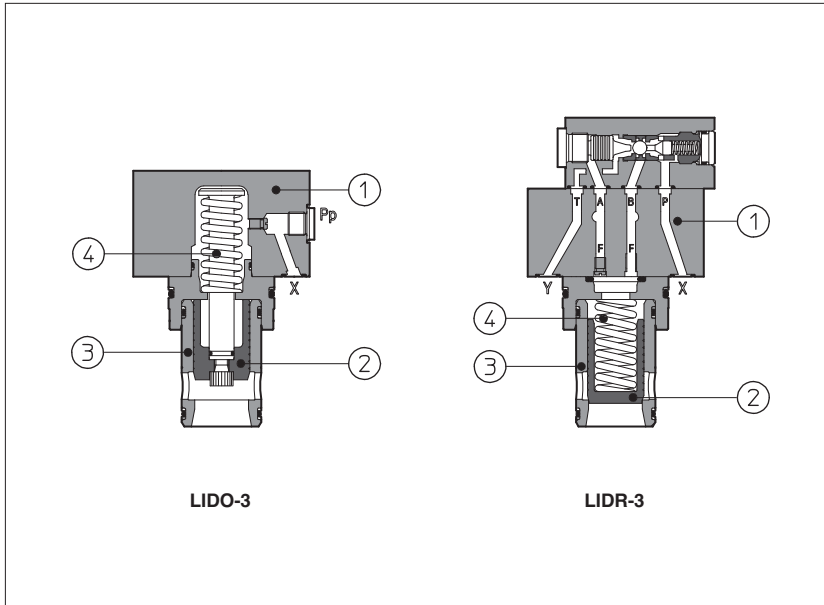


Modular cartridge valves type LID

Check function, ISO 7368 sizes from 16 to 100



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)

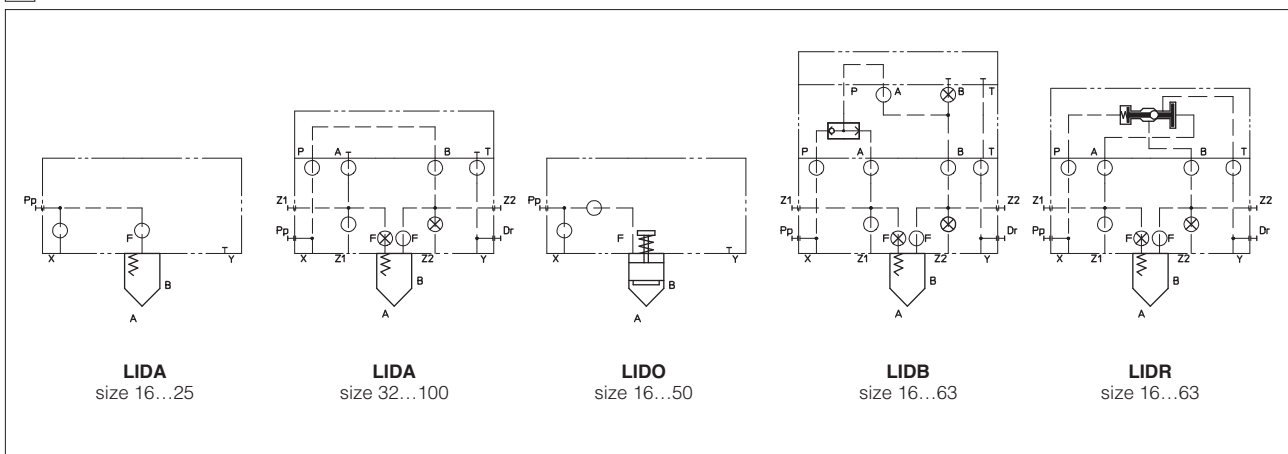
Flow up to 8000 l/min at $\Delta p = 6$ bar
Pressure up to 350 bar

1 MODEL CODE FOR COVERS

LI	D	A	-	1	/*	**	/*	*
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: - = NBR PE = FKM BT = HNBR
A = normally closed; O = normally open; B = with shuttle valve for pilot selection; R = with hydraulically operated pilot check valve;								Series number
Size: 1 = 16; 3 = 32; 5 = 50; 8 = 80 (only for LIDA) 2 = 25; 4 = 40; 6 = 63; 10 = 80 (only for LIDA) 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

Covers	LIDA, LIDO, LIDB, LIDR																															
Poppet	32, 52 (1), 62, 63 (2)								33								42								43							
Size	16	25	32	40	50	63	80	100	16	25	32	40	50	63	80	100	16	25	32	40	50	63	80	16	25	32	40	50	63	80	100	
Max flow at $\Delta p = 6 \text{ bar}$ [l/min]	180	430	670	1400	2200	3500	5600	8000	160	330	530	1100	1700	2600	4000	6500	170	380	560	1300	2000	2800	4800	130	300	480	940	1500	2000	3500	5500	
Max pressure [bar]	420 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

SC LI	-	16	32	1	**	/*
Cartridge according to ISO 7368						
Size, the same of relevant cover:						
16 25 32 40 50 63 80 100						
Type of poppet, see section 3 for maximum flow:						
32, 33 (sizes 16...100) = for all models except LIDO;						
42 (sizes 16...80) = as 32 but with dumping nose;						
43 (sizes 16...100) = as 33 but with dumping nose (for all models except LIDO);						
52 (sizes 16...50) = only for LIDA;						
62 (sizes 16, 25, 32, 40, 50) = only for LIDO;						
63 (sizes 16, 25, 32, 50) = as 62 but with dumping nose. Only for LIDO;						
					Series number	
						Seals material: - = NBR PE = FKM BT = HNBR
						Spring cracking pressure: 1 = 0,3 bar for poppet 32, 42, 52; 1 = 0,6 bar for poppet 33, 43; 2 = 1,5 bar for poppet 32, 42, 52; 3 = 3 bar for all poppets 6 = 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	1 : 1,6 for size 32 ÷ 100	1 : 1,1	1 : 2 for size 16, 25	1 : 1,6 for size 32 ÷ 100	1 : 1,1	1 : 1,1	1 : 1,1
Opening pressure A → B (2)	0,3 bar (spring 1) 1,5 bar (spring 2) 3 bar (spring 3) 6 bar (spring 6)	0,5 bar (spring 1) - 2,5 bar (spring 3) 6 bar (spring 6)	0,4 bar (spring 1) - 2,1 bar (spring 3) 4,3 bar (spring 6)	0,3 bar (spring 1) 1,3 bar (spring 2) 3,2 bar (spring 3) 6 bar (spring 6)	0,5 bar (spring 1) - 2,7 bar (spring 3) 6 bar (spring 6)	0,4 bar (spring 1) - 2,5 bar (spring 3) 4,9 bar (spring 6)	0,3 bar (spring 1) 1,5 bar (spring 2) 3 bar (spring 3) 6 bar (spring 6)	- - - -	- - - -
Opening pressure B → A (2)	3 bar (spring 1) 12,8 bar (spring 2) 32,5 bar (spring 3) 59,4 bar (spring 6)	0,5 bar (spring 1) - 2,5 bar (spring 3) 6 bar (spring 6)	0,7 bar (spring 1) - 3,7 bar (spring 3) 7,5 bar (spring 6)	3 bar (spring 1) 12,8 bar (spring 2) 32,5 bar (spring 3) 59,4 bar (spring 6)	0,5 bar (spring 1) - 2,4 bar (spring 3) 6 bar (spring 6)	0,7 bar (spring 1) - 3,7 bar (spring 3) 7,5 bar (spring 6)	- - - -	- - - -	- - - -

- (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	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 3
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)
Fluid temperature	-20°C +60°C (standard seals) -20°C +80°C (/PE seals)
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
Pilot ratio (only for LIDR)	Az ₁ : 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. Y050.

******* = 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 11). 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 **

P

06

Note: for restrictors configuration of standard covers execution, see section 11

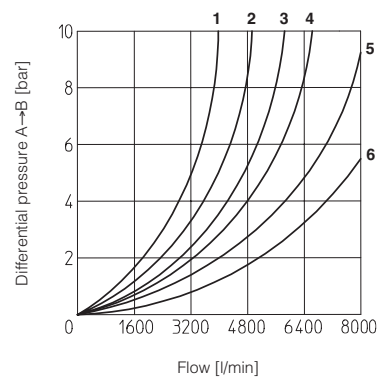
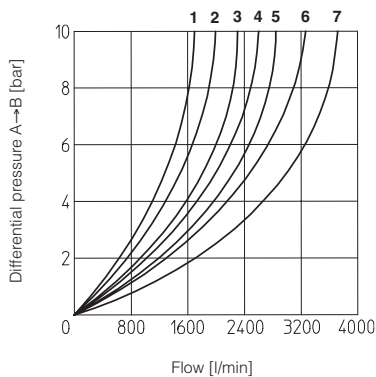
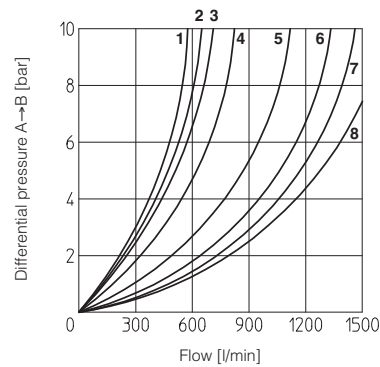
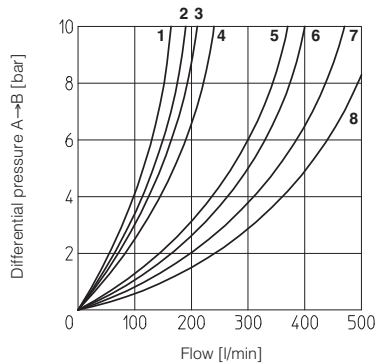
Channel where the restrictor have to be provided:

P = channel X, port P **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



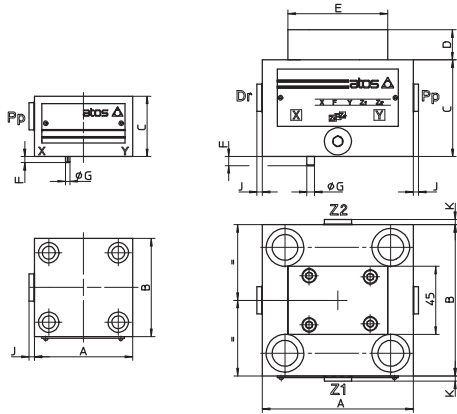
10 SCREWED ORIFICES IN STANDARD COVER EXECUTION: DIMENSIONS (1)

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		LIDO-4		LIDB-4		LIDR-4		LIDA-5		LIDO-5		LIDB-5		LIDR-5		LIDA-6		LIDO-6		LIDB-6		LIDR-6		LIDA-8		LIDA-10	
	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2	X	P	Z2							
X	-	-	-	M4	-	-	-	-	-	M4	-	-	-	-	-	-	-	-	-	M6	-	-	-	-	-	-	-	-	-	-	-	-	-	M6	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
P	-	-	-	-	-	-	M6	-	-	-	-	-	M6	-	-	-	-	-	-	-	-	-	M6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Z2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(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

12 COVER DIMENSIONS [mm]

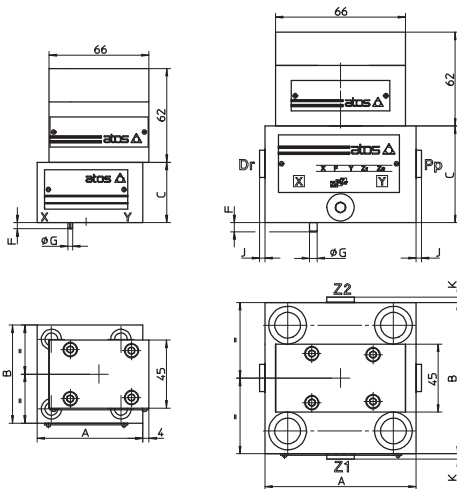


LIDA (size 16 ÷ 25)
LIDO (size 16...50)

LIDA (size 32...100)

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 LIDO-1	65	65	40	-	-	4	3	-	3,5	G 1/4	-	2 OR 108 1 OR 108 (2)	Nr. 4 M8x45	35	1,4
LIDA-2 LIDO-2	85	85	40	-	-	6	5	-	3,5	G 1/4	-	2 OR 108 1 OR 108 (2)	Nr. 4 M12x45 (4)	125	1,8
LIDA-3 LIDO-3	100	100	50 60 (2)	20	66	6	5	-	3,5	G 1/4	-	4 OR 2043 1 OR 2043 (2)	Nr. 4 M16x55 (5)	300	2,3
LIDA-4 LIDO-4	125	125	60 100	20	66	6	5	-	3,5 3	G 1/4	-	4 OR 2050 1 OR 2050	Nr. 4 M20x70 (6)	600	6,2
LIDA-5 LIDO-5	140	140	70 110 (2)	20	66	4	6	3,5	3,5	G 1/4	G 1/4	4 OR 2050 1 OR 2050 (2)	Nr. 4 M20x80 (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 M30x90	2100	17,1
LIDA-8	∅ 250	-	80	30	73	6	8	3,5	3,5	G 3/8	G 3/8	4 OR 123	Nr. 8 M24x90	1000	27
LIDA-10	∅ 300	-	150	30	73	8	10	3,5	3,5	G 1/2	G 1/2	4 OR 130	Nr. 8 M30x120	2100	54

- (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;

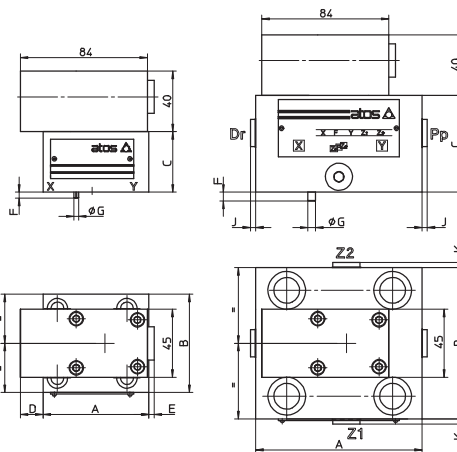


LIDB (size 16)

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 M8x45	35	2,2
LIDB-2	85	85	40	6	5	-	-	-	-	4 OR 108	Nr. 4 M12x45	125	2,6
LIDB-3	100	100	50	6	5	-	-	-	-	4 OR 2043	Nr. 4 M16x55	300	3,1
LIDB-4	125	125	60	6	5	3,5	-	G 1/4	-	4 OR 2050	Nr. 4 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 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 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 M8x45	35	2,5
LIDR-2	85	85	40	13,5	-	6	5	-	-	-	-	4 OR 108	Nr. 4 M12x45	125	2,9
LIDR-3	100	100	50	6	-	6	5	-	-	-	-	4 OR 2043	Nr. 4 M16x55	300	3,4
LIDR-4	125	125	60	-	-	6	5	3,5	-	G 1/4	-	4 OR 2050	Nr. 4 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 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 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