The safe choice for High Purity applications

Alfa Laval LKB UltraPure Automatic or Manual Butterfly Valve

Concept

LKB UltraPure is an automatic or manually operated butterfly valve for on/off duties. The UltraPure execution is designed and documented to meet the demand in industries like BioPharm and Personal Care.

Working principles

LKB UltraPure is either remote controlled by means of an air-actuator or manually by means of a handle.
The actuator is designed so that an axial movement of a piston is transformed into a 90° rotation of a shaft. The torque of the actuator is increased when the valve disc contacts the seal of the valve.

The air-actuator comes in three standard versions, normally closed (NC), normally open (NO) and air/air activated (A/A).
Two actuator sizes, ø85 mm and ø133 mm, cover all valve sizes and are available in two versions, LKLA and LKLA-T (T for mounting of indication unit on actuator).

The handle for manual operation mechanically locks the valve in its open or closed position.
Handles are available in 2 positions, 4 positions, regulating 90° and lockable multi-position.
The valve can be supplied with either welding or clamp connections.

TECHNICAL DATA

Valve

Max. product pressure:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum
Temperature range:	-10°C to + 140°C (EPDM) However max. 95°C when operating the valve

Actuator

Max. air pressure:	700 kPa (7 bar)
Min. air pressure, NC and NO:	400 kPa (4 bar)
Temperature range:	-25°C to +90°C.
Air consumption (litres free air):	
- ø85 mm:	0.24 x p (bar)
- ø133 mm:	0.95 x p (bar)
Weight:	
- ø85 mm:	3 kg.
- ø133 mm:	12 kg

PHYSICAL DATA

Product wetted steel part	1.4404 (316L) acc. to EN 10088
Other steel parts	1.4301 (304) acc. to EN 10088
Bushings for valve disc	PVDF

Elastomers

Product wetted seals	EPDM acc. to FDA and USP Class VI

Connections

Weld ends**	Matching tubes and fittings: ISO 2037 / DIN / ASME BPE Acc. to ISO, DIN or ASME BPE
Clamp ends	Matching tubes and fittings: ISO 2037 / DIN / ASME BPE Acc. to ISO, DIN or ASME BPE

** Weld ends on ASME BPE valves are according to ASME BPE 2009 316L Table DT-3 with low sulfur and suitable for orbital welding

Actuator

Actuator body:	1.4307 (304L)
Piston:	Light alloy Air/air version (for ø85 mm: Bronze).
Seals:	NBR
Housing for switches:	PPO

Surface specification (Product wetted steel parts)

ISO 2037 / DIN:

Internal: . . . . . .0.5 µm
ASME BPE designation: SF1
External: . . . . . .Semi-bright

ASME BPE*:

Internal: . . . . . .0.5 µm
ASME BPE designation: SF1
External: . . . . . .Semi-bright

ASME BPE*:

Internal: . . . . . .0.4 µm electro polish
ASME BPE designation: SF4
External: . . . . . .Semi-bright

* According to ASME BPE 2009 table SF-3

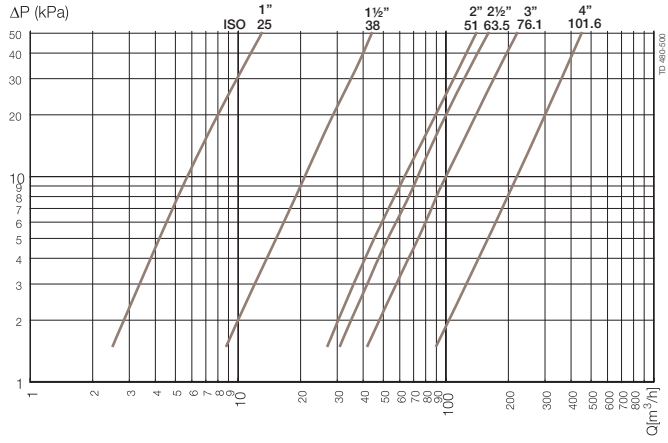
Options

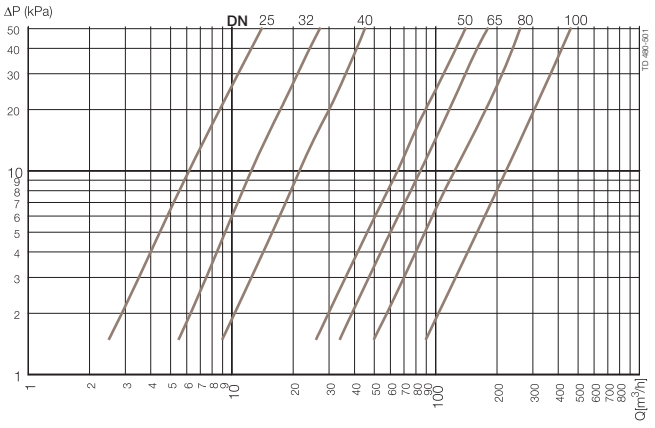
A. Product wetted seals: FPM (acc. to FDA and USP Class VI), Q and PFA
B. ThinkTop® for control and indication.*
C. Indication unit with micro switches.*
D. Indication unit with inductive proximity switches.*
E. Indication unit with Hall proximity switches.*
F. Explosion proof indication unit with inductive proximity switches.*
G. Bracket for actuator.
H. Handle with two or four positions.
I. Handle for electrical position indication.
J. Handle with infinite intermediate positions.
K. Multipositioning handle**.
L. Lockable Multiposition Handle. Padlock can be mounted as shown in fig. 3.
Note! Padlock is not delivered.
M. Special cap for 90° turned handle position.
N. Service tool for actuator.
O. Service tool for fitting 25-38 mm (DN25 - DN40) valve discs.

* For further information see Product Catalogue chapter "Control & Indication".

** A padlock can be mounted on the Lockable Multiposition Handle as shown in the opposite figure.
Note! Padlock is not delivered.

Capacity/Pressure drop diagrams





NOTE!

For the diagrams the following applies:
Medium: Water (20°C).
Measurement: In accordance with VDI 2173.

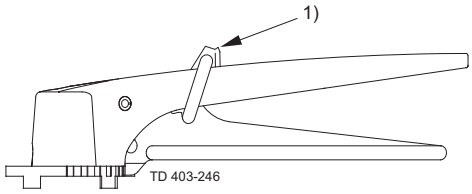


Fig. 1. Lockable Multiposition Handle with padlock.

1. Padlock

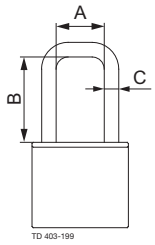


Fig.2. Dimensions - padlock.
A. Min. 20 mm
B. Min. 35 mm
C. ø6 mm

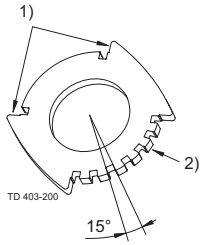


Fig. 3 Positioning cap.

1. On/Off
2. Multi positioning

Note for Ultra Pure ASME BPE clamp valve (size 1" - 2½")!

Installation and removal of some clamp rings is easiest by removal of the lockable multi position handle first.

Documentation

All valves are delivered with Alfa Laval Q-doc.

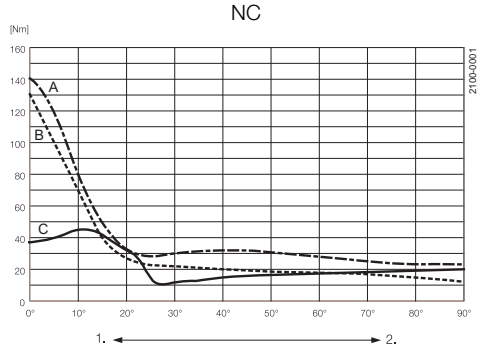
Note!

For further details, see also ESE01699.

Torque diagrams - Actuator

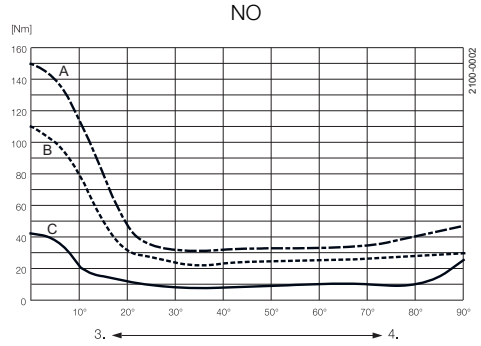
LKLA ø85 mm:

NC



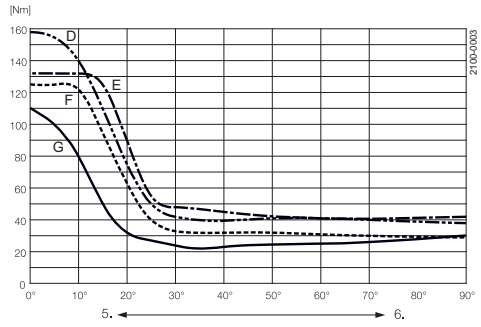
1. Closing - Spring activated 2. Opening - Air activated

NO



3. Closing - Air activated 4. Opening - Spring activated

A/A



5. Closing 6. Opening

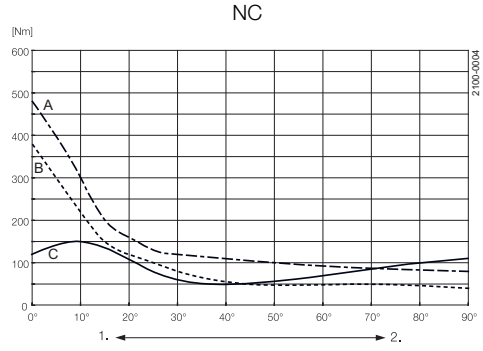
A = 6 bar air pressure

B = 5 bar air pressure

C = Closing/opening with spring

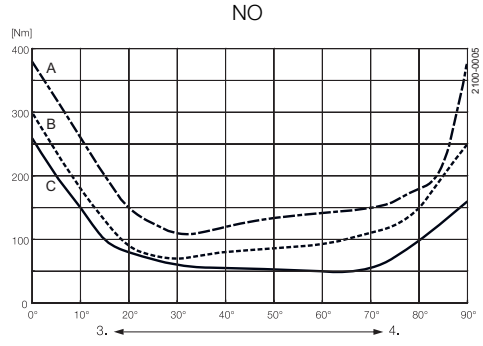
LKLA ø133 mm:

NC



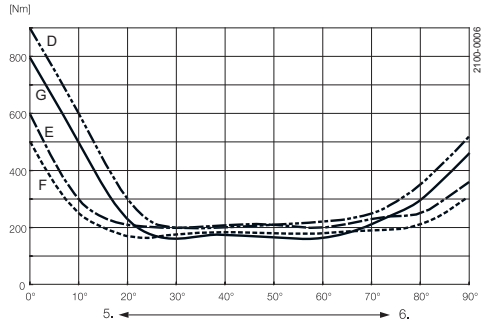
1. Closing - Spring activated 2. Opening - Air activated

NO



3. Closing - Air activated 4. Opening - Spring activated

A/A



5. Closing 6. Opening

D = 6 bar air pressure connection on top

E = 6 bar air pressure connection on bottom

F = 5 bar air pressure connection on top

G = 5 bar air pressure connection on bottom

Torque values (for rotating the valve disc in a dry seal ring)

Size		Max. Nm
25 mm	DN25	15
	DN32	15
38 mm	DN40	15
51 mm	DN50	20
63.5 mm	DN65	25
76 mm	DN80	30
101.6 mm	DN100	35

Dimensions

Fig. 1. Dimensions - valve.

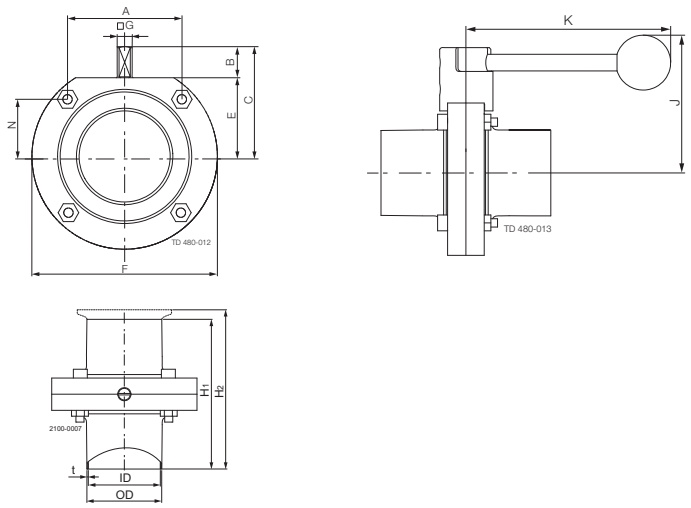
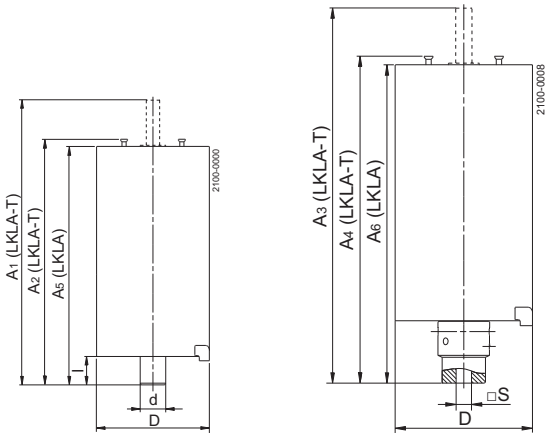


Fig. 2. Dimensions - actuator



a. Without coupling.
a1 = d

b. With coupling.
b1 =□S

Dimensions (mm)

LKB UltraPure

Size	25	38	51	63.5	76.1	101.6	DN	DN	DN	DN	DN	DN	DN
	mm	mm	mm	mm	mm	mm	25	32	40	50	65	80	100
A	42.00	42.00	61.00	61.00	79.50	106.00	42.00	42.00	42.00	61.00	61.00	79.00	106.00
B	15.50	16.70	16.60	17.50	16.60	16.00	14.70	15.90	16.70	16.60	17.50	16.00	160.00
C	49.00	49.00	58.50	69.50	73.50	93.00	48.00	49.00	54.00	63.00	75.00	79.00	93.00
OD	25.00	38.00	51.00	63.50	76.10	101.60	29.00	35.00	41.00	53.00	70.00	85.00	104.00
ID	22.60	35.60	48.60	60.30	72.90	97.60	26.00	32.00	38.00	50.00	66.00	81.00	100.00
t	1.20	1.20	1.20	1.60	1.60	2.00	1.50	1.50	1.50	1.50	2.00	2.00	2.00
E	32.50	32.50	42.00	52.00	57.00	77.00	33.30	33.30	37.70	46.60	57.30	63.00	77.00
F	78.00	78.00	99.00	117.00	132.00	169.00	79.00	79.00	86.50	105.70	125.00	143.00	169.00
□ G	8	8	8	8	10	12	8	8	8	8	10	10	12
H1	127.00	127.00	132.00	134.00	162.00	180.00	127.00	127.00	127.00	132.00	142.00	164.00	180.00
H2	104.20	104.20	109.20	111.20	176.40	194.40	90.00	90.00	90.00	95.00	118.00	120.00	136.00
J	82.00	82.00	92.00	102.00	107.00	127.00	74.00	74.00	78.00	88.00	98.00	104.00	118.00
K	120.00	120.00	120.00	120.00	162.00	162.00	120.00	120.00	120.00	120.00	162.00	162.00	162.00
N	26.50	26.50	30.50	40.50	43.50	53.00	27.30	27.30	31.70	35.10	45.80	49.50	53.00
Weight (kg)	1.2	1.0	1.5	2.1	3.0	4.7	1.2	1.1	1.3	1.8	3.1	3.5	5.1

NOTE! Weights are for valves with welding ends and handles.

Dimensions (mm) - Actuator

LKLA and LKLA-T:

Valve size	25-63.5 mm DN25-50	76.1 mm DN65-80	101.6 mm DN100	101.6 mm DN100
A_1	244	242	242	363
A_2	193	191	191	316
A_3	244	244	244	337
A_4	173	173	173	290
A_5	185	183	183	308
A_6	165	165	165	282
D	85	85	85	133
d	17	17	17	30
I	16.5	16.5	16.5	34
□ s	8	10	12	12
Function	NC, NO, A/A	NC, NO, A/A	NC, NO, A/A	NC, NO, A/A

900593

Connections

Compressed air

R⅛" (BSP), internal thread.

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