

Solenoid Valve Type 166



Product description

Type 166 is a direct-acting 2/2 or 3/2-way pivoted armature valve. Available with various mechanisms for opening, closing, dosing, mixing and distributing. The solenoid system and medium chamber are separated from one another by means of an isolating diaphragm system. The valve thus has a long service life, even with dry runs. Due to the use of PP and PVDF as housing materials, Type 166 is especially suitable for aggressive media. The solenoid coils are encapsulated with a highly chemically resistant epoxy. The valve is mounted via a G 1/4" union. The valve is available in the nominal diameters DN3, DN4 and DN5.

Function

A solenoid valve is a valve which is actuated by an electromagnet. Their tasks are to shut off, release, dose, distribute or mix gases and fluids. The solenoid valves can switch very fast, and guarantee high reliability and a long lifetime at a low actuator power. Solenoid valves with position measuring can be operated as servo valves.

Applications

- Water treatment
- Process/chemical engineering
- Plant/mechanical engineering
- Semiconductor industry
- Environmental engineering
- Medical engineering
- Apparatus engineering
- Analytical technology

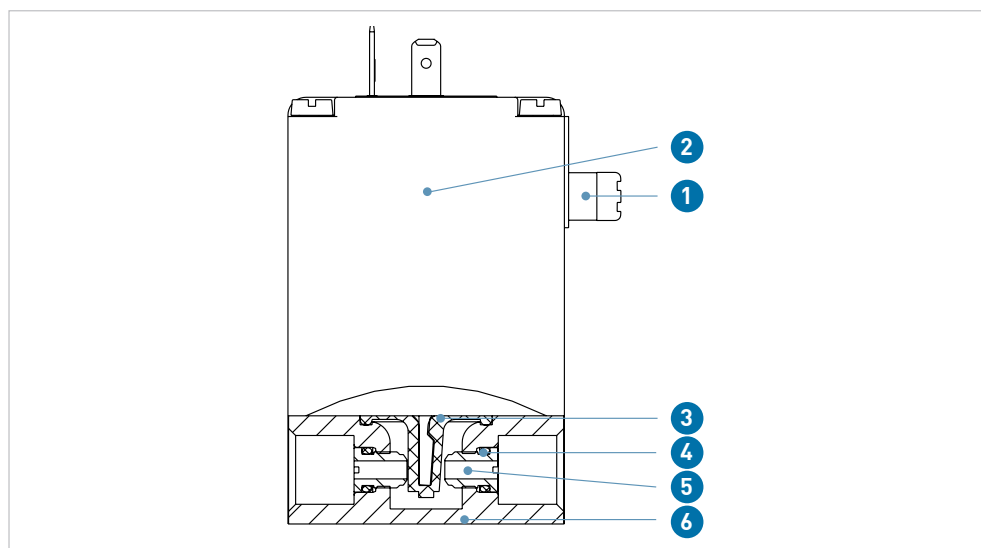
Benefits/features

- Mechanisms: A, E and F
- PN0 – PN 10 bar
- Handle with ratchet setting
- Electrical connection with cable plug
- Protection rating IP65
- Service-friendly, robust emergency manual override
- Direct-acting with isolating membrane
- Maintenance-free pivoted armature technology
- Vibration-resistant, block-bolted coil system

Flow media

Suited for aggressive media

Technical data



- ① Manual override
- ② Coil (Epoxy)
- ③ Diaphragm (EPDM, FKM)
- ④ O-ring (EPDM, FKM)
- ⑤ Valve body (PP-H, PVDF)

Specification	
Nominal diameter	DN3 - DN5
Port connection	G 1/4"
Housing and seat materials	PP-H, PVDF
Coil material	Epoxy
Sealing material	EPDM, FKM
Media	EPDM Alkalines, acids up to medium concentration, detergent and bleach solutions
	FKM Oxidizing acids and substances, oils and saline solutions, exhaust gases, oxygen
Medium temperature	EPDM -30 to +80 °C
	FKM 0 to +80 °C
Viscosity	37 mm ² /s
Ambient temperature	Max. +55 °C
Voltages	24V AC/DC, 24V DC, 230V 50 Hz
Voltage tolerance	±10%
Rated duty	Intermittent operation 40 % ED (30 min) in 8 W designs
	Continuous duty 100 % ED in 5 W design (upon request)
Electrical connection	Pin terminal according to DIN EN 175301-803 form A for cable plug
Protection rating	IP65 with cable plug
Thermal insulation class coil	H
Mounting position	As desired, preferably with actuator on top

Electrical power consumption

Nominal diameter (mm)	Mechanism	Kv value ¹⁾ water (l/min)	Pressure range ²⁾		Power consumption Inrush (electrical)		Power consumption Operation(electrical)		Weight (kg)
			AC (bar)	DC (bar)	AC (VA)	DC (W)	AC (VA/W)	DC (W)	
3	A	4.2	0-10	0-8	30	8	15/8	8-11	0.4
	F		0-10	0-8	30	8	15/8	8-11	
	E		0-6	0-4	30	8	15/8	8-11	
4	A	5.0	0-5	0-4	30	8	15/8	8-11	0.4
	F		0-5	0-4	30	8	15/8	8-11	
	E		0-3	0-2	30	8	15/8	8-11	
5	A	6.7	0-4.5	0-3	30	8	15/8	8-11	0.4

¹⁾ Kv value (l/min) at +20 °C, 1 bar pressure at valve inlet and free outlet. At frequency DC the Kv-value is reduced till 10 % to fulfil the function.

²⁾ Pressure data (bar) gauge pressure. Rated power consumption 8 W.

Switching functions

Circuit function A	Circuit function E	Circuit function F
2/2-way valve (FC, Fail safe to close)	3/2 way mixing valve	3/2 way distribution valve

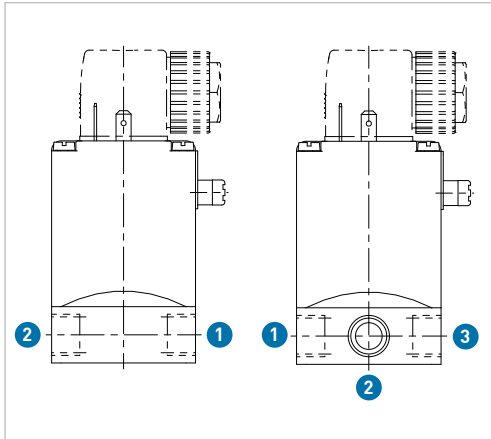
Switching time

Open		Close	
AC (ms)	DC (ms)	AC (ms)	DC (ms)
8 - 12	10 - 20	8 - 15	10 - 20

Switching time (ms): Measurement at valve outlet at 6 bar and +20 °C. Open: Pressure build-up 0% to 90%. Close: Pressure build-up 100% to 10%.

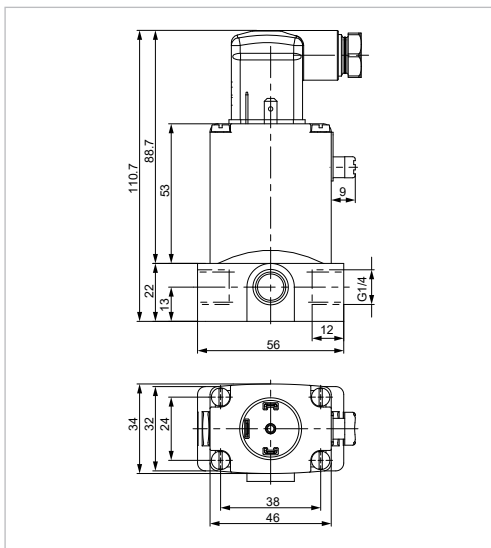
Possible port connections

The ports marked with 1, 2 and 3 are labelled in the drawing according to the circuit function table.



Circuit function	Port 1	Port 2	Port 3
A	P	A	
E	P1	A	P2
F	A	P	B

Dimensions



Mounting: By drilling M4 × 8 (metal housing) or self-tapping screws (plastic housing) on underside of the housing on the hole pattern 38 × 24.

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