



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

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

*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

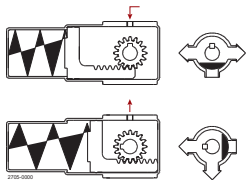
Actuator seals: NBR

Actuator functions

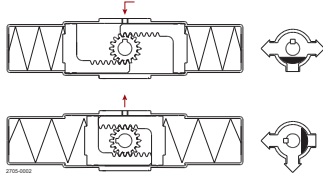
Actuator type 630:

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

Sizes 12.7-51mm/DN25-50:



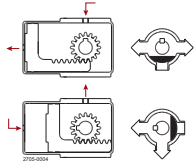
Sizes 63.5-76.1mm/DN65:



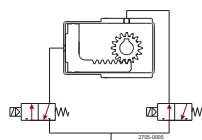
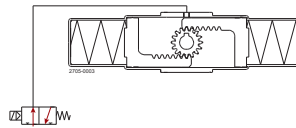
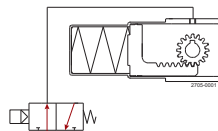
Actuator type 631:

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

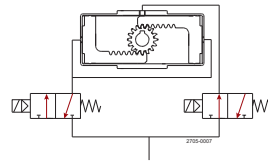
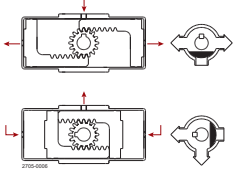
Sizes 12.7-76.1mm/DN25-65:



Pneumatic connections



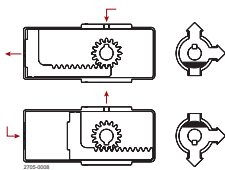
Sizes 101.6mm/DN80-100:



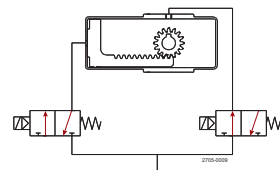
Actuator type 632:

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

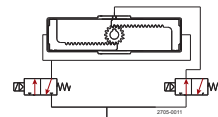
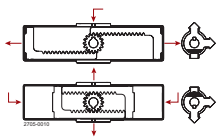
Sizes 12.7-76.1mm/DN25-65:



Pneumatic connections



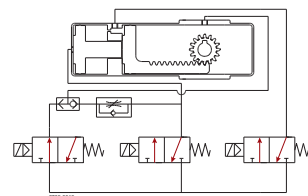
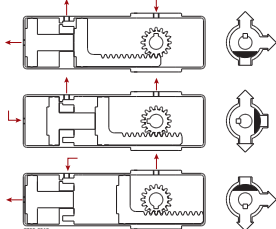
Sizes 101.6mm/DN80-100:



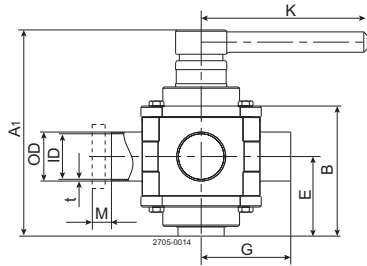
Actuator type 633:

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

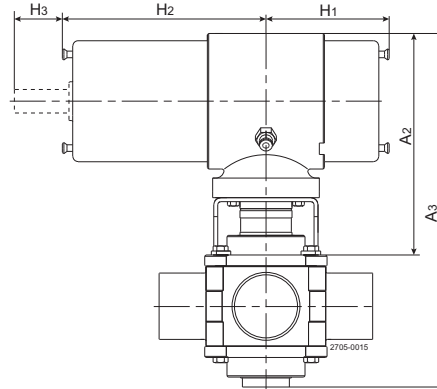
Sizes 12.7-76.1mm/DN25-65:



Dimensions (mm)



a. MH53 with handle.



b. MH53 with actuator, type KH631.

Fig. 1. Dimensions.

valves:

| Size | 25 mm | 38 mm | 51 mm | 63.5 mm | 76.1 mm | 101.6 mm | 25 DN | 40 DN | 50 DN | 65 DN | 80 DN | 100 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

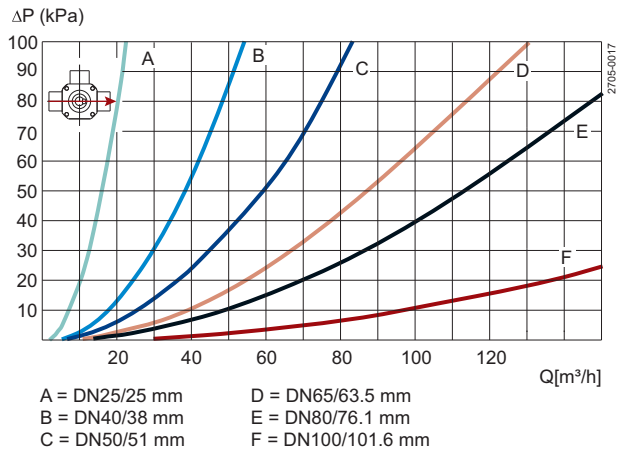
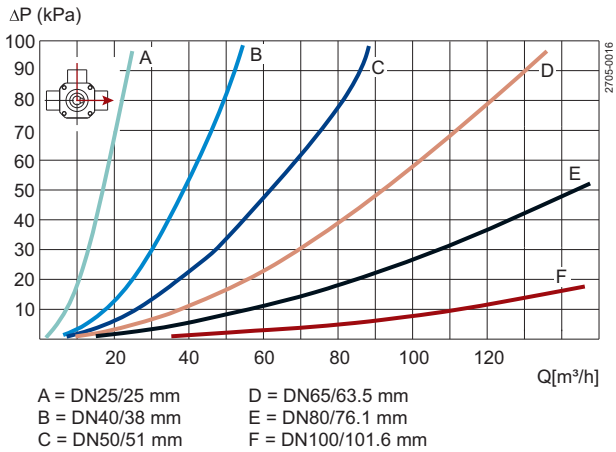
| Size | | 25mm DN25 | 38mm DN40 | 51mm DN50 | 63.5mm | 76.1mm DN65 | 89mm DN80 | 101.6mm DN100 |
|----------------|-------|--------------|--------------|--------------|--------|----------------|--------------|------------------|
| A ₂ | | 170 | 170 | 170 | 172 | 178 | 194 | 194 |
| A ₃ | | 233 | 260 | 273 | 290 | 315 | 369 | 389 |
| H ₁ | KH630 | 57 | 57 | 57 | 285 | 285 | | |
| H ₁ | KH631 | 57 | 57 | 57 | 57 | 57 | 119 | 119 |
| 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).

Δ p = 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

A. Male parts or clamp liners in accordance with required standard.

B. Control and Indication: IndiTop, ThinkTop V50 or ThinkTop V70 .

C. Bottom fitted indication unit.

D. Pilot valve, type L or T (for actuator type 633). Type L is used when two ThinkTop units are used.

E. Rebuilding to double acting valve for high viscosity product or quick operation.

Note!

For further details, see also instruction IM 70735.

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

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

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

Alfa Laval reserves the right to change specifications without prior notification.

How to contact Alfa Laval

Contact details for all countries are continually updated on our website. Please visit www.alfalaval.com to access the information direct.