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

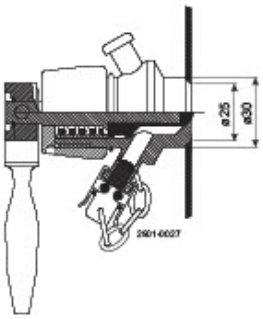


Figure 1. Type T

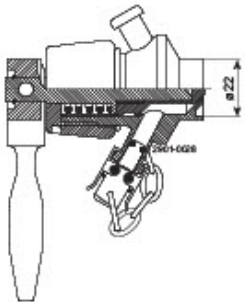


Figure 2. Type P

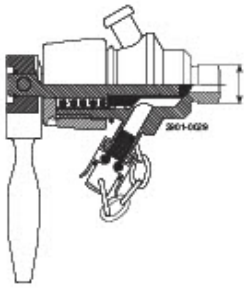
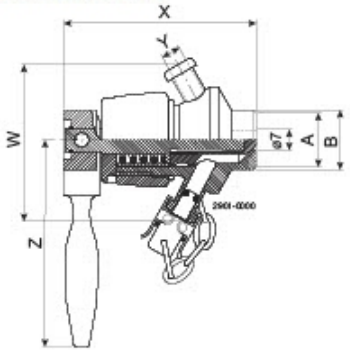


Figure 3. Type S

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

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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).

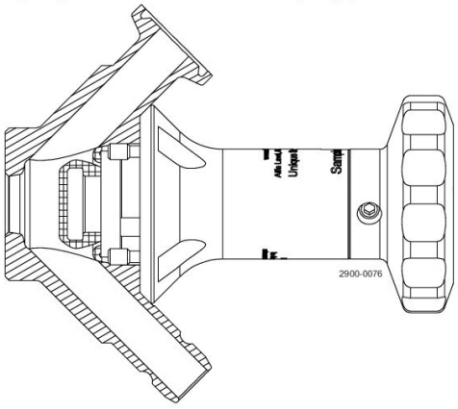
Certificates

Authorized to carry the 3A symbol

Working principle

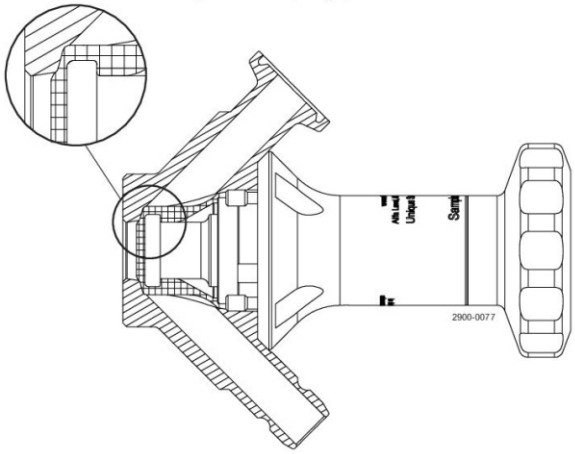
The Alfa Laval Unique Sampling Valve (Double Seat), with its patented technology, is designed for truly sterile sampling and ensures higher cleanability and sterilization of the valve seat and pipe connections. The double-seat sampling valve has three positions: open, shut and sterilization. It can be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

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



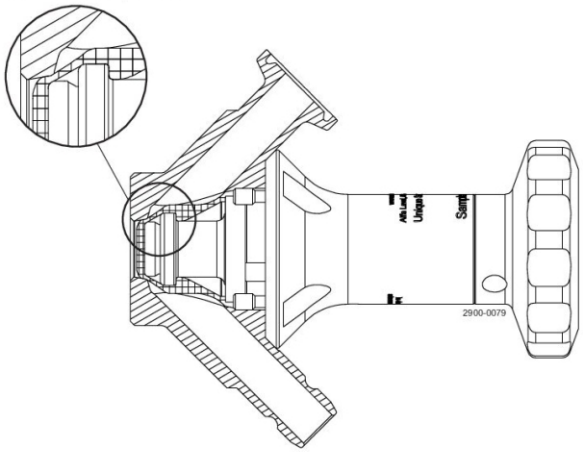
Manual valve: rotate the handle in a counterclockwise direction to open the valve. Pneumatic valve: open the valve by activating the actuator. This retracts the valve stem and membrane seal, which enables the product to flow freely through the open valve.

- **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)

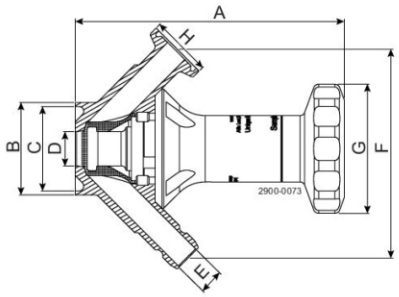


Figure 1. Handle with valve body: Collared pipe welding

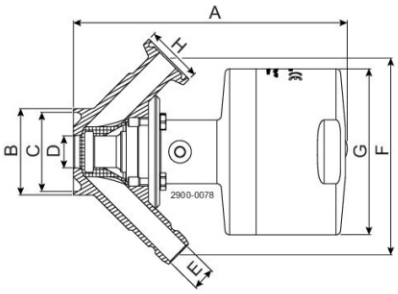


Figure 2. Pneumatic with valve body: Collared pipe welding

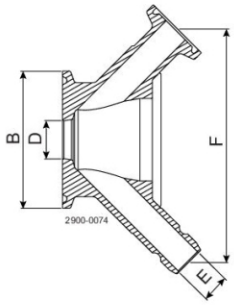


Figure 3. Valve body: Clamp

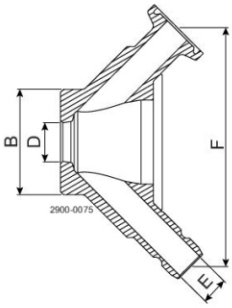


Figure 4. Valve body: Tank welding

Valve size	Size 4															
Valve Head	Handle Double Seat								Pneumatic Double seat							
Valve body	Tank	Tri-clamp	Collarded pipe						Tank	Tri-clamp	Collarded pipe					
Nominal size			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50
A	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					
Nominal size			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50			ISO 25	ISO 38	ISO 51	DIN 25	DIN 40	DIN 50
A	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

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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.

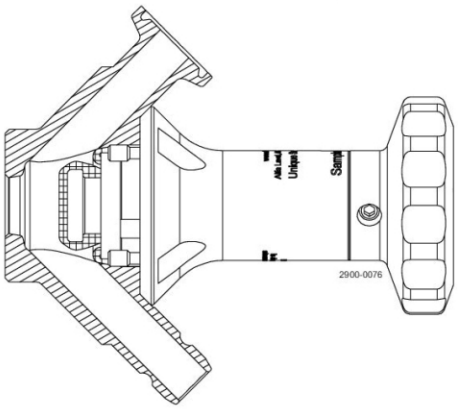
Certificates

Authorized to carry the 3A symbol

Working principle

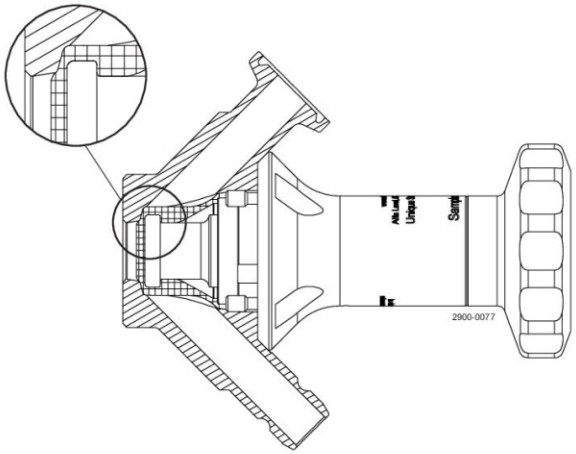
The Alfa Laval Unique Sampling Valve (Single Seat) is designed for standard hygienic sampling. The single-seat sampling valve has two positions: open and shut.

- **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 D [1]

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

PHYSICAL DATA

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

The valve is available in tree sizes:

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

Valve bodies:

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

Valve heads:

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

Accessories:

See Unique Sampling Valve - Accessories ordering leaflet.

Dimensions (mm)

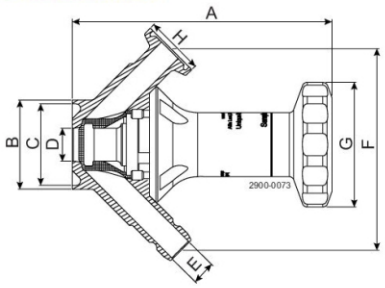


Figure 1. Handle with valve body: Collared pipe welding

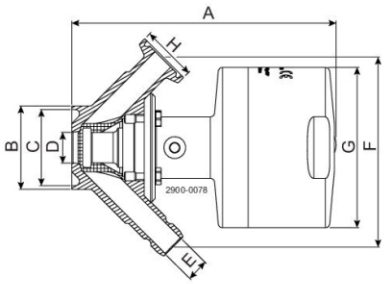


Figure 2. Pneumatic with valve body: Collared pipe welding

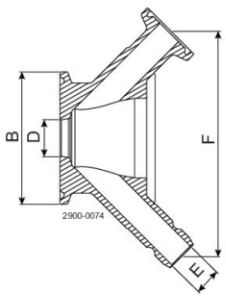


Figure 3. Valve body: Tri-clamp

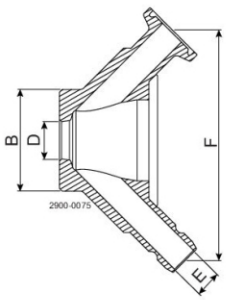


Figure 4. Valve body: Tank welding

Valve size	Size 4															
Valve Head	Handle Single Seat								Pneumatic Single Seat							
Valve body	Tank	Tri-clamp	Collarded pipe						Tank	Tri-clamp	Collarded pipe					
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	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							
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

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