

# Alfa Laval Unique SSV Manually Operated

## Single seat valves

### Introduction

The Alfa Laval Unique SSV Manually Operated valve is a versatile, reliable single seat valve with a single contact surface between the plug and the seat to minimize the risk of contamination.

Its compact, modular and hygienic design meets the highest process demands in terms of hygiene and safety. It is built on the well-proven Alfa Laval Unique SSV platform. Few moving parts ensure easy dismantling, high reliability and low maintenance costs. A wide range of optional features, including lockable handles, enables customization to specific process requirements.

### Application

The Unique SSV Manually Operated valve is designed for hygienic shutoff, tank outlet or straightforward regulating or dosing purposes across the dairy, food, beverage, brewery and many other industries.

### Benefits

- Straightforward reliable design
- Cost effective and highly modular
- Exceptional valve hygiene
- Long service life
- Low total cost of ownership

### Standard design

This manually operated single seat valve consists of one or two valve bodies, plug, sealing, crank mechanism, and clamp ring. The plug can be adjusted to a fixed position with a lock screw. Optional lockable handle is available.

The valve can be configured as a shutoff valve with two or three working ports or as a changeover valve with up to five ports. To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The valve seals are optimized for durability and long service life through a defined compression design.

The valve can easily be converted to a pneumatic valve by replacing the crank mechanism with an actuator.




Using the Alfa Laval Anytime configurator, it is easy to customize to meet virtually any process requirement.

### Working principle

The Alfa Laval Unique SSV Manually Operated valve operates manually using a crank mechanism to control pressure and flow through gradual opening and closing.

### Certificates

 Authorized to carry the 3A symbol

## TECHNICAL DATA

### Temperature

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

### Pressure

Max product pressure: 145 psi (10 bar)

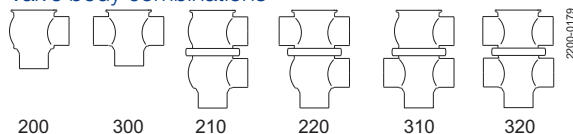
Min. product pressure: Full vacuum

### ATEX

Classification II 2 G D\*

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

### Valve body combinations



## PHYSICAL DATA

### Materials

|                                |                                |
|--------------------------------|--------------------------------|
| Product wetted steel parts:    | AISI 316L                      |
| Other steel parts:             | AISI 304                       |
| Plug seal:                     | EPDM                           |
| Optional plug seal:            | PTFE (TR2)                     |
| External surface finish:       | Semi-bright (blasted)          |
| Internal surface finish:       | Bright (polished), Ra < 32 µin |
| Other product wetted seals:    | EPDM                           |
| Optional product wetted seals: | HNBR and FPM                   |

### Options

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



### Note!

For further details, see instruction ESE00504ENUS.

### Other valves in the same basic design

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

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

### Dimensions (inch)

| Size           | 1     | 1.5   | 2     | 2.5   | 3     | 4     |
|----------------|-------|-------|-------|-------|-------|-------|
|                | inch  | inch  | inch  | inch  | inch  | inch  |
| A <sub>1</sub> | 9.65  | 9.65  | 10.2  | 11.22 | 11.46 | 13.27 |
| A <sub>2</sub> | 10.24 | 10.43 | 11.18 | 12.2  | 12.64 | 14.45 |
| A <sub>3</sub> | 11.46 | 12.09 | 13.07 | 14.61 | 15.35 | 18.11 |
| A <sub>4</sub> | 11.93 | 12.76 | 13.94 | 15.47 | 16.42 | 19.17 |
| C              | 1.88  | 2.39  | 2.91  | 3.4   | 3.89  | 4.87  |
| OD             | 0.98  | 1.5   | 2.01  | 2.5   | 3     | 4     |
| ID             | 0.86  | 1.37  | 1.88  | 2.37  | 2.87  | 3.84  |



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| Size               | 1    | 1.5  | 2    | 2.5  | 3    | 4    |
|--------------------|------|------|------|------|------|------|
|                    | inch | inch | inch | inch | inch | inch |
| t                  | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.08 |
| E <sub>1</sub>     | 1.97 | 1.95 | 2.40 | 3.19 | 3.39 | 4.69 |
| E <sub>2</sub>     | 1.97 | 1.95 | 2.40 | 3.19 | 3.39 | 4.69 |
| F <sub>1</sub>     | 0.59 | 0.79 | 0.98 | 0.98 | 1.18 | 1.18 |
| F <sub>2</sub>     | 0.47 | 0.67 | 0.87 | 0.87 | 1.06 | 1.06 |
| H                  | 4.13 | 4.13 | 4.13 | 4.13 | 4.13 | 4.13 |
| M/ clamp           | 0.5  | 0.5  | 0.5  | 0.5  | 0.5  | 0.63 |
| <b>Weight (kg)</b> |      |      |      |      |      |      |
| Shut off valve:    | 1.8  | 2    | 2.6  | 3.6  | 4.6  | 7    |
| Change-over valve: | 2.6  | 3    | 4.2  | 5.6  | 7.3  | 11.4 |

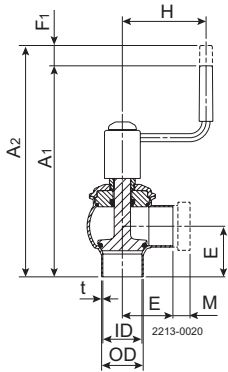


Figure 1. Shut off valve

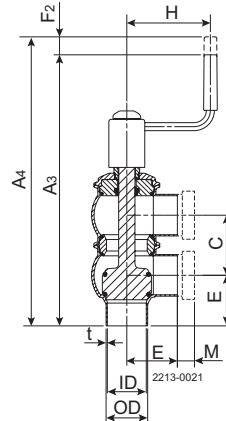


Figure 2. Change-over valve

### Kv-Factors

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

\* 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.

$\Delta p$  = Pressure drop in bar over the valve.

### Example:

Plug Kv 75

Q to be calculated at  $\Delta p = 2$  bar:

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

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.

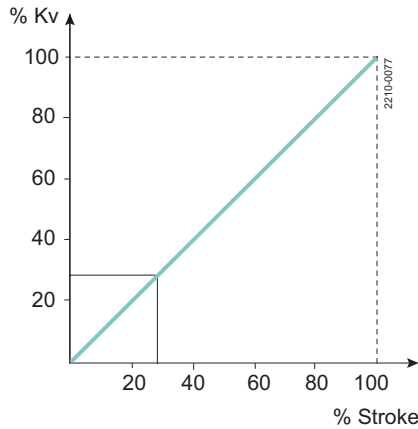


Figure 3. The flow in % of the total flow at a pressure drop of 1 bar

**Dimensions (inch) - Unique Manually Regulating Valve**

| Size               | 1.5"  | 2"   | 2.5" | 3"   | 4"    |
|--------------------|-------|------|------|------|-------|
| A1                 | 6.93  | 7.48 | 8.50 | 8.74 | 10.60 |
| A2                 | 7.72  | 8.46 | 9.49 | 9.92 | 11.70 |
| OD                 | 1.50  | 2.01 | 2.50 | 3.00 | 4.00  |
| ID                 | 1.37  | 1.88 | 2.37 | 2.87 | 3.84  |
| t                  | 0.06  | 0.06 | 0.06 | 0.06 | 0.08  |
| E1                 | 19.50 | 2.44 | 3.23 | 3.43 | 4.72  |
| E2                 | 19.50 | 2.44 | 3.23 | 3.43 | 4.72  |
| F1                 | 0.79  | 0.98 | 0.98 | 1.18 | 1.18  |
| H                  | 3.15  | 3.15 | 3.15 | 3.15 | 3.15  |
| M/ISO clamp        | 0.83  | 0.83 | 0.83 | 0.83 | 0.83  |
| M/DIN clamp        |       |      |      |      |       |
| M/DIN male         |       |      |      |      |       |
| M/SMS male         | 0.79  | 0.79 | 0.95 | 0.95 | 1.38  |
| <b>Weight (kg)</b> |       |      |      |      |       |
| Shut off valve:    | 2.1   | 2.9  | 4.0  | 5.4  | 8.2   |

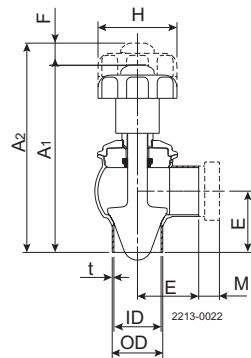


Figure 4. Dimensions



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200004006-2-EN-US

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