

# The safe choice for High Purity applications

## Tri-Clover LKB UltraPure automatic or manual butterfly valve

### Application

Tri-Clover LKB UltraPure is an automatic or manual 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 principle

Tri-Clover 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 handle for manual operation mechanically lock the valve in its open or closed position.

### Standard design

Tri-Clover LKB UltraPure consists of two body halves, valve disc, bushings for the disc stem and a seal ring. The valve is assembled by means of screws and nuts.

The air-actuator is made in three standard versions, normally closed (NC), normally open (NO) and air/air activated (A/A). Two actuator sizes, ø85 mm (3,35") and ø133 mm (5,24"), cover all valve sizes and is available in two versions, LKLA and LKLA-T (T for mounting of indication unit on actuator).

The actuator is fitted on to the valve by means of a bracket and screws.

The handle for manual operation is fitted on to the valve by means of a cap/block system and a screw.

The handles for the are available in 2 positions, 4 positions, regulating 90° and lockable multi-position.

The valve can be supplied with either welding (low sulphur) or Tri-clamp connections.

### Control Equipment

Control and indication is possible in connection with the remote controlled valve. See Options. LKLA-T can be fitted with Top-units

### Documentation

All valves are delivered with Alfa Laval Q-doc including:

- 3.1 certificate in accordance to EN 10204
- FDA compliance and USP Class VI declaration
- TSE statement
- Surface finish declaration (Ra)
- Manufacturing and quality procedures



Tri-Clover LKB UltraPure

### Delivery conditions

- Individually marked with manufactures logo, ID number, pressure rating, material, standard, dimension and surface finish.
- Supplied with plastic end caps and individually packed together with the documentation

## Valve Dimensions (inches)

Fig. 1. Dimensions - valve.

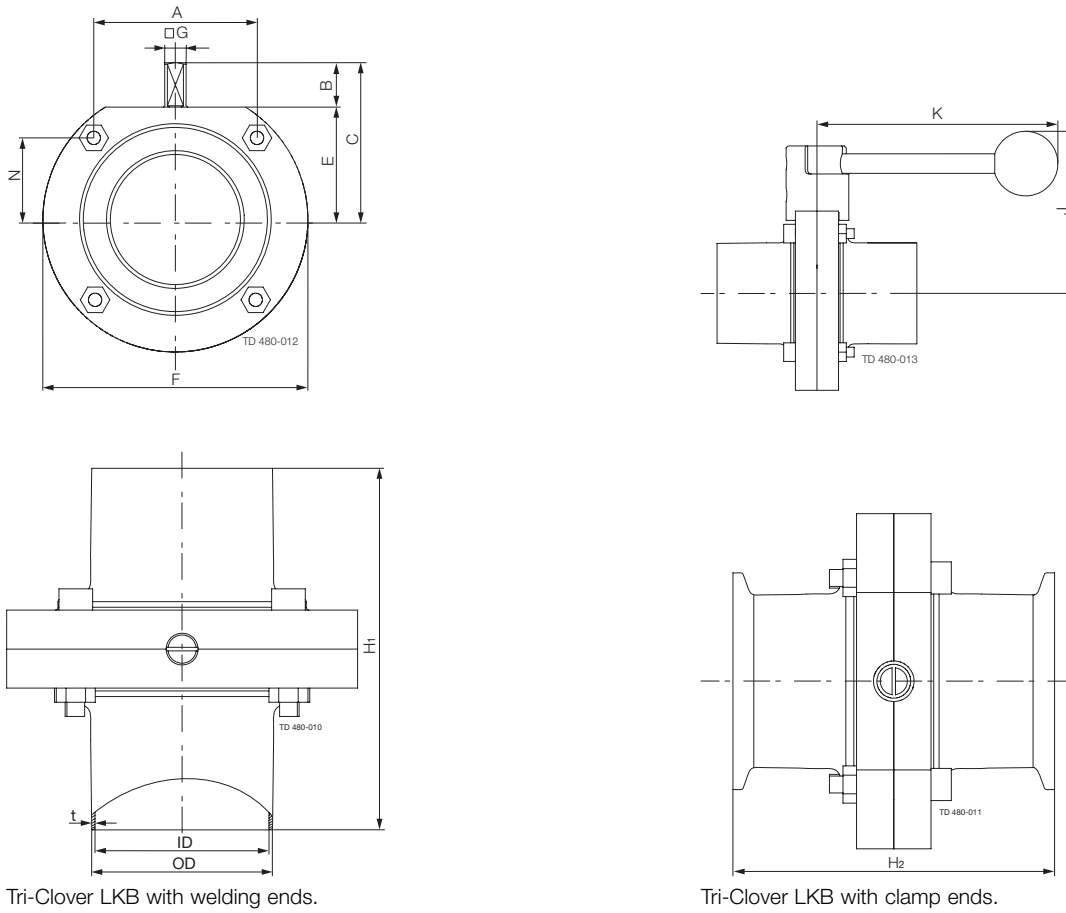
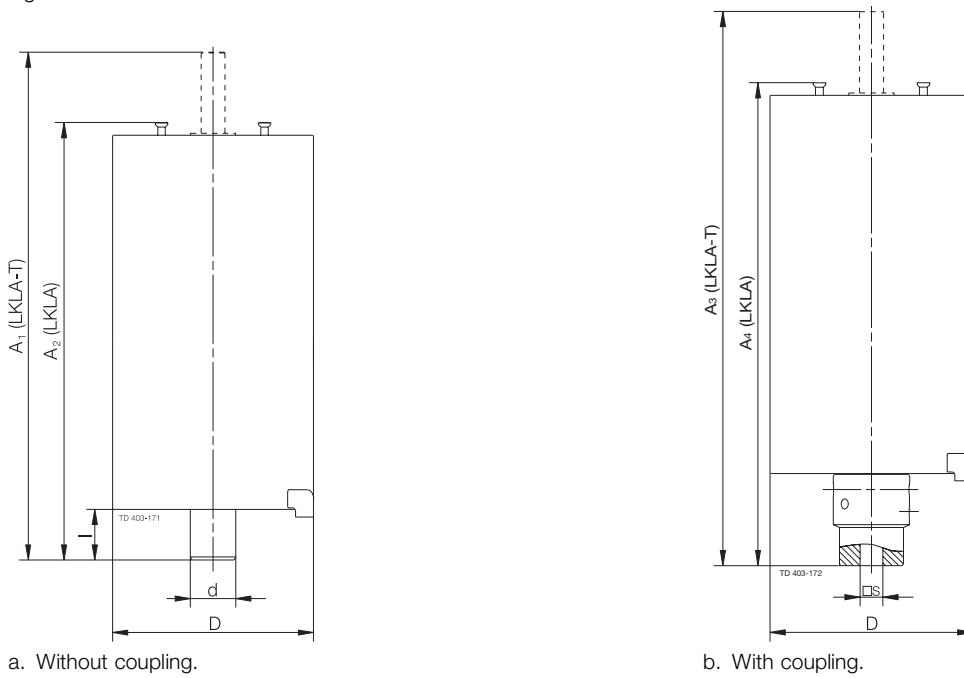


Fig. 2. Dimensions - actuators.



## Dimensions

### Tri-Clover LKB UltraPure

Size	1"	1½"	2"	2½"	3"	4"
A	1.654	1.654	2.402	2.402	3.130	4.173
B	0.610	0.657	0.654	0.689	0.654	0.630
C	1.929	1.929	2.303	2.736	2.894	3.661
OD	1.0	1.5	2.0	2.5	3.0	4.0
ID	0.870	1.370	1.870	2.370	2.870	3.834
t	0.065	0.065	0.065	0.065	0.065	0.083
E	1.280	1.280	1.654	2.047	2.244	3.031
F	3.071	3.071	3.898	4.606	5.197	6.654
□G	0.315	0.315	0.315	0.315	0.394	0.472
H <sub>1</sub>	5.000	5.000	5.197	5.276	6.378	7.087
H <sub>2</sub>	2.850	2.850	3.047	3.126	3.441	4.402
J	3.228	3.228	3.622	4.016	4.213	5.000
K	4.724	4.724	4.724	4.724	6.378	6.378
N	1.043	1.043	1.201	1.594	1.713	2.087
Weight (lb)	2.65	2.20	3.31	4.63	6.61	10.36

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

## Actuator Dimensions (inches)

### LKLA and LKLA-T

Valve Size	1"-2.5"	3"	4"	4"
A <sub>1</sub>	9.61	9.53	9.53	14.29
A <sub>2</sub>	7.60	7.52	7.52	12.44
A <sub>3</sub>	9.61	9.61	9.61	13.27
A <sub>4</sub>	6.81	6.81	6.81	11.42
D	3.35	3.35	3.35	5.24
d	0.67	0.67	0.67	1.18
l	0.65	0.65	0.65	1.34
□s	0.31	0.39	0.47	0.47
Function	NC,NO,A/A	NC,NO,A/A	NC,NO,A/A	NC,NO,A/A

**Note!** Suitability depends on process conditions

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## Connections

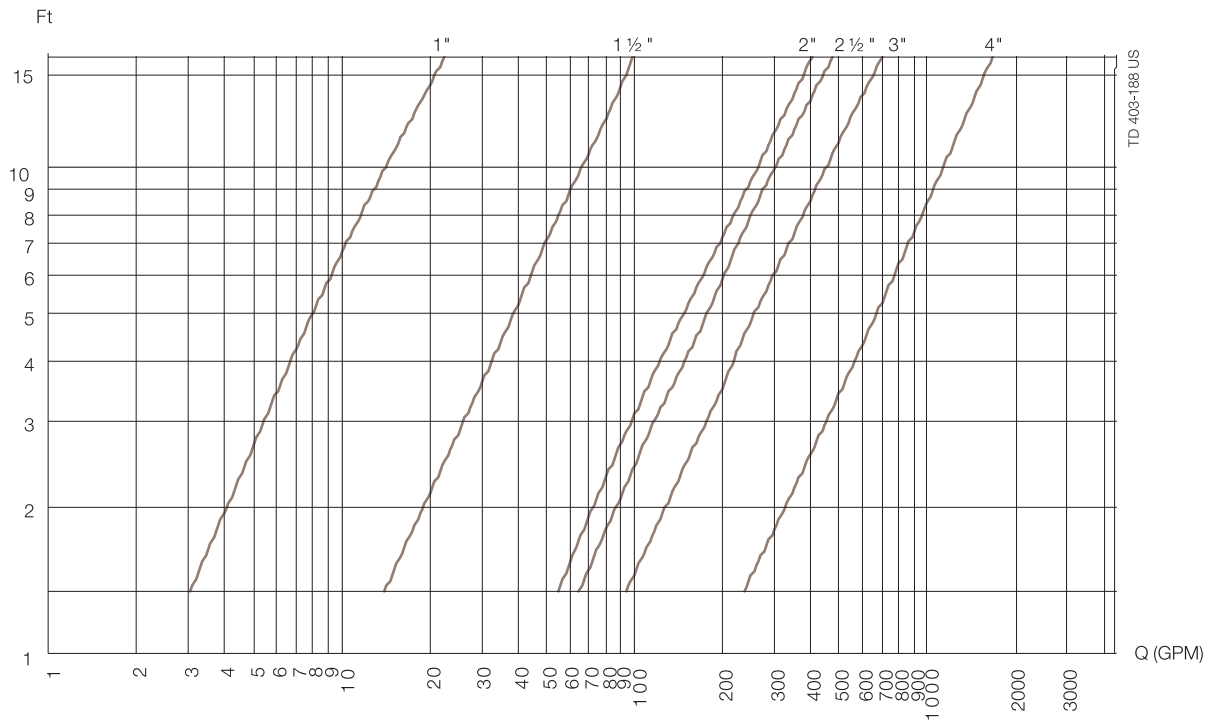
### Compressed air

R1/8" (BSP), internal thread.

(Quick connect fittings for ¼" tubing provided as standard)

## Capacity/Pressure drop diagrams

Tri-Clover LKB UltraPure fully open



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

Tri-Clover LKB UltraPure	Max Torque (ft-lbs)
1-inch	13
1.5-inch	13
2-inch	15
2.5-inch	15
3-inch	15
4-inch	28

**Note!**For the diagrams the following applies:

Medium: Water (155°F).

Measurement: In accordance with VDI 2173.



## Seal qualities

### EPDM:

The EPDM seal is mechanically strong and normally resistant to ozone and other strong oxidizers, animal and vegetable fats, polar solvents, acids and bases, water and aqueous solutions.

The seal is available in all sizes.

### FPM:

Normally resistant to ozone and other oxidizers, hydrocarbons in general, oils, lubricants and greases.

The seal is available in all sizes.

## Options

- A. Tri-Clamp® or butt weld ends standard
- B. ThinkTop® for control and indication
- C. Green Top - position indication MS or PS
- D. Indication unit with micro switches
- E. Indication unit with inductive proximity switches
- F. Handle with two or four positions
- G. Handle for electrical position indication
- H. Handle with infinite intermediate positions
- I. Multi-positioning handle with lever handle or pull knob
- J. Service tool for actuator
- K. Service tool for fitting 1"-1.5" valve discs

### Tri-Clover LKB UltraPure Handle Options

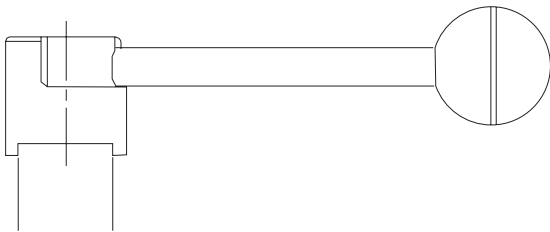


Fig. 5. Tri-Clover LKB UltraPure two position handle (black handle)

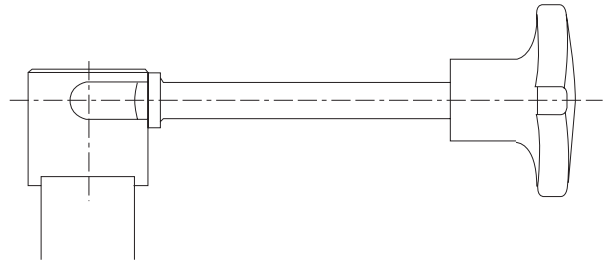


Fig. 6. Tri-Clover LKB UltraPure butterfly valve regulating handle

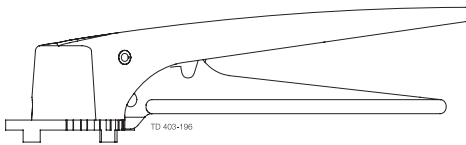


Fig. 7. Tri-Clover LKB UltraPure lockable multi-position handle

## Ordering

Please state the following when ordering:

- Valve size
- Connections
- Rubber grade: EPDM or FPM
- Surface finish
- Type of handle, if required

### **If ordering with actuator:**

- Type: LKLA or LKLA-T.
- Size:  $\varnothing$  85 mm (3.35") or  $\varnothing$  133 mm (5.24")
- Function: NC, NO or Air/Air
- Valve control options

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The information contained herein is correct at the time of issue,  
but may be subject to change without prior notice.

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**How to contact Alfa Laval**

Contact details for all countries  
are continually updated on our website.  
Please visit [www.alfalaval.us](http://www.alfalaval.us) to  
access the information direct.