



Solenoid valve for automatic watering

# RSV Series

- Continuous energizing type, latch
- Pilot operated diaphragm

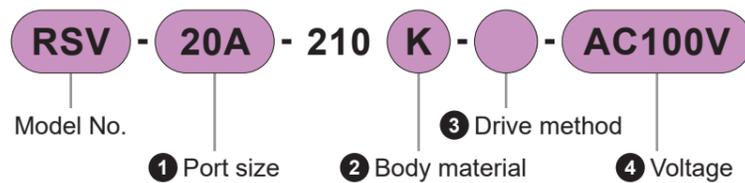
## Applications

- Irrigation and watering for protected horticulture
- Watering of parks and urban greenery
- Watering of gardens and indoor and outdoor plantings
- Watering of golf courses, soccer fields, etc.

## Overview and Features

- 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)

## Model No. Notation



		2 Body material	
		Bronze	Cast iron
1 Port size	Description	Code	K
	3/4	20A	●
	1	25A	●
	1 1/4	32A	●
	1 1/2	40A	●
	2	50A	●
Rc thread	2 1/2	65A	●
	3	80A	●
	40	40F	●
	50	50F	●
	65	65F	●
Flange	80	80F	●
	100 (special specification product)	100F	●

### 3 Drive method

Code	Description
Blank	Continuously energized
3M	Continuously energized (with HP terminal box)
P	Latch pulse signal

\*1: Do not use the "3M" terminal box outdoors or within manholes.  
 \*2: "P" is dedicated for use with controllers manufactured by CKD.  
 ⚡ Voltage can be omitted.

### 4 Voltage ⚡ Item is "P" is not required.

Code	Description
24 VDC	24 VDC
24 VAC	24 VAC 50 / 60 Hz
100 VAC	100 VAC 50 / 60 Hz
200 VAC	200 VAC 50 / 60 Hz

## Applicable controller series

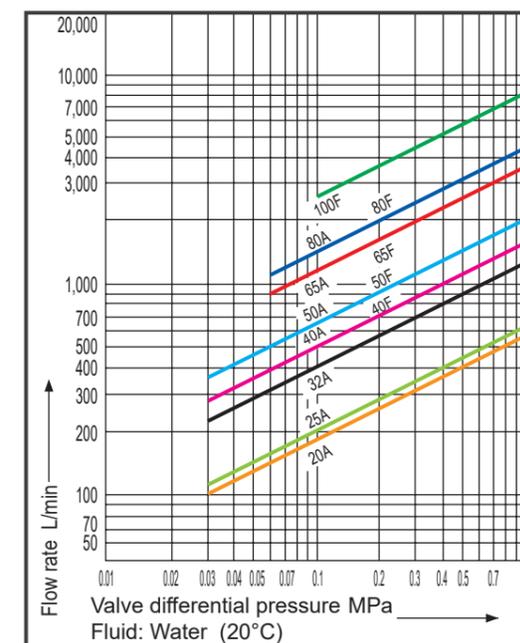
- RSC-S5 type P. 4
- RSC-G type P. 6
- RSC-1WP type P. 8
- RSC-2WP type P. 12

## Specifications

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 (Special Specification Product)
Working fluid	Agricultural water											
Max. working pressure MPa	1											
Working pressure differential MPa	0.03 to 1						0.05 to 1			0.1 to 1		
Proof pressure (water pressure) MPa	3											
Fluid temperature °C	5 to 60 (no freezing)											
Ambient temperature °C	0 to 60											
Valve seat leakage cm <sup>3</sup> /min	0.1 or less (water)											
Orifice size mm	25			50			80			98		
Cv value	13	14	29	35	46.5	82	97	180				
Kv value *1	11	12	25	30	40	71	84	156				
Max. operating frequency cycles/min.	1											
Mounting orientation	Mount with coil on top.											
Connection	Screw-in (Rc)				Flange JIS10K	Screw-in (Rc)	Flange JIS10K	Screw-in (Rc)	Flange JIS10K	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 / 60Hz) Latch pulse signal: P (voltage selection not required)											
Power consumption W	AC type / 2.5, DC type / 3											
Thermal class	Class 130 (B)											
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											

\*1: Refer to the Intro page of "Fluid control valves" (RJ-013AA) for Kv value.

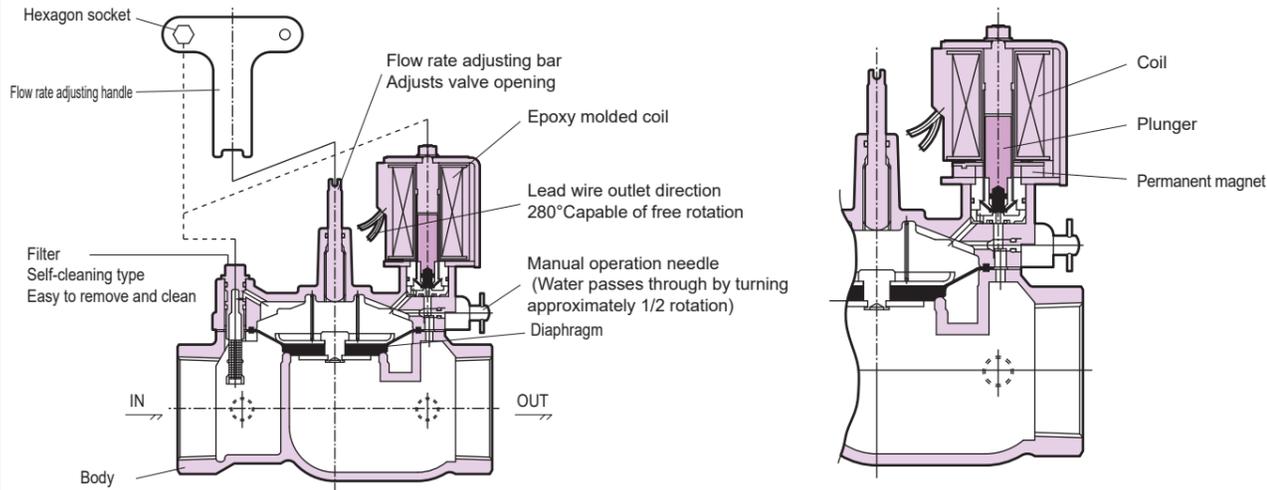
## Flow characteristics



Internal structure / material

● Continuously energized (NC)

● Pulse energized (latch)



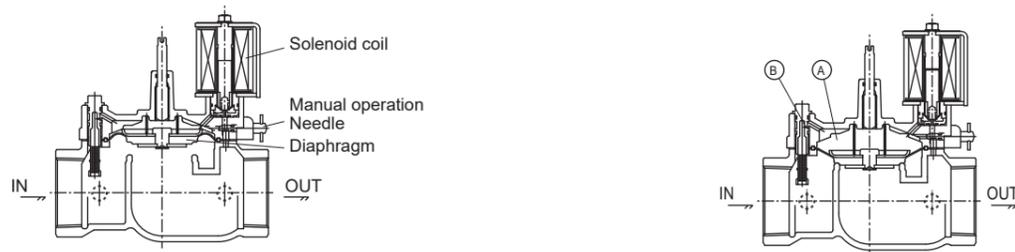
Part name	Materials	Part name	Materials
Flow rate adjusting handle	Steel plate (chrome finished) included	Solenoid valve coil section	Epoxy resin molded
Manual operation needle	Stainless steel	Plunger	Stainless steel
Pilot valve body	Bronze casting (80 or less) cast iron (100F)	Pilot valve seat	POM (80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

For maintenance parts, refer to CKD Components Product Site (<https://www.ckd.co.jp/kiki/en/>) → "Model No." → Maintenance parts for details.

Operational explanation

● Opening operation

● Closing 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 ④ flows out to the OUT-side and lowers the pressure within the pilot chamber.

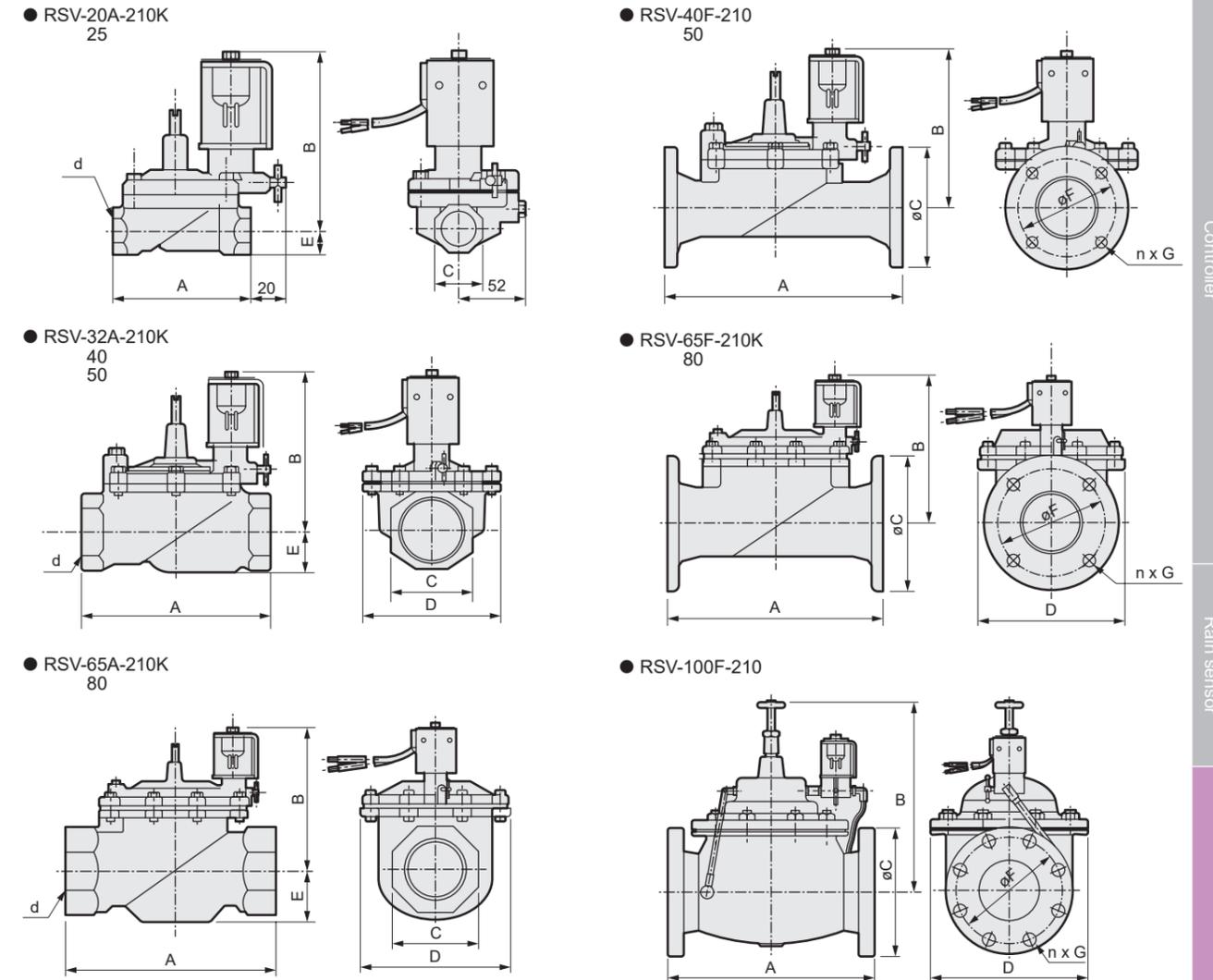
When the solenoid valve coil section is OFF or the manual operation needle is closed, as the IN-side fluid will pass through pilot hole ③ and the fluid pressure will act on the upper surface of the diaphragm, the pressure difference between the top and bottom of the diaphragm along with the spring force will press the diaphragm down and maintain a state where the passage of water is blocked.

● 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



Model No.	A	B	C	D	E	F	n-G	d
RSV-20A-210K	100	129	35	-	18	-	-	Rc3/4
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 x ø19	-
RSV-50A-210K	180	151	74	130	39	-	-	Rc2
RSV-50F-210	225	164	155	-	-	120	4 x ø19	-
RSV-65A-210K	246	179	90	200	48	-	-	Rc2 1/2
RSV-65F-210K	290	191	175	200	-	140	4 x ø19	-
RSV-80A-210K	250	187	105	200	58	-	-	Rc3
RSV-80F-210K	300	201	185	200	-	150	8 x ø19	-
RSV-100F-210	332	315	210	256	-	175	8 x ø19	-

⚠ Safety precautions

- 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 N·m. Tightening the needle excessively will cause damage.
- 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 a 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)
- In cases when vertical piping cannot be avoided, arrange the piping so that the IN-side is at the bottom.
- 24 VDC has a built-in surge suppressor element.
- The AC coils are all equipped with rectifying surge suppressors. (Half-wave)
- Avoid direct exposure to sunlight.



Fluid control valves

# Safety Precautions

Be sure to read this section before use.

Read safety precautions for "Fluid control valves (RJ-013AA)" as well.

Product-specific cautions: Solenoid valve for automatic watering RSV Series

## Design / selection

### CAUTION

- This product cannot be used as an emergency shut-off valve.

The solenoid valves listed in this catalog are not designed as valves to ensure safety such as emergency shutoff valves. When using in such a system, always take separate measures that will ensure safety.

- This product cannot be used in an explosion-proof atmosphere.

Select products from the explosion-proof solenoid valve series for use within an explosion-proof atmosphere.

- Working fluids

Do not use any fluid other than the working fluids specified in the catalog.

- Fluid temperature

Be sure to use the coolant check valve within the specified fluid temperature range.

- Ambient environment

- ① Do not use this product in a corrosive gas atmosphere or an atmosphere that could affect the component materials.

- ② Do not use this product near a heat generating source or in a location where it may be exposed to radiant heat.
- ③ Use this product within the operating ambient temperature.
- ④ When using this product in a cold climate, take necessary measures to prevent freezing by wrapping the product with insulation or heating tape. However, refrain from wrapping insulation, etc., around the coil.
- ⑤ Although solenoid valves with a protection grade of IP67 have a structure capable of withstanding temporary submersion in water, be sure to ensure proper drainage of water to prevent deterioration of insulation. In addition, avoid direct exposure to sunlight.

- Securing maintenance space

Secure sufficient space for maintenance and inspection.

- Leakage current

When using a PLC with a CR circuit to absorb the surge voltage generated from switching elements, etc., the leakage current could adversely affect the operation of the solenoid valve. Use the products with a leakage current which is less than the values listed in this catalog for each product.

- Min. working pressure differential

Use the products at a pressure higher than the min. working pressure differentials within the specifications listed in the catalog.

MEMO

For cautions for mounting, installation, adjustment, use, and maintenance, refer to CKD Component Product Site (<https://www.ckd.co.jp/kiki/en/>) → "Model No." → [Instruction manual](#) for details.