Alfa Laval Leakage Detection Butterfly Valve

Butterfly valves

Introduction

Protect product integrity and process reliability with the Alfa Laval Leakage Detection Butterfly Valve. This mixproof butterfly valve prevents cross-contamination, safeguarding product integrity and process safety across hygienic processing lines in dairy, food, beverage, and personal care industries. Powered by Alfa Laval ThinkTop technology for valve monitoring and control, it improves process efficiency, productivity and safety.

Applications

The Leakage Detection Butterfly Valve is designed for use in a broad range of hygienic applications across the dairy, food, beverage and many other industries. Typically being used in CIP & CIP Systems, Water Management or Flush out processes.

Benefits

Hygienic leakage detection butterfly valve for higher productivity and product safety.

- Prevents cross-contamination
- Safeguards hygiene, reduces maintenance and maximizes uptime
- Reduces energy, operating and maintenance costs
- Boosts reliability, efficiency and performance
- Withstands the demands of the most rigorous duties

The Alfa Laval Leakage Detection Butterfly Valve delivers safe, efficient performance for demanding hygienic applications. Its integrated double block-and-bleed design ensures shutoff and easy leakage detection, enhancing product safety and process reliability. Fully CIP-able, this high-performance shut-off valve ensures hygiene and maximizes uptime. Its optimized flow and low-pressure drop reduce energy consumption and operating costs, providing long-term savings. When paired with the Alfa Laval ThinkTop control unit, it offers precise, efficient performance. With its robust, straightforward construction, the leakage detection valve easily withstands harsh operating conditions, ensuring reliable operation, long service life and a low total cost of ownership.

Standard Design

The Leakage Detection Butterfly valve consists of two valve body half's, valve disc with leakage chamber and a seal. The components are easily assembled by means of screws and nuts and comes with weld ends. The valve can also be fitted with the Alfa Laval ThinkTop® Technology for sensing and control of the valve. The valve is available in these dimension standards: ISO and DIN tubes. The actuator is available in two versions, the LKLA and the LKLA-T (T for mounting of an indication or control unit on the actuator) and in two sizes, Ø85 mm and Ø133 mm, to cover all valve requirements. The actuator is fitted onto the valve using a bracket. A handle for manual operation is fitted onto the valve by means of a cap/block system and a screw.

Working Principles

With its double block-and-bleed design, the Alfa Laval Leakage Detection Butterfly Valve ensures the separation of two products. In closed position, the valve disc creates two sealing points with an intermediate space between them. This space forms a leakage chamber at atmospheric pressure under every operating condition. If leakage occurs, the product flows into the drain through the outlet connections at the bottom of the valve for easy detection. When the valve is

open, the leakage chamber is closed, and the product flows from one line to the other.

The valve can be operated either by a pneumatic actuator from a remote location or manually using a handle. The actuator comes in three standard versions: normally closed (NC) and normally open (NO). For pneumatic operation, an actuator converts axial piston motion into a 90° rotation of the shaft. The actuator torque increases as the valve disc meets the valve seal ring to secure the proper closing of the valve seat. For manual operation, a handle mechanically locks the valve in an open or closed position. Manual valves can also be mounted with indication units for feedback on the valve position (open/closed).

Technical Data

Valve		
Max. product pressure:		1000 kPa / 145 psi / 10 bar
Min. product pressure:		Full vacuum
Temperature range:		-10 °C to + 95 °C / 14 °F to 203 °F (EPDM)

Actuator		
Max. air pressure:		600 kPa / 87 psi / 6 bar
Min. air pressure, NC and NO:		400 kPa / 60 psi / 4 bar
Temperature range:		-25 °C to +90 °C / 15 °F to 195 °F
Air consumption (litres free air):	Ø85 mm / Ø3.35"	0.24 x p (bar)
	Ø133 mm / Ø5.24"	0.95 x p (bar)
Weight:	Ø85 mm / Ø3.35"	3 kg / 6.6 lbs
	Ø133 mm / Ø5.24"	12 kg / 26.4 lbs

Physical Data

Valve Bodies	
Product wetted steel parts:	1.4404 (316L)
Disc:	1.4404 (316L)
Other steel parts:	1.4301 (304)
Rubber grades:	EPDM
Finish:	Semi-bright
Inside surface finish:	≤ Ra 0.8 µm / 32µin

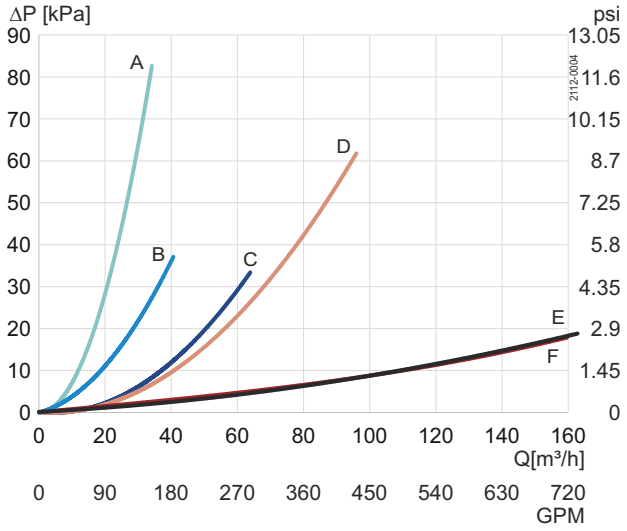
Actuator	
Actuator body:	1.4307 (304L)
Piston:	Light alloy
Seals:	NBR

Options

- ThinkTop® for control and indication[1]
- Indication unit with inductive proximity switches[1]
- Service tool for actuator

[1] For further information see Product Catalogue chapter "Control & Indication"

Capacity/Pressure drop diagrams

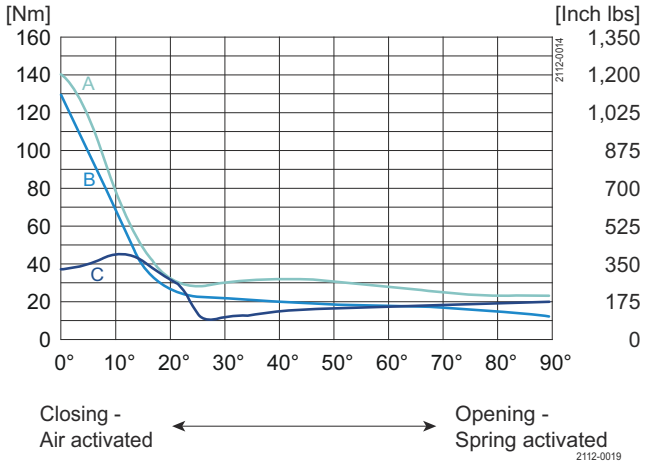


A = ISO 38 / DN40
B = ISO 51 / DN50
C = ISO 63.5 / DN65
D = ISO 76.1 / DN80
E = ISO 101.6 / DN100
F = DN125

Torque Diagrams - Actuator

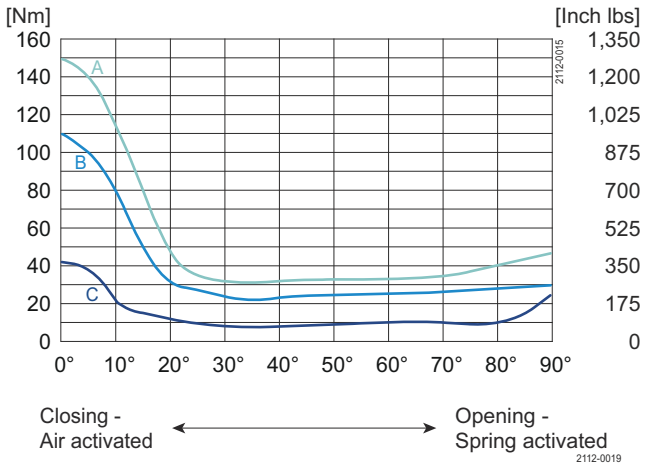
LKLA Ø85 mm / Ø3.35":

NC



A = 6 bar air pressure
B = 5 bar air pressure
C = Closing/opening with spring

NO



A = 6 bar air pressure
B = 5 bar air pressure
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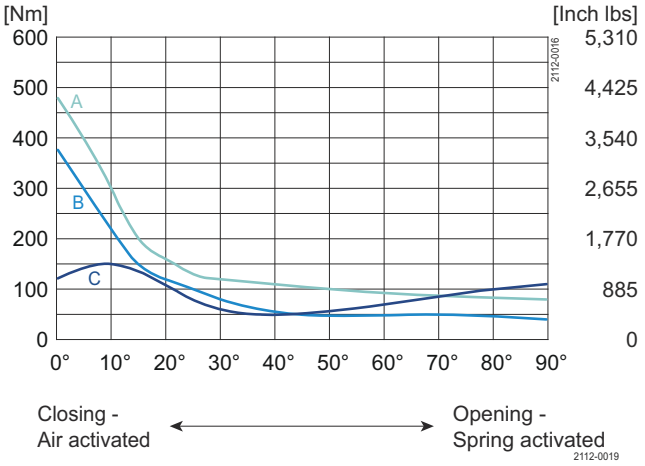
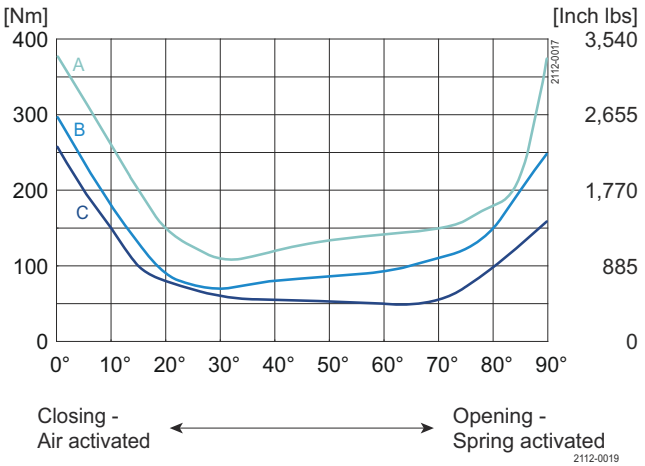
LKLA Ø133 mm / Ø5.24":

NC



A = 6 bar air pressure
B = 5 bar air pressure
C = Closing/opening with spring

NO



A = 6 bar air pressure
B = 5 bar air pressure
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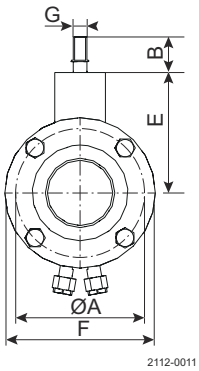
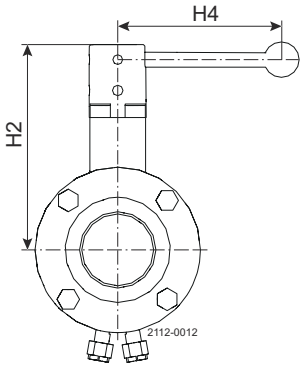
Torque values (for rotating the valve disc in a dry seal ring)

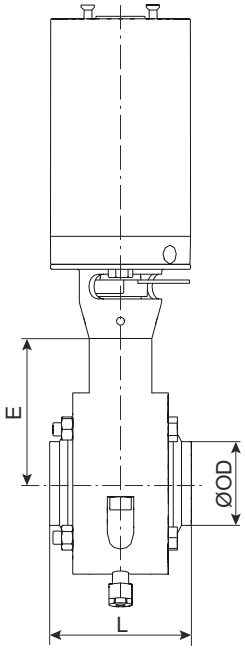
Size		Max. Torque	
mm	**inch**	**Nm**	**ft-lbs**
38 mm / DN40	1½"	20	11
51 mm / DN50	2"	20	11
63.5 mm / DN65	2½"	25	15
76 mm / DN80	3"	30	18
101.6 mm / DN100	4"	35	22
DN125	6"	50	26

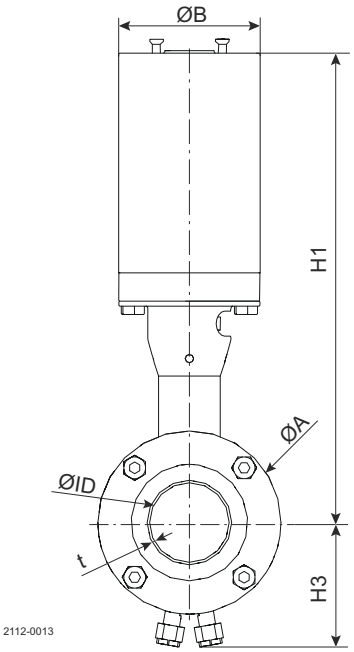
Dimensions

Valve







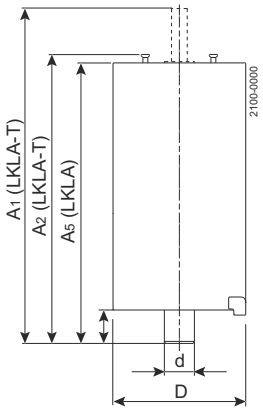


Size	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm	DN40	DN50	DN65	DN80	DN100	DN125
A	93.0	93.0	110.0	110.0	146.0	93.0	93.0	110.0	126.0	146.0	170.0
B	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
C	113.0	113.0	124.0	124.0	142.5	113.0	113.0	124.0	132.5	142.5	156.0
OD	38.1	50.8	63.5	76.1	101.6	41.0	53.0	70.0	85.0	104.0	129.0
ID	35.1	47.8	59.5	72.1	97.6	38.0	50.0	66.0	81.0	100.0	125.0
t	1.5	1.5	2.0	2.0	2.0	1.5	1.5	2.0	2.0	2.0	2.0
E	88.0	88.0	99.0	99.0	117.5	88.0	88.0	99.0	107.5	117.5	131.0
F	110.0	110.0	130.0	130.0	165.0	110.0	110.0	130.0	145.0	165.0	190.0
G	10.0	10.0	10.0	10.0	12.0	10.0	10.0	10.0	12.0	12.0	14.0
H_1	282	282	293	293	438.5	282	282	293	301.5	438.5	452
H_2	136.5	136.5	147.5	147.5	166.0	136.5	136.5	147.5	147.5	166.0	180.0
H_3	75.0	75.0	85.0	85.0	105.0	75.0	75.0	85.0	95.0	105.0	117.0
H_4	110	110	110	110	160.5	110	110	110	110	160.5	160.5
L	86.0	86.0	86.0	86.0	89.0	86.0	86.0	86.0	86.0	89.0	101.0
Weight (kg)	3.5	3.5	5.4	5.4	9.0	3.5	3.5	5.0	5.4	9.0	10.9

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

Actuator

Without coupling



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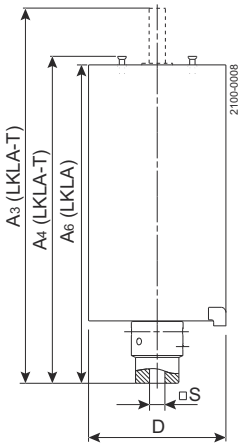
With coupling



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LKLA and LKLA-T:

Valve size	38-51 mm / DN40-50	63.5-76.1 mm / DN65	DN80	101.6 mm / DN100	DN125
A_1	217.1	217.1	217.1	337.0	337.0
A_2	173.5	173.5	173.5	290.0	290.0
A_3	237.1	237.1	237.1	367.5	367.5
A_4	193.5	193.5	193.5	320.5	320.5
A_5	165.5	165.5	165.5	282.0	282.0
A_6	185.5	185.5	185.5	312.5	312.5
D	85	85	85	133	133
d	17	17	17	30	30
l	16.5	16.5	16.5	34.0	34.0
S	10	10	12	12	14
Function	NC, NO	NC, NO	NC, NO	NC, NO	NC, NO

Connections

R⅛" (BSP), internal thread. (Quick connect fittings for ¼" tubing provided as standard)