mm	mm	25	40	50	65	80	100
A1	235	242	258	284	293	344	247	245	260	290	301	345
A2	245	252	272	298	310	360	262	255	274	304	318	362
A3	284	303	331	369	392	466	284	309	336	380	408	470
A4	293	312	343	382	407	482	293	318	348	393	423	486
C	47.8	60.8	73.8	86.3	98.9	123.6	52	64	76	92	107	126
OD	25	38	51	63.5	76.1	101.6	29	41	53	70	85	104
ID	21.8	34.8	47.8	60.3	72.9	97.6	26	38	50	66	81	100
t	1.6	1.6	1.6	1.6	1.6	2	1.5	1.5	1.5	2	2	2
E	50	49.5	61	81	86	119	50	49.5	62	78	87	120
F1	11	11	14	15	17	17	11	11	14	15	17	17
F2	9	9	12	13	15	15	9	9	12	13	15	15
H	105	105	105	105	105	105	105	105	105	105	105	105
M/ISO clamp	21	21	21	21	21	21						
M/DIN clamp							21	21	21	28	28	28
M/DIN male							22	22	23	25	25	30
M/SMS male	20	20	20	24	24	35						

Size	25	38	51	63.5	76.1	101.6	DN	DN	DN	DN	DN	DN
	mm	mm	mm	mm	mm	mm	25	40	50	65	80	100
Weight (kg)												
Shut off valve:	1.8	2.0	2.6	3.6	4.6	7.0	1.9	2.1	2.5	3.7	5.0	6.9
Change-over valve:	2.6	3.0	4.2	5.6	7.3	11.4	2.8	3.2	4.2	5.9	8.2	11.2

Dimensions for Unique SSV aseptic manually tank outlet valve

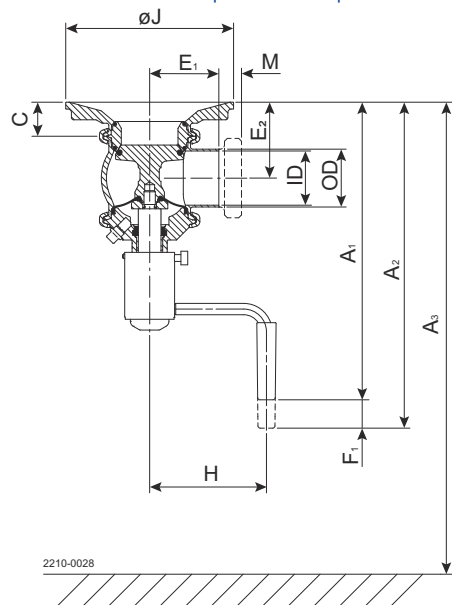


Figure 4. Shut-off valve

Size	51	63.5	76.1	101.6	DN	DN	DN	DN
	mm	mm	mm	mm	50	65	80	100
A1	264	276	283	309	266	282	298	311
A2	276	289	303	328	278	295	311	331
A3	340	380	390	440	340	385	400	440
C	30	30	30	30	30	30	30	30
OD	51	63.5	76.1	101.6	53	70	85	104
ID	47.8	60.3	72.9	97.6	50	66	81	100
t	1.6	1.6	1.6	2	1.5	2	2	2
E1	61	81	86	119	62	78	87	120
E2	67	73	79.5	92	68	76.5	83.5	93
F	14	15	17	17	14	15	17	17
H	105	105	105	105	105	105	105	105
øJ	148	163	178	198	148	163	178	198
M/ISO clamp	21	21	21	21				
M/DIN clamp					21	28	28	28
M/DIN male					23	25	25	30
M/SMS male	20	24	24	35				
Weight (kg)								
Shut off valve:	3.9	5.1	6.3	8.8	3.8	5.2	6.7	8.8

Kv-Factors

Valve size	Kv
51 mm/DN50	60
63.5 mm/DN65	95
76.1 mm/DN80	125
101.6 mm/DN100	180

$Kv = m^3/h$ at a pressure drop of 1 bar.

For other pressure drops than 1 bar the flow can be calculated with the following formula:

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

Where

Q = Flow in m^3/h

Kv = See above

Δp = Pressure drop in bar over the valve

Example:

How to calculate the pressure drop for an ISO 63.5 tank outlet valve if the flow is 40 m³/h

ISO 63.5 tank outlet valve where Kv = 95 (See table above)

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

$$40 = 95 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{40}{95}\right)^2 = 0.18 \text{ bar}$$

Dimensions for Unique SSV aseptic manual regulating valve

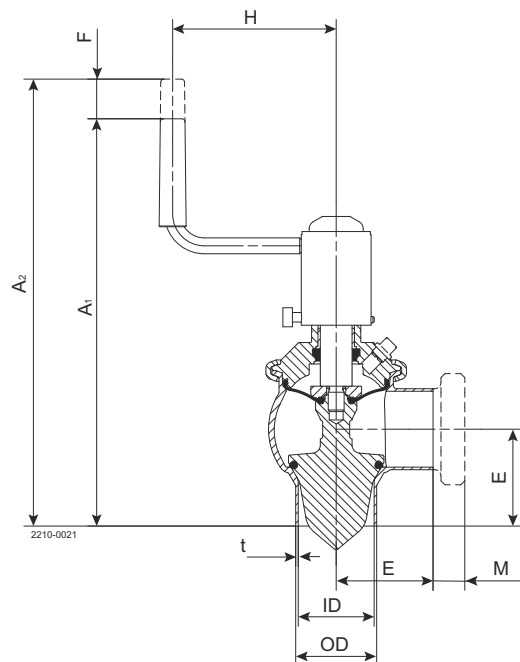


Figure 5. Shut-off valve

Size	38	51	63.5	76.1	101.6	DN	DN	DN	DN	DN
	mm	mm	mm	mm	mm	40	50	65	80	100
A1	242	258	284	293	344	245	260	290	301	345
A2	252	272	298	310	360	255	274	304	318	362
OD	38	51	63.5	76.1	101.6	41	53	70	85	104
ID	34.8	47.8	60.3	72.9	97.6	38	50	66	81	100
t	1.6	1.6	1.6	1.6	2	1.5	1.5	2	2	2
E	49.5	61	81	86	119	49.5	62	78	87	120
F	11	14	15	17	17	11	14	15	17	17
H	105	105	105	105	105	105	105	105	105	105
M/ISO clamp	21	21	21	21	21					
M/DIN clamp						21	21	28	28	28
M/DIN male						22	23	25	25	30
M/SMS male	20	20	24	24	35					
Weight (kg)										
Shut-off valve	2.1	2.9	4.0	5.4	8.2	2.2	2.9	4.1	5.9	8.1

Kv-Factors

Valve size	Kv
38 mm/DN40	21
51 mm/DN50	40
63.5 mm/DN65	90
76.1 mm/DN80	90
101.6 mm/DN100	130

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

Δp = Pressure drop in bar over the valve

Example:

Plug Kv 40

Q to be calculated at $\Delta p = 2$ bar:

$$Q = 40 \times \sqrt{2} = 56 \text{ m}^3/\text{h}$$

or at 50% stroke:

$$Q = 0.5 \times 56 = 28 \text{ m}^3/\text{h}$$

Alfa Laval Unique SSV Manually Regulating RF

Single seat valves

Introduction

The Alfa Laval Unique SSV Manually Regulating RF 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 Regulating RF is designed for straightforward fine regulating or dosing purposes in hygienic applications 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 regulating single seat valve consists of one valve body, plug, sealing, crank mechanism, and clamp ring. The plug can be adjusted to a fixed position with a lock screw. The valve can easily be converted to a pneumatic valve by replacing the crank mechanism with an actuator, sealing element and plug.

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 Regulating RF operates manually using a crank mechanism to control pressure and flow through gradual opening and closing.



TECHNICAL DATA

Temperature

Temperature range: -10°C to +140°C (EPDM)

Pressure

Max product pressure: 1000 kPa (10 bar)

Min. product pressure: Full vacuum

ATEX

Classification II 2 G D¹

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

Valve body combinations



PHYSICAL DATA

Materials

Product wetted steel parts: 1.4404 (316L)

Other steel parts: 1.4301 (304)

External surface finish: Semi-bright (blasted)

Internal surface finish: Bright (polished), Ra < 0.8 µm

Other product wetted seals: EPDM

Options

- Product wetted seals in HNBR or FPM.

Pressure drop/capacity diagrams

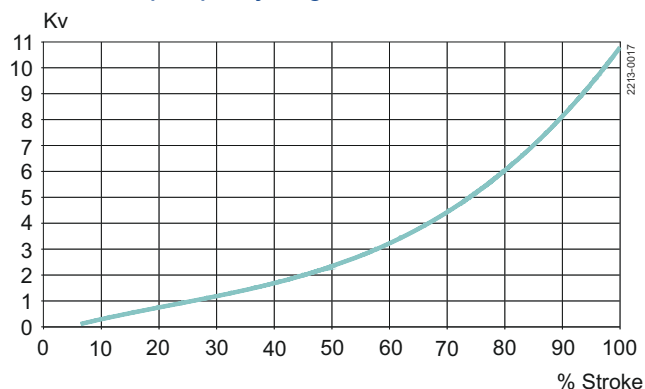


Figure 1. The flow in % of the total flow at a pressure drop of 1 bar

Kv-Factors

Valve size	Kv
38 mm	11

* optional

$Kv = m^3/h$ at a pressure drop of 1 bar

For other pressure drops than 1 bar the flow can be calculated with the following formula:

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

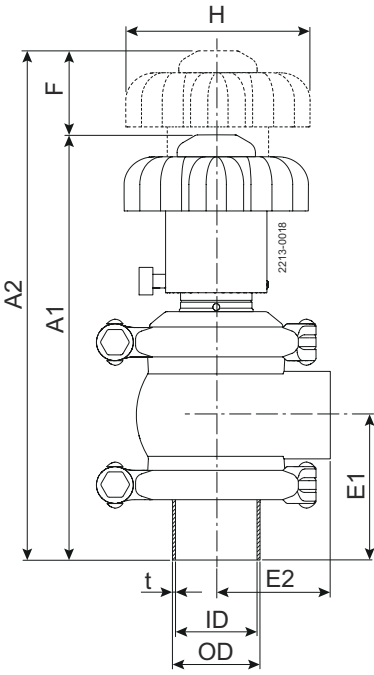
Where

Q = Flow in m^3/h

Kv = See above

Δp = Pressure drop in bar over the valve

Dimensions (mm)



Unique Manually Regulating Valve

Size	38 mm
A ₁	178.8
A ₂	205.4
OD	38
ID	34.8
t	1.6
E ₁	62.9
E ₂	49.5
F ₁	26.6
H	80

Alfa Laval Unique SSSV

Single seat valves

Introduction

The Alfa Laval Unique SSSV is a versatile, reliable and small pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination.

Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety. Built as the well-proven Alfa Laval Unique SSV platform, it is fast-acting and handles dosing and small flow rates in hygienic applications.

Few moving parts ensure easy maintenance, high reliability, and low total cost of ownership. A wide range of optional features enables customization to specific process requirements.

Application

This Unique SSSV is designed for uninterrupted production or dosing of small product flows in a broad range of hygienic applications across the dairy, food, brewery, beverage, and many other industries.

Benefits

- Exceptional valve hygiene and durability
- Superior cleanability – smooth inner valve body without crevices
- Extended seal life due to the defined seal compression
- Enhanced product safety due to the static seal leak detection
- Protection against full vacuum due to the double lip seal
- Fast-acting

Standard design

The Alfa Laval Unique SSSV is available in a one- or two-body configuration, with easy-to-configure valve bodies, elastomer-free PVDF plugs, static sealing, actuator or manual mechanism, and clamp rings. It is available in DN/OD 12.7 mm (½") and 19 mm (¾") versions.

The valve is assembled when delivered. Valve housing is either supplied with standard weld or clamp ends, and it is assembled by means of clamp rings. The piston and valve plug in PVDF have threaded connections.

The Unique SSSV can be configured as a manually operated valve or a pneumatic valve. It can also be configured as a



shutoff valve or as a changeover valve, each with two to five ports.

The valve seals are optimized for durability and long service life through a defined compression design. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

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

Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

Working principle

The Alfa Laval Unique SSSV is operated either manually by means of cranking mechanism or by means of compressed air from a remote location. For a pneumatic valve, the actuator smooths operation and protects process lines against pressure peaks. The valve can be controlled using an Alfa Laval ThinkTop®.

Certificates



Authorized to carry
the 3A symbol

TECHNICAL DATA

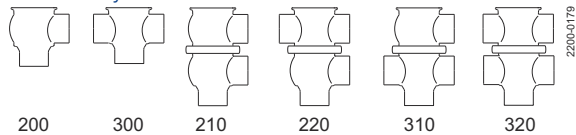
Temperature

Temperature range:	-10 °C to +140 °C (EPDM)
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Pressure

Max. product pressure:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Air pressure:	100 to 700 kPa (1 to 7 bar)

Valve Body Combinations



Actuator function

- Pneumatic downward movement, spring return (NO)
- Pneumatic upward movement, spring return (NC)
- Manually operated

Air consumption (litres free air) for one stroke

Size:	12.7-19 mm
Stop valve/Change-over valve:	0.06 x Air pressure (bar)
Actuator function:	NO and NC

PHYSICAL DATA

Materials

Product wetted steel parts:	Acid-resistant steel 1.4404 (316L)
Other steel parts:	Stainless steel 1.4307 (304L)
External surface finish:	Semi-bright (blasted)
Internal surface finish:	$Ra \leq 0.5\mu m$
Product wetted seals:	EPDM
Other seals:	NBR
Plug:	PVDF

OPTIONS

- Adapter for IndiTop, ThinkTop and ThinkTop Basic
- Control and Indication: IndiTop, ThinkTop or ThinkTop Basic
- Product wetted seals of HNBR or FPM
- Stainless steel seal disc replacing standard lip seal
- Clamp with wingnut
- Clamp connection



Note!

For further details, see also ESE01563 and instruction IM 70860

Dimensions (mm)

Valve dimensions

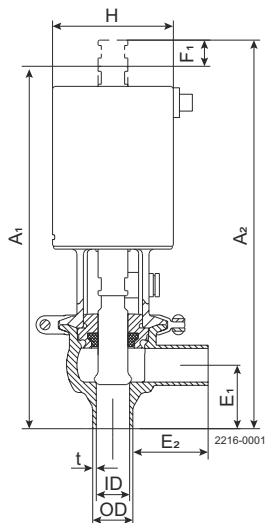


Figure 1. Stop valve

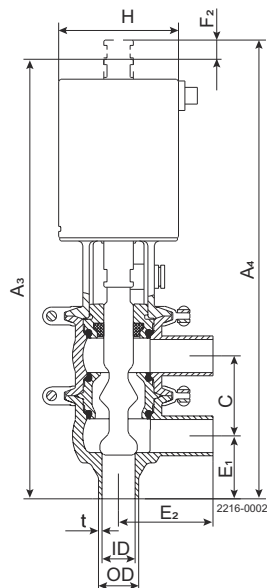


Figure 2. Change over valve

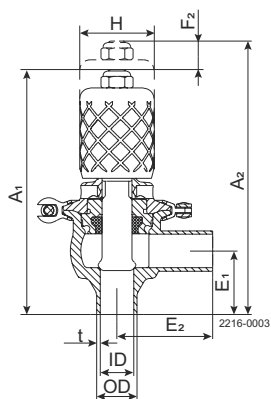


Figure 3. Manual stop valve

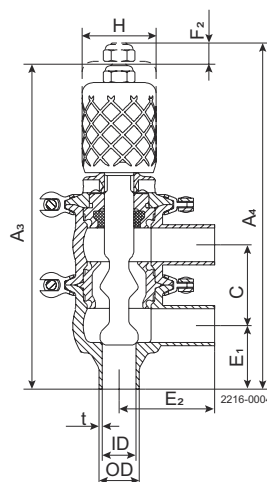


Figure 4. Manual change-over valve

	Remote-controlled		Manually operated	
Nominal	DN/OD		DN/OD	
Size	12.7mm	19mm	12.7mm	19mm
A ₁	172.2	171.2	109.7	112.7
A ₂	179.2	182.2	116.7	123.7
A ₃	200.2	209.2	141.7	150.7
A ₄	207.2	220.2	148.7	161.7
C	32.3	38.1	32.3	38.1
OD	12.7	19.0	12.7	19.0
ID	9.5	15.8	9.5	15.8
t	1.6	1.6	1.6	1.6
E ₁	29.8	29.9	29.8	29.9
E ₂	45.0	45.0	45.0	45.0
F ₁	7.0	11.0	7.0	11.0
F ₂	7.0	11.0	7.0	11.0
H	57.0	57.0	35.0	35.0
Weight (kg) - Stop valve	1.07	1.10	0.5	0.53
Weight (kg) - Change-over valve	1.36	1.41	0.8	0.85

(900-233)

Please note!

Opening/closing time will be affected by the following:

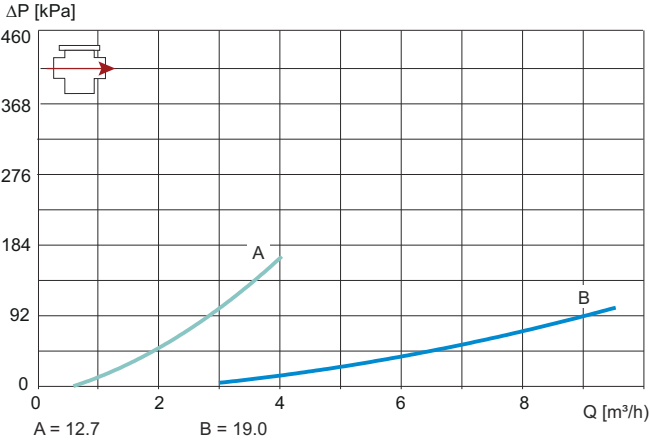
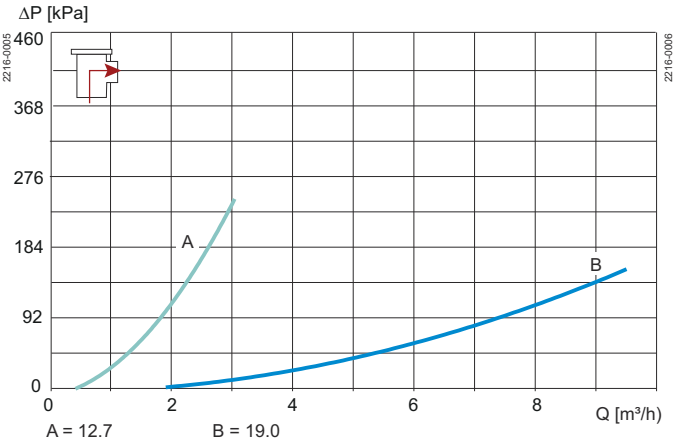
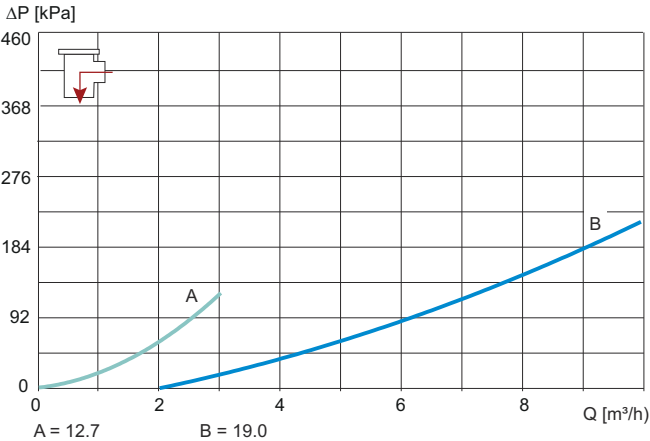
- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure.

Air Connections Compressed air:

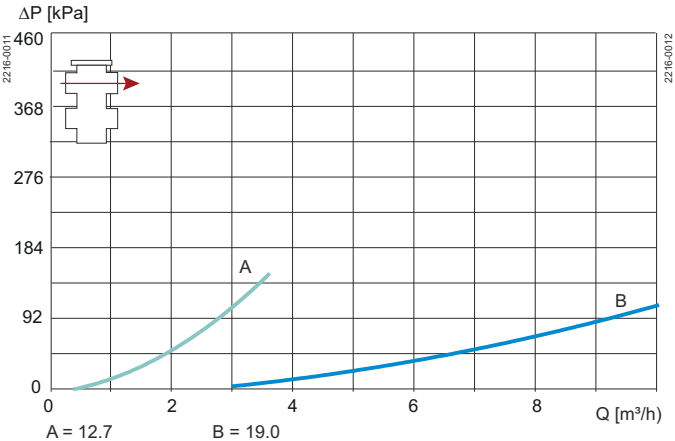
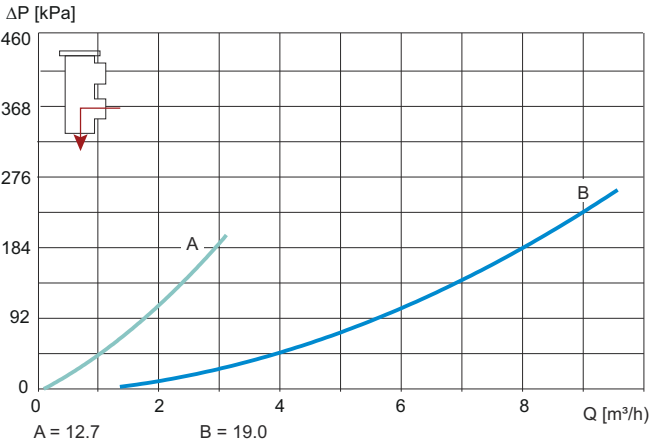
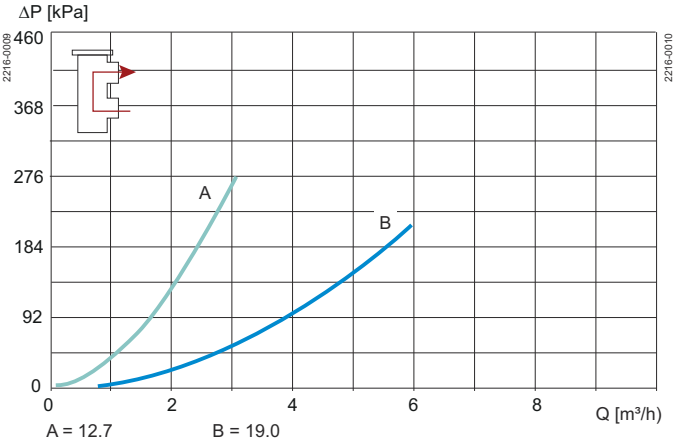
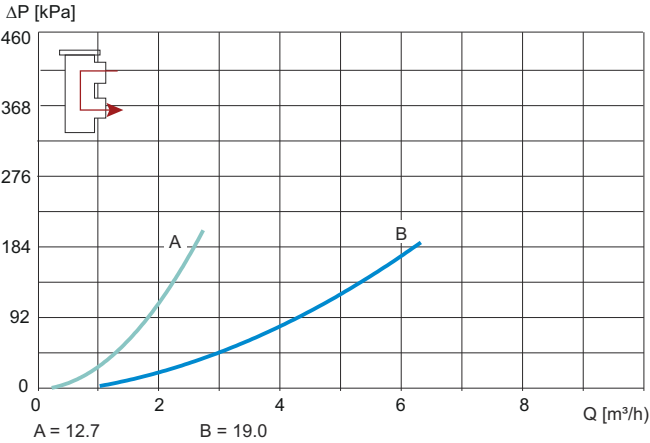
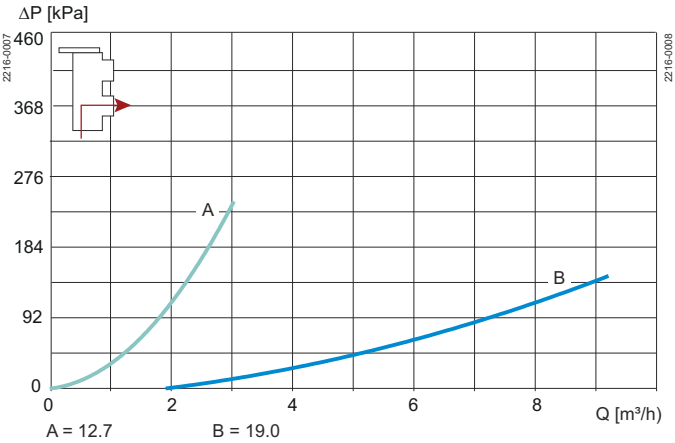
R 1/8" (BSP), internal thread

Pressure drop/capacity diagrams

Stop valve



Change-over valve





Note!

For the diagrams the following applies:

Medium: Water (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 in m³/h.

Kv = m³/h at a pressure drop of 1 bar (see table above).

Δ p = Pressure drop in bar over the valve.

Where Q = Flow in m³/h.

Kv = m³/h at a pressure drop of 1 bar (see table above).

Δ p = Pressure drop in bar over the valve.

2.5" shut-off valve, where Kv = 111 (See table above).

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

$$40 = 111 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{40}{111} \right)^2 = 0.13 \text{ bar}$$

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

Pressure data for Unique Small Single Seat Valve

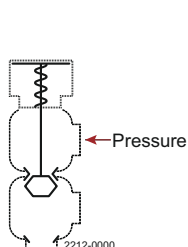


Figure 5. 1

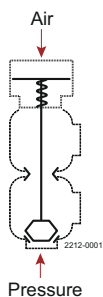


Figure 6. 2

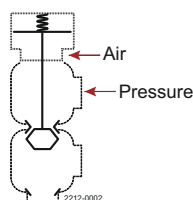


Figure 7. 3

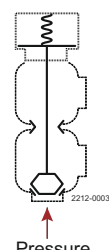


Figure 8. 4

Shut-off and change-over valves

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Max. pressure in bar without leakage at the valve seat	
			Valve size	
			DN/OD 12.7 mm	DN/OD 19 mm
Figure 5. 1	2	NO	Min. 10.0	Min. 10.0
Figure 6. 2	3	NO	2.0	-
	4	NO	Min. 10.0	3.0
Figure 7. 3	2	NC	9.0	-
	3	NC	Min. 10.0	Min. 10.0
Figure 8. 4		NC	Min. 10.0	Min. 10.0

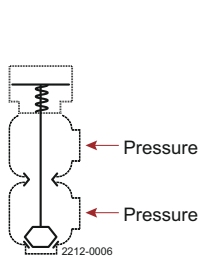


Figure 9. 5

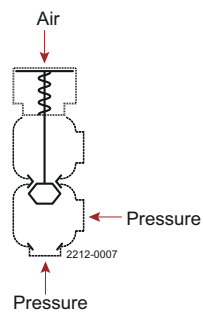


Figure 10. 6

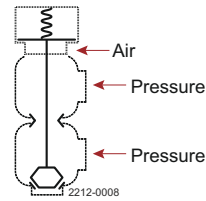


Figure 11. 7

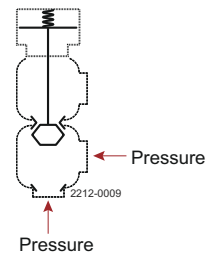


Figure 12. 8

Stop and change-over valve

Actuator / Valve body combination and direction of pressure	The table shows the approx. static pressure (p) in bar against which the valve can open			
	Air pressure (bar)	Plug position	Valve size	
			DN/OD 12.7 mm	DN/OD 19 mm
Figure 9. 5		NO	Min. 10.0	Min. 10.0
Figure 10. 6	2	NO	9.0	-
	3	NO	Min. 10.0	6.0
	4	NO	-	Min. 10.0
Figure 11. 7	2	NC	Min. 10.0	Min. 10.0
Figure 12. 8		NC	Min. 10.0	Min. 10.0

Alfa Laval LKAP

Single seat valves

Introduction

The Alfa Laval LKAP is a pneumatic single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination. Compact and straightforward, it is designed for use as a remote-controlled shut-off valve for small flows and for dosing applications.

Application

The LKAP is an air-operated shut-off valve widely used for controlling small flow rates and for dosing in hygienic applications across the dairy, food, beverage, chemical and other many industries.

Benefits

- Quality pneumatic shut-off valve
- Handles small product flows and dosing
- Straightforward, compact design
- Easy to maintain due to few moving parts
- Easy to clean

Standard design

The LKAP consists of an actuator with air cylinder and piston, a double lip seal for the stem, a stem unit with replaceable O-ring in the plug, and valve body with weld end connections. It has visual indication of the valve position and is available with two ports (LKAP-V version) or three ports (LKAP-T version). For remote indication of the valve position, an optional reed switch unit position transmitter is available. The valve can be ordered as normally open (NO) or normally closed (NC). The NC version is standard. The LKAP Air-Operated Valve is available in DN/OD 25 mm (1").

Working principle

The Alfa Laval LKAP is normally closed (NC) valve with a spring return that is operated from a remote location by means of compressed air.



TECHNICAL DATA

Temperature

Max. temperature:	140 °C (EPDM)
Min. temperature:	10 °C

Pressure

Kv value = 9 (9 m³/h for $\Delta p = 1$ bar with the valve open):

Max. product pressure under the plug (NC):	600 kPa (6 bar)
Min. air pressure:	500 kPa (5 bar)
Max. prod. pressure:	1000 kPa (10 bar)

ATEX

Classification	II 2 G D ¹
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¹ This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source.

PHYSICAL DATA

Materials

Product wetted steel parts:	1.4404 (316L)
Other steel parts:	1.4301 (304)
Surface finish inside:	$Ra \leq 1.6 \mu m$
Other seals:	NBR

Options

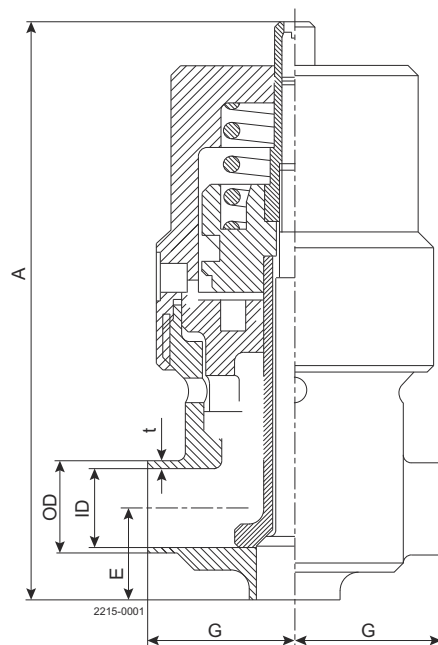
- Male parts or clamp liners according to required standard.
- Position indication of open and closed positions.
- Bracket for standard M12 sensors. Please see chapter 3.7 Automation for bracket code number.
- Product wetted seals of FPM or EPDM.



Note!

For further details, see also IM 70805.
Semi-Maintainable actuator comes with 5 year warranty.

Dimensions (mm)



Size	25 mm
G	40
E	24
A	170
OD	25
ID	22
t	1.5
Weight (kg)	2.5

Connections

Compressed air: R1/8" (BSP), internal thread.

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 6/8 mm pipe. Four versions are available: a pneumatic angle valve, a pneumatic two-way valve, a drain valve with fittings, or a drain valve with fittings and clip-on. The valve can also be used as an integral part of a SCANDI BREW® tank top system.

Working principle

The Alfa Laval SB Mini Flow Valve is operated either manually or by means of compressed air from a remote location. For a



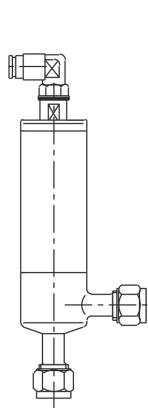
pneumatic valve, the actuator smooths operation and protects process lines from pressure peaks.

TECHNICAL DATA

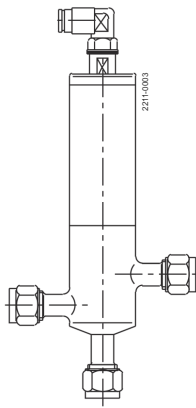
Pressure	
Max. product pressure:	6 bar
Max. product pressure (9615082001):	11 bar
Process air pressure:	6 - 8 bar

PHYSICAL DATA

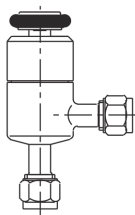
Materials	
Product wetted steel surfaces:	EN 1.4404 (AISI 316L)
Product wetted seals:	EPDM
Product wetted polymers:	PTFE



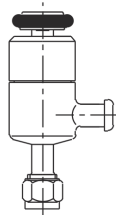
Pneumatic angle valve



Pneumatic 2-way valve

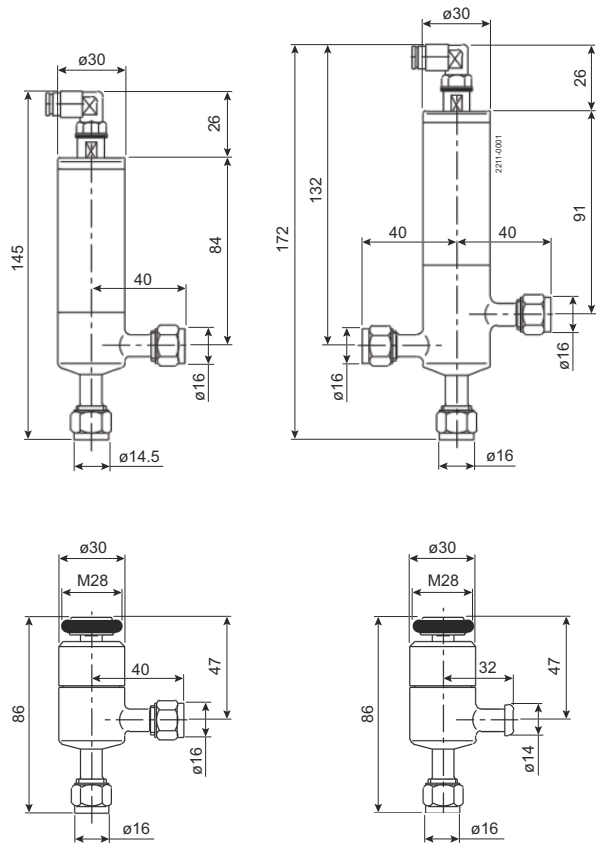


Drain valve with fittings



Drain valve with fittings/clip-on

Dimensions (mm)

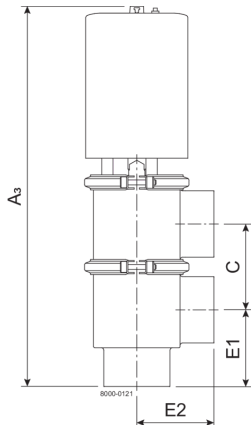
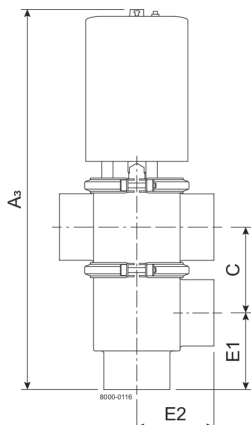
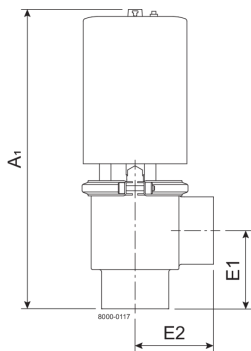


Unique SSV DN125 (5")

Single seat valves

Valve Model Specification: Air-operated valve
 ALSIS Code: 5233

Material: 1.4404 (316L)
 Connection Type: Welding ends
 Seals: EPDM
 Inside surface finish: $Ra \leq 1.6 \mu m$
 Outside surface finish: Blasted

Item no.	Size	Actuation	Dimension (mm)				
	DN	mm	A1/A3 or A2/A4	C	E1	E2	
Change-over 210							
9612488201 9612488203	DN125 DN125	Pneumatic NC Pneumatic NO	740.0 778.0	167.0 167.0	150.0 150.0	150.0 150.0	
Change-over 220							
9612488202 9612488204	DN125 DN125	Pneumatic NC Pneumatic NO	740.0 778.0	167.0 167.0	150.0 150.0	150.0 150.0	
Stop valve 20							
9612486001 9612486003	DN125 DN125	Pneumatic NC Pneumatic NO	571.0 618.0		150.0 150.0	150.0 150.0	

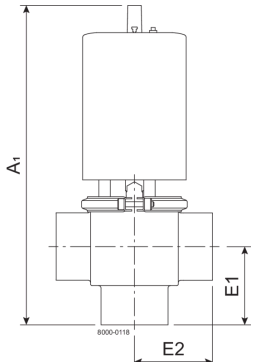
NOTE! Body combinations 31 and 32 on request.

Single seat valves

Unique SSV DN125 (5")

Valve Model Specification: Air-operated valve
ALSIS Code: 5233

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

Item no.	Size	Actuation	Dimension (mm)				
	DN	mm	A1/A3 or A2/A4	C	E1	E2	
Stop valve 30							
9612486002	DN125	Pneumatic NC	571.0		150.0	150.0	
9612486004	DN125	Pneumatic NO	618.0		150.0	150.0	

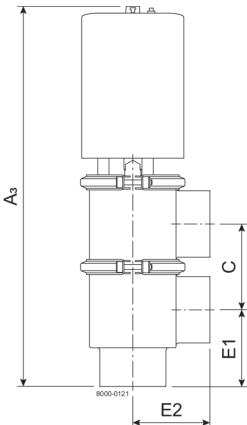
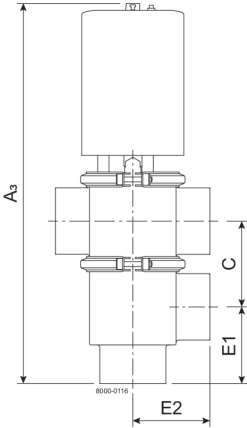
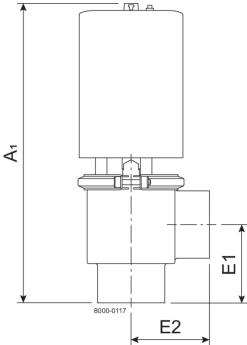
NOTE! Body combinations 31 and 32 on request.

Unique SSV DN150 (6")

Single seat valves

Valve Model Specification: Air-operated valve
 ALSIS Code: 5233

Material: 1.4404 (316L)
 Connection Type: Welding ends
 Seals: EPDM
 Inside surface finish: $Ra \leq 1.6 \mu m$
 Outside surface finish: Blasted

Item no.	Size	Actuation	Dimension (mm)				
mm	DN	mm	A1/A3 or A2/A4	C	E1	E2	
Change-over 210							
9612488205 9612488207	DN150 DN150	Pneumatic NC Pneumatic NO	777.0 816.0	192.0 192.0	150.0 150.0	150.0 150.0	
Change-over 220							
9612488206 9612488208	DN150 DN150	Pneumatic NC Pneumatic NO	777.0 816.0	192.0 192.0	150.0 150.0	150.0 150.0	
Stop valve 20							
9612486005 9612486007	DN150 DN150	Pneumatic NC Pneumatic NO	584.0 631.0		150.0 150.0	150.0 150.0	

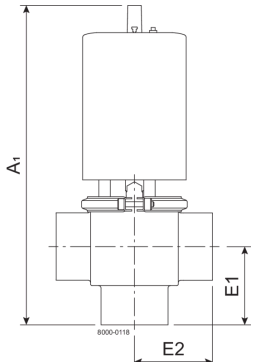
NOTE! Body combinations 31 and 32 on request.

Single seat valves

Unique SSV DN150 (6")

Valve Model Specification: Air-operated valve
ALSIS Code: 5233

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

Item no.	Size	Actuation	Dimension (mm)				
mm	DN	mm	A1/A3 or A2/A4	C	E1	E2	
Stop valve 30							
9612486006	DN150	Pneumatic NC	584.0		150.0	150.0	
9612486008	DN150	Pneumatic NO	631.0		150.0	150.0	

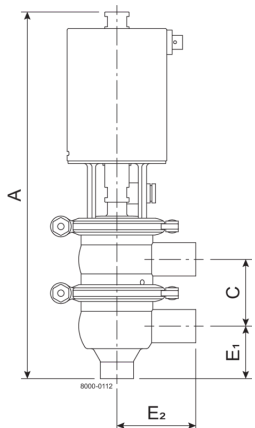
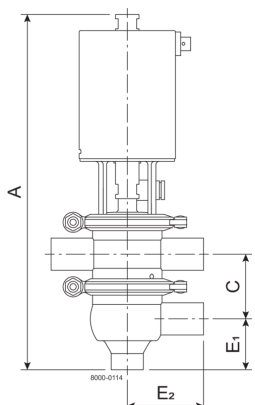
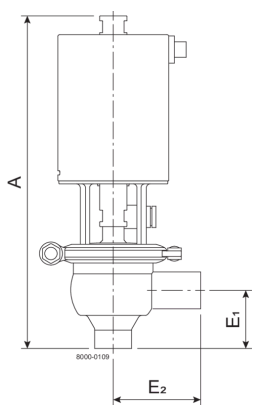
NOTE! Body combinations 31 and 32 on request.

Unique SSSV ISO 19.0 (3/4")

Single seat valves

Valve Model Specification: Air-operated valve for inch tube
 ALSIS Code: 5237

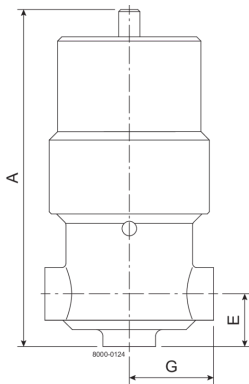
Material: 1.4404 (316L)
 Connection Type: ISO Welding ends
 Seals: EPDM
 Inside surface finish: $Ra \leq 0.5 \mu m$
 Outside surface finish: Blasted

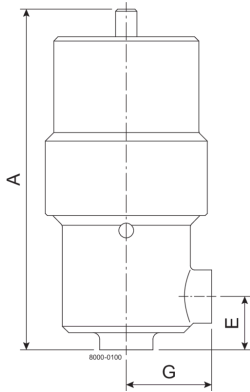
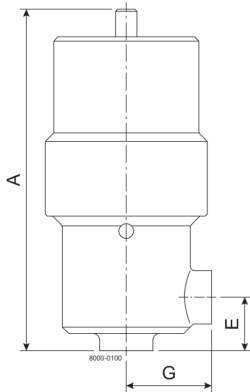
Item no.	Body clamp	Size	Actuation	Dimension (mm)				
		DN/OD, mm		A	C	E1	E2	
Change-over 21								
9612946234	Hex nut	19	Pneumatic NC	171.2	38.1	29.9	45.0	
Change-over 220								
9612947038	Wing nut	19	Normally Closed	209.2	38.1	29.9	45.0	
Shut-off 20								
9612946226	Hex nut	19	Manual	171.2		29.9	45.0	

NOTE! Other body combinations - on request.

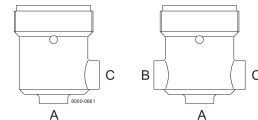
ALSIS Code: 5246

Material: 1.4404 (316L)
Connection Type: ISO Welding ends
Actuation: Pneumatic

Item no.	Size	Seals	Dim. A	Dim. E	mm	
	mm		mm	mm	G	
LKAP-V (normally closed)						
9611409542	25	Nitrile	170.0	24.0	40.0	
9611409544	25	EPDM	170.0	24.0	40.0	

Item no.	Size	Seals	Dim. A	Dim. E	Dim. G	
	mm		mm	mm	mm	
LKAP-V (normally closed)						
9611409543	25	EPDM	170.0	24.0	40.0	
9611409541	25	Nitrile	170.0	24.0	40.0	
LKAP-V (normally open)						
9611409547	25	EPDM	170.0	24.0	40.0	

The air-operated valves not mentioned in the code number sheets, should be ordered as below:
 ALSIS code: 5246, 5415

Item no.		Size		Option	
	mm	Inch			
Male part					
	DN25	1.0"	Male part standards (included in the price) SMS, ISO/IDF, DS, BS, DIN, ISO clamp. Fitting of male parts included. Please state which type of male part you want and to which outlet it should be connected.		
Seal					
			Replacement to seals of Fluorinated rubber (FPM).		

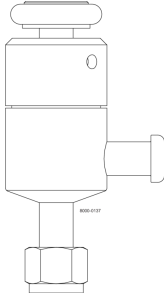
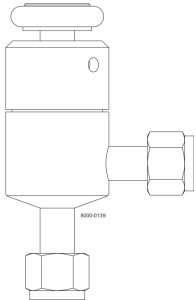
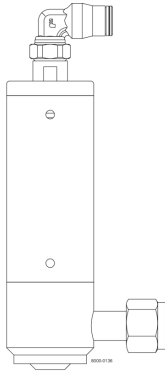
When using the above numbers - please specify: The male parts required

SB Mini Flow Valve

Single seat valves

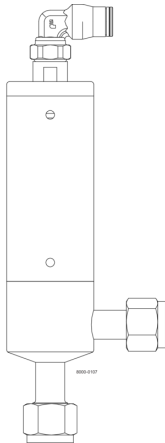
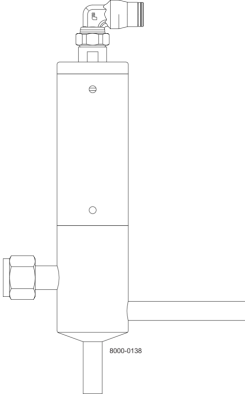
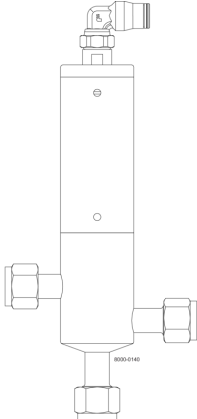
SCANDI BREW
Valve Model Specification: CIP valve
ALSIS Code: 5920

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

Item no.	Specification	Function	
Manual angle valve clip-on/swage			
9615085302	Manual angle valve clip-on/swage	N/A	
Manual angle valve swage/swage			
9615085301	Manual angle valve swage/swage	N/A	
Pneumatic Angle Valve Swage/1 Inch ISO			
9615082002 9615082102	Pneumatic Angle Valve Swage/1 Inch ISO Pneumatic Angle Valve Swage/1 Inch ISO	NC NO	

SCANDI BREW
Valve Model Specification: CIP valve
ALSIS Code: 5920

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

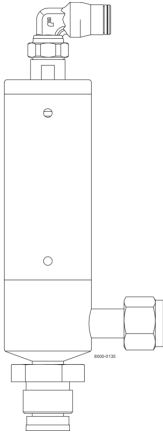
Item no.	Specification	Function	
Pneumatic Angle Valve Swage/Swage			
9615082001 9615082101	Pneumatic Angle Valve Swage/Swage Pneumatic Angle Valve Swage/Swage	NC NO	
Pneumatic Change Over Valve Swage/Pipe			
9615088402	Pneumatic Change Over Valve Swage/Pipe	NC	
Pneumatic Change Over Valve Swage/Swage			
9615088301 9615088401	Pneumatic Change Over Valve Swage/Swage Pneumatic Change Over Valve Swage/Swage	NO NC	

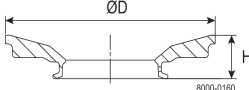
SB Mini Flow Valve

Single seat valves

SCANDI BREW
Valve Model Specification: CIP valve
ALSIS Code: 5920

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

Item no.	Specification	Function	
PneumaticAngle ValveSwage/BSP			
9615082003 9615082103	PneumaticAngle ValveSwage/BSP PneumaticAngle ValveSwage/BSP	NC NO	

Item no.	Size		Elastomer	Dimension (mm)		
	DN/OD, mm	DN		ØD	H	
Blind flange kit						
9614465001	51	DN50	EPDM			
9614465002	51	DN50	HNBR			
9614465003	51	DN50	FPM (Viton)			
9614465004	63.5	DN65	EPDM			
9614465005	63.5	DN65	HNBR			
9614465006	63.5	DN65	FPM (Viton)			
9614465007	76.1	DN50	EPDM			
9614465008	76.1	DN80	HNBR			
9614465009	76.1	DN80	FPM (Viton)			
9614465011	101.6	DN100	HNBR			
9614465012	101.6	DN100	FPM (Viton)			
9614465010	101.6	DN100	EPDM			
Tank flange						
9634069901	51	DN50		148.0	30.0	
9634070001	63.5	DN65		163.0	30.0	
9634070101	80	DN76.1		178.0	30.0	
9634070201	101.6	DN100		198.0	30.0	



This is Alfa Laval

Alfa Laval is active in the areas of Energy, Marine, and Food & Water, offering its expertise, products, and service to a wide range of industries in some 100 countries. The company is committed to optimizing processes, creating responsible growth, and driving progress – always going the extra mile to support customers in achieving their business goals and sustainability targets.

Alfa Laval's innovative technologies are dedicated to purifying, refining, and reusing materials, promoting more responsible use of natural resources. They contribute to improved energy efficiency and heat recovery, better water treatment, and reduced emissions. Thereby, Alfa Laval is not only accelerating success for its customers, but also for people and the planet. Making the world better, every day. It's all about Advancing better™.

How to contact Alfa Laval

Contact details for all countries are continually updated on our web site. Please visit www.alfalaval.com to access the information.

Dystrybucja w Polsce

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