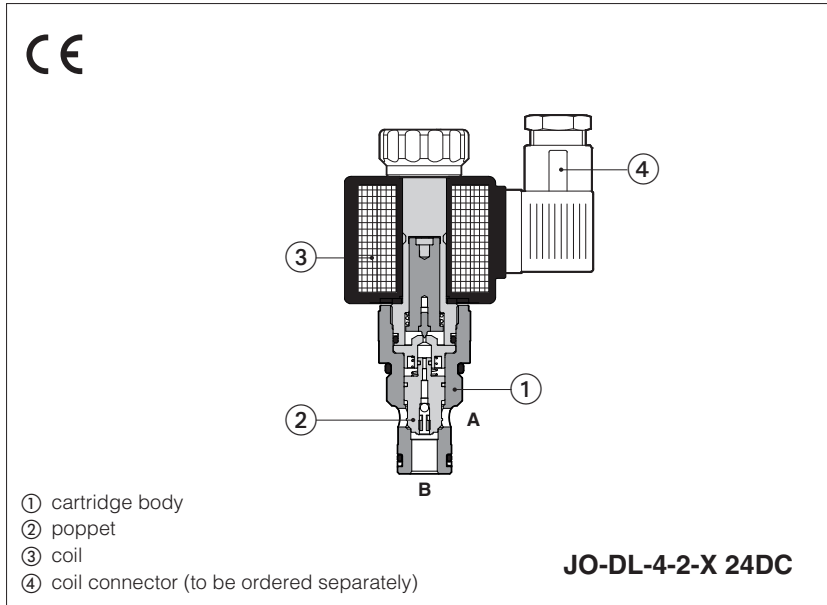


Solenoid cartridge valves

screw-in, 2-way, poppet type, leak free



JO-DL

Leak free, poppet type solenoid cartridges in screw-in execution normally used to cut off the hydraulic power supply line. They are available in normally closed NC, or normally open NO configurations.

Max flow: **300 l/min**
 Max pressure: **350 bar**

1 MODEL CODE

JO	-	D		L	-	4	-	2	/	NC	-	X		24 DC		**	/	*
Cartridge valve screw-in type UNF		D = Directional control		L = Poppet type		Size: 4 = 3/4"-16UNF-2A 6 = 7/8"-14UNF-2A 10 = 1 5/16"-12UNF-2A		2 = Two-way		X = Without connector, see section 5 for available connector		Voltage code: 12DC = 12 VDC 24DC = 24 VDC		Series number		Seals material, see section 4: - = NBR PE = FKM BT = HNBR		
Version: NC=normally closed in rest position NO=normally open in rest position																		

2 HYDRAULIC SYMBOL



3 GENERAL CHARACTERISTICS

Installation position	Any position
Cavity	JO-DL-4 = SAE-08-2N; JO-DL-6 = SAE-10-2N; JO-DL-10 = SAE-16-2N
MTTFd values according to EN ISO 13849	150 years, for further details see technical table P007
Ambient temperature	Standard execution = -30°C ÷ +80°C /PE option = -20°C ÷ +80°C /BT option = -40°C ÷ +70°C
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

4 HYDRAULIC CHARACTERISTICS

Model	JO-DL-4-2/NC	JO-DL-4-2/NO	JO-DL-6-2/NC	JO-DL-6-2/NO	JO-DL-10-2/NC	JO-DL-10-2/NO
Operating pressure [bar]	Ports A and B 350					
Max flow [l/min]	40		75		300	
Response time: energizing [ms]	35	50	30	50	35	150
de-energizing [ms]	50	35	60	35	70	35
Internal leakage	less than 5 drops/min ($\leq 0,36 \text{ cm}^3/\text{min}$) max at 350 bar					

5 ELECTRIC CHARACTERISTICS

Relative duty factor	100%
Supply voltage	See model code at section 11
Supply voltage tolerance	$\pm 10\%$
Max power	19 Watt
Power connector	666 (plastic - black); 3 pins, cable clamp PG11, cable max \varnothing 11 mm
Connectors features	DIN 43650 - ISO 4400; IP65 (DIN 40050); VDE 0110C to be ordered separately

6 INSTALLATION NOTES

- The assembling of cartridges inside manifolds must be done tightening the valve exagonal ring (for tightening torque, see section [10](#)). Excessive values can cause anomalous deformation and poppet sticking.
- The CE certification is valid only with shielded electric cables and connector. Consult also tab. P004.

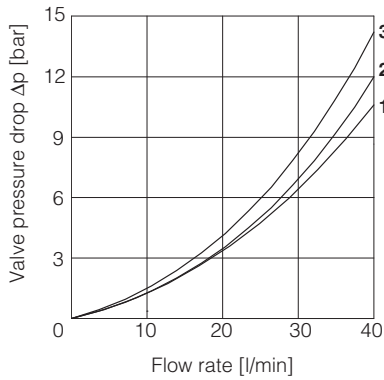
7 SEALS AND HYDRAULIC FLUID - for other fluids not included in below table, consult Atos Technical Office

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 ² /s - max allowed range 2.8 ÷ 500 mm ² /s		
Max fluid contamination level	ISO 4406 class 20/18/15 NAS 1638 class 9, see also filter section www.atos.com or KTF catalog		
Hydraulic fluid	Suitable seals type	Classification	Ref. Standard
Mineral oils	NBR, FKM	HL, HLP, HLPD, HVLP, HVLPD	DIN 51524
Flame resistant without water	FKM	HFDU, HFDR	ISO 12922
Flame resistant with water	NBR	HFC	

9.1 JO-DL-4

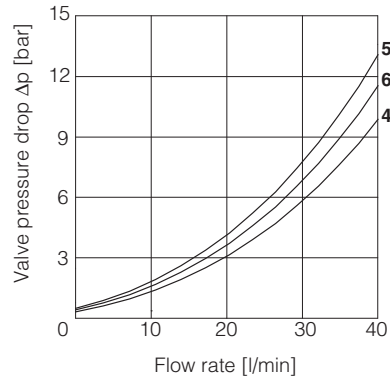
Valve pressure drop - NO version

- 1 = A → B de-energized
- 2 = B → A de-energized
- 3 = B → A energized



Valve pressure drop - NC version

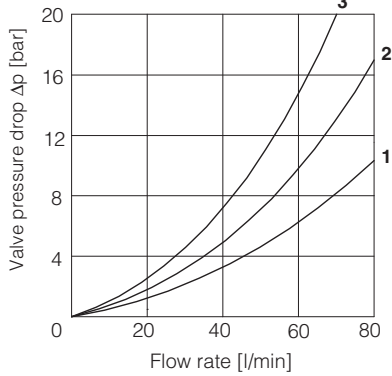
- 4 = A → B energized
- 5 = B → A de-energized
- 6 = B → A energized



9.2 JO-DL-6

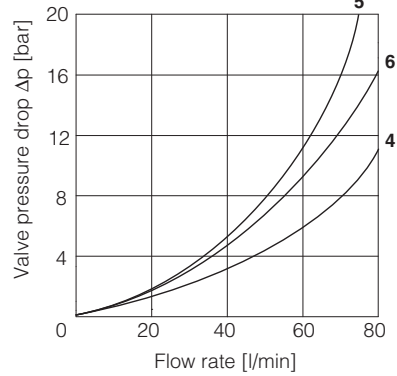
Valve pressure drop - NO version

- 1 = A → B de-energized
- 2 = B → A de-energized
- 3 = B → A energized



Valve pressure drop - NC version

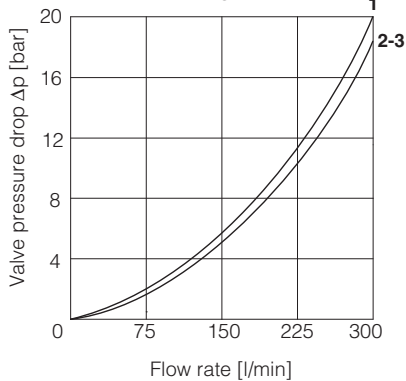
- 4 = A → B energized
- 5 = B → A de-energized
- 6 = B → A energized



9.3 JO-DL-10

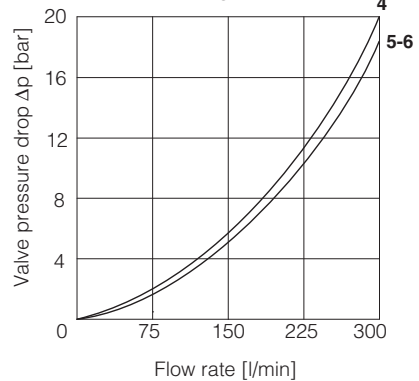
Valve pressure drop - NO version

- 1 = A → B de-energized
- 2 = B → A de-energized
- 3 = B → A energized



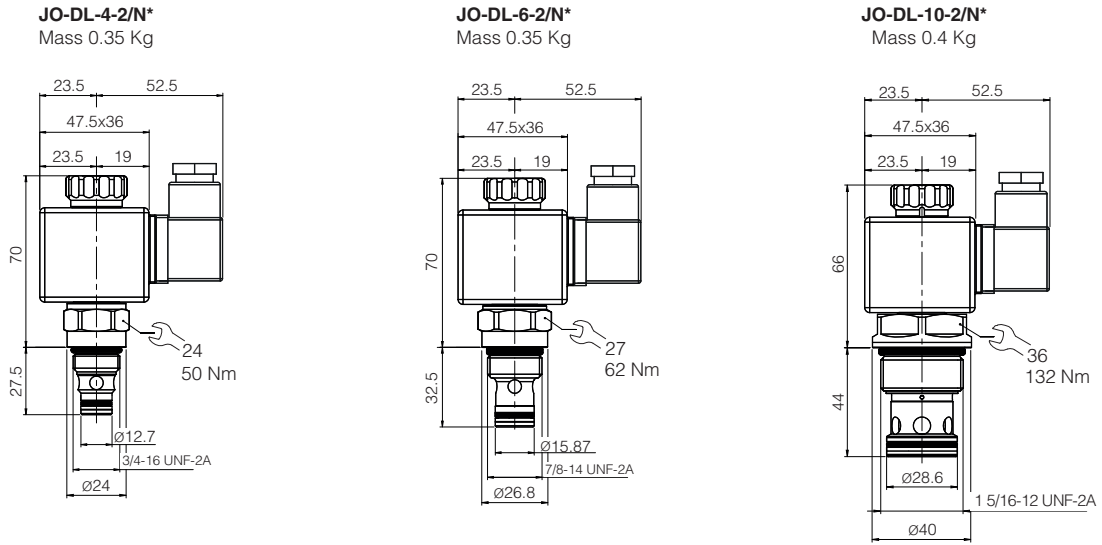
Valve pressure drop - NC version

- 4 = A → B energized
- 5 = B → A de-energized
- 6 = B → A energized



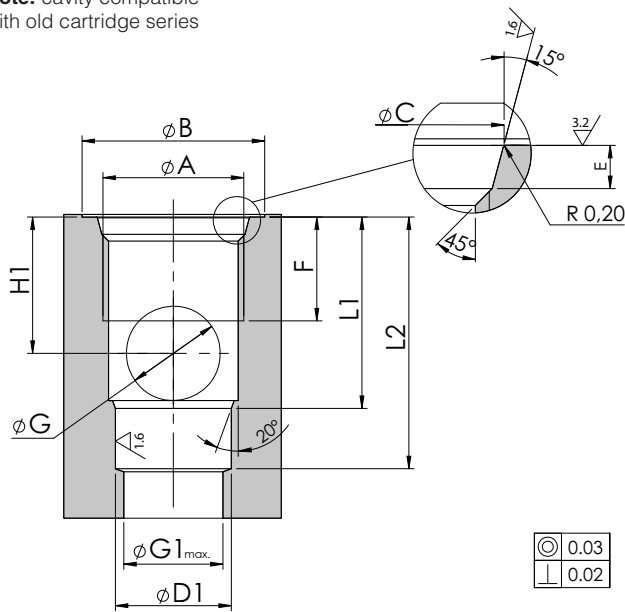
9 INSTALLATION DIMENSIONS [mm]

Version /NO and /NC



10 CAVITY DIMENSIONS

Note: cavity compatible with old cartridge series



	SAE-08-2N	SAE-10-2N	SAE-16-2N
A	3/4-16 UNF	7/8-14 UNF	1 5/16-12 UNF
B	26	30	42
C	20.6 ^{+0.1} ₀	23.9 ^{+0.1} ₀	35.5 ^{+0.1} ₀
D1	12.7 ^{+0.05} ₀	15.87 ^{+0.05} ₀	28.60 ^{+0.05} ₀
E	2.6 ^{+0.3} ₀	2.6 ^{+0.3} ₀	3.3 ^{+0.3} ₀
F	13	15	20
G	9	12	19
G1	12	15	24
H1	14	18	25
L1	20.5	25.5	36
L2	29	34.5	49