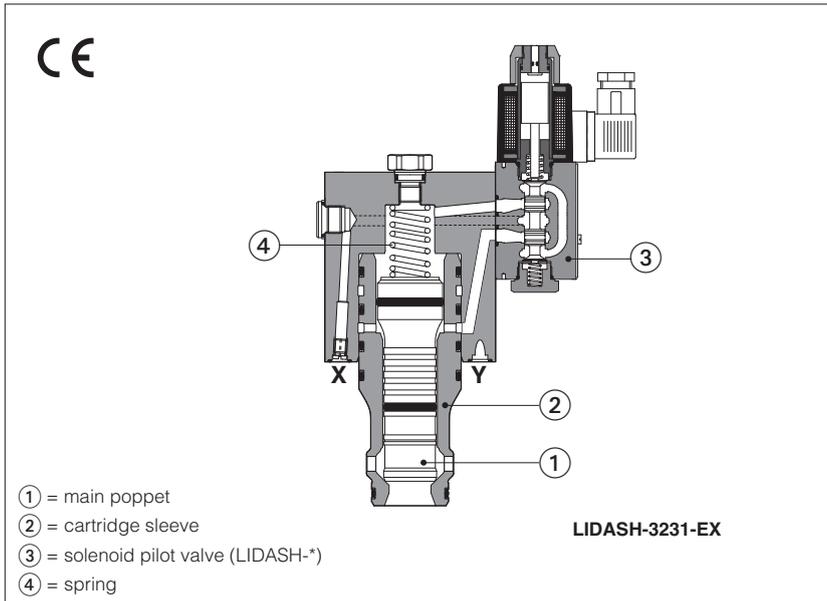




Table H050-9/E

On-off active cartridges type LIDAS, 2-way directional control



LIDAS are 2-way ISO cartridge valves with active pilot control, normally used to shut-off the hydraulic line. The particular poppet sealing grants leak-free characteristics.

The poppet ① is hydraulically operated in both directions, ensuring in this way higher reliability and faster response time respect to the conventional spring operated cartridge valves.

The spring ④ ensures the valve closing in absence of pressure in the system.

They are available in different executions:

- LIDAS**: without pilot solenoid valve
- LIDASH**: with on-off pilot solenoid valve

Sizes: **16 to 50** ISO 7368

Max flow up to **2100 l/min** with $\Delta p = 5$ bar

Max pressure: up to **420 bar**

1 MODEL CODE

LIDAS	H	- 40	43	3	- E	X	24DC	**	*
On-off active cartridges, according to ISO 7368									Seals material: - = NBR PE = FKM BT = HNBR
Pilot solenoid valve - = without pilot solenoid valve H = with pilot solenoid valve									
Size: 16 25 32 40 50									
Poppet type: see section 2 31, 33 43 (with dumping nose)									
3 = spring cracking pressure 3 bar									
									Only for LIDASH Voltage code, see section 4
									Only for LIDASH X = without connector See section 4 for available connectors, to be ordered separately -00 = solenoid valve without coils (for I) -00-AC = AC solenoid valve without coils (for E and EP) -00-DC = DC solenoid valve without coils (for E and EP)
									Only for LIDASH - Pilot solenoid valve: I = DHI, Pmax 350 bar E = DHE, Pmax 350 bar EP = DHEP, Pmax 420 bar

Note: for certified safety version conforming to 2006/42/EC, with inductive position switch (option /FV) see table EY120

2 HYDRAULIC CHARACTERISTICS (based on mineral oil ISO VG 46 at 50 °C)

Hydraulic symbols	Cartridge areas
<p>LIDAS</p> <p>LIDASH</p>	<p>AA = main flow (side A) AB = main flow (side B) AAP = piloting area (close) ABP = piloting area (open)</p> <p>Thanks to the areas ratio $AAP/(AA+AB)$, the valve closing is always ensured with a piloting pressure (X port) equal to the line pressure (A or B line).</p>

3 MAIN CHARACTERISTICS, SEALS AND HYDRAULIC FLUIDS

Assembly position / location		Any position											
Subplate surface finishing		Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101)											
MTTFd valves according to EN ISO 13849		LIDAS = 150 years LIDASH = 75 years											
Compliance		CE to Low Voltage Directive 2014/35/EU RoHS Directive 2011/65/EU as last update by 2015/65/EU REACH Regulation (EC) n°1907/2006											
Flow direction		B → A (preferred) or A → B											
Piloting		LIDAS		Pressure to X = close					Pressure to Y = open				
		LIDASH		De-energized = close					Energized = open				
Operating pressure		LIDAS		Ports A, B, X, Z1, Z2, Y: 420 bar									
		LIDAS Pilot valve I		Ports A, B, X, Z1, Z2: 350 bar					Port Y: 120 bar				
		LIDASH Pilot valve E		Ports A, B, X, Z1, Z2: 350 bar					Port Y: 210 bar for DC version; 160 bar for AC version				
		LIDASH Pilot valve EP		Ports A, B, X, Z1, Z2: 420 bar					Port Y: 210 bar for DC version; 160 bar for AC version				
Size		16		25		32		40		50			
Maximum flow at Δp = 5 bar [l/min]		Poppet 31		240		450		700		1400			
		Poppet 33		220		400		600		1300			
		Poppet 43		200		360		550		1100			
Poppet characteristics		Poppet type		31	33, 43	31	33, 43	31	33, 43	31	33, 43		
AA [cm²]		2,27		1,43		4,91		3,46		8,04			
AB (% of AA)		0		58,6		0		41,7		0			
ABP (% of AA)		67,5		107,0		63,8		90,5		56,3			
AAP (% of AA)		167,5		265,6		163,8		232,2		156,3			
AA / (AA + AB) poppet ratio				1 for poppet 31				0,6 for poppet 33, 43					
AAP / (AA + AB) piloting ratio				1,6 for poppet 31				1,6 for poppet 33, 43					

3.1 Coils characteristics (only for LIDASH)

Insulation class	Pilot valve E, EP : : H (180°C) for DC coils F (155°C) for AC coils Pilot valve I : H (180°C) for DC or AC coils Due to the occurring surface temperatures of the solenoid coils, the European standards EN ISO 13732-1 and EN ISO 4413 must be taken into account
Protection degree to DIN EN 60529	IP 65 (with connectors 666, 667, 669 correctly assembled)
Relative duty factor	100%
Supply voltage and frequency	See electric feature
Supply voltage tolerance	± 10%
Certification	cURus North American Standard

4 SEALS AND HYDRAULIC FLUID - for other fluids not included in below table, consult our technical office

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		
Recommended viscosity	15÷100 mm²/s - max allowed range 2,8 ÷ 500 mm²/s		
Max fluid contamination level	ISO4406 class 20/18/15 NAS1638 class 9, see also filter section at www.atos.com or KTF catalog		
Hydraulic fluid	Suitable seals type	Classification	Ref. Standard
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	

5 ELECTRIC CONNECTORS ACCORDING TO DIN 43650 - the connectors must be ordered separately

Code of connector	Function
666	Connector IP-65, suitable for direct connection to electric supply source
667	As 666 connector IP-65 but with built-in signal led, suitable for direct connection to electric supply source.
669	With built-in rectifier bridge for supplying DC coils by alternating current (AC 110V and 230V - I _{max} 1A).

For other available connectors, see tab. K500

6 ELECTRIC FEATURES - coils for pilot solenoid valves

Valve	External supply nominal voltage ± 10%	Voltage code	Type of connector	Power consumption (3)		Code of spare coil				
				DHI	DHE DHEP	DHI	Colour of coil label	DHE, DHEP		
DHI DHE DHEP	6 DC	6 DC (4)	666 or 667	33 W	30 W	COU-6DC	brown	-		
	12 DC	12 DC				COU-12DC	green	COE-12DC		
	14 DC	14 DC				COU-14DC	brown	COE-14DC		
	24 DC	24 DC				COU-24DC	red	COE-24DC		
	28 DC	28 DC				COU-28DC	silver	COE-28DC		
	48 DC	48 DC				COU-48DC	silver	COE-48DC		
	110 DC	110 DC				COU-110DC	gold	COE-110DC		
	125 DC	125 DC				COU-125DC	blue	COE-125DC		
	220 DC	220 DC				COU-220DC	black	COE-220DC		
	24/50 AC	24/50/60 AC (4)				COI-24/50/60AC (1)	pink	-		
	24/60 AC		COI-48/50/60AC (1)	white	-					
	48/50 AC	48/50/60 AC (4)	60 VA	-	58 VA	COI-110/50/60AC (1)	yellow	COE-110/50/60AC		
	48/60 AC					80 VA	-	COE-115/60AC		
	110/50 AC	110/50/60 AC	60 VA	-	-	COI-120/60AC	white	-		
	115/60 AC (5)	115/60 AC				58 VA	COI-230/50/60AC (1)	light blue	COE-230/50/60AC	
	120/60 AC (4)	120/60 AC	60 VA	-	80 VA	COI-230/60AC	silver	COE-230/60AC		
	230/50 AC	230/50/60 AC				COU-110RC	gold	COE-110RC		
	230/60 AC	230/60 AC	669	33 W	30 W	COU-230RC	blue	COE-230RC		
	110/50 AC	110RC				-	-	-	-	-
	120/60 AC									
230/50 AC	230RC									
230/60 AC										

(1) Coil can be supplied also with 60 Hz of voltage frequency: in this case the performances are reduced by 10÷15% and the power consumption is 55 VA (-I) and 58 VA (-E, -EP)

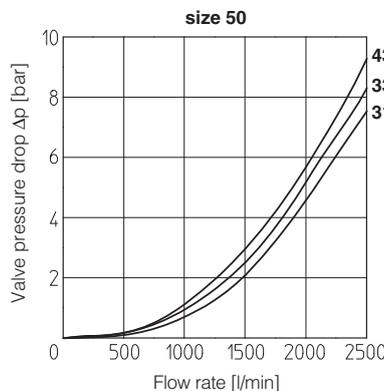
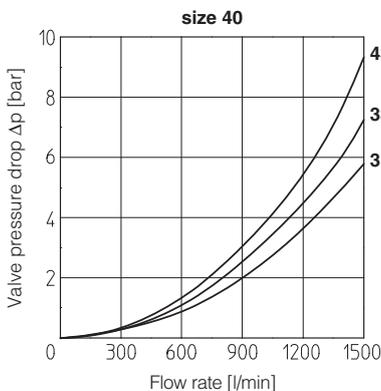
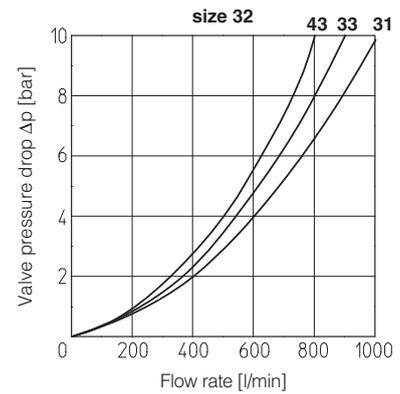
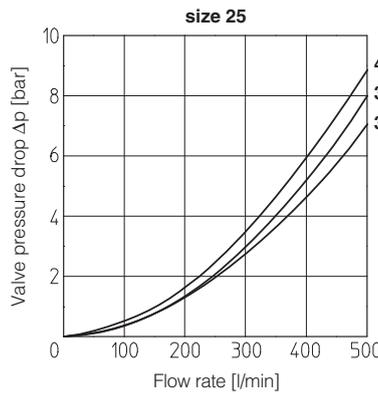
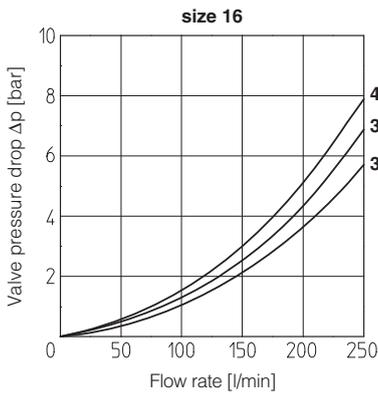
(2) Average values based on tests performed at nominal hydraulic condition and ambient/coil temperature of 20°C.

(3) When solenoid is energized, the inrush current is approx 3 times the holding current. Inrush current values correspond to a power consumption of about 150 VA.

(4) Only for pilot valve DHI

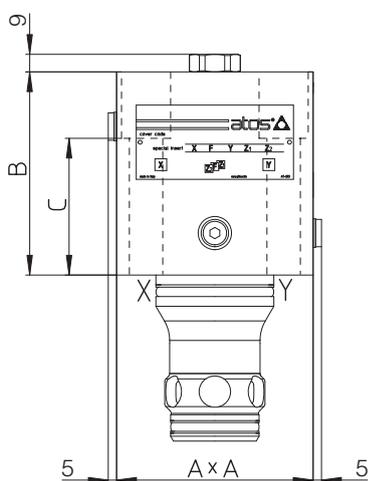
(5) Only for pilot valve DHE, DHEP

7 Q/Δp DIAGRAMS based on mineral oil ISO VG 46 at 50 °C

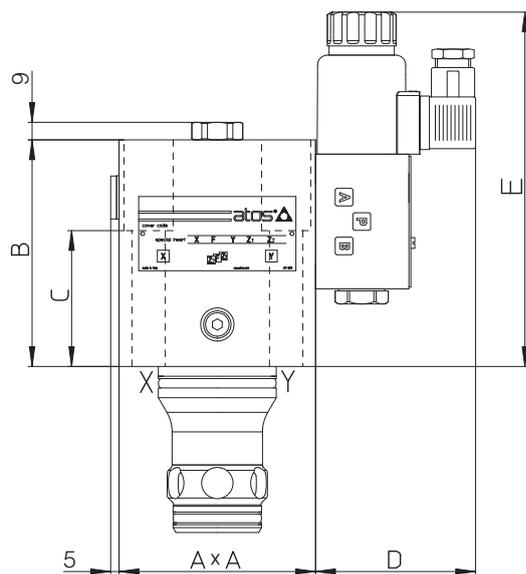


31 = poppet type 31
33 = poppet type 33
43 = poppet type 43

8 INSTALLATION DIMENSIONS [mm]



LIDAS					
Size	A	B	C	Fastening bolts class 12.9	Weight (Kg)
16	65	85	64	N°4 M8x80 35 Nm	2,8
25	85	102	75	N°4 M12x95 125 Nm	5,7
32	100	104	70	N°4 M16x90 300 Nm	7,3
40	125	111	39	N°4 M20x70 600 Nm	14,5
50	140	135	49	N°4 M20x80 600 Nm	120



LIDASH								
Size	Pilot valve	A	B	C	D max ①	E max ②	Fastening bolts class 12.9	Weight (Kg)
16	DHI	72x65	95	64	79,5	152	N°4 M8x80 35 Nm	4,3
	DHE(P)				86	167		4,4
25	DHI	85	115	77	79,5	165	N°4 M12x95 125 Nm	7,2
	DHE(P)				86	181		7,3
32	DHI	100	116	70	79,5	176	N°4 M16x90 300 Nm	8,8
	DHE(P)				86	192		8,9
40	DHI	125	125	39	79,5	180	N°4 M20x70 600 Nm	15,5
	DHE(P)				86	196		15,6
50	DHI	140	135	49	79,5	186	N°4 M20x80 600 Nm	20,5
	DHE(P)				86	202		20,6

Note: for mounting interface and cavity dimensions, see tech. table P006