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Technical Documentation

Solenoid Valves

Type 166



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Solenoid valves
Type 166

The solenoid valves type 166 are direct-acting 2/2 or 3/2-way valves with a clapper armature. They are used for diverse functions, e.g. opening, shutting, dosing, dispensing and mixing. The solenoid system and medium area are separated from one another by means of an isolating membrane. The valve therefore has a long service life, even with dry runs. Due to the use of PP and PVDF as housing materials, the type 166 is especially suitable for aggressive media. The valve is mounted via a G 1/4" union and is available in the nominal diameters DN3, DN4 and DN5.

All the valves are naturally also available as 24 V=, 24V 50Hz, 110V 60Hz and 230V 50Hz versions.

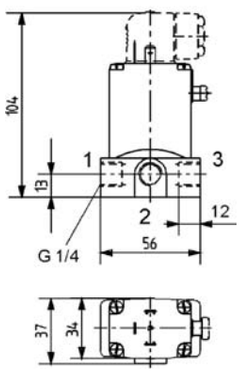
→ Our strengths

- compact design
- easy installation
- the right operating modes
- low power consumption
- arbitrary mounting position

Measurements:

Type 166

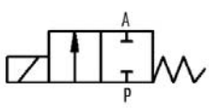
The connections marked 1, 2 and 3 are indicated according to mode of operation in the table below.



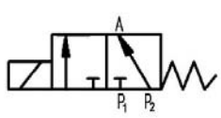
Connection table			
Mode of operation	Connection 1	Connection 2	Connection 3
A	A	–	P
E	P1	A	P2
F	A	P	B

Mode of operation :

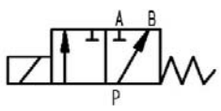
A = normally closed, de-energized, outlet A vented



E = mixed valve, direct-acting, de-energized P2 = → outlet A open, P1 closed



F = feed valve, direct-acting, de-energized P = → B open, outlet A closed



Technical data type 166		
Housing and seat materials	PP / PVDF	
Seal materials	EPDM / FPM	
Medium temperature	0...80°C 0...80°C -20...80°C	PP with EPDM PP with FPM PVDF with FPM
Ambient temperature	0...55°C	
Viscosity	max. 37 mm ²/s	
Operating voltage	24 V DC / 24 V, 50 Hz / 230 V, 50 Hz	
Voltage tolerance	+/- 10%	
Switching frequency	ca. 1000/min	
Rated duty	Intermittent 40%, 30 min	
Electr. connection	Socket for cable ø 7mm	
Protection rating	IP65 with socket connection	
Any mounting position	preferably actuator on top	
Pipe connection	G 1/4"	

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Diame-ter	Mode of operation	Kv-value* Water	Pressure range **		Power consumption startup (electric)		Power consumption operation (electric)		Weight
[mm]		[l/min]	AC [bar]	DC [bar]	AC [VA]	DC [W]	AC [VA/W]	DC [W]	[kg]
3	A	4.20	0 – 10	0 – 8	30	8	15/8	8	0.4
	F		0 – 10	0 – 8					
	E		0 – 6	0 – 4					
4	A	5.00	0 – 5	0 – 4					0.4
	E		0 – 5	0 – 4					
	F		0 – 3	0 – 2					
5	A	6.70	0 – 4.5	–					0.4

Response time ***	Open		Close	
Mode of operation	AC [ms]	DC [ms]	AC [ms]	DC [ms]
A	ca. 8	10 – 17	ca. 15	15 – 20

* Kv-value [m3/h] at +20°C, 1 bar pressure at valve inlet and free outlet
** Pressure data [bar] gauge pressure
*** Response time [ms] Measured at valve outlet at 6 bar and +20°C
open: pressure buildup 0...90%, close: pressure release 100...10%

Solenoid valve 166 PP-H							
Mode of operation	Nominal diameter [mm]	Kv value [l/min]	Pipe con-nection	Pressure range	Voltage	EPDM	FPM
A	3.0	4.20	G 1/4"	0 – 8	24V DC	199 166 000	199 166 005
A	4.0	5.00	G 1/4"	0 – 4	24V DC	199 166 001	199 166 006
A	5.0	6.70	G 1/4"	0 – 3	24V DC	199 166 002	199 166 007
A	3.0	4.20	G 1/4"	0 – 10	230V 50Hz	199 166 010	199 166 015
A	4.0	5.00	G 1/4"	0 – 5	230V 50Hz	199 166 011	199 166 016
A	5.0	6.70	G 1/4"	0 – 4.5	230V 50Hz	199 166 012	199 166 017
E	3.0	4.20	G 1/4"	0 – 4	24V DC	199 166 150	199 166 155
E	4.0	5.00	G 1/4"	0 – 2	24V DC	199 166 151	199 166 156
E	3.0	4.20	G 1/4"	0 – 6	230V 50Hz	199 166 160	199 166 165
E	4.0	5.00	G 1/4"	0 – 3	230V 50Hz	199 166 161	199 166 166
F	4.0	5.00	G 1/4"	0 – 4	24V DC	199 166 201	199 166 206
F	4.0	5.00	G 1/4"	0 – 4	24V DC	199 166 211	199 166 216

Solenoid valve 166 PVDF							
Mode of operation	Nominal diameter [mm]	Kv value [l/min]	Pipe con-nection	Pressure range	Voltage	EPDM	FPM
A	3.0	4.20	G 1/4"	0 – 8	24V DC		199 166 505
A	4.0	5.00	G 1/4"	0 – 4	24V DC		199 166 506
A	5.0	6.70	G 1/4"	0 – 3	24V DC		199 166 507
A	3.0	4.20	G 1/4"	0 – 10	230V 50Hz		199 166 515
A	4.0	5.00	G 1/4"	0 – 5	230V 50Hz		199 166 516
A	5.0	6.70	G 1/4"	0 – 4.5	230V 50Hz		199 166 517
E	4.0	5.00	G 1/4"	0 – 2	24V DC		199 166 656
E	4.0	5.00	G 1/4"	0 – 3	230V 50Hz		199 166 666

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