



Description

A solenoid valve is an electromechanically operated valve. The valve is controlled by an electric current through a solenoid: in case of a two-port valve the flow is switched on or off; in case of a three-port valve, the outflow is switched between the two outlet ports. Multiple solenoid valves can be placed together on a manifold. Solenoid valves are the most frequently used control elements in fluidics. Their tasks are to shut off, release, dose, distribute or mix fluids. They are found in many application areas. Solenoids offer fast and safe switching, high reliability, long service life, good medium compatibility of the materials used, low control power and compact design. Solenoid valves are also characterized by how they operate. A small solenoid can generate a limited force. A solenoid valve has two main parts: the solenoid and the valve. The solenoid converts electrical energy into technical energy which, in turn, opens or closes the valve mechanically. A direct acting valve has only a small flow circuit, this section is mentioned below as a pilot valve. In this example, a diaphragm piloted valve multiplies this small pilot flow, by using it to control the flow through a much larger orifice.

Flowrate

The flow rate is indicated by the flow factor K_v , which represents the quantity of water, expressed in m^3/h , that flows through the solenoid valve with a pressure drop of 1 bar and a temperature between 5°C and 30°C (Standard VDI/VDE2173)

Response time

The time requested to pass from fully open to fully closed or vice versa, changes according different parameters. In particular, the voltage value, the type of fluids, the pressure, the valve, its mobile parts dimensions and the operating system are all factors that affect the response time. For the valves of the "L" series, the response time is about few tens of milliseconds for direct acting valves and hundreds (in some cases thousands) of milliseconds for pilot operated valves.

Specifications

- o for use with non-aggressive clean liquids and gasses compatible with the used materials
- o available versions:
 - brass body also available in stainless steel
 - sealing and diaphragm depending on different parameters such as temperature and controlled fluids
 - standard gas female threaded ports (ISO 228) or for sub-base mounting,
 - 2/2 or 3/2, NO or NC
- o max viscosity: 35 mm²/s
- o liquid temperature: according table
- o voltages:
 - standard 24-11-220-230 Volt, 50 Hz and 12-24Vdc
 - other voltages and frequencies on request
 - tolerance: +10%/-15% for AC, +10%/-5% for DC
- o coils according 73/23/EC
- o duty: 100%ED
- o seals: NBR, FPM, PTFE, EPDM or VMQ
- o pressure: vacuum up to 30 bar

CAPACITY SIRAI™ SOLENOID VALVES FOR NEUTRAL LIQUID AND GASEOUS MEDIA 2/2 NC SOLENOID VALVES INDIRECT ACTING

PORT SIZE	ORFICE SIZE mm	BODY	SEALS	DIFFERENTIAL PRESSURE				PS (BAR)	Kv (m³/h)	MEDIUM TEMPERATURE		ABSORBED POWER			VALVE	COIL	NOTES			
				Δ P MIN	Δ P MAX		PS (BAR)			Kv (m³/h)	min	max	AC					DC (W)		
					GASES								LIQUIDS						VA	VA
					AC	DC							AC	DC						
G 3/8	13,5	O	NBR	0,35	16	16	16	16	20	2,5	-10	90	12	6	5,5	L182B01	ZB10A	A - B		
	13,5	O	NBR	0,35	16	16	16	16	20	2,5	-10	90	12	6	5,5	L182B02	ZB10A	A - B - C		
	13,5	O	FPM	0,35	12	12	12	12	20	2,5	0	130	12	6	5,5	L182V01	ZB10A	A - B		
	13,5	O	FPM	0,35	12	12	12	12	20	2,5	0	130	12	6	5,5	L182V02	ZB10A	A - B - C		
G 1/2	10	O	NBR	0,35	10	-	10	-	16	1,5	-10	90	16	10	-	L140B5	Z610A	D - E		
	10	O	FPM	0,35	10	-	10	-	16	1,5	0	130	16	10	-	L140V5	Z610A	D		
	10,2	O	NBR	0,35	12	12	12	12	20	1,8	-10	90	12	6	5,5	L182B13	ZB10A	F		
	13,5	O	NBR	0,35	16	16	16	16	20	3,8	-10	90	12	6	5,5	L182B01	ZB10A	A - B		
	13,5	O	NBR	0,35	16	16	16	16	20	3,8	-10	90	12	6	5,5	L182B02	ZB10A	A - B - C		
	13,5	O	FPM	0,35	12	12	12	12	20	3,8	0	130	12	6	5,5	L182V01	ZB10A	A - B		
	13,5	O	FPM	0,35	12	12	12	12	20	3,8	0	130	12	6	5,5	L182V02	ZB10A	A - B - C		
G 3/4	18	O	NBR	0,35	12	12	12	12	20	5	-10	90	12	6	5,5	L182B01	ZB10A	A - G		
	18	O	NBR	0,35	12	12	12	12	20	5	-10	90	12	6	5,5	L182B02	ZB10A	A - C - G		
	18	O	FPM	0,35	10	10	10	10	20	5	0	130	12	6	5,5	L182V01	ZB10A	A - G		
	18	O	FPM	0,35	10	10	10	10	20	5	0	130	12	6	5,5	L182V02	ZB10A	A - C - G		
	18	PP	FPM	0,2	6	-	6	-	10	4,8	-10	80	44	24	-	L131V07	Z130A	-		
G1	24	O	NBR	0,35	12	12	12	12	20	12	-10	90	12	6	5,5	L182B01	ZB10A	A - G		
	24	O	NBR	0,35	12	12	12	12	20	12	-10	90	12	6	5,5	L182B02	ZB10A	A - C - G		
	24	O	FPM	0,35	10	10	10	10	20	12	0	130	12	6	5,5	L182V01	ZB10A	A - G		
	24	O	FPM	0,35	10	10	10	10	20	12	0	130	12	6	5,5	L182V02	ZB10A	A - C - G		
G 1 1/4	30	O	NBR	0,5	10	10	10	10	15	15	-10	90	23	14	9	L180B48	ZA30A	H		
	30	O	NBR	0,5	10	10	10	10	15	15	-10	90	23	14	9	L180B49	ZA30A	C - H		
	30	O	FPM	0,5	10	10	10	10	15	15	0	130	23	14	9	L180B48	L180V48	H		
	30	O	FPM	0,5	10	10	10	10	15	15	0	130	23	14	9	L180B49	L180V48	C-H		
G 1 1/2	45	O	NBR	0,5	10	10	10	10	15	27	-10	90	23	14	9	L180B48	ZA30A	H		
	45	O	NBR	0,5	10	10	10	10	15	27	-10	90	23	14	9	L180B49	ZA30A	C - H		
	45	O	FPM	0,5	10	10	10	10	15	27	0	130	23	14	9	L180V48	ZA30A	H		
	45	O	FPM	0,5	10	10	10	10	15	27	0	130	23	14	9	L180V49	ZA30A	C - H		
G2	45	O	NBR	0,5	10	10	10	10	15	34	-10	90	23	14	9	L180B48	ZA30A	H		
	45	O	NBR	0,5	10	10	10	10	15	34	-10	90	23	14	9	L180B49	ZA30A	C - H		
	45	O	FPM	0,5	10	10	10	10	15	34	0	130	23	14	9	L180V48	ZA30A	H		
	45	O	FPM	0,5	10	10	10	10	15	34	0	130	23	14	9	L180V49	ZA30A	C - H		

PS = max pressure

O = brass

PP = polypropylene



VAN DER ENDE GROEP

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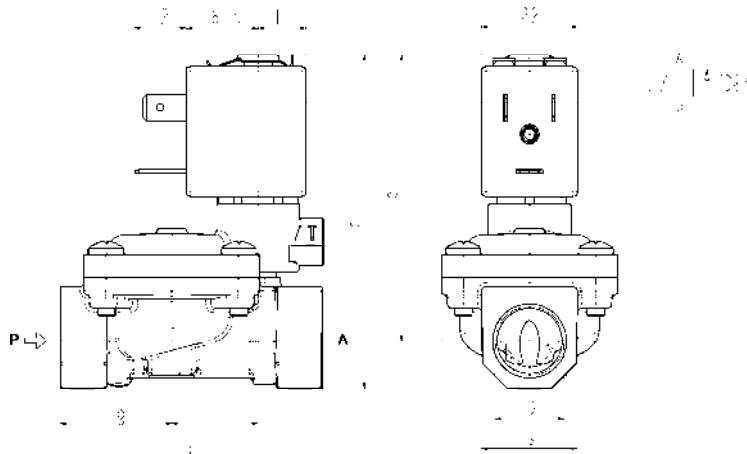
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SOLENOID VALVE
2/2- NC (Normally closed)
 Pilot operated
G 3/8 ÷ G 1

L182



D	a	b	c	f	g	l	s
G 3/8	60	66	77	40	25,5	20	22
G 1/2	66	68	82	40	29	20	27
G 3/4	79	72,5	89	50	35,5	24,5	33
G 1	105	85	106	71	46	28	42

► GENERAL FEATURES
 Diaphragm valve, pilot operated, having full orifice.
 Suitable to shut off liquid and gaseous fluids (verify the compatibility of fluid with material in contact).

► TECHNICAL FEATURES

Maximum allowable pressure (PS)	20bar
Opening time	from ~300ms to ~1500ms
Closing time	from ~1000ms to ~2000ms
Fluid temperature	-10°C +90°C (NBR) 0°C +130°C (FPM) -10°C +140°C (EPDM)
Max viscosity	5°E (~37 cStokes or mm ² /s)

► MATERIALS IN CONTACT WITH FLUID

Body	Brass
Sealing	NBR or FPM or EPDM
Internal components	Brass and stainless steel
Seat	Brass
Core tube	Stainless steel
Shading coil	Copper

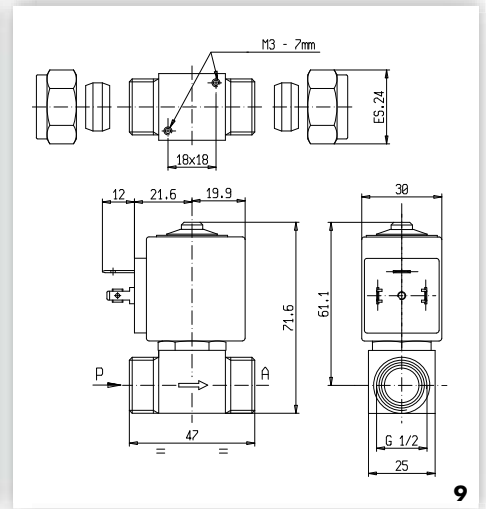
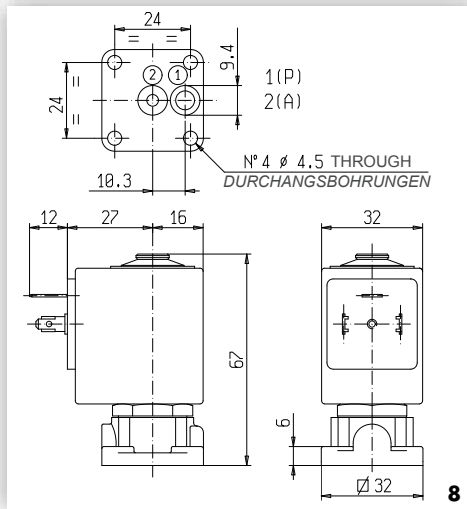
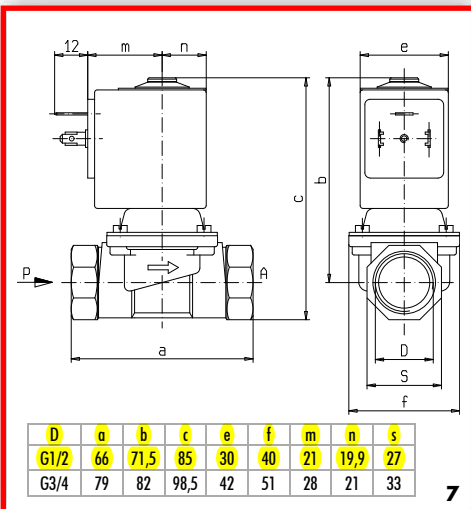
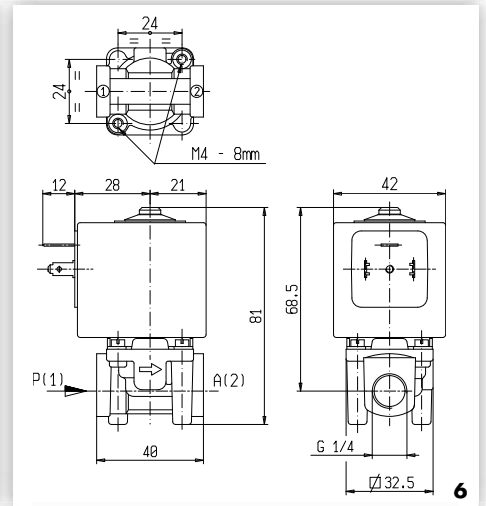
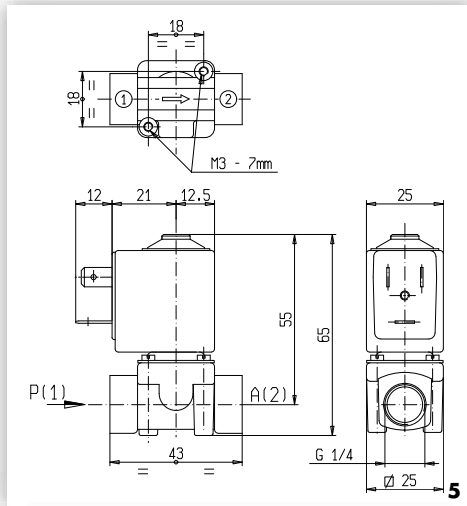
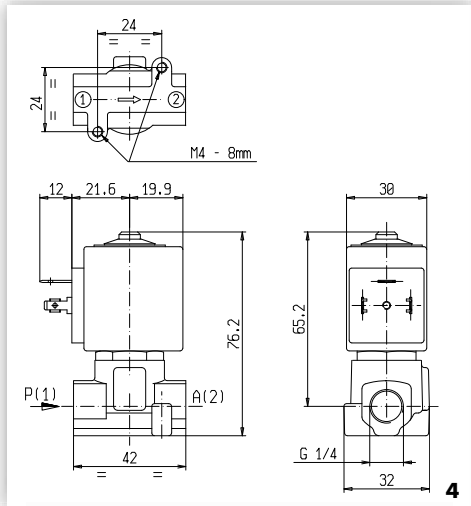
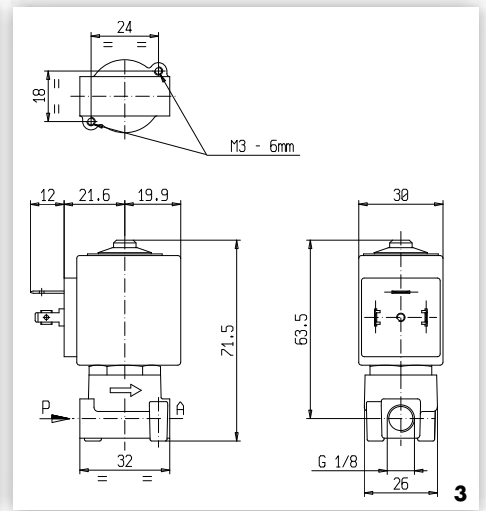
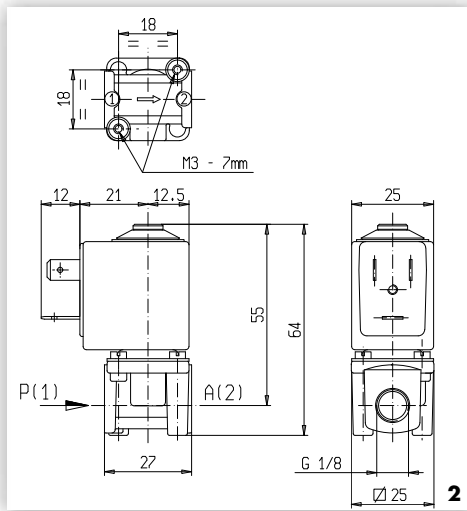
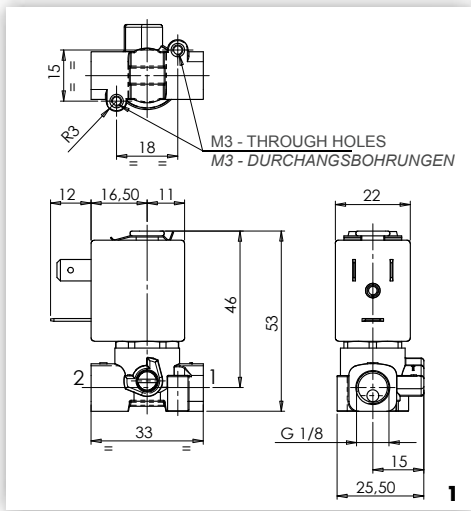
► COIL
Approval
Encapsulation material
Insulation class
Ambient temperature
Continuous duty
Electric connection
Protection degree
Voltages DC
 AC

ZB10A	ZB12A *	ZB14A *
/	UL and CSA	UL and CSA
PA fiberglass reinforced	PET fiberglass reinforced	PET fiberglass reinforced
F (155°C) -10°C +60°C	F (155°C) -10°C +60°C	H (180°C) -10°C +75°C
ED 100%		
DIN 46340 - 3 poles plug connector		
IP 65 (EN 60529) with plug connector	IP 67 (EN 60529) with plug connector	IP 67 (EN 60529) with plug connector
24V/50-60Hz - 115V/50Hz - 230V/50-60Hz (+10% -15%)		
(Other voltages and frequencies on request).		
/	ZB12Y	ZB14Y
/	UL	UL
/	220-230V/50Hz 208-240V/60Hz (+10% -15%)	

* On request
Approval
Voltages AC

Port size ISO 228	Orifice size (mm)	Differential pressure (bar)						Kv (m ³ /h)	Series and type			Power absorption				Sealings	Notes	Weight (kg)
		Δp min	Δp max				Valve		Valve with manual override	Coil	AC (VA)			DC				
			Gases		Liquids						Inrush VA	Holding						
			AC	DC	AC	DC						VA	VA		W			
3/8	13,5	0,35					2,5	L182(*)01	L182(*)02	ZB10A ZB12A	12	6	4	5,5	(*) = B (NBR) (*) = V (FPM) (*) = D (EPDM)	1-3	0,32	
1/2			16 (12)	16 (12)	16 (12)	16 (12)												3,8
3/4	12 (10)		12 (10)	12 (10)	12 (10)	5												0,52
1	24		12 (10)	12 (10)	12 (10)	12												

- NOTES**
- Sealings: B(NBR)=Nitrile-butylene elastomer V(FPM)=Fluoro-carbon elastomer D(EPDM)=Ethylene-propylene elastomer (WRAS/KTW certified compound)
 - Operation with gaseous media, at high pressure without any outlet restriction, can reduce the diaphragm life.
 - On request coil in class H (ZB14A – see § "COIL")
 - The bracketed values of Δp max are related to valves with V(FPM) seals.
 - 1 - Low power consumption coil on request (3,5 VA in AC – 3W in DC): Δp max = 12 bar
 - 2 - Low power consumption coil on request (3,5 VA in AC – 3W in DC): Δp max = 8 bar
 - 3 - L182D01 – L182D02: **WRAS** certified solenoid valves (certificate n. 1411048).



- A Version with manual override on request
- B WRAS homologated version on request (P_{Smax}=12bar)
- C On request special coil model ZA32A, "F" class, windings homologated UL or VDE
- D Version with metering device adjusting flow on request (L120V03)
- E Version complying with NSF standards
- F Version with stainless steel seat on request (L120V07)
- G Sealings in EPDM on request (L177D04)
- H On request special version for Δp Max 5bar in DC (L177V07)
- I On request special version suitable for 2,5bar back-pressure against the seal (L177V08)
- L Silent version; only for direct current (DC)
- M WRAS homologated solenoid valve

- A Auf Anfrage mit Handbetätigung
- B Auf Anfrage mit WRAS-Zulassung (P_{Smax} = 12bar)
- C Auf Anfrage mit Elektromagnet in Sonderausführung ZA32A, Klasse „F“, Windungen mit UL oder VDE-Zulassung
- D Auf Anfrage mit Durchfluss-Handregler (L120V03)
- E Ausführung nach NSF-Norm
- F Auf Anfrage mit Ventilsitz in Edelstahl (L120V07)
- G Auf Anfrage Dichtungselemente in EPDM (L177D04)
- H Auf Anfrage Sonderausführung für Δp max. 5 bar, GS (L177V07)
- I Auf Anfrage Sonderausführung geeignet für Ausgang „A“ in Unterdruck und Abdichtung unter dem Sitz bis 2,5bar (L177V08)
- L Geräuscharme Sonderausführung, nur für Gleichstrom
- M Magnetventil mit WRAS-Zulassung

