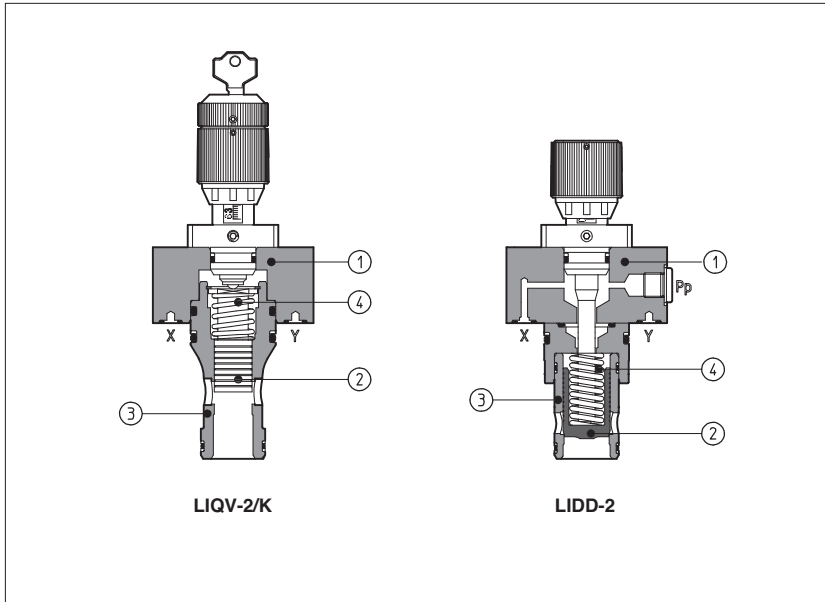


Modular cartridge valves type LIQV and LIDD

Flow control, ISO 7368 sizes 16 ÷ 63



LIQV and LIDD are flow control valves composed by a 2 way cartridge housed in a standard recess and by a functional "cover" ①.

The cartridge is composed by a spool (for LIQV) or poppet (for LIDD) ② sliding into a drilled sleeve ③; the position of the spool or poppet, corresponding to the regulation of the valve, is manually set on the cover; cracking pressure value depends on poppet spring.

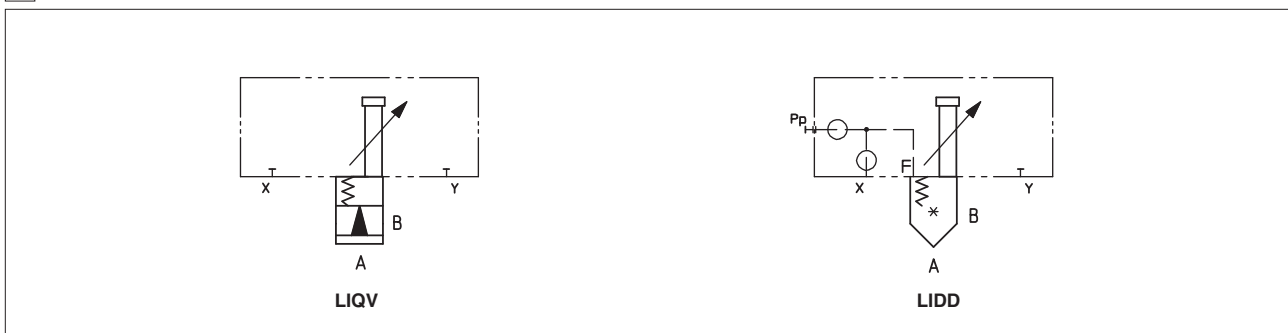
These valves are available in standard sizes 16 to 63 according to ISO 7368 (DIN 24342).

Flow up to 3500 l/min at $\Delta p = 6$ bar, pressure up to 350 bar.

1 MODEL CODE FOR COVERS

| | | | | | | | |
|---|-----------|---|----------|------------------------|----------|---------------|---|
| LI | QV | - | 1 | / | * | ** | /* |
| Cover according to ISO 7368 | | | | | | | Seals material: - = NBR PE = FKM BT = HNBR |
| Flow control valve: QV = with manual setting DD = normally closed with stroke limiter | | | | | | Series number | |
| Size: 1 = 16 4 = 40 (*) 2 = 25 5 = 50 (*) 3 = 32 (*) 6 = 63 (*) (*) only for LIDD | | | | Options: see section 6 | | | |

2 HYDRAULIC SYMBOLS AND CHARACTERISTICS



| Covers see section 1 | LIQV-1 | | LIQV-2 | LIDD | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|-------------------------|-----|--------|------|-----|-----|------|------|------|-----|-----|-----|------|------|------|-----|-----|-----|------|------|------|-----|-----|-----|-----|------|------|
| | 290 | 490 | 490 | 32 | | | | 33 | | | | 42 | | | | 43 | | | | | | | | | | | |
| Spool see section 3, 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poppet see section 3, 4 | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | |
| Size | 16 | 16 | 25 | 16 | 25 | 32 | 40 | 50 | 63 | 16 | 25 | 32 | 40 | 50 | 63 | 16 | 25 | 32 | 40 | 50 | 63 | 16 | 25 | 32 | 40 | 50 | 63 |
| Max flow at $\Delta p=6$ bar [l/min] | 60 | 180 | 400 | 180 | 430 | 670 | 1400 | 2200 | 3500 | 160 | 330 | 530 | 1100 | 1700 | 2600 | 170 | 380 | 560 | 1300 | 2000 | 2800 | 130 | 300 | 480 | 940 | 1500 | 2200 |
| Max pressure [bar] | 350 bar at port A, B, X | | | | | | | | | | | | | | | | | | | | | | | | | | |

3 MODEL CODE FOR SPARE SPOOLS AND POPPETS, see section 4 for function

| | | | | | | |
|---|---|---|-----------|---|-----------|---|
| SC LI | - | 16 | 43 | 1 | ** | /* |
| Cartridge according to ISO 7368 | | | | Series number | | Seals material: - = NBR PE = FKM BT = HNBR |
| Size, the same of relevant cover: 16 = 16 40 = 40 (*) 25 = 25 50 = 50 (*) 32 = 32 (*) 63 = 63 (*) (*) only for LIDD | | | | | | |
| Type of spool (only for LIQV): 290 = for LIQV-1 490 = for LIQV-1 and LIQV-2 | | Type of poppet (only for LIDD): 32, 33 (size 16...63) 42, 43 (size 16...63) = as 32, 33 but with dumping nose | | Spring cracking pressure (only for poppet): 1 = 0,3 bar for poppet 32, 42 1 = 0,6 bar for poppet 33, 43 2 = 1,5 bar for poppet 32, 42 3 = 3 bar for all poppets 6 = 6 bar for all poppets | | |

4 TYPICAL FUNCTIONS OF SPOOL AND POPPETS

| Code of spool or poppet | 290 - 490 | | 32 | | 33 | | 42 | | 43 | |
|--------------------------------------|-----------|--|---------|--|-----------------------|--|--------------------------|--|-----------------------|--|
| Functional sketch (Hydraulic symbol) | | | | | | | | | | |
| Typical section | | | | | | | | | | |
| Area ratio (1) | 1 : 1 | | 1 : 1,1 | | 1 : 2 for size 16, 25 | | 1 : 1,6 for size 32 ÷ 80 | | 1 : 2 for size 16, 25 | |

(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.

5 MAIN CHARACTERISTICS OF FLOW CONTROL CARTRIDGE VALVES TYPE LIQV, LIDD

| | |
|--------------------------------------|---|
| Assembly position / location | Any position |
| Subplate surface finishing | Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101) |
| Ambient temperature | Standard execution = -30°C ÷ +70°C; /PE option = -20°C ÷ +70°C; /BT option = -40°C ÷ +70°C |
| Fluid | Hydraulic oil as per DIN 51524 . . . 535; for other fluids see section 11 |
| Recommended viscosity | 15 ÷ 100 mm ² /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 ₂₅ ≥ 75 recommended) |
| Seals, recommended fluid temperature | NBR seals (standard) = -20°C ÷ +60°C, with HFC hydraulic fluids = -20°C ÷ +50°C FKM seals (/PE option) = -20°C ÷ +80°C HNBR seals (/BT option) = -40°C ÷ +60°C, with HFC hydraulic fluids = -40°C ÷ +50°C |

6 OPTIONS

Only for LIQV:

/K = with lock key for setting knob.

Only for LIDD:

/E = with external attachments X and underneath port X supplied plugged;

******* = Calibrated plugs different from standard ones. LIDD covers in standard executions are not equipped with restrictors in the pilot channels. When ordering covers equipped with restrictors, it must be indicated at the end of the model code:

| | | | | | |
|--|---|----------|-----------|----------|---|
| LIDD | - | 1 | /E | X | 06 |
| Channel where the restrictor has to be provided: X = channel X | | | | | Size of the throttling hole in ten of millimeters: 05 = 0,5 mm 10 = 1 mm 06 = 0,6 mm 12 = 1,2 mm 08 = 0,8 mm 15 = 1,5 mm |

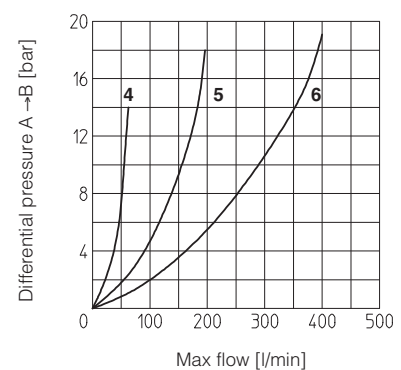
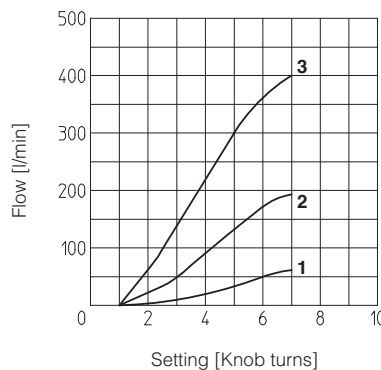
7 DIAGRAMS OF SPOOLS

7.1 Regulation diagram

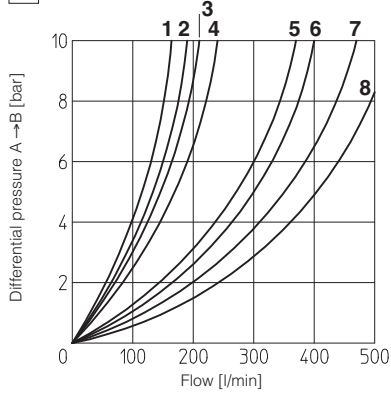
- 1** = SC LI-16290
- 2** = SC LI-16490
- 3** = SC LI-25490

7.2 Operation diagram

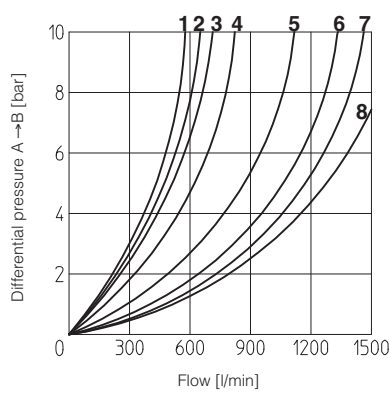
- 4** = SC LI-16290
- 5** = SC LI-16490
- 6** = SC LI-25490



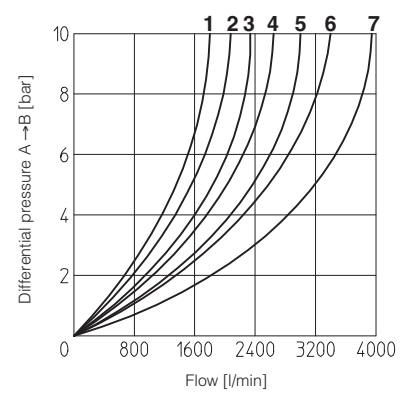
8 DIAGRAMS OF POPPETS



- 1 = SC LI-1643 5 = SC LI-2543
- 2 = SC LI-1633 6 = SC LI-2533
- 3 = SC LI-1642 7 = SC LI-2542
- 4 = SC LI-1632 8 = SC LI-2532

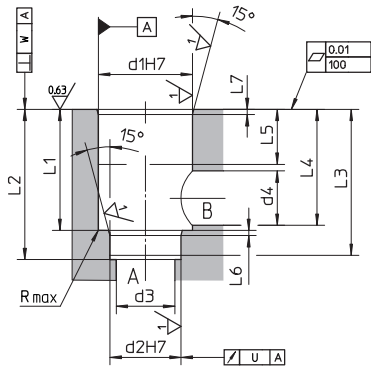


- 1 = SC LI-3243 5 = SC LI-4043
- 2 = SC LI-3233 6 = SC LI-4033
- 3 = SC LI-3242 7 = SC LI-4042
- 4 = SC LI-3232 8 = SC LI-4032



- 1 = SC LI-5043 5 = SC LI-6333
- 2 = SC LI-5033 6 = SC LI-6342
- 3 = SC LI-5042 7 = SC LI-6332
- 4 = SC LI-5032 SC LI-6343

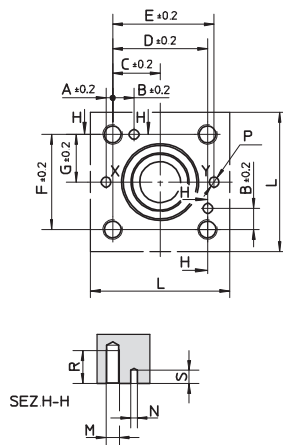
9 CAVITY DIMENSIONS [mm]



| 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 ^{+0,1} ₀ | 56 ^{+0,1} ₀ | 54 | 42,5 | 20 | 2 | 2 | 0,03 | 0,05 |
| 25 | 45 | 34 | 25 | 27 | 58 ^{+0,1} ₀ | 72 ^{+0,1} ₀ | 70 | 57 | 30 | 2,5 | 2,5 | 0,03 | 0,05 |
| 32 | 60 | 45 | 32 | 38,5 | 70 ^{+0,1} ₀ | 85 ^{+0,1} ₀ | 83 | 68,5 | 30 | 2,5 | 2,5 | 0,03 | 0,1 |
| 40 | 75 | 55 | 40 | 54,5 | 87 ^{+0,1} ₀ | 105 ^{+0,1} ₀ | 102 | 84,5 | 30 | 3 | 3 | 0,05 | 0,1 |
| 50 | 90 | 68 | 50 | 62,5 | 100 ^{+0,1} ₀ | 122 ^{+0,1} ₀ | 117 | 97,5 | 35 | 3 | 3 | 0,05 | 0,1 |
| 63 | 120 | 90 | 63 | 87 | 130 ^{+0,1} ₀ | 155 ^{+0,1} ₀ | 150 | 127 | 40 | 4 | 4 | 0,05 | 0,2 |

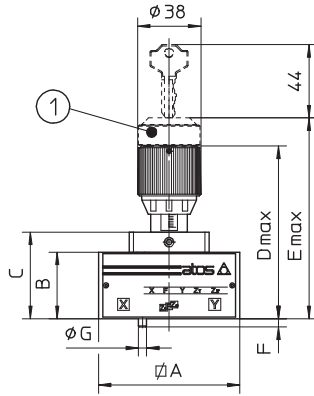
Rmax = 2 (size 16 ÷ 32)
Rmax = 4 (size 40 ÷ 63)

10 COVER INTERFACE DIMENSIONS [mm]



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

11 LIQV COVER DIMENSIONS [mm]

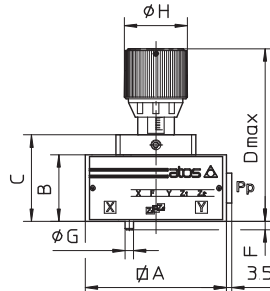


① /K version wit knob locking key

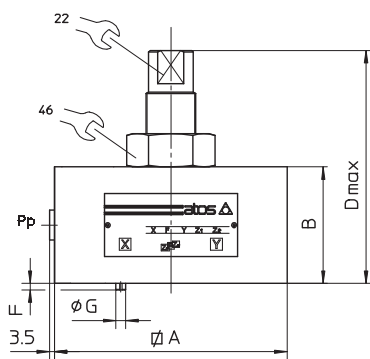
| Covers | A | B | C | D max | E max | F | G | Seals | Fastening bolts (1) | Tightening torque [Nm] | Weight [Kg] |
|--------|----|----|----|-------|-------|---|---|----------|---------------------|------------------------|-------------|
| LIQV-1 | 65 | 40 | 52 | 104 | 121 | 4 | 3 | 2 OR 108 | Nr. 4 M8x45 | 35 | 1,7 |
| LIQV-2 | 85 | 40 | 52 | 104 | 121 | 6 | 5 | 2 OR 108 | Nr. 4 M12x45 | 125 | 2,1 |

(1) Hexagon socket head screw according to DIN 912 class 12.9

12 LIDD COVER DIMENSIONS [mm]



LIDD (dim. 16...40)



LIDD (size 50 ÷ 63)

| Covers | A | B | C | D max | F | G | H | Port Pp | Seals | Fastening bolts (1) | Tightening torque [Nm] | Weight [Kg] |
|--------|-----|----|----|-------|---|---|----|---------|-----------|---------------------|------------------------|-------------|
| LIDD-1 | 65 | 40 | 52 | 104 | 4 | 3 | 38 | G1/4 | 2 OR 108 | Nr. 4 M8x45 | 35 | 2 |
| LIDD-2 | 85 | 40 | 52 | 104 | 6 | 5 | 38 | G1/4 | 2 OR 108 | Nr. 4 M12x45 | 125 | 2,4 |
| LIDD-3 | 100 | 50 | 75 | 156 | 6 | 5 | 50 | G1/4 | 2 OR 2043 | Nr. 4 M16x55 | 300 | 2,8 |
| LIDD-4 | 125 | 60 | 85 | 166 | 6 | 5 | 50 | G1/4 | 2 OR 2050 | Nr. 4 M20x70 | 600 | 6,7 |
| LIDD-5 | 140 | 70 | - | 140 | 4 | 6 | - | G1/4 | 2 OR 2050 | Nr. 4 M20x80 | 600 | 9,8 |
| LIDD-6 | 180 | 80 | - | 151 | 4 | 6 | - | G3/8 | 2 OR 2056 | Nr. 4 M30x90 | 2100 | 17,5 |

(1) Hexagon socket head screw according to DIN 912 class 12.9