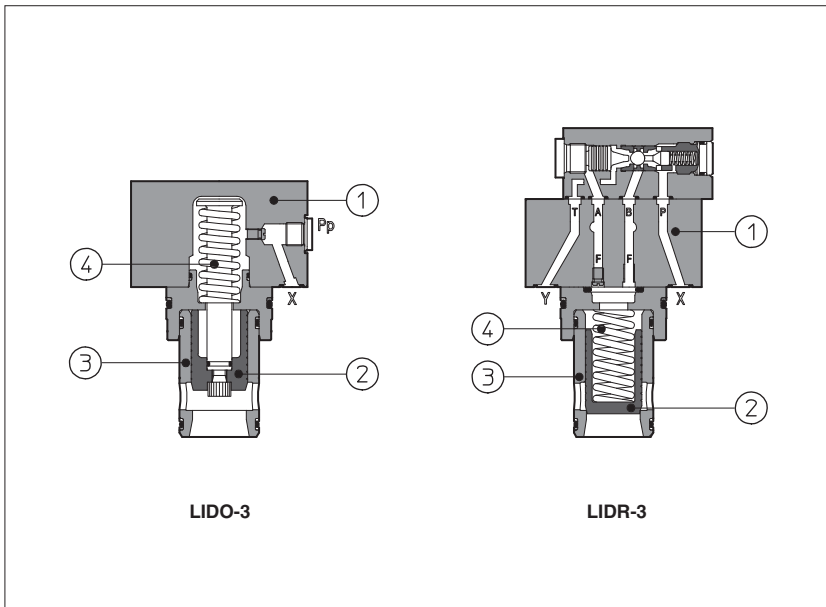


# Modular cartridge valves type LID

Check function, ISO 7368 sizes from 16 to 80



LID are cartridge valves for check function composed by a 2-way cartridge housed in a recess of standard dimensions and by a closing functional element ① called "cover".

The cartridge is composed by a poppet ② hydraulically piloted by means of internal connections in the cover (X, Z1, Z2, F, Y) and sliding into a drilled sleeve ③.

The flow is inhibited or permitted according to a proper pilot control.

Normally closed and normally open versions are available; cracking pressure value depends on poppet spring ④.

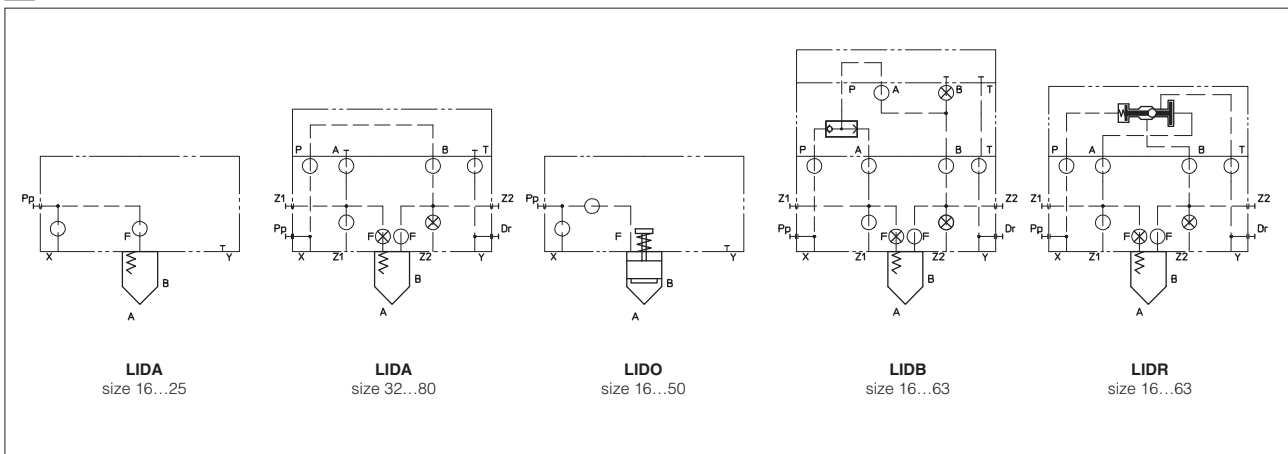
These valves are available in standard sizes 16 to 80 according to ISO 7368 (DIN 24342).

Flow up to 5600 l/min at  $\Delta p = 6$  bar.  
Pressure up to 350 bar.

## 1 MODEL CODE FOR COVERS

|   |          |          |          |          |           |           |           |  |
|---|----------|----------|----------|----------|-----------|-----------|-----------|--|
| <b>LI</b>   | <b>D</b> | <b>A</b> | <b>-</b> | <b>1</b> | <b>/*</b> | <b>**</b> | <b>/*</b> | <b>*</b>   |
| Cover according to ISO 7368   |          |          |          |          |           |           |           | Optional different provision or setting of the calibrated plugs in the pilot channels, see section 7 |
| D = direct operated valve   |          |          |          |          |           |           |           | Seals material:<br>omit for NBR (mineral oil & water glycol)<br><b>PE</b> = FPM                      |
| A = normally closed;<br>O = normally open;<br>B = with shuttle valve for pilot selection;<br>R = with hydraulically operated pilot check valve;                   |          |          |          |          |           |           |           | Series number  |
| Size:<br>1 = 16;      3 = 32;      5 = 50;      8 = 80 (only for LIDA)<br>2 = 25;      4 = 40;      6 = 63;<br>LIDO is available only in sizes 16, 25, 32, 40, 50 |          |          |          |          |           |           |           | Options: see section 7   |
| For model code of poppet, see section 4   |          |          |          |          |           |           |           |  |

## 2 HYDRAULIC SYMBOLS



### 3 HYDRAULIC CHARACTERISTICS

|  | LIDA, LIDO, LIDB, LIDR                            |     |     |      |      |      |      |     |     |     |      |      |      |      |     |     |     |      |      |      |      |     |     |     |     |      |      |      |  |  |  |
|--|---|-----|-----|------|------|------|------|-----|-----|-----|------|------|------|------|-----|-----|-----|------|------|------|------|-----|-----|-----|-----|------|------|------|--|--|--|
|  | 32, 52 (1), 62, 63 (2)                            |     |     |      |      |      |      |     | 33  |     |      |      |      |      |     |     | 42  |      |      |      |      |     |     |     | 43  |      |      |      |  |  |  |
| Covers, see section 1                          |   |     |     |      |      |      |      |     |     |     |      |      |      |      |     |     |     |      |      |      |      |     |     |     |     |      |      |      |  |  |  |
| Poppet, see section 4, 5                       |   |     |     |      |      |      |      |     |     |     |      |      |      |      |     |     |     |      |      |      |      |     |     |     |     |      |      |      |  |  |  |
| Size   | 16  | 25  | 32  | 40   | 50   | 63   | 80   | 16  | 25  | 32  | 40   | 50   | 63   | 80   | 16  | 25  | 32  | 40   | 50   | 63   | 80   | 16  | 25  | 32  | 40  | 50   | 63   | 80   |  |  |  |
| Max flow at $\Delta p = 6 \text{ bar}$ [l/min] | 180   | 430 | 670 | 1400 | 2200 | 3500 | 5600 | 160 | 330 | 530 | 1100 | 1700 | 2600 | 4000 | 170 | 380 | 560 | 1300 | 2200 | 2800 | 4800 | 130 | 300 | 480 | 940 | 1500 | 2200 | 3500 |  |  |  |
| Max pressure [bar]                             | 350 bar at port A, B, X, Z1, Z2; 70 bar at port Y |     |     |      |      |      |      |     |     |     |      |      |      |      |     |     |     |      |      |      |      |     |     |     |     |      |      |      |  |  |  |

- (1) Poppet 52 is available only in sizes 16...50  
 (2) Poppets 62, 63 are available only in sizes 16, 25, 32, 50

### 4 MODEL CODE FOR POPPETS, see section 5 for function

|   |   |           |           |  |               |   |
|---|---|-----------|-----------|--|---------------|---|
| <b>SC LI</b>  | - | <b>16</b> | <b>32</b> | <b>1</b>   | <b>**</b>     | <b>/*</b>   |
| Cartridge according to ISO 7368   |   |           |           |  |               | Seals material:<br>omit for NBR (mineral oil & water glycol)<br><b>PE</b> = FPM |
| Size, the same of relevant cover:<br><b>16 40 80</b><br><b>25 50</b><br><b>32 63</b>  |   |           |           |  | Series number |   |
| Type of poppet, see section 3 for maximum flow:<br><b>32, 33</b> (sizes 16...80) = for all models except LIDO;<br><b>42, 43</b> (sizes 16...80) = as 32, 33 but with dumping nose. For all models except LIDO;<br><b>52</b> (sizes 16...50) = only for LIDA;<br><b>62</b> (sizes 16, 25, 32, 40, 50) = only for LIDO;<br><b>63</b> (sizes 16, 25, 32, 50) = as 62 but with dumping nose. Only for LIDO; |   |           |           | Spring cracking pressure:<br><b>1</b> = 0,3 bar for poppet 32, 42, 52;<br><b>1</b> = 0,6 bar for poppet 33, 43;<br><b>2</b> = 1,5 bar for poppet 32, 42, 52;<br><b>3</b> = 3 bar for all poppets<br><b>6</b> = 5,5 bar for all poppets |               |   |

### 5 TYPICAL FUNCTIONS OF POPPETS

| Code of poppet                       | 32  | 33  | 42  | 43  | 52  | 62  | 63   |
|--------------------------------------|---|---|---|---|---|---|--|
| Functional sketch (Hydraulic symbol) |   |   |   |   |   |   |  |
| Typical section                      |   |   |   |   |   |   |  |
| Area ratio (1)                       | 1 : 1,1   | 1 : 2 for size 16, 25<br>1 : 1,6 for size 32 ÷ 80                 | 1 : 1,1   | 1 : 2 for size 16, 25<br>1 : 1,6 for size 32 ÷ 80                                     | 1 : 1,1   | 1 : 1,1   | 1 : 1,1  |
| Opening pressure A → B (2)           | 0,3 bar (spring 1)<br>1,5 bar (spring 2)<br>3 bar (spring 3)<br>6 bar (spring 6)      | 0,5 bar (spring 1)<br>-<br>2,5 bar (spring 3)<br>6 bar (spring 6) | 0,4 bar (spring 1)<br>-<br>2,1 bar (spring 3)<br>4,3 bar (spring 6) | 0,3 bar (spring 1)<br>1,3 bar (spring 2)<br>3,2 bar (spring 3)<br>6 bar (spring 6)    | 0,5 bar (spring 1)<br>-<br>2,7 bar (spring 3)<br>6 bar (spring 6) | 0,4 bar (spring 1)<br>-<br>2,5 bar (spring 3)<br>4,9 bar (spring 6) | 0,3 bar (spring 1)<br>1,5 bar (spring 2)<br>3 bar (spring 3)<br>6 bar (spring 6) |
| Opening pressure B → A (2)           | 3 bar (spring 1)<br>12,8 bar (spring 2)<br>32,5 bar (spring 3)<br>59,4 bar (spring 6) | 0,5 bar (spring 1)<br>-<br>2,5 bar (spring 3)<br>6 bar (spring 6) | 0,7 bar (spring 1)<br>-<br>3,7 bar (spring 3)<br>7,5 bar (spring 6) | 3 bar (spring 1)<br>12,8 bar (spring 2)<br>32,5 bar (spring 3)<br>59,4 bar (spring 6) | 0,5 bar (spring 1)<br>-<br>2,4 bar (spring 3)<br>6 bar (spring 6) | 0,7 bar (spring 1)<br>-<br>3,7 bar (spring 3)<br>7,5 bar (spring 6) | -<br>-<br>-<br>-   |

- (1) It is the ratio of the area on which the main pressure of the circuit is applied to the area on which the pilot pressure is applied  
 (2) Depending on the spring cracking pressure and the area ratio of the poppet

### 6 MAIN CHARACTERISTICS OF MODULAR CHECK FUNCTION CARTRIDGE VALVES TYPE LID

|                              |  |
|------------------------------|--|
| Assembly position / location | Any position   |
| Subplate surface finishing   | Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101)  |
| Ambient temperature          | -20 °C to + 70°C   |
| Fluid                        | Hydraulic oil as per DIN 51524 ... 535; for other fluids see section 7                                 |
| Recommended viscosity        | 15 ÷ 100 mm <sup>2</sup> /s at 40°C (ISO VG 15÷100)  |
| Fluid contamination class    | ISO 4406 class 21/19/16 NAS 1638 class 10, in line filters of 25 µm (β <sub>25</sub> ≥ 75 recommended) |
| Fluid temperature            | -20°C +60°C (standard seals and water glycol) -20°C +80°C (/PE seals)                                  |
| Pilot ratio (only for LIDR)  | Az1 : Ax = 3 : 1   |

### 7 OPTIONS

For LIDA (sizes 16 and 25), for LIDO (all sizes) LIDB (sizes 40 ÷ 63), LIDR (sizes 40 ÷ 63):  
**/E** = with external attachments Pp and underneath port X supplied plugged;

For all models:

**/F** = (not for LIDO) prearranged for coupling to an intermediate element with position detector for safety valves, see tab. E110.

**\*\*\*** = Calibrated plugs different from standard ones. All covers contain and are equipped with restrictors in the pilot channels according to the standard arrangement which is preset for each variant (see section 7). They can be exchanged with others for particular use. When ordering covers equipped with restrictors that are different from the standard ones it must be indicated at the end of the model code:

**LIDB - 4 /E**

**\*\***

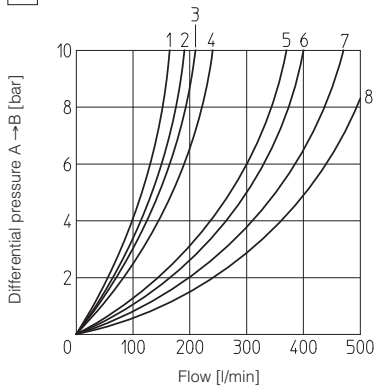
**X**

**06**

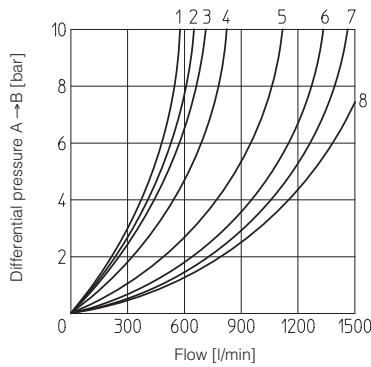
Channel where the restrictor have to be provided:  
**X** = channel X **Z1** = channel Z1  
**F** = channel F **Z2** = channel Z2

Size of the throttling hole in ten of millimeters:  
**05** = 0,5 mm **10** = 1 mm **17** = 1,7 mm  
**06** = 0,6 mm **12** = 1,2 mm **20** = 2 mm  
**08** = 0,8 mm **15** = 1,5 mm

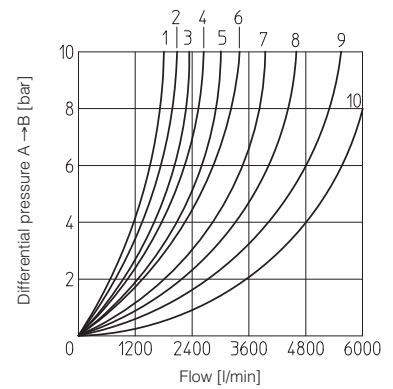
**8 DIAGRAMS OF POPPETS**



- 1 = SC LI-1643      5 = SC LI-2543
- 2 = SC LI-1633      6 = SC LI-2533
- 3 = SC LI-1642      7 = SC LI-2542
- 1632                   -2532
- 4 = SC LI-1652      8 = SC LI-2552
- 1662                   -2562
- 1663                   -2563

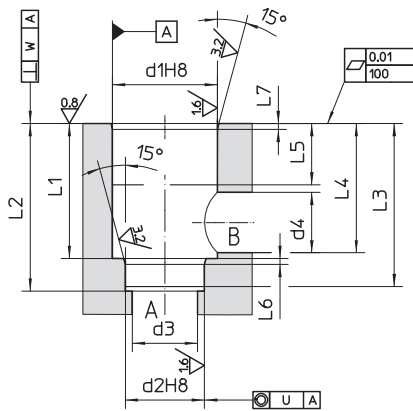


- 1 = SC LI-3243      5 = SC LI-4043
- 2 = SC LI-3233      6 = SC LI-4033
- 3 = SC LI-3242      7 = SC LI-4042
- 3232                   -4052
- 4 = SC LI-3252      8 = SC LI-4032
- 3262                   -4062
- 3263                   -4063



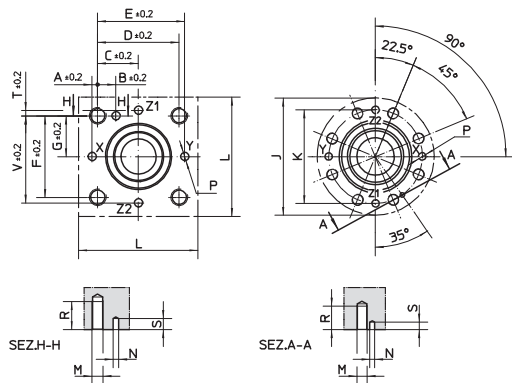
- 1 = SC LI-5043      5 = SC LI-6333
- 2 = SC LI-5033      6 = SC LI-6342
- 3 = SC LI-5042      7 = SC LI-6332
- 5032                   -8043
- 4 = SC LI-5052      8 = SC LI-8033
- 5062                   -8042
- 5063                   -8043
- 6343                   -8032
- 10 = SC LI-8032

**9 RECESS DIMENSIONS [mm]**



| Sizes | Ø d1 | Ø d2 | Ø d3 max | Ø d4 max | L1                               | L2                               | L3  | L4 max | L5 | L6  | L7  | U    | W    |
|-------|------|------|----------|----------|----------------------------------|----------------------------------|-----|--------|----|-----|-----|------|------|
| 16    | 32   | 25   | 16       | 22,5     | 43 <sup>+0,1</sup> <sub>0</sub>  | 56 <sup>+0,1</sup> <sub>0</sub>  | 54  | 42,5   | 20 | 2   | 2   | 0,03 | 0,05 |
| 25    | 45   | 34   | 25       | 27       | 58 <sup>+0,1</sup> <sub>0</sub>  | 72 <sup>+0,1</sup> <sub>0</sub>  | 70  | 57     | 30 | 2,5 | 2,5 | 0,03 | 0,05 |
| 32    | 60   | 45   | 32       | 38,5     | 70 <sup>+0,1</sup> <sub>0</sub>  | 85 <sup>+0,1</sup> <sub>0</sub>  | 83  | 68,5   | 30 | 2,5 | 2,5 | 0,03 | 0,1  |
| 40    | 75   | 55   | 40       | 54,5     | 87 <sup>+0,1</sup> <sub>0</sub>  | 105 <sup>+0,1</sup> <sub>0</sub> | 102 | 84,5   | 30 | 3   | 3   | 0,05 | 0,1  |
| 50    | 90   | 68   | 50       | 62,5     | 100 <sup>+0,1</sup> <sub>0</sub> | 122 <sup>+0,1</sup> <sub>0</sub> | 117 | 97,5   | 35 | 3   | 3   | 0,05 | 0,1  |
| 63    | 120  | 90   | 63       | 87       | 130 <sup>+0,1</sup> <sub>0</sub> | 155 <sup>+0,1</sup> <sub>0</sub> | 150 | 127    | 40 | 4   | 4   | 0,05 | 0,2  |
| 80    | 145  | 110  | 80       | 100      | 175 <sup>+0,2</sup> <sub>0</sub> | 205 <sup>+0,2</sup> <sub>0</sub> | 200 | 170,5  | 40 | 5   | 5   | 0,05 | 0,2  |

**10 COVER INTERFACE DIMENSIONS [mm]**

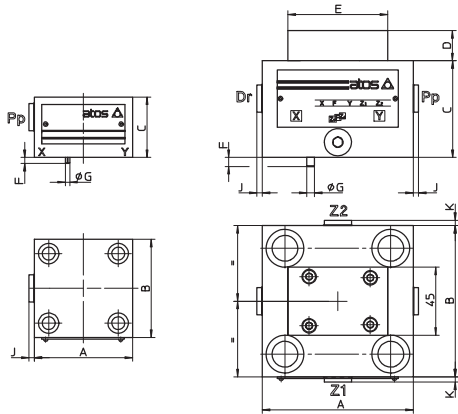


| Sizes | A    | B    | C    | D   | E     | F   | G    | J min | K   | L min | M   | ØN | ØP max | R  | S max | T    | V     |
|-------|------|------|------|-----|-------|-----|------|-------|-----|-------|-----|----|--------|----|-------|------|-------|
| 16    | 2    | 12,5 | 23   | 46  | 48    | 46  | 23   | -     | -   | 65    | M8  | 4  | 4      | 22 | 8     | 2    | 48    |
| 25    | 4    | 13   | 29   | 58  | 62    | 58  | 29   | -     | -   | 85    | M12 | 6  | 6      | 30 | 8     | 4    | 62    |
| 32    | 6    | 18   | 35   | 70  | 76    | 70  | 35   | -     | -   | 102   | M16 | 6  | 8      | 38 | 8     | 6    | 76    |
| 40    | 7,5  | 19,5 | 42,5 | 85  | 92,5  | 85  | 42,5 | -     | -   | 125   | M20 | 6  | 10     | 46 | 8     | 7,5  | 92,5  |
| 50    | 8    | 20   | 50   | 100 | 108   | 100 | 50   | -     | -   | 140   | M20 | 8  | 10     | 46 | 8     | 8    | 108   |
| 63    | 12,5 | 24,5 | 62,5 | 125 | 137,5 | 125 | 62,5 | -     | -   | 180   | M30 | 8  | 12     | 66 | 8     | 12,5 | 137,5 |
| 80    | -    | -    | -    | -   | -     | -   | -    | 250   | 200 | -     | M24 | 10 | 16     | 50 | 8     | -    | -     |

**11 SCREWED ORIFICES IN STANDARD COVER EXECUTION: DIMENSIONS (1)**

| Cover | Port   |           |        |            |        |           |        |            |        |           |        |            |        |        |            |        |           |        |            |        |        |        |            |
|-------|--------|-----------|--------|------------|--------|-----------|--------|------------|--------|-----------|--------|------------|--------|--------|------------|--------|-----------|--------|------------|--------|--------|--------|------------|
|       | LIDA-1 | LIDO-1    | LIDB-1 | LIDR-1     | LIDA-2 | LIDO-2    | LIDB-2 | LIDR-2     | LIDA-3 | LIDO-3    | LIDB-3 | LIDR-3     | LIDA-4 | LIDB-4 | LIDR-4     | LIDA-5 | LIDO-5    | LIDB-5 | LIDR-5     | LIDA-6 | LIDB-6 | LIDR-6 | LIDA-8     |
| X     | -      | M4<br>10A | -      | -          | -      | M4<br>10A | -      | -          | -      | M6<br>12A | -      | -          | -      | -      | -          | -      | M6<br>15F | -      | -          | -      | -      | -      | -          |
| P     | -      | -         | -      | M6<br>12A  | -      | -         | -      | M6<br>12A  | -      | -         | -      | M6<br>15A  | -      | -      | M6<br>17A  | -      | -         | -      | M6<br>20A  | -      | -      | -      | M6<br>20A  |
| Z2    | -      | -         | -      | M4<br>100F | -      | -         | -      | M6<br>300F | -      | -         | -      | M6<br>300F | -      | -      | M6<br>300F | -      | -         | -      | M6<br>300F | -      | -      | -      | M6<br>300F |

(1) The showed codes define the orifice thread, diameter of the throttling hole in ten of millimeters and the form of throttle sectional area:  
**A** = short calibrated hole      **F** = long calibrated hole

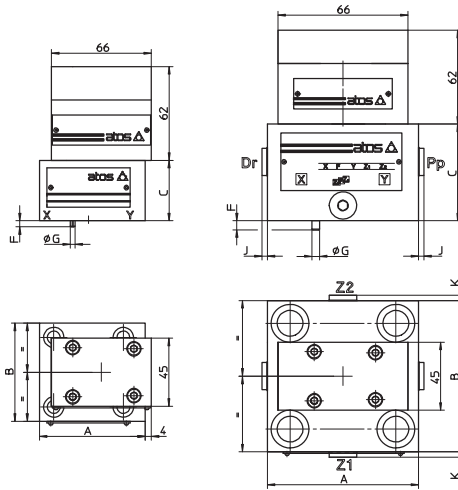


LIDA (size 16 ÷ 25)  
LIDO (size 16...50)

LIDA (size 32...80)

| Covers (1)       | A     | B   | C             | D       | E       | F | G | K   | J        | Port Pp-Dr | Port Z1-Z2 | Seals                      | Fastening bolts (3)    | Tightening torque (Nm) | Weight [Kg] |
|------------------|-------|-----|---------------|---------|---------|---|---|-----|----------|------------|------------|----------------------------|------------------------|------------------------|-------------|
| LIDA-1<br>LIDO-1 | 65    | 65  | 40            | -       | -       | 4 | 3 | -   | 3,5      | G 1/4      | -          | 2 OR 108<br>1 OR 108 (2)   | Nr. 4<br>M8x45         | 35                     | 1,4         |
| LIDA-2<br>LIDO-2 | 85    | 85  | 40            | -       | -       | 6 | 5 | -   | 3,5      | G 1/4      | -          | 2 OR 108<br>1 OR 108 (2)   | Nr. 4<br>M12x45<br>(4) | 125                    | 1,8         |
| LIDA-3<br>LIDO-3 | 100   | 100 | 50<br>60 (2)  | 20      | 66      | 6 | 5 | -   | 3,5      | G 1/4      | -          | 4 OR 2043<br>1 OR 2043 (2) | Nr. 4<br>M16x55<br>(5) | 300                    | 2,3         |
| LIDA-4<br>LIDO-4 | 125   | 125 | 60<br>100     | 20<br>- | 66<br>- | 6 | 5 | -   | 3,5<br>3 | G 1/4      | -          | 4 OR 2050<br>1 OR 2050     | Nr. 4<br>M20x70<br>(6) | 600                    | 6,2         |
| LIDA-5<br>LIDO-5 | 140   | 140 | 70<br>110 (2) | 20      | 66      | 4 | 6 | 3,5 | 3,5      | G 1/4      | G 1/4      | 4 OR 2050<br>OR 2050 (2)   | Nr. 4<br>M20x80<br>(7) | 600                    | 9,3         |
| LIDA-6           | 180   | 180 | 80            | 20      | 66      | 4 | 6 | 3,5 | 3,5      | G 3/8      | G 3/8      | 4 OR 2056                  | Nr. 4<br>M30x90        | 2100                   | 17,1        |
| LIDA-8           | Ø 250 | -   | 80            | 30      | 73      | 6 | 8 | -   | 3,5      | G 3/8      | -          | 4 OR 123                   | Nr. 8<br>M24x90        | 1000                   | 27          |

- (1) For LIDO-2: the external attachment Pp is located at Y port side of the cover;
- (2) Only for LIDO;
- (3) Hexagon socket head screw according to DIN 912 class 12.9
- (4) M12x50 for LIDO-2;
- (5) M16x60 for LIDO-3;
- (6) M20x100 for LIDO-4;
- (7) M20x110 for LIDO-5;

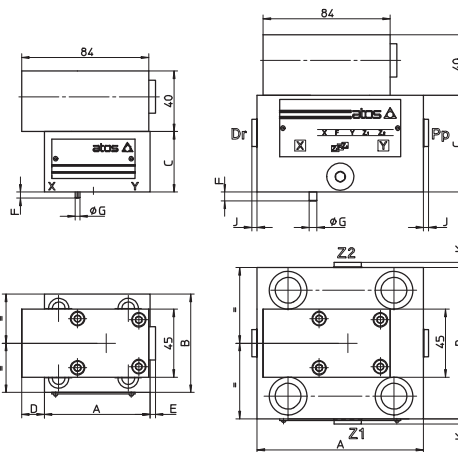


LIDB (size 16)

LIDB (size 25...63)

| Covers     | A   | B   | C  | F | G | J   | K   | Port Pp-Dr | Port Z1-Z2 | Seals     | Fastening bolts (2) | Tightening torque (Nm) | Weight [Kg] |
|------------|-----|-----|----|---|---|-----|-----|------------|------------|-----------|---------------------|------------------------|-------------|
| LIDB-1     | 70  | 65  | 40 | 4 | 3 | -   | -   | -          | -          | 4 OR 108  | Nr. 4<br>M8x45      | 35                     | 2,2         |
| LIDB-2     | 85  | 85  | 40 | 6 | 5 | -   | -   | -          | -          | 4 OR 108  | Nr. 4<br>M12x45     | 125                    | 2,6         |
| LIDB-3     | 100 | 100 | 50 | 6 | 5 | -   | -   | -          | -          | 4 OR 2043 | Nr. 4<br>M16x55     | 300                    | 3,1         |
| LIDB-4     | 125 | 125 | 60 | 6 | 5 | 3,5 | -   | G 1/4      | -          | 4 OR 2050 | Nr. 4<br>M20x70     | 600                    | 7           |
| LIDB-5     | 140 | 140 | 70 | 4 | 6 | 3,5 | 3,5 | G 1/4      | G 1/4      | 4 OR 2050 | Nr. 4<br>M20x80     | 600                    | 10,1        |
| LIDB-6 (1) | 180 | 180 | 80 | 4 | 6 | 3,5 | 3,5 | G 3/8      | G 3/8      | 4 OR 2056 | Nr. 4<br>M30x90     | 2100                   | 17,9        |

- (1) The position of external attachments Pp, Dr, Z1 and Z2 are inverted each others respect to the showed sketch
- (2) Hexagon socket head screw according to DIN 912 class 12.9



LIDR (size 16...32)

LIDR (size 40...63)

| Covers     | A   | B   | C  | D    | E   | F | G | J   | K   | Port Pp-Dr | Port Z1-Z2 | Seals     | Fastening bolts (2) | Tightening torque (Nm) | Weight [Kg] |
|------------|-----|-----|----|------|-----|---|---|-----|-----|------------|------------|-----------|---------------------|------------------------|-------------|
| LIDR-1     | 70  | 65  | 40 | 4    | 3,5 | 4 | 3 | -   | -   | -          | -          | 4 OR 108  | Nr. 4<br>M8x45      | 35                     | 2,5         |
| LIDR-2     | 85  | 85  | 40 | 13,5 | -   | 6 | 5 | -   | -   | -          | -          | 4 OR 108  | Nr. 4<br>M12x45     | 125                    | 2,9         |
| LIDR-3     | 100 | 100 | 50 | 6    | -   | 6 | 5 | -   | -   | -          | -          | 4 OR 2043 | Nr. 4<br>M16x55     | 300                    | 3,4         |
| LIDR-4     | 125 | 125 | 60 | -    | -   | 6 | 5 | 3,5 | -   | G 1/4      | -          | 4 OR 2050 | Nr. 4<br>M20x70     | 600                    | 7,3         |
| LIDR-5     | 140 | 140 | 70 | -    | -   | 4 | 6 | 3,5 | 3,5 | G 1/4      | G 1/4      | 4 OR 2050 | Nr. 4<br>M20x80     | 600                    | 10,4        |
| LIDR-6 (1) | 180 | 180 | 80 | -    | -   | 4 | 6 | 3,5 | 3,5 | G 3/8      | G 3/8      | 4 OR 2056 | Nr. 4<br>M30x90     | 2100                   | 18,3        |

- (1) The position of external attachments Pp, Dr, Z1 and Z2 are inverted each others respect to the showed sketch
- (2) Hexagon socket head screw according to DIN 912 class 12.9