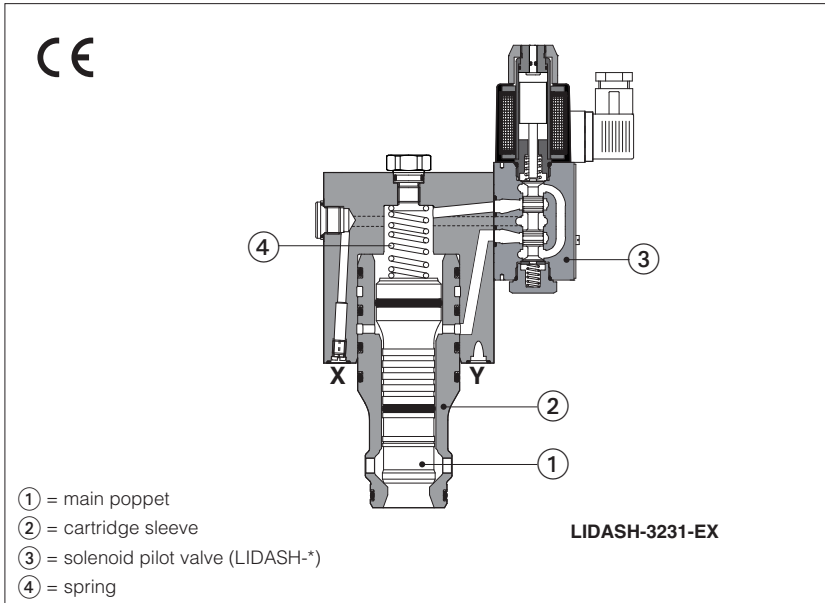


# On-off active cartridges type LIDAS, 2-way directional control



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**

<b>LIDAS</b>	<b>H</b>	-	<b>40</b>	<b>43</b>	<b>3</b>	-	<b>E</b>	<b>X</b>	<b>24DC</b>	<b>**</b>	<b>*</b>
On-off active cartridges, according to ISO 7368										Series number	Seals material: - = NBR <b>PE</b> = FKM <b>BT</b> = HNBR <b>(1)</b>
<b>Pilot solenoid valve</b> - = without pilot solenoid valve <b>H</b> = with pilot solenoid valve											<b>Only for LIDASH</b> Voltage code, see section 6
<b>Size:</b> 16 25 32 40 50											<b>Only for LIDASH</b> <b>X</b> = without connector See section 4 for available connectors, to be ordered separately <b>-00-AC</b> = AC solenoid valve without coils <b>-00-DC</b> = DC solenoid valve without coils
<b>Poppet type:</b> see section 2 <b>31, 33</b> <b>43</b> (with dumping nose)											<b>Only for LIDASH - Pilot solenoid valve:</b> <b>E</b> = DHE, <b>Pmax 350 bar</b> <b>EP</b> = DHEP, <b>Pmax 420 bar</b> <b>L</b> = DHL, <b>Pmax 350 bar</b>
<b>3</b> = spring cracking pressure 3 bar											

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

**(1)** Not available for LIMH\*-L

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

**Hydraulic symbols**

**LIDAS**                      **LIDASH**

**Cartridge areas**

**AA** = main flow (side A)  
**AB** = main flow (side B)  
**AAP** = piloting area (close)  
**ABP** = piloting area (open)

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).

### 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 2015/863/EU REACH Regulation (EC) n°1907/2006											
Flow direction	B → A (preferred) or A → B											
Piloting	<b>LIDAS</b>		Pressure to <b>X</b> = <b>close</b>				Pressure to <b>Y</b> = <b>open</b>					
	<b>LIDASH</b>		De-energized = <b>close</b>				Energized = <b>open</b>					
Operating pressure	LIDAS		Ports A, B, X, Z1, Z2, Y: <b>420</b> bar									
	LIDASH	Pilot valve <b>E, L</b>	Ports A, B, X, Z1, Z2: <b>350</b> bar						Port Y: <b>210</b> bar for DC version; <b>160</b> bar for AC version			
		Pilot valve <b>EP</b>	Ports A, B, X, Z1, Z2: <b>420</b> bar						Port Y: <b>210</b> bar for DC version; <b>160</b> bar for AC version			
<b>Size</b>			<b>16</b>		<b>25</b>		<b>32</b>		<b>40</b>		<b>50</b>	
<b>Maximum flow</b> at Δp = 5 bar [l/min]	Poppet <b>31</b>		240		450		700		1400		2100	
	Poppet <b>33</b>		220		400		600		1300		2000	
	Poppet <b>43</b>		200		360		550		1100		1800	
<b>Poppet characteristics</b>	Poppet type		<b>31</b>	<b>33, 43</b>	<b>31</b>	<b>33, 43</b>	<b>31</b>	<b>33, 43</b>	<b>31</b>	<b>33, 43</b>	<b>31</b>	<b>33, 43</b>
	AA [cm <sup>2</sup> ]		2,27	1,43	4,91	3,46	8,04	5,30	12,56	8,04	19,63	13,85
AB (% of AA)		0	58,6	0	41,7	0	51,5	0	56,3	0	41,7	
ABP (% of AA)		67,5	107,0	63,8	90,5	56,3	85,2	56,3	87,9	69	97,8	
AAP (% of AA)		167,5	265,6	163,8	232,2	156,3	236,7	156,3	244,1	169	239,2	
AA / (AA + AB) poppet ratio		1 for poppet <b>31</b>				0,6 for poppet <b>33, 43</b>						
AAP / (AA + AB) piloting ratio		1,6 for poppet <b>31</b>				1,6 for poppet <b>33, 43</b>						

#### 3.1 Coils characteristics (only for LIDASH)

Insulation class	<b>H</b> (180°C) for DC coils <b>F</b> (155°C) for 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	<b>IP 65</b> (with connectors 666, 667, 669 correctly assembled)
Relative duty factor	100%
Supply voltage and frequency	See electric feature <a href="#">6</a>
Supply voltage tolerance	± 10%
Certification	<b>cURus</b> North American Standard (not for <b>-L</b> )

### 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 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 <a href="http://www.atos.com">www.atos.com</a> 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	HFDR, 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
<b>666</b>	Connector IP-65, suitable for direct connection to electric supply source
<b>667</b>	As 666 connector IP-65 but with built-in signal led, suitable for direct connection to electric supply source.
<b>669</b>	With built-in rectifier bridge for supplying DC coils by alternating current (AC 110V and 230V - I <sub>max</sub> 1A).

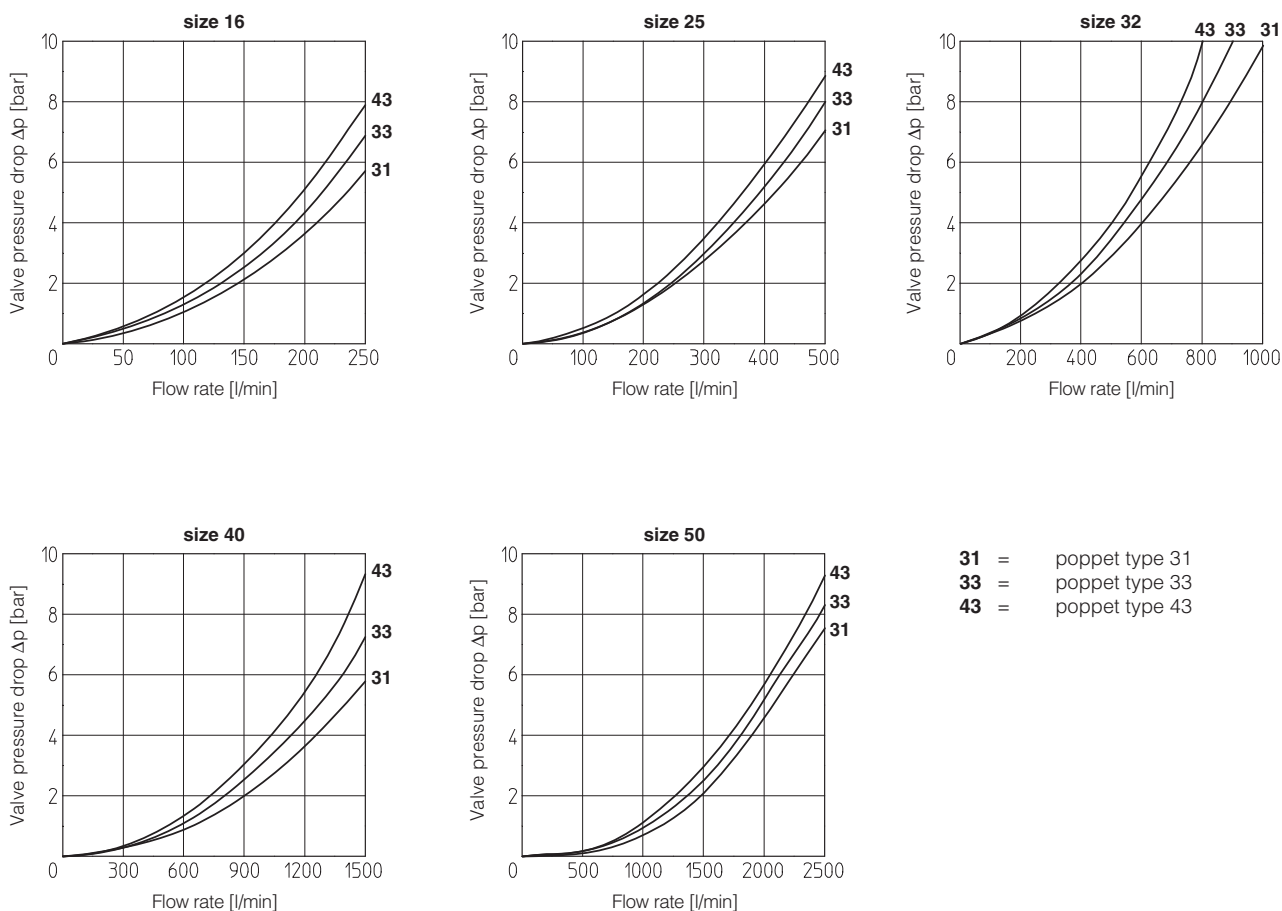
For other available connectors, see tab. K800

**6 ELECTRIC FEATURES**

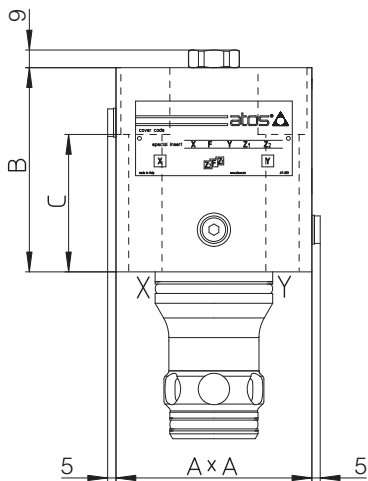
Solenoid valve type	External supply nominal voltage $\pm 10\%$ (1)		Voltage code	Type of connector	Power consumption (3)	Code of spare coil DHE, DHEP	Code of spare coil DHL
DHE DHEP DHL	DC	12 DC 24 DC 110 DC 220 DC	<b>12 DC</b> <b>24 DC</b> <b>110 DC</b> <b>220 DC</b>	666 or 667	29 W (DHL) 30 W (DHE, DHEP)	COE-12DC COE-24DC COE-110DC COE-220DC	COL-12DC COL-24DC COL-110DC COL-220DC
	AC	110/50 AC (2) 115/60 AC 120/60 AC 230/50 AC (2) 230/60 AC	<b>110/50/60 AC</b> <b>115/60 AC</b> <b>120/60 AC</b> <b>230/50/60 AC</b> <b>230/60 AC</b>	666 or 667	58 VA (4)	COE-110/50/60AC COE-115/60AC COE-230/50/60AC COE-230/60AC	COL-110/50/60AC COL-115/60AC COL-230/50/60AC COL-230/60AC

- (1) For other supply voltages available on request see technical tables E015, E030, E018.
- (2) 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 for DHL and 52VA for DHE and DHEP
- (3) Average values based on tests performed at nominal hydraulic condition and ambient/coil temperature of 20°C.
- (4) 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.

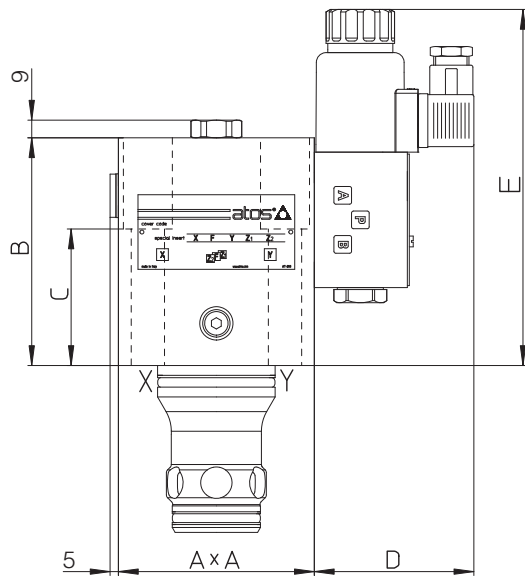
**7 Q/Δp DIAGRAMS based on mineral oil ISO VG 46 at 50 °C**



**8** INSTALLATION DIMENSIONS [mm]



LIDAS						
Size	A	B	C	Fastening bolts class 12.9	connection port X, Y, Z1, Z2	Weight (Kg)
16	65	85	64	N°4 M8x80 35 Nm	G1/8"	2,8
25	85	102	75	N°4 M12x95 125 Nm	G1/8"	5,7
32	100	104	70	N°4 M16x90 300 Nm	G3/8"	7,3
40	125	111	39	N°4 M20x70 600 Nm	G3/8"	14,5
50	140	135	49	N°4 M20x80 600 Nm	G3/8"	19,5



LIDASH									
Size	A	B	C	D max	E max	Fastening bolts class 12.9	connection port X	connection port Z1, Z2	Weight (Kg)
16	72x65	95	64	86	167	N°4 M8x80 35 Nm	G1/8"	G1/8"	4,4
25	85	115	77	86	181	N°4 M12x95 125 Nm	G1/8"	G1/8"	7,3
32	100	116	70	86	192	N°4 M16x90 300 Nm	G3/8"	G1/8"	8,9
40	125	125	39	86	196	N°4 M20x70 600 Nm	G3/8"	G1/8"	15,6
50	140	135	49	86	202	N°4 M20x80 600 Nm	G3/8"	G1/8"	20,6

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