

## Manual or Automatic - it's *your* Choice

LKB Automatic or Manual Butterfly Valve

PD 65396 US5 2001-12

### Application

LKB is a sanitary automatic or manually operated butterfly valve for use in stainless steel fluid handling systems.

### Working principle

LKB is either remote-controlled by means of an actuator or manually operated by means of a handle.

The actuator is made in three standard versions, normally-closed (NC), normally-open (NO) and air/air-activated (A/A).

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 ring of the butterfly valve.

A variety of handle options for manual operation mechanically secures the valve in its open, closed, or intermediate positions.

### Standard design

The valve consists of two valve body halves, valve disc, bushings for the disc stem and seal ring. The valve is assembled by means of screws and nuts.

Two actuator sizes,  $\varnothing$  85mm (3.35") and  $\varnothing$  133mm (5.24"), cover all valve sizes.

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

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

The LKB is available with either welded ends or Tri-Clamp® sanitary connections.

### Control Equipment

Control and indication is possible in connection with the remote-controlled LKB valve, including the *Think Top*®. See "Options".



Fig.1. LKB butterfly valve with pneumatic actuator

Fig.2. LKB butterfly valve with handle

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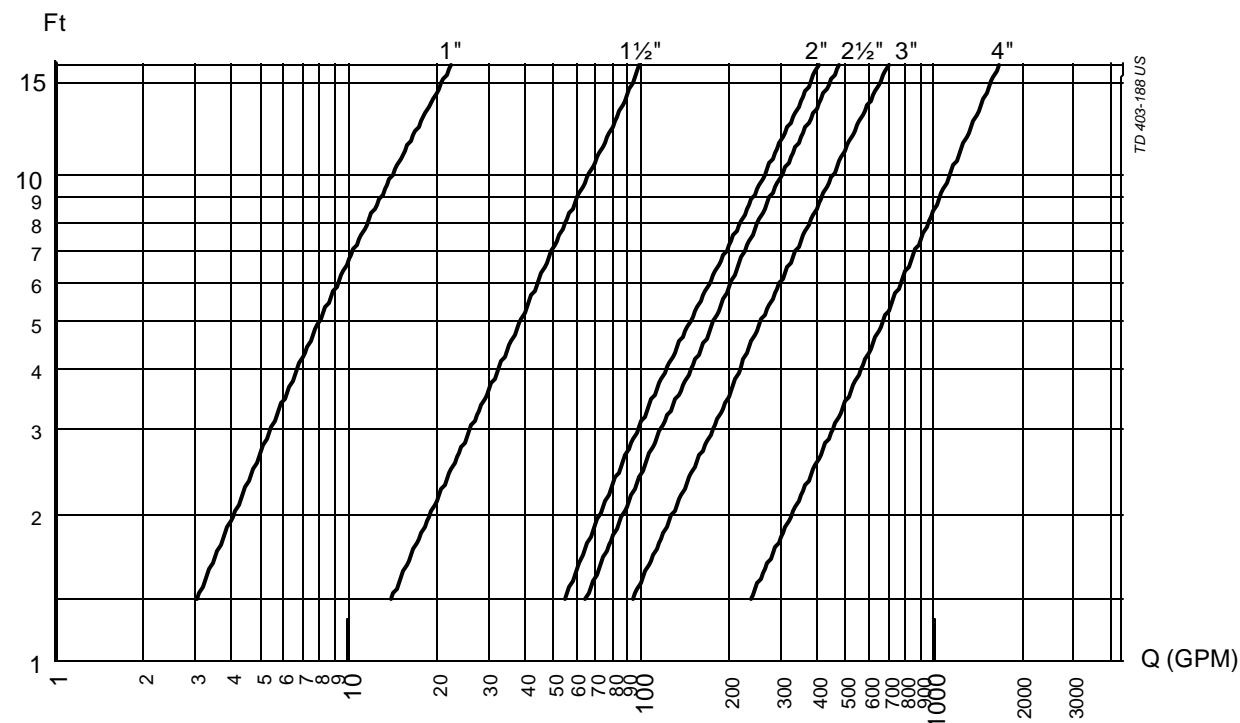
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## Capacity/Pressure drop diagrams

### LKB fully open



Note! For the diagrams the following applies:  
 Medium: Water (155°F).  
 Measurement: In accordance with VDI 2173.

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

| Valve Size | Max Torque (ft-lbs) |
|------------|---------------------|
| 1-inch     | 13                  |
| 1.5-inch   | 13                  |
| 2-inch     | 15                  |
| 2.5-inch   | 15                  |
| 3-inch     | 15                  |
| 4-inch     | 28                  |
| 6-inch     | 28                  |

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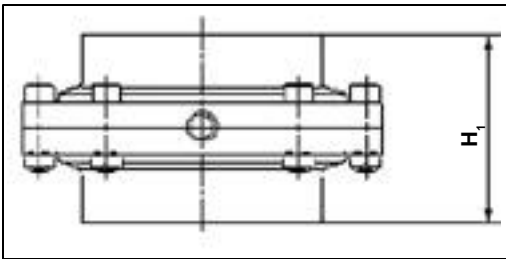
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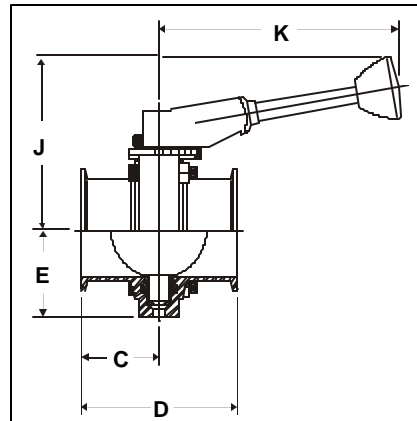
## Valve Dimensions (inches)

### LKB

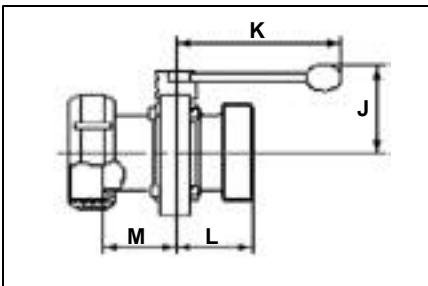
| Size                | 1-inch | 1½-inch | 2-inch | 2½-inch | 3-inch | 4-inch | 6-inch |
|---------------------|--------|---------|--------|---------|--------|--------|--------|
| C                   | 1.75   | 1.75    | 1.85   | 1.88    | 2.03   | 2.38   | 3.06   |
| D                   | 3.50   | 3.50    | 3.69   | 3.75    | 4.06   | 4.75   | 6.13   |
| E                   | 1.53   | 1.53    | 1.94   | 2.31    | 2.59   | 3.34   | 4.25   |
| F                   | 3.07   | 3.07    | 3.90   | 4.61    | 5.20   | 6.65   | 8.46   |
| H <sup>1</sup>      | 1.85   | 1.85    | 2.05   | 2.13    | 2.44   | 3.15   | 3.15   |
| J                   | 3.23   | 3.23    | 3.62   | 4.02    | 4.21   | 5.00   | 5.98   |
| J (green handle)    | 4.00   | 4.00    | 4.38   | 4.78    | 4.97   | 5.75   | 6.19   |
| K (black handle)    | 4.72   | 4.72    | 4.72   | 4.72    | 6.38   | 6.38   | 6.34   |
| K (green handle)    | 6.31   | 6.31    | 6.31   | 6.31    | 6.31   | 6.31   | 14.50  |
| L Bevel Seat        | 2.30   | 2.43    | 2.52   | 2.81    | 2.07   | 2.38   | -      |
| M Bevel Seat        | 2.30   | 2.43    | 2.52   | 2.81    | 2.97   | 3.32   | -      |
| L DC                | -      | 2.68    | 3.21   | 3.44    | 3.85   | 4.51   | -      |
| M DC                | -      | 2.43    | 2.52   | 2.81    | 2.97   | 3.32   | -      |
| L H-Line (male)     | -      | 1.93    | 2.02   | 2.06    | 2.22   | 2.57   | -      |
| M H-Line (female)   | -      | 1.93    | 2.02   | 2.06    | 2.22   | 2.57   | -      |
| L HDI-Line (male)   | 1.71   | 1.86    | 2.05   | 2.22    | 2.44   | 2.92   | -      |
| M HDI-Line (female) | 1.71   | 1.86    | 2.05   | 2.22    | 2.44   | 2.92   | -      |
| Weight LKB (lbs.)   | 2.64   | 2.20    | 3.31   | 4.63    | 10.36  | 19.84  | -      |



a. LKB with welding ends



b. LKB multi-position green handle



c. LKB with male part/nut and liner

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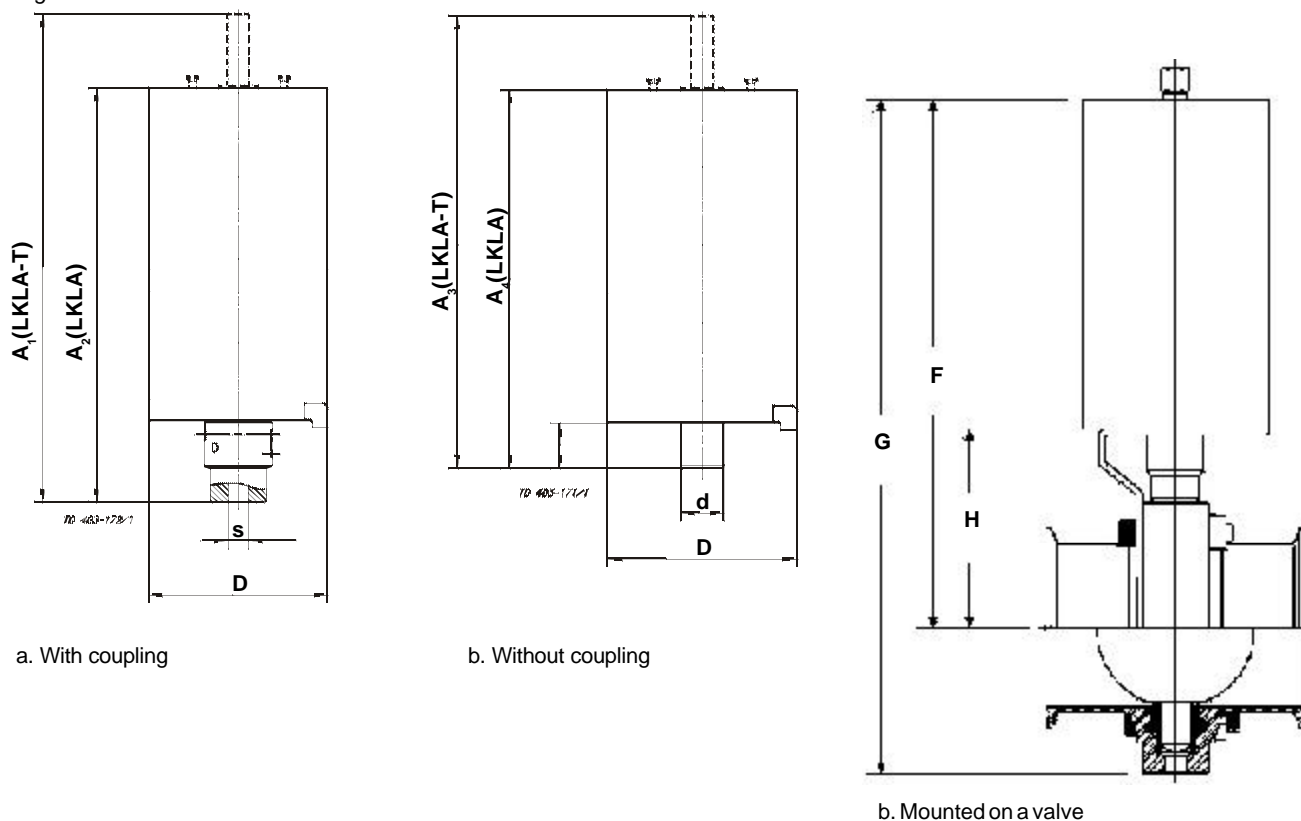
## Actuator Dimensions (inches)

### LKLA and LKLA-T

| Size     | 1-inch<br>Ø85 mm | 3-inch<br>Ø85 mm | 4-inch<br>Ø85 mm | 4-inch<br>Ø133 mm | 6-inch<br>Ø85 mm | 6-inch<br>Ø133 mm |
|----------|------------------|------------------|------------------|-------------------|------------------|-------------------|
| A1       | 9.61             | 9.53             | 9.53             | 14.29             | 9.69             | 14.29             |
| A2       | 7.60             | 7.52             | 7.52             | 12.44             | 7.68             | 12.44             |
| A3       | 9.61             | 9.61             | 9.60             | 13.27             | 9.61             | 13.27             |
| A4       | 6.81             | 6.81             | 6.81             | 11.42             | 6.81             | 11.42             |
| D        | 3.35             | 3.35             | 3.35             | 5.24              | 3.35             | 5.24              |
| d        | 0.67             | 0.67             | 0.67             | 1.18              | 0.79             | 1.18              |
| F        | 8.56             | 9.44             | 10.25            | 10.25             | 16.31            | 16.31             |
| G        | 10.13            | 12.06            | 13.56            | 13.56             | 20.56            | 20.56             |
| H        | 2.72             | 3.59             | 4.38             | 4.38              | 6.50             | 6.50              |
| I        | 0.65             | 0.65             | 0.65             | 1.34              | 0.64             | 1.34              |
| s        | 0.31             | 0.39             | 0.47             | 0.47              | 0.59             | 0.59              |
| Function | NC,NO,A/A        | NC,NO,A/A        | NC,NO,A/A        | NC,NO,A/A         | A/A              | NC,NO,A/A         |

Note! Suitability depends on process conditions

Figure 4. Dimensions - actuators



### Connections

Compressed air:

R<sup>1</sup>/<sub>8</sub>" (BSP), internal thread.

(Quick connect fittings for 1/4" tubing provided as standard)

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## Technical Data

### Valve:

|                             |                  |
|-----------------------------|------------------|
| Max. product pressure ..... | 145 PSI (10 bar) |
| Min. product pressure ..... | Full vacuum      |
| Temperature range .....     | 15° F to 200° F  |

### Actuator:

|   |                 |
|---|-----------------|
| Max. air pressure .....                           | 10 PSI (7 bar)  |
| Min. air pressure, NC and NO .....                | 60 PSI (4 bar)  |
| Temperature range .....                           | 15° F to 195° F |
| Air consumption (liters free air) - ø85 mm .....  | 0.24 x p (bar)  |
| Air consumption (liters free air) - ø133 mm ..... | 0.95 x p (bar)  |
| Weight  |                 |
| ø85 mm .....                                      | 6.6 lbs         |
| ø133 mm .....                                     | 26.4 lbs        |

## Materials

### Valve:

|                                  |  |
|----------------------------------|--|
| Product wetted steel parts ..... | 304 stainless steel or 316L stainless steel                  |
| Other steel parts .....          | 304 stainless steel  |
| Rubber grades .....              | Silicone rubber (Q), EPDM, Fluorinated rubber (FPM), or HNBR |
| Bushes for valve disc .....      | PVDF   |
| Finish OD .....                  | Machined finish  |
| Finish ID                        |  |
| Sanitary .....                   | ≤ 32 microinches Ra  |
| Standard .....                   | ≤ 60 microinches Ra  |
| Industrial .....                 | (not polished)   |

### Actuator:

|                     |  |
|---------------------|--|
| Actuator body ..... | 304 stainless steel  |
| Piston .....        | Light alloy (for ø85 mm: Bronze)<br>Air/air version (Bronze) |
| Seals .....         | Nitrile (NBR)  |

## Options

### Equipment

- Tri-Clamp® or butt weld ends standard
  - other connections available upon request
- ThinkTop® for control and indication
- Indication unit with micro switches
- Indication unit with inductive proximity switches
- Handle with two or four positions (standard on 6")
- Handle for electrical position indication
- Handle with infinite intermediate positions (not for 6")
- Multi-positioning handle with lever handle or pull knob
- Electric actuator

### Tools

- Service tool for actuator
- Service tool for fitting 1"-1.5" valve discs

## LKB Handle Options

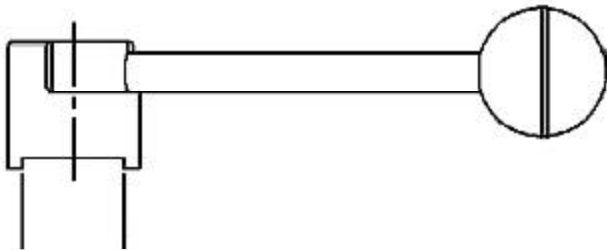


Fig. 5. LKB two position handle (black handle)

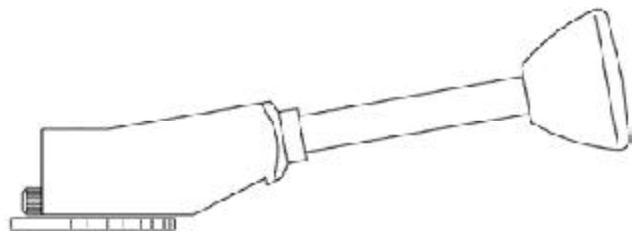


Fig. 6. LKB multi-position handle (green handle)



Fig. 7. LKB butterfly valve regulating handle



Fig. 8. LKB lockable multi-position handle

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## Ordering

Please state the following when ordering:

- Valve size
- Connections
- Materials: AISI 304 or AISI 316L
- Rubber grade: EPDM, Silicone (Q), Fluorinated rubber (FPM) or HNBR
- Type of handle, if required

If ordering with actuator:

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

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