

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)

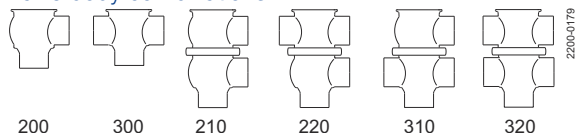
Min. product pressure: Full vacuum

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)

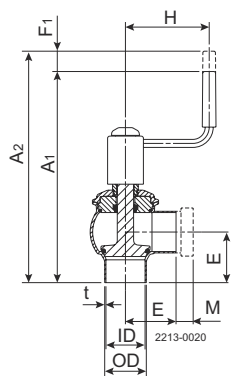


Figure 1. Shut off valve

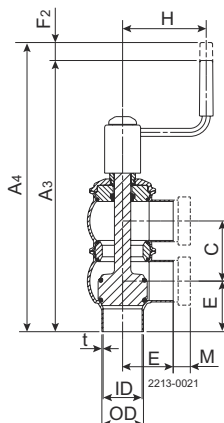


Figure 2. Change-over valve

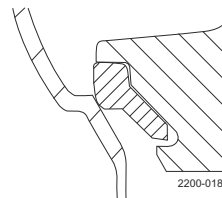


Figure 3. PTFE plug seal (TR2)

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.

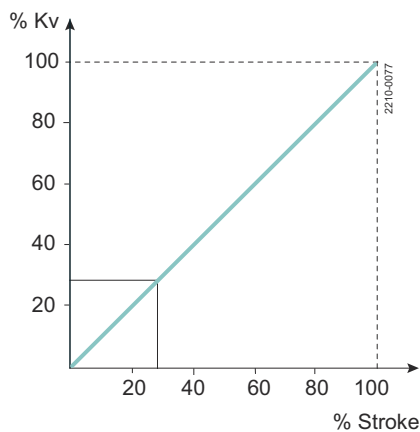


Figure 4. The flow in % of the total flow at a pressure drop of 1 bar

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

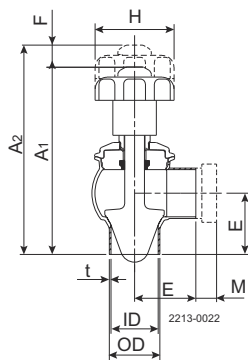


Figure 5. Dimensions

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