



MV-01

2/2-way Solenoid Valve for Fluids



Features

/ Nominal diameters 1/4"-2"

/ Pressure up to 10 bar

/ 24 V DC and all common AC variants

/ Forced-lifting

Description:

The pilot-controlled full-way valve with servo membrane and forced-lifting is currentless closed. In this status, the core closes the pilot-control boring in the center of the membrane holder due to spring action. The media pressure above the membrane builds up over a membrane throttle boring and closes the valve. When the valve's magnetic coil is supplied with current, the resulting magnetic field lifts up the core which first opens the pilot-control boring to let the closing pressure above the membrane weaken and the valve can open fully due to the excess media pressure and the coil's magnetic force.

Application:

Magnetic valves are primarily used in processes in which flow of fluids need to be switched on or shut off frequently and at precisely defined point of time. The simple but reliable devices are very frequently deployed especially in the dosing technology. A variety of possible material combinations for the valve body are in brass or stainless steel and the membrane materials like NBR, FKM or EPDM, as well as the available operating voltages in the AC and DC range, render the MV-01 into one of the most universally applicable solenoid valve in the market.



Versions:

MV-01 Solenoid Valve

Housing material: As materials for the housing brass or stainless steel can be selected. In addition, other materials such as brass nickel-plated are available on request.

Cv-value: For these flow values of water as the medium at 20°C (from 1.3 to 30.0 m³/h) exactly 1 bar pressure will drop at the relevant valve. These are taken into regard so as to assess the loss of pressure on the valve with reference to the entire range.

Connection: All cylindrical thread sizes between G1/4" and G2" are available. However, the relationship between the Cv- value and the thread must be taken into consideration.

Supply voltage: Besides 24 V DC also all commonly used variants of AC voltage can be supplied.

Membrane material: Among plastic materials, NBR (Perbunan®), FKM (Viton®) and EPDM are available. Depending on the medium and the required temperature any of the alternatives can be supplied. NBR is used for neutral fluids like water, hydraulic oil and oils and greases without additives. FKM is used for Per-solutions and hot oils with additives and EPDM should be used for oil- and greaseless fluids like hot water and alkaline washing and bleaching lye.

Accessories: Besides the required standard plug socket also sockets with LED for switching status display, varistor for surge voltage protection or integrated rectifier can be supplied.

Ordering Codes:

Order number	MV-01.	□□□□□.	2
MV-01 Solenoid Valve			
Type-ID (see table) / Example A041M: brass housing, NBR diaphragm, polyamide coil, process connection G 1/2", Cv-value 3.6 m ³ /h, voltage 24 VDC			
Accessories / 0 = none 1 = device plug socket DIN EN 175301-803 Form A 2 = device plug socket DIN EN 175301-803 Form A with LED 3 = device plug socket DIN EN 175301-803 Form A with LED and varistor 4 = device plug socket DIN EN 175301-803 Form A with LED, varistor and rectifier			

Technical Specifications:

Housing material /	brass acc. to DIN EN 50930-6, stainless steel 1.4408 (316), brass nickel-plated (5μ)
Intern. components /	
Brass housing	brass, stainless steel and PPS
St.-steel housing:	stainless steel and PPS
max. Pressure /	10 bar
Medium /	
NBR:	neutral fluids, water, hydraulic oil, oil without additives
FKM:	Per-solutions, hot oils with additives
EPDM:	oil- and greaseless fluids
max. Temperature /	
NBR:	-10°C. . .+80°C
FKM:	with polyamid coil 0°C. . .+90°C, with epoxy coil 0°C. . .+120°C
EPDM:	with polyamid coil -30°C. . .+90°C, with epoxy coil -30°C. . .+100°C
max. Ambient temp. /	+55°C
Mounting position /	any, preferably with drive towards top

Electrical Specifications:

Supply /	24 VDC or 24 VAC (50 Hz) and 230 VAC (50 Hz), others on request
Voltage tolerance /	± 10%
Protection class /	IP65 with cable plug
El. connection /	plug DIN EN 175301-803 Form A
Response time¹⁾ /	0.1. . .4 seconds (depending on nominal diameter and differential pressure)

¹⁾ Measured at valve outlet at 6 bar and +20°C
Opening pressure build-up 0. . .90%
Closing pressure drop 100. . .10%



Table 1: Solenoid valves with brass housing, DN 10-40 mm

1a: Brass housing, NBR diaphragm, polyamide coil, medium temperature: -10°C. . .+80°C

Thread	ND	Cv-Value ^{3) 5)}	Pressure ⁴⁾	Weight		Ordering code: Type-ID		
				[kg] AC	[kg] DC	24 VDC	24 VAC, 50 Hz	230 VAC, 50 Hz
G 1/4"	10	1.3	0 - 10	0.3	0.5	A011M	A012M	A013M
G 3/8"	10	1.9	0 - 10	0.3	0.5	A021M	A022M	A023M
G 1/2"	10	1.9	0 - 10	0.4	0.5	A031M	A032M	A033M
G 1/2"	13	3.6	0 - 10	0.4	0.5	A041M	A042M	A043M
G 3/4"	13	3.6	0 - 10	0.5	0.6	A051M	A052M	A053M
G 3/4"	20	8.3	0 - 10	0.7	0.8	A061M	A062M	A063M
G 1"	20	8.3	0 - 10	0.9	1.0	A071M	A072M	A073M

1b: Brass housing, NBR diaphragm, epoxy coil, medium temperature: -10°C. . .+80°C

Thread	ND	Cv-Value ^{3) 5)}	Pressure ⁴⁾	Weight		Ordering code: Type-ID		
				[kg] AC	[kg] DC	24 VDC	24 VAC, 50 Hz	230 VAC, 50 Hz
G 1"	25	11	0 - 10	1.6	2.2	B011M	B012M	B013M
G 1 1/4"	25	11	0 - 10	1.7	2.3	B021M	B022M	B023M
G 1 1/4"	40	23	0 - 10	2.9	3.4	B031M	B032M	B033M
G 1 1/2"	40	30	0 - 10	3.2	3.7	B041M	B042M	B043M
G 2"	40	30	0 - 10	3.4	3.9	B051M	B052M	B053M

1c: Brass housing, FKM diaphragm, epoxy coil, medium temperature: 0°C. . .+120°C

Thread	ND	Cv-Value ^{3) 5)}	Pressure ⁴⁾	Weight		Ordering code: Type-ID		
				[kg] AC	[kg] DC	24 VDC	24 VAC, 50 Hz	230 VAC, 50 Hz
G 1/4"	10	1.3	0 - 10	0.3	0.5	C011M	C012M	C013M
G 3/8"	10	1.9	0 - 10	0.3	0.5	C021M	C022M	C023M
G 1/2"	10	1.9	0 - 10	0.4	0.5	C031M	C032M	C033M
G 1/2"	13	3.6	0 - 10	0.4	0.5	C041M	C042M	C043M
G 3/4"	13	3.6	0 - 10	0.5	0.6	C051M	C052M	C053M
G 3/4"	20	8.3	0 - 10	0.7	0.8	C061M	C062M	C063M
G 1"	20	8.3	0 - 10	0.9	1.0	C071M	C072M	C073M
G 1"	25	11	0 - 10	1.6	2.2	C081M	C082M	C083M
G 1 1/4"	25	11	0 - 10	1.7	2.3	C091M	C092M	C093M
G 1 1/4"	40	23	0 - 10	2.9	3.4	C101M	C102M	C103M
G 1 1/2"	40	30	0 - 10	3.2	3.7	C111M	C112M	C113M
G 2"	40	30	0 - 10	3.4	3.9	C121M	C122M	C123M

1d: Brass housing, EPDM diaphragm, polyamide coil, medium temperature: -30°C. . .+90°C

Thread	ND	Cv-Value ^{3) 5)}	Pressure ⁴⁾	Weight		Ordering code: Type-ID		
				[kg] AC	[kg] DC	24 VDC	24 VAC, 50 Hz	230 VAC, 50 Hz
G 1/4"	10	1.3	0 - 10	0.3	0.4	D011M	D012M	D013M
G 3/8"	10	1.9	0 - 10	0.3	0.4	D021M	D022M	D023M
G 1/2"	10	1.9	0 - 10	0.4	0.5	D031M	D032M	D033M
G 1/2"	13	3.6	0 - 10	0.4	0.5	D041M	D042M	D043M
G 3/4"	13	3.6	0 - 10	0.5	0.6	D051M	D052M	D053M
G 3/4"	20	8.3	0 - 10	0.7	0.8	D061M	D062M	D063M
G 1"	20	8.3	0 - 10	0.9	1.0	D071M	D072M	D073M



1e: Brass housing, EPDM diaphragm, epoxy coil, medium temperature: -30°C. . .+100°C

Thread	ND	Cv-Value ^{3) 5)}	Pressure ⁴⁾	Weight		Ordering code: Type-ID		
				[mm]	[m ³ /h]	[bar]	[kg] AC	[kg] DC
G 1"	25	11	0 - 10	1.6	2.2	E011M	E012M	E013M
G 1 1/4"	25	11	0 - 10	1.7	2.3	E021M	E022M	E023M
G 1 1/4"	40	23	0 - 10	2.9	3.4	E031M	E032M	E033M
G 1 1/2"	40	30	0 - 10	3.2	3.7	E041M	E042M	E043M
G 2"	40	30	0 - 10	3.4	3.9	E051M	E052M	E053M

Table 2: Solenoid valves with st. steel housing, DN 10-40 mm

2a: Stainless steel housing, NBR diaphragm, polyamide coil, medium temperature: -10°C. . .+80°C

Thread	ND	Cv-Value ^{3) 5)}	Pressure ⁴⁾	Weight		Ordering code: Type-ID		
				[mm]	[m ³ /h]	[bar]	[kg] AC	[kg] DC
G 3/8"	10	1.9	0 - 10	0.3	0.4	A021E	A022E	A023E
G 1/2"	13	3.6	0 - 10	0.4	0.5	A041E	A042E	A043E
G 3/4"	20	8.3	0 - 10	0.7	0.8	A061E	A062E	A063E
G 1"	20	8.3	0 - 10	0.9	1.0	A071E	A072E	A073E

2b: Stainless steel housing, NBR diaphragm, epoxy coil, medium temperature: -10°C. . .+80°C

Thread	ND	Cv-Value ^{3) 5)}	Pressure ⁴⁾	Weight		Ordering code: Type-ID		
				[mm]	[m ³ /h]	[bar]	[kg] AC	[kg] DC
G 1"	25	11	0 - 10	1.6	2.2	B011E	B012E	B013E
G 1 1/4"	25	11	0 - 10	1.7	2.3	B021E	B022E	B023E
G 1 1/2"	40	30	0 - 10	3.2	3.7	B041E	B042E	B043E
G 2"	40	30	0 - 10	3.4	3.9	B051E	B052E	B053E

2c: Stainless steel housing, FKM diaphragm, epoxy coil, medium temperature: 0°C. . .+120°C

Thread	ND	Cv-Value ^{3) 5)}	Pressure ⁴⁾	Weight		Ordering code: Type-ID		
				[mm]	[m ³ /h]	[bar]	[kg] AC	[kg] DC
G 3/8"	10	1.9	0 - 10	0.3	0.4	C021E	C022E	C023E
G 1/2"	13	3.6	0 - 10	0.4	0.5	C041E	C042E	C043E
G 3/4"	20	8.3	0 - 10	0.7	0.8	C061E	C062E	C063E
G 1"	20	8.3	0 - 10	0.9	1.0	C071E	C072E	C073E
G 1"	25	11	0 - 10	1.6	2.2	C081E	C082E	C083E
G 1 1/4"	25	11	0 - 10	1.7	2.3	C091E	C092E	C093E
G 1 1/2"	40	30	0 - 10	3.2	3.7	C111E	C112E	C113E
G 2"	40	30	0 - 10	3.4	3.9	C121E	C122E	C123E

2d: Stainless steel housing, EPDM diaphragm, polyamide coil, medium temperature: -30°C. . .+90°C

Thread	ND	Cv-Value ^{3) 5)}	Pressure ⁴⁾	Weight		Ordering code: Type-ID		
				[mm]	[m ³ /h]	[bar]	[kg] AC	[kg] DC
G 3/8"	10	1.9	0 - 10	0.3	0.4	D021E	D022E	D023E
G 1/2"	13	3.6	0 - 10	0.4	0.5	D041E	D042E	D043E
G 3/4"	20	8.3	0 - 10	0.7	0.8	D061E	D062E	D063E
G 1"	20	8.3	0 - 10	0.9	1.0	D071E	D072E	D073E



2e: Stainless steel housing, EPDM diaphragm, epoxy coil, medium temperature: -30°C. . .+100°C

Thread	ND	Cv-Value ^{3) 5)}	Pressure ⁴⁾	Weight		Ordering code: Type-ID		
	[mm]			[m ³ /h]	[bar]	[kg] AC	[kg] DC	24 VDC
G 1"	25	11	0 - 10	1.6	2.2	E011E	E012E	E013E
G 1 1/4"	25	11	0 - 10	1.7	2.3	E021E	E022E	E023E
G 1 1/2"	40	30	0 - 10	3.2	3.7	E041E	E042E	E043E
G 2"	40	30	0 - 10	3.4	3.9	E051E	E052E	E053E

³⁾ Measured at +20°C, 1 bar pressure at valve inlet and free outlet

⁴⁾ Pressure data [bar]: Overpressure with respect to atmospheric pressure

⁵⁾ A minimum differential pressure of 0.5 bar is required for full (100%) opening

Table 3: Power consumption

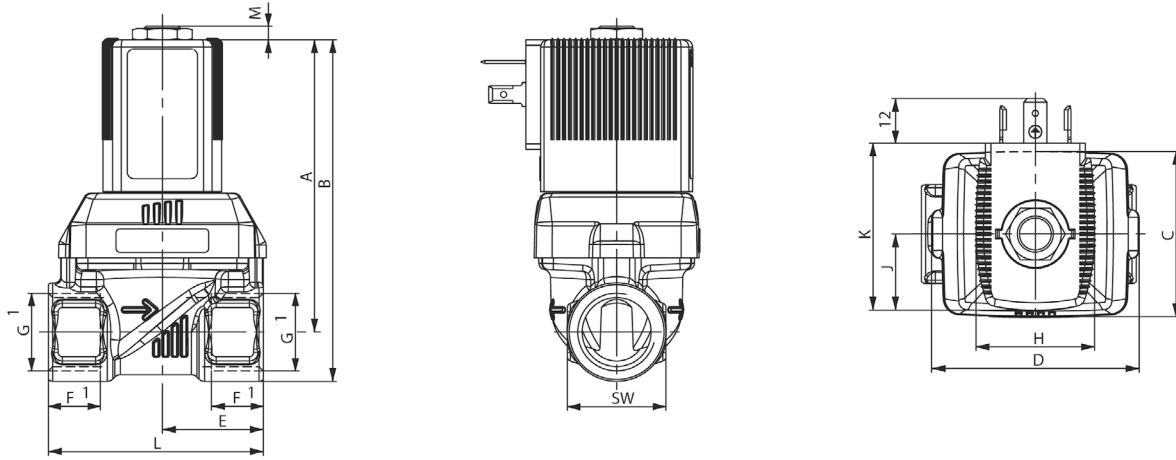
ND	Thread	Coil size width [mm]		Power consumption ⁶⁾			Insulation class coil ⁷⁾		Weight [kg]	
		AC	DC	Inrush AC [VA]	Operating hot coil		Seal material FKM	Seal material NBR & EPDM	Brass coil AC	Brass coil DC
					AC [VA/W]	DC [W]				
10	G 1/4"	32	40	34	14/8	10 (11)	H	B	0.33	0.41
10	G 3/8"	32	40	34	14/8	10 (11)	H	B	0.33	0.41
10	G 1/2"	32	40	34	14/8	10 (11)	H	B	0.37	0.44
13	G 1/2"	32	40	36	14/8	10 (11)	H	B	0.46	0.54
13	G 3/4"	32	40	36	14/8	10 (11)	H	B	0.49	0.57
20	G 3/4"	32	40	38	14/8	10 (11)	H	B	0.74	0.82
20	G 1"	32	40	38	14/8	10 (11)	H	B	0.95	1.03
25	G 1"	42	65	150	37/16	28 (29)	H	H	1.6	2.2
25	G 1 1/4"	42	65	150	37/16	28 (29)	H	H	1.7	2.3
40	G 1 1/4"	42	65	190	37/16	28 (29)	H	H	3.2	3.7
40	G 1 1/2"	42	65	190	37/16	28 (29)	H	H	3.2	3.7
40	G 2"	42	65	190	37/16	28 (29)	H	H	3.38	3.9

⁶⁾ Values in brackets applies at coil temperature +20°C

⁷⁾ H epoxy coil, B polyamide coil



Table 4: Dimensions (mm)



3a: Dimensions (AC-coil, 32 mm)

DN	A	B	C	D	E (MS)	E (VA)	F1	G1	H	J	K	L (MS)	L (VA)	SW	M
10	67.4	78.4			22	22	12	G 1/4"				50	50	22	
	67.4	78.4	36	46	22	22	12	G 3/8"	32	20.5	45	50	50	22	3.7
	69.4	82.9			24.5	24.5	14	G 1/2"				50	55	27	
13	78.9	92.4			27.2	32.5	14	G 1/2"	32	20.5	45	58	65	27	
	80.9	96.9	44.5	56	32.5	32.5	16	G 3/4"				65	65	32	3.7
20	93.4	109.4			37	37	16	G 3/4"	32	20.5	45	80	80	32	
	95.9	116.4	65	76.6	37.5	37.5	18	G 1"				80	80	41	3.7

3b: Dimensions (DC-coil, 40 mm)

DN	A	B	C	D	E (MS)	E (VA)	F1	G1	H	J	K	L (MS)	L (VA)	SW	M
10	67.4	78.4			22	22	12	G 1/4"				50	50	22	
	67.4	78.4	36	46	22	22	12	G 3/8"	40	23.5	51	50	50	22	3.7
	69.4	82.9			24.5	24.5	14	G 1/2"				50	55	27	
13	79.3	92.8			27.2	32.5	14	G 1/2"	40	23.5	51	58	65	27	
	81.3	97.3	44.5	56	32.5	32.5	16	G 3/4"				65	65	32	3.7
20	93.8	109.8			37	37	16	G 3/4"	40	23.5	51	80	80	32	
	96.3	116.8	65	76.6	37.5	37.5	18	G 1"				80	80	41	3.7

3c: Dimensions (AC-coil, 42 mm / DC-coil 65 mm)

DN	A	B	C	D	E (MS)	E (VA)	F1	G1	H	J	K	L (MS)	L (VA)	SW	M
40	158.3	193.3			64	64	24	G 2"				132	132	70	
	152.3	182.3	104.5	117	61	61	22	G 1 1/2"	65	37.5	72	126	126	60	7
	146.8	171.8			61	61	20	G 1 1/4"				126	126	50	
25	141.3	166.3			46	46	20	G 1 1/4"	65	37.5	72	95	95	50	
	136.3	156.8	77	88	46	46	18	G 1"				95	95	41	7
40	158.3	193.3			64	64	24	G 2"				132	132	70	
	152.3	182.3	104.5	117	61	61	22	G 1 1/2"	42	27	55.5	126	126	60	7
	146.8	171.8			61	61	20	G 1 1/4"				126	126	50	
25	141.3	166.3			46	46	20	G 1 1/4"	42	27	55.5	95	95	50	
	136.3	156.8	77	88	46	46	18	G 1"				95	95	41	7