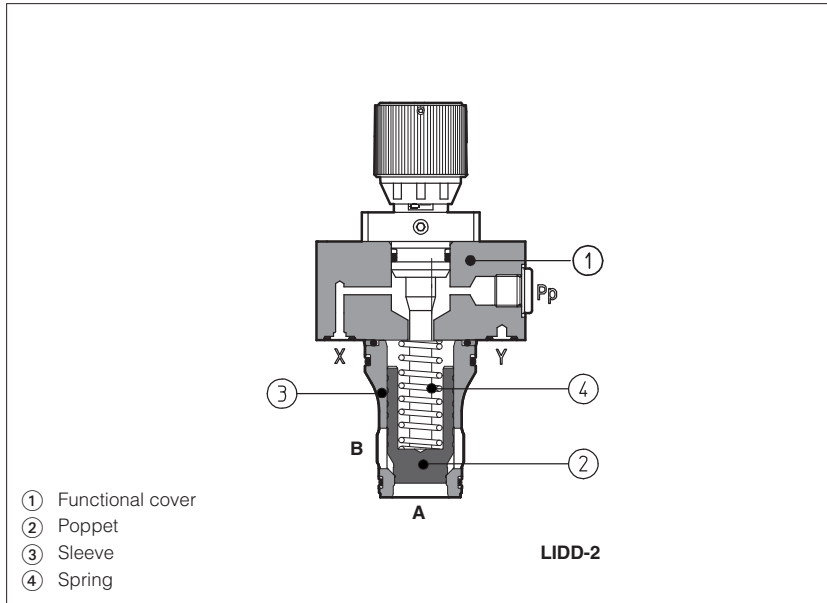


# ISO cartridge valves type LIDD

Flow control



LIDD are flow control valves not compensated, in ISO cartridge design, made by a functional "cover" ① and a 2-way SC LI slip-in cartridge.

Covers are provided with regulating screw to adjust the cartridge opening.

The cartridge is made by poppet ② sliding into a sleeve ③. The position of the spool or poppet and then the controlled flow, is manually set on the regulating screw of the cover; the cracking pressure value depends on poppet spring.

Size: **16 to 63** ISO 7368

Max flow up to **4000 l/min** at  $\Delta p$  5 bar

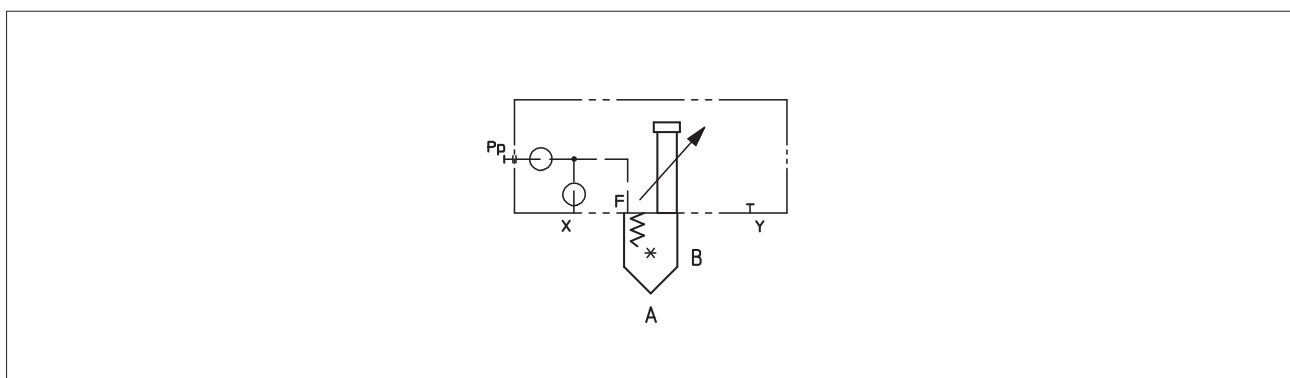
Max pressure: **LIDD 420 bar**

**1** MODEL CODE FOR COVERS - for model code of slip-in cartridge/spool, see section ③, ⑤

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

**(1): New series 50 of LIDD cover is highly recommended in combination with new high flow cartridges series 40. The use of old cartridges series 10, 11 and 31 may cause the impossibility to fully close the poppet**

**2** HYDRAULIC SYMBOLS



### 3 MODEL CODE OF SLIP-IN CARTRIDGES - for LIDD

<b>SC LI</b>	-	<b>16</b>	<b>43</b>	<b>1</b>	<b>40</b>	/	<b>*</b>
Cartridge according to ISO 7368							
Size, the same of relevant cover: <b>16 25 32 40 50 63</b>							
<b>Type of poppet</b> <b>32, 33</b> (size 16 to 100) = without damping nose <b>42</b> (size 16 to 80) = as 32 but with damping nose <b>43</b> (size 16 to 100) = as 33 but with damping nose				Seals material: - = NBR <b>PE</b> = FKM <b>BT</b> = HNBR			
				Series number (1) <b>40</b> = all sizes			
				<b>Spring cracking pressure:</b> <b>1</b> = 0,3 bar for poppet 32, 42 <b>1</b> = 0,6 bar for poppet 33, 43 <b>2</b> = 1,5 bar for poppet 32, 42 <b>3</b> = 3 bar for all poppets <b>6</b> = 5,5 bar for all poppets			

(1) New series 40 is mechanically interchangeable with standard flow series 31, 11 and 10 - cavity according to ISO 7368  
 New series 50 of LIDD cover is highly recommended in combination with new cartridges series 40  
 The use of old cartridges series 10, 11 and 31 may cause the impossibility to fully close the poppet

### 4 TYPE OF POPPET

Type of poppet	32	33	42	43	
Functional sketch (Hydraulic symbol)					
<b>Operating pressure</b>	<b>420 bar max</b>				
<b>Nominal flow</b> at $\Delta p$ 5bar (l/min) see diagrams Q/ $\Delta p$ at section [7]	Size <b>16</b> <b>25</b> <b>32</b> <b>40</b> <b>50</b> <b>63</b>	270 550 1000 1700 2500 4000	270 550 1000 1700 2500 4000	240 500 800 1400 2200 3300	240 500 800 1400 2200 3300
Typical section					
Area ratio A:Ap	<b>1:1,1</b>	<b>1:1,5</b>	<b>1:1,1</b>	<b>1:1,5</b>	
Cracking pressure A→B	Spring <b>1</b>	0,3 bar	0,6 bar	0,3 bar	0,6 bar
	<b>2</b>	1,5 bar	-	1,5 bar	-
	<b>3</b>	3 bar	2,5 bar	3 bar	2,5 bar
	<b>6</b>	6 bar	6 bar	6 bar	6 bar
Cracking pressure B→A	Spring <b>1</b>	3 bar	0,9 bar	3 bar	0,9 bar
	<b>2</b>	12,8 bar	-	12,8 bar	-
	<b>3</b>	32,5 bar	3,8 bar	32,5 bar	3,8 bar
	<b>6</b>	59,4 bar	9 bar	59,4 bar	9 bar

### 5 MAIN CHARACTERISTICS, SEALS AND HYDRAULIC FLUID

Assembly position / location	Any position		
Subplate surface finishing	Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101)		
MTTFd values according to EN ISO 13849	150 years, for further details see technical table P007		
Ambient temperature	<b>Standard</b> execution = -30°C ÷ +70°C / <b>PE</b> option = -20°C ÷ +70°C / <b>BT</b> option = -40°C ÷ +70°C		
Compliance	RoHS Directive 2011/65/EU as last update by 2015/65/EU REACH Regulation (EC) n°1907/2006		
Seals, recommended fluid temperature	NBR seals (standard) = -20°C ÷ +80°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		
Recommended viscosity	15 ÷ 100 mm <sup>2</sup> /s - max allowed range 2.8 ÷ 500 mm <sup>2</sup> /s		
Max fluid contamination level	ISO4406 class 20/18/15 NAS1638 class 9, see also filter section at www.atos.com or KTF catalog		
<b>Hydraulic fluid</b>	<b>Suitable seals type</b>	<b>Classification</b>	<b>Ref. Standard</b>
Mineral oils	NBR, FKM, HNBR	HL, HLP, HLPD, HVLP, HVLPD	DIN 51524
Flame resistant without water	FKM	HFDU, HFDR	ISO 12922
Flame resistant with water	NBR, HNBR	HFC	
Flow direction	A to B or B to A		
<b>Functional cover operating pressure</b>	ports X, Y: <b>420 bar</b>		

**6 OPTIONS**

**/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:

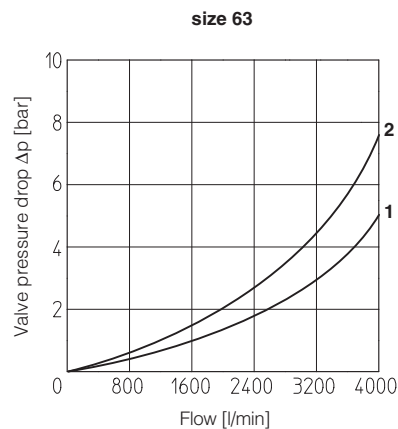
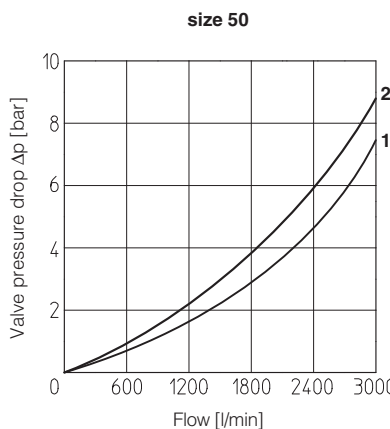
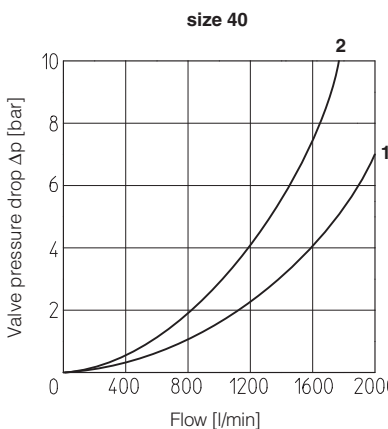
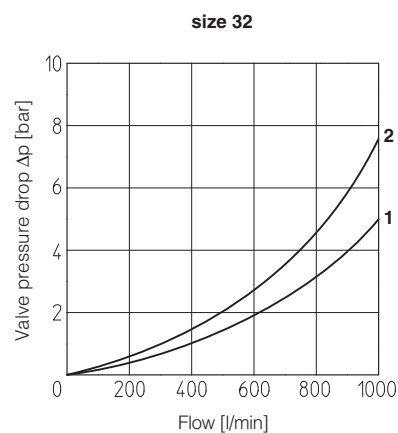
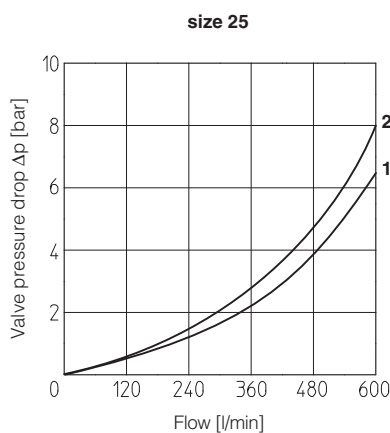
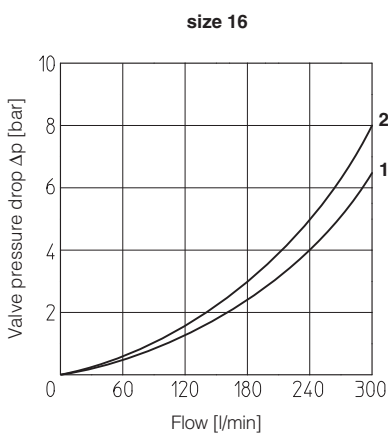
<b>LIDD</b>	-	<b>1</b>	<b>/E</b>	<b>X</b>	<b>06</b>
				Channel where the restrictor has to be provided: <b>X</b> = channel X	Size of the throttling hole in tenths of millimeters: <b>05</b> = 0,5 mm <b>10</b> = 1 mm <b>06</b> = 0,6 mm <b>12</b> = 1,2 mm <b>08</b> = 0,8 mm <b>15</b> = 1,5 mm

**Note:** For LIDD-\*/E, the calibrated orifices are located in the lateral port for external attachment  
Calibrated orifices are not available for LIDD-1/E (size 16)

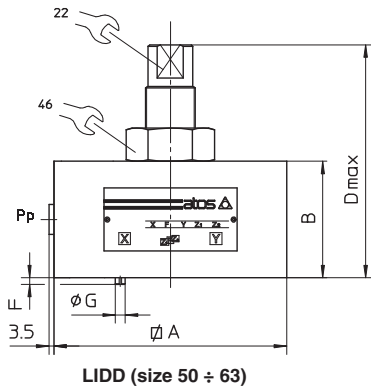
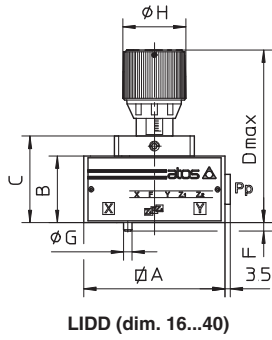
**7 Q/ΔP DIAGRAMS** - based on mineral oil ISO VG 46 at 50°C

**SC LI slip-in cartridges, poppet type 32, 33, 42, 43**

- 1** = poppet type 32 and 33
- 2** = poppet type 42 and 43



8 LIDD COVER DIMENSIONS [mm] - for mounting interface and cavity dimensions, see tech. table P006



Covers	A	B	C	D max	F	G	H	Port Pp	Seals	Fastening bolts (1)	Tightening torque [Nm]	Mass [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 3043	Nr. 4 M20x70	600	6,7
LIDD-5	140	70	-	140	4	6	-	G1/4	2 OR 3043	Nr. 4 M20x80	600	9,8
LIDD-6	180	80	-	151	4	6	-	G3/8	2 OR 3050	Nr. 4 M30x90	2100	17,5

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