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 valve can be fitted with Alfa Laval ThinkTop V-series for sensing and control of the valve. See ThinkTop datasheets for further details.

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[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

Air Connections

Compressed air:

R 1/8" (BSP), internal thread

PHYSICAL DATA

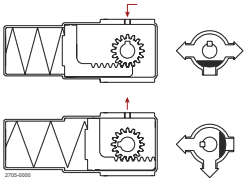
Materials	
Product wetted steel parts:	1.4404 (316L.)
Product wetted seals:	Shutter in PTFE EPDM
Actuator seals:	NBR

Actuator functions

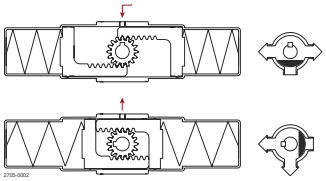
Actuator type 630:

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

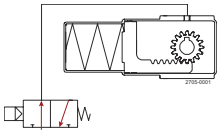
Sizes 12.7-51mm/DN25-50:

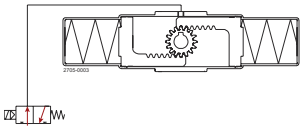


Sizes 63.5-76.1mm/DN65:



Pneumatic connections

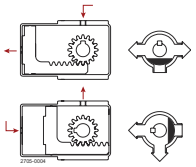




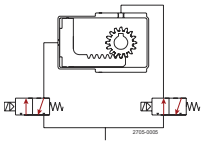
Actuator type 631:

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

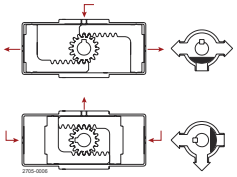
Sizes 12.7-76.1mm/DN25-65:

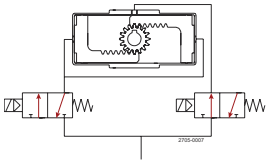


Pneumatic connections



Sizes 101.6mm/DN80-100:

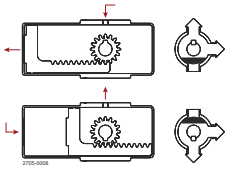




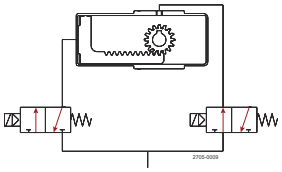
Actuator type 632:

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

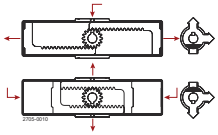
Sizes 12.7-76.1mm/DN25-65:

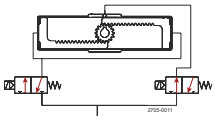


Pneumatic connections



Sizes 101.6mm/DN80-100:

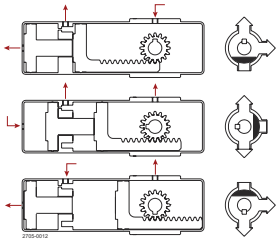


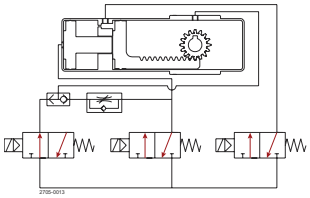


Actuator type 633:

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

Sizes 12.7-76.1mm/DN25-65:





Dimensions (mm)

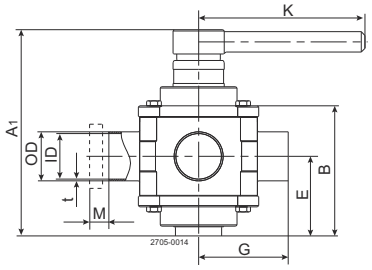


Figure 1. MH53 with handle

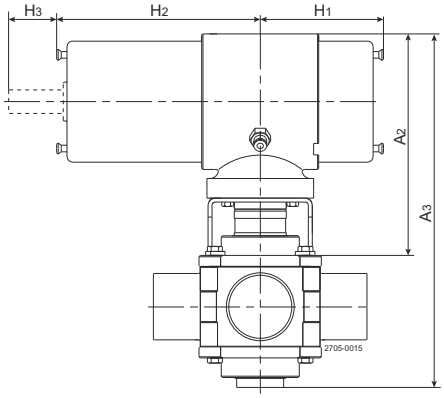


Figure 2. MH53 with actuator, type KH631

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

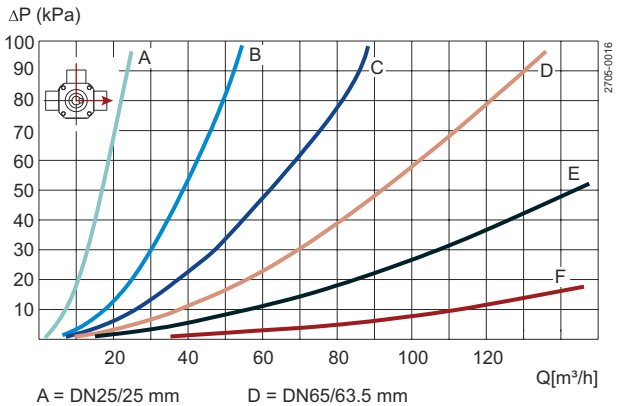
Size		**25mm**	**38mm**	**51mm**	**63.5mm**	**76.1mm**	**89mm**	**101.6mm**
		DN25	**DN40**	**DN50**		**DN65**	**DN80**	**DN100**
A_2		170	170	170	172	178	194	194
A_3		233	260	273	290	315	369	389
H_1	KH630	57	57	57	285	285		
H_1	KH631	57	57	57	57	57	119	119
H_1	KH632	95	95	95	95	95	194	194
H_1	KH633	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:

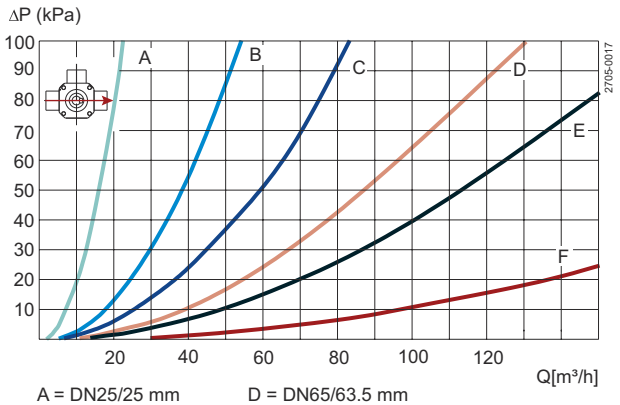
Opening/closing time will be affected by the following:

- 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



A = DN25/25 mm
B = DN40/38 mm
C = DN50/51 mm
D = DN65/63.5 mm
E = DN80/76.1 mm
F = DN100/101.6 mm



A = DN25/25 mm
B = DN40/38 mm
C = DN50/51 mm
D = DN65/63.5 mm
E = DN80/76.1 mm
F = DN100/101.6 mm

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:

$Q = Kv \times \sqrt{\Delta p}$

Where

Q = Flow in m^3/h.

Kv = m^3/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 m^3/h

2.5" shut-off valve, where Kv = 111 (See table above).

$Q = Kv \times \sqrt{\Delta p}$

$40 = 111 \times \sqrt{\Delta p}$

$\Delta p = \left(\frac{40}{111}\right)^2 = 0.13$ 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: ThinkTop V-Series
- Bottom fitted indication unit.
- Rebuilding to double acting value for high viscosity product or quick operation.

Note! For further details, see also instruction manual.

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.

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