

Solenoid valve for automatic watering

RSV solenoid valve

- For watering of protected horticulture, urban greenery, greenbelts, parks, golf courses, soccer fields, farmlands, etc.
- Pilot operated diaphragm
- Continuously energized, latch

Overview

- Low water hammer
- Molded coil with excellent water resistance
- Equipped with a self-cleaning filter for pilot flow path protection
- Equipped with flow rate adjusting and manual operation mechanisms
- Capable of battery control with a latch coil
- IP67 or equivalent (excluding the terminal box equipped coil)



Caution

- (1) Before inspecting the filter, close the IN-side water control valve and loosen the manual operation needle by 1/2 rotation to lower the pressure. Lightly tighten the needle by hand upon reassembly. The tightening torque is 0.8 to 1.2 Nm. Tightening the needle excessively will cause damage.
- (2) Although the unit can be used if the solenoid valve coil will only be submerged in water temporarily, consider drainage of the water if there is the risk of the unit being submerged in water or buried under dirt for longer periods of time. (coil with terminal box cannot be submerged in water)
- (3) In cases when vertical piping cannot be avoided, arrange the piping so that the IN-side is at the bottom.
- (4) The 24 VDC type is equipped with a surge suppressor device.
- (5) The AC coils are all equipped with rectifying surge suppressors. (Half-wave)
- (6) Avoid direct exposure to sunlight.

Specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	RSV-20A-210K	RSV-25A-210K	RSV-32A-210K	RSV-40A-210K	RSV-40F-210	RSV-50A-210K	RSV-50F-210	RSV-65A-210K	RSV-65F-210K	RSV-80A-210K	RSV-80F-210K	RSV-100F-210 (Made-to-order product)
Working fluid	Agricultural water											
Max. working pressure MPa	1 (≈150 psi, 10 bar)											
Working pressure differential MPa	0.03 (≈4.4 psi) to 1 (≈150 psi)						0.05 to 1				0.1 to 1	
Proof pressure (water pressure) MPa	3 (≈440 psi, 30 bar)											2
Fluid temperature °C	5 (41°F) to 60 (140°F) (no freezing)											
Ambient temperature °C	0 (32°F) to 60 (140°F)											
Valve seat leakage cm³/min	0.1 or less (water)											
Orifice size mm	25		50				80				98	
Cv	13	14	29	35		46.5		82		97		180
Max. operating frequency times/min.	1											0.3
Mounting orientation	Mount with coil on top.											
Connection	Screw-in (Rc)				Flange JIS 10K	Screw-in (Rc)	Flange JIS 10K	Screw-in (Rc)	Flange JIS 10K	Screw-in (Rc)	Flange JIS 10K	
Port size (Piping port size)	3/4	1	1 1/4	1 1/2	40	2	50	2 1/2	65	3	80	100
Weight kg	2.1	2.2	3.9	4.1	8.6	4.7	9.6	10.9	17.4	11.4	18.4	42
Drive method/voltage	Continuously energized: 24 VDC, 24/100/200 VAC (50/60 Hz) Latch pulse signal: P (voltage selection unnecessary) *2											
Rated voltage	24 VDC, 24/100/200 VAC (50/60 Hz), P type *2											
Power consumption W	AC/2.5, DC type/3											
Thermal class	Class 130 (B) (JIS C 4003)											
Coil temperature rise deg(K)	30											
Leakage current mA	6 or less/24 VAC, 1.9 or less/100 VAC, 0.7 or less/200 VAC, 4 or less/24 VDC											

How to order

RSV-20A-210 K - AC100V

A Port size

B Body material*1

C Drive method

D Voltage *3

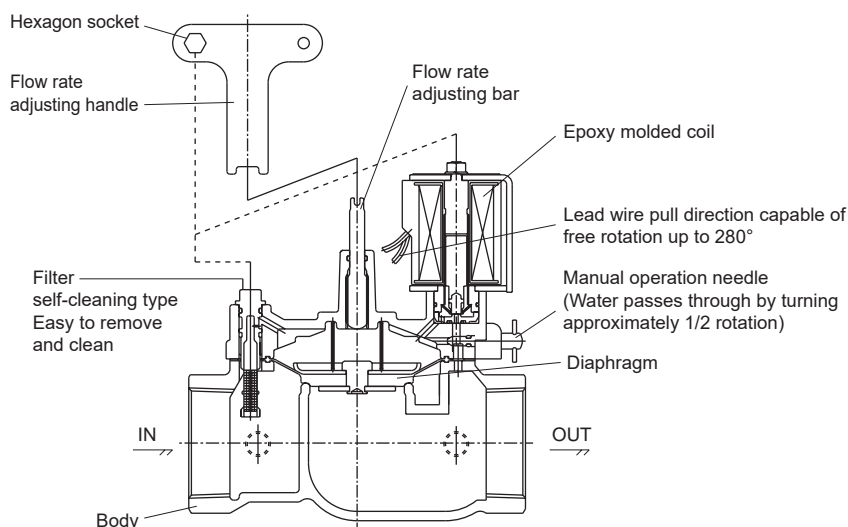
Code	Description	Body material	
A Port size		Bronze	Cast iron
20A	Rc3/4	●	
25A	Rc1	●	
32A	Rc1 1/4	●	
40A	Rc1 1/2	●	
50A	Rc2	●	
65A	Rc2 1/2	●	
80A	Rc3	●	
40F	Flange 40		●
50F	Flange 50		●
65F	Flange 65	●	
80F	Flange 80	●	
100F	Flange 100 (made-to-order product)		●
B Body material			
K	Bronze		
Blank	Cast iron		
C Drive method			
Blank	Continuously energized		
3M	Continuously energized (with HP terminal box)		*2
P	Latch pulse signal		*3
D Voltage			
DC24V	24 VDC		
AC24V	24 VAC 50/60 Hz		
AC100V	100 VAC 50/60 Hz		
AC200V	200 VAC 50/60 Hz		

Precautions for model No. selection

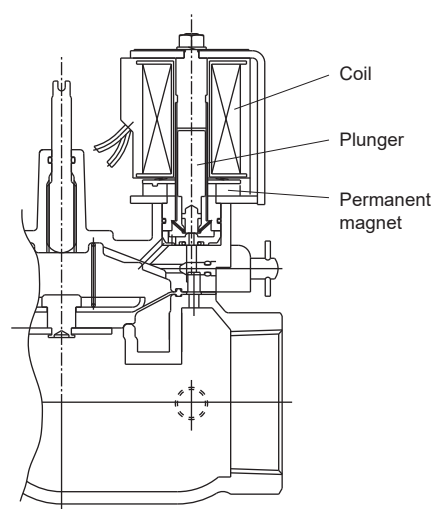
- *1 For Item B Body material, select combinations with the ● mark in the A Port size table.
- *2 Do not use products equipped with terminal boxes outdoors or within manholes.
- *3 The C Item P type is dedicated for use with controllers manufactured by CKD.
The voltage of the model No. is not required when placing an order.
Applicable controller
· RSC-S5, RSC-G series
· RSC-1WP, RSC-2WP

Internal structure and parts list

● Continuously energized (NC)



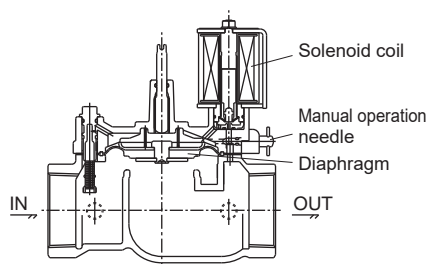
● Pulse energizing (latch)



Part name	Material	Part name	Material
Flow rate adjusting handle	Steel plate (chrome finished) included	Solenoid valve coil section	Epoxy resin molded
Manual operation needle	Stainless steel	Plunger	Stainless steel
Pilot valve body	Bronze casting (80 or less) cast iron (100F)	Pilot valve seat	POM (80 or less)
Body	Bronze casting (with K code) cast iron (without K code)	Filter	Stainless steel, PBT
Diaphragm	Nitrile rubber		

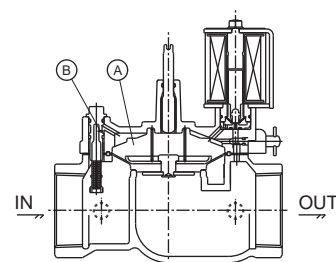
Operational explanation

● Opening operation



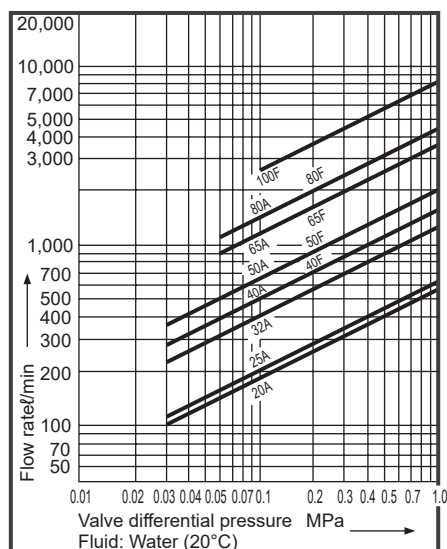
When the solenoid valve coil section is energized or the manual operation needle is opened, the diaphragm will be pushed up due to the IN-side inflow pressure and allow the passage of water, as the fluid within the pilot chamber (A) flows out to the OUT-side and lowers the pressure within the pilot chamber.

● Closing operation



When the solenoid valve coil section is OFF or the manual operation needle is closed, as the IN-side fluid will pass through pilot hole (B) and the fluid pressure acts on the upper surface of the diaphragm, the pressure difference between the top and bottom of the diaphragm along with the spring force pushes the diaphragm down and maintains a state where the passage of water is blocked.

Flow characteristics



● With the latch solenoid valve

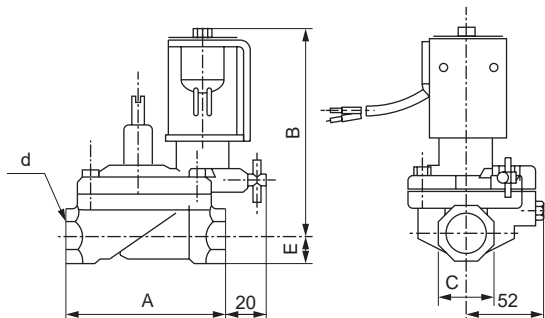
By applying a pulse voltage of red ⊕ and black ⊖ to the coil lead wires, the plunger will rise and latch (hold) with the permanent magnet to create a state where water is allowed to pass.

Conversely, by applying pulse voltage of red ⊖ and black ⊕, the plunger will recover and create a state where the passage of water is blocked.

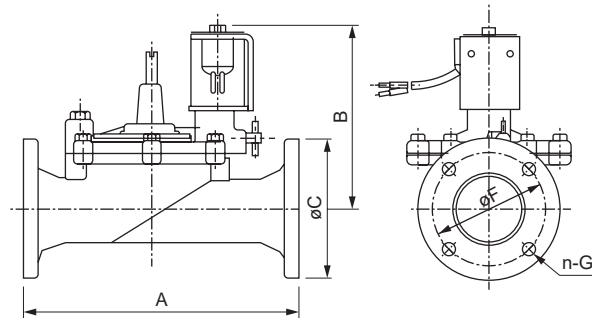
Dimensions

○ Lead wire color coding: DC coil - red black, less than 200 VAC - blue, 200 VAC or more - red
○ Lead wire length: 700 mm

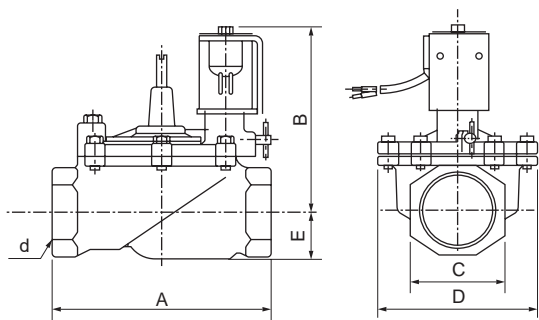
● RSV-20A-210K
25



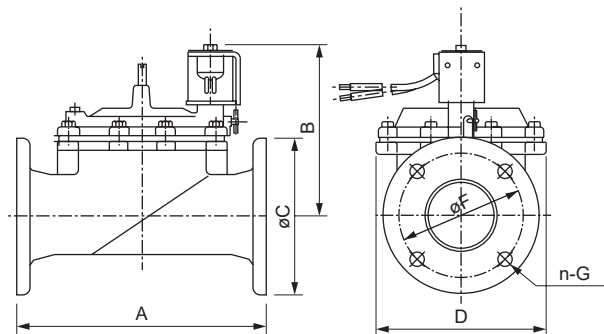
● RSV-40F-210
50



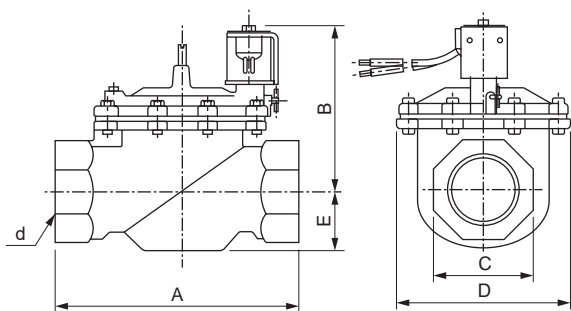
● RSV-32A-210K
40
50



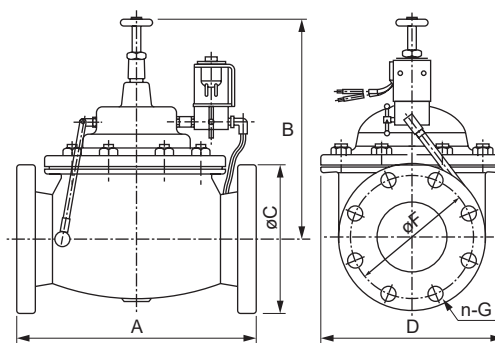
● RSV-65F-210K
80



● RSV-65A-210K
80



● RSV-100F-210



Model No.	A	B	C	D	E	F	n-G	d
RSV-20A-210K	100	129	35	-	18	-	-	Rc ³ / ₄
RSV-25A-210K	105	131	44	-	22	-	-	Rc1
RSV-32A-210K	168	141	54	130	29	-	-	Rc1 ¹ / ₄
RSV-40A-210K	176	146	60	130	34	-	-	Rc1 ¹ / ₂
RSV-40F-210	225	161	140	-	-	105	4-ø19	-
RSV-50A-210K	180	151	74	130	39	-	-	Rc2
RSV-50F-210	225	164	155	-	-	120	4-ø19	-
RSV-65A-210K	246	179	90	200	48	-	-	Rc2 ¹ / ₂
RSV-65F-210K	290	191	175	200	-	140	4-ø19	-
RSV-80A-210K	250	187	105	200	58	-	-	Rc3
RSV-80F-210K	300	201	185	200	-	150	8-ø19	-
RSV-100F-210	332	315	210	256	-	175	8-ø19	-