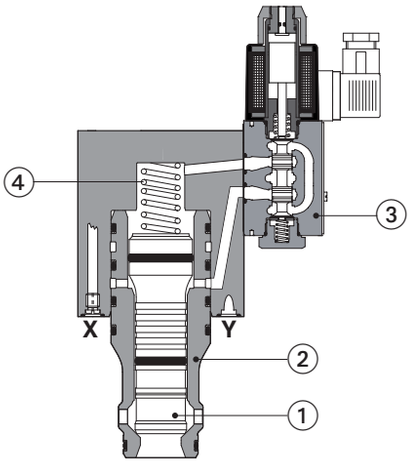
# On-off active cartridges type LIDAS, 2-way

ISO 7368 sizes from 16 to 50




① = main poppet
② = cartridge sleeve
③ = solenoid pilot valve (LIDASH-*)
④ = spring

**LIDASH-3231-EX**

LIDAS are 2-way active cartridge valves designed for mounting in manifold blocks and providing the leak-free shut-off function of the hydraulic line.

**Configuration and construction:**

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

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

They are available in different executions:

- without pilot solenoid valve
- with on-off pilot solenoid valve assembled on the cartridge

**Features:**

- ISO 7368 sizes from **16 to 50**
- typical applications: presses, injection moulding machines
- max flow up to **2000 l/min** with Δp = 5 bar max pressure: **420 bar**

## 1 MODEL CODE

| LIDAS | H | - | 40 | 43 | 3 | - | E | X | 24DC | ** | * |
|---|---|---|---|---|---|---|---|---|---|---|---|

**LIDAS**: On-off active cartridges, according to ISO 7368

**H**: **Pilot solenoid valve**
- = without pilot solenoid valve
**H** = with pilot solenoid valve

**40**: **Size**: **16** **25** **32** **40** **50**

**43**: **Poppet type**: see section 2
**31**, **33**, **43** (with dumping nose)

**3** = spring cracking pressure 3 bar

**E**: **Only for LIDASH** - Pilot solenoid valve:
**I** = DHI for AC and DC supply, **Pmax 350 bar**
**E** = DHEP for AC and DC supply, high performances, **Pmax 420 bar**

**X**: **Only for LIDASH**
**X** = without connector
See section 4 for available connectors, to be ordered separately
**00** = solenoid valve without coils (for DHI)
**00-AC** = AC solenoid valve without coils (for DHEP)
**00-DC** = DC solenoid valve without coils (for DHEP)

**24DC**: **Only for LIDASH**
Voltage code, see section 6

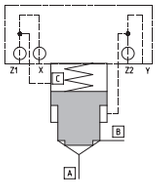
******: Series number

*****: Seals material:
**-** = NBR
**PE** = FKM
**BT** = HNBR

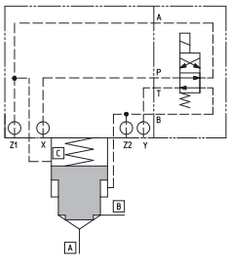
**Note:** for safety version, with inductive position switch (option /FV) see table EY120

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

**Hydraulic symbols**



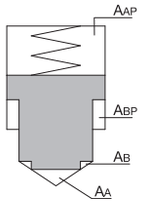

**LIDAS**




**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) | | | | | | | | |
| Ambient temperature | | **Standard** execution = -30°C ÷ +70°C; **/PE** option = -20°C ÷ +70°C; **/BT** option = -40°C ÷ +70°C | | | | | | | | |
| Flow direction | | B → A (preferred) or A → B | | | | | | | | |
| Piloting | **LIDAS** | Pressure to **X** = **close** Pressure to **Y** = **open** | | | | | | | | |
| | **LIDASH** | De-energized = **close** Energized = **open** | | | | | | | | |
| **Size** | | **16** | | **25** | | **32** | | **40** | | **50** | |
| **Maximum flow** at Δp = 5 bar [l/min] | Poppet **31** | 240 | | 450 | | 700 | | 1400 | | 2100 | |
| | Poppet **33** | 220 | | 400 | | 600 | | 1300 | | 2000 | |
| | Poppet **43** | 200 | | 360 | | 550 | | 1100 | | 1800 | |
| **Poppet characteristics** | Poppet type | **31** | **33, 43** | **31** | **33, 43** | **31** | **33, 43** | **31** | **33, 43** | **31** | **33, 43** |
| $A_A$ [cm²] | | 2,27 | 1,43 | 4,91 | 3,46 | 8,04 | 5,30 | 12,56 | 8,04 | 19,63 | 13,85 |
| $A_B$ (% of $A_A$) | | 0 | 58,6 | 0 | 41,7 | 0 | 51,5 | 0 | 56,3 | 0 | 41,7 |
| $A_{BP}$ (% of $A_A$) | | 67,5 | 107,0 | 63,8 | 90,5 | 56,3 | 85,2 | 56,3 | 87,9 | 69 | 97,8 |
| $A_{AP}$ (% of $A_A$) | | 167,5 | 265,6 | 163,8 | 232,2 | 156,3 | 236,7 | 156,3 | 244,1 | 169 | 239,2 |
| $A_A$ / ($A_A$ + $A_B$) poppet ratio | | 1 for poppet **31** | | | | 0,6 for poppet **33, 43** | | | | | |
| $A_{AP}$ / ($A_A$ + $A_B$) 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: H** (180°C) for DC coils **F** (155°C) for AC coils<br>Pilot valve **-I: H** (180°C) for DC or AC coils<br>Due to the occuring 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 6 |
| 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 ÷ +60°C, with HFC hydraulic fluids = -20°C ÷ +50°C<br>FKM seals (/PE option) = -20°C ÷ +80°C | | |
| Recommended viscosity | 15÷100 mm²/s - max allowed range 2,8 ÷ 500 mm²/s | | |
| Fluid contamination class | ISO 4406 class 21/19/16 NAS 1638 class 10, in line filters of 25 μm (β25 ≥75 recommended) | | |
| **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 - Imax 1A). |

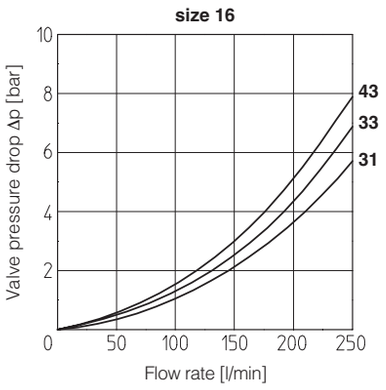
For other available connectors, see tab. K500

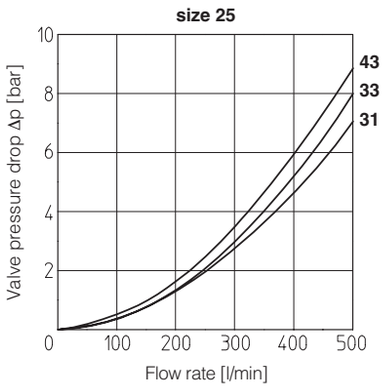
## 6 ELECTRIC FEATURES - coils for pilot solenoid valves

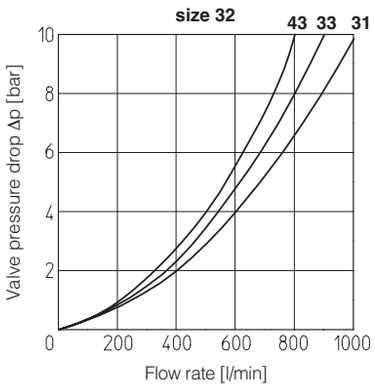
| Valve | External supply nominal voltage ± 10% | **Voltage code** | Type of connector | Power consumption **(3)** | | Code of spare coil | | |
|---|---|---|---|---|---|---|---|---|
| | | | | **DHI** | **DHEP** | **DHI** | Colour of coil label **DHI** | **DHEP** |
| DHI DHEP | 6 DC | **6 DC** (4) | 666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

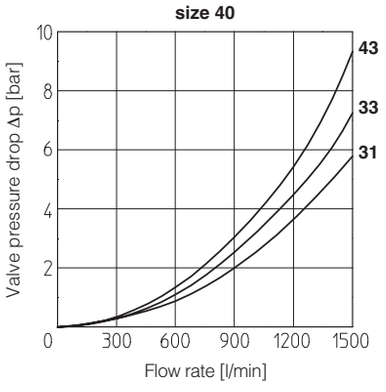
(1) Coil can be supplied also with 60 Hz of voltage frequency: in this case the performances are reduced by 10÷15% and the power consumption is 55 VA (-I) and 58 VA (-E)
(2) Average values based on tests performed at nominal hydraulic condition and ambient/coil temperature of 20°C.
(3) When solenoid 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 DHEP

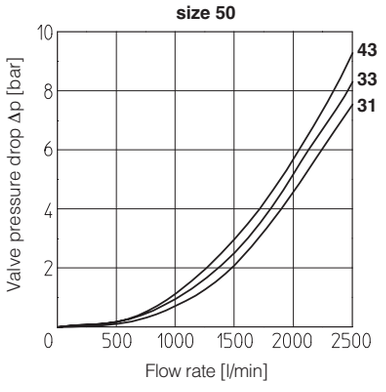
## 7 Q/Δp DIAGRAMS (based on mineral oil ISO VG 46 at 50 °C)



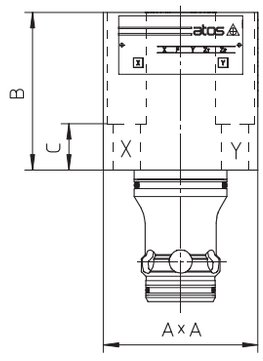



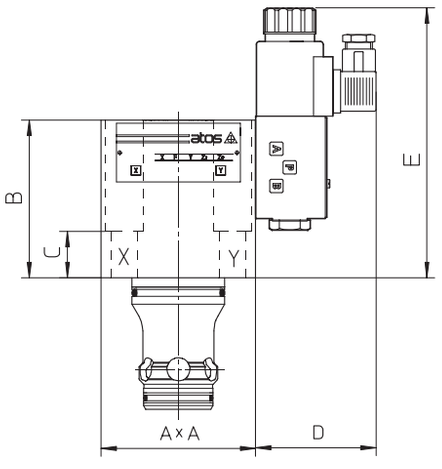



## 8 INSTALLATION DIMENSIONS [mm]




| LIDAS | | | | | |
|---|---|---|---|---|---|
| Size | A | B | C | Fastening bolts class 12.9 | Weight (Kg) |
| **16** | 65 | 77 | 64 | N°4 M8x80 35 Nm | 2,65 |
| **25** | 85 | 95 | 75 | N°4 M12x95 125 Nm | 5,20 |
| **32** | 100 | 105 | 85 | N°4 M16x105 300 Nm | 7,30 |
| **40** | 125 | 102 | 70 | N°4 M20x70 600 Nm | 13,50 |
| **50** | 140 | 122 | 49 | N°4 M20x80 600 Nm | 18,80 |




| LIDASH | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Size | Pilot valve | A | B | C | D max ① | E max ② | Fastening bolts class 12.9 | Weight (Kg) |
| **16** | DHI | 72x65 | 92 | 64 | 79,5 | 152 | N°4 M8x80 35 Nm | 4,15 |
| | DHEP | | | | 86 | 167 | | 4,25 |
| **25** | DHI | 85 | 105 | 77 | 79,5 | 165 | N°4 M12x95 125 Nm | 6,7 |
| | DHEP | | | | 86 | 181 | | 6,8 |
| **32** | DHI | 100 | 115 | 85 | 79,5 | 176 | N°4 M16x105 300 Nm | 8,8 |
| | DHEP | | | | 86 | 192 | | 8,9 |
| **40** | DHI | 125 | 120 | 39 | 79,5 | 180 | N°4 M20x70 600 Nm | 15,0 |
| | DHEP | | | | 86 | 196 | | 15,1 |
| **50** | DHI | 140 | 132 | 49 | 79,5 | 186 | N°4 M20x80 600 Nm | 20,3 |
| | DHEP | | | | 86 | 202 | | 20,4 |

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