



Resin solenoid valve for automatic watering

# GSV Series

- Continuously energized, 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

## Overview and Features

- Lightweight and low cost with a resin body
- Molded coil with excellent water resistance
- Diluted agricultural chemicals and liquid fertilizers can also be used
- Equipped with a self-cleaning filter for pilot flow path protection
- Low water hammer
- Capable of battery control with a latch coil

### Model No. Notation



#### 1 Port size

Code	Description
25	Rc1 or equivalent
50	Rc2 or equivalent

#### 2 Drive method

Code	Description
Blank	Continuously energized
P	Latch pulse signal

Note) P is dedicated for use with controllers manufactured by CKD.  
 Ⓣ Voltage can be omitted.

#### 3 Voltage Ⓣ Item is "Pis not required.

Code	Description	
AC24V	24 VAC 50/60 Hz	*1
AC100V	100 VAC 50/60 Hz	*1
AC200V	200 VAC 50/60 Hz	*1
DC24V	24 VDC	*2

\*1: ACThe coils are all equipped with rectifying surge suppressors. (Half-wave)  
 \*2: 24 VDC is equipped with a surge suppressor element.

### Specifications

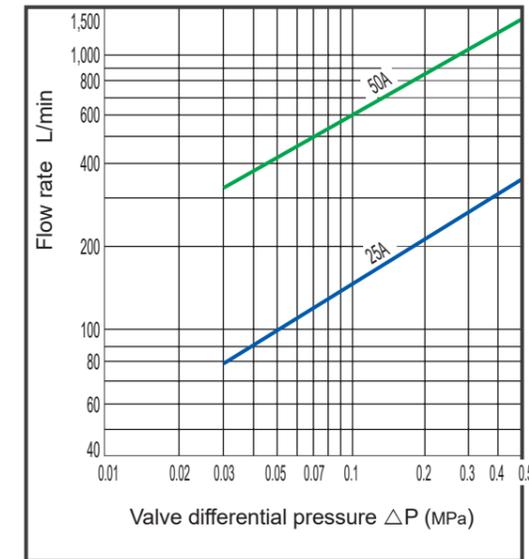
Item	GSV-25A-25	GSV-50A-25
Working fluid	Water / agricultural water / diluted agricultural chemicals / liquid manure, etc. *Limited to fluids that do not corrode wetted part materials.	
Max. working pressure MPa	0.5	
Working pressure differential MPa	0.03 to 0.5	
Proof pressure (water pressure) MPa	1.5	
Fluid temperature °C	4 to 40 (no freezing)	
Ambient temperature °C	0 to 50	
Valve seat leakage cm <sup>3</sup> /min	0.1 or less (water)	
Orifice size mm	25	50
Cv value	10.4	42
Kv value *1	9	36
Mounting orientation	Mount with coil on top.	
Port size	Rc1 or equivalent	Rc2 or equivalent
Body material	PP (polypropylene)	
Weight kg	1	1.6
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)	
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 : KvRefer to the Intro page of "Fluid control valves" (RJ-013AA) for values.

### Applicable controller series

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

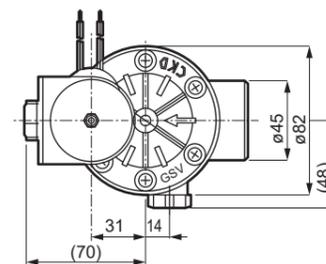
### Flow characteristics



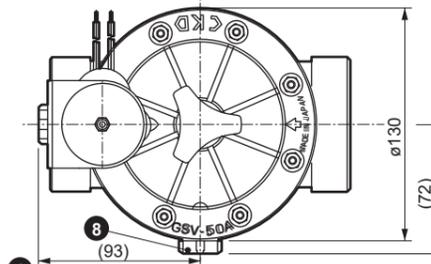
### Internal structure and dimensions

Ⓞ Lead wire color coding DC coil...Red-black, less than 200 VAC...Blue, 200 VAC or more...Red  
 Ⓞ Lead wire length: 700mm

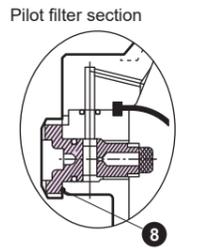
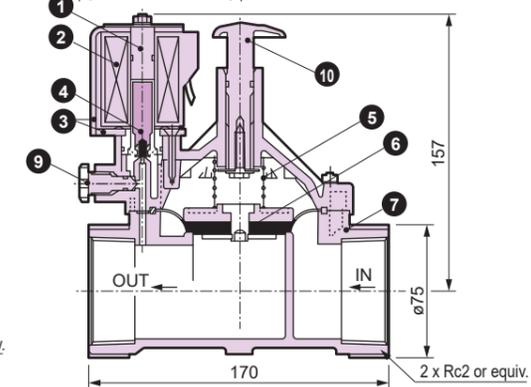
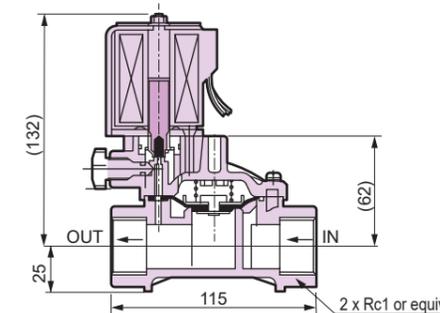
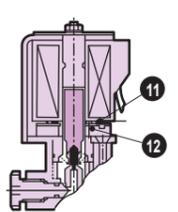
#### ● GSV-25A-25



#### ● GSV-50A-25



#### ● P: Latch



Part No.	Part name	Material	Part No.	Part name	Material
1	Core assembly	SUS430	7	Body	PP
2	Coil	-	8	Pilot filter	PP, SUS
3	Core A / B	SUS430	9	Manual operation needle	PP
4	Plunger	K-M31	10	Flow rate adjusting handle	PP
5	Spring	SUS304	11	Ring plate	SUS430 (latch only)
6	Diaphragm assembly	NBR, PP, SUS	12	Magnet	DPM-2 (latch only)

Note) Part No. ①, ④ to ⑩ parts are the wetted parts.

For maintenance parts,CKDComponent product website  
 (<https://www.ckd.co.jp/kiki/en/>) → "Model No." → Maintenance parts for details.



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: Resin solenoid valve for automatic watering GSV 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.

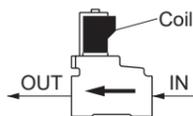
### ■ Min. working pressure differential

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

## When using the product

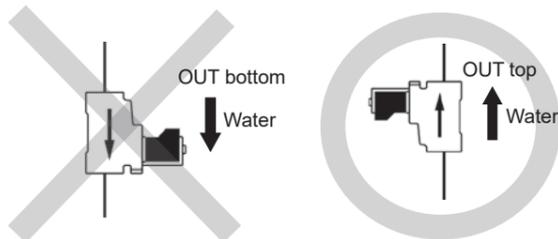
### 1. Piping

- Ensure that the piping is performed so that the flow of the fluid is consistent with the arrow direction of the body.

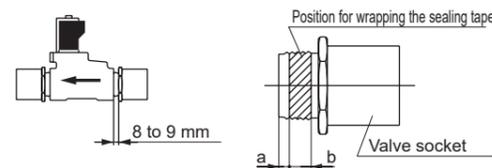


When piping the solenoid valve horizontally as seen in the left diagram, be sure to set the coil area facing upwards.

- Take note of the following points when piping the solenoid valve vertically. When the solenoid valve OUT port is facing downward, the air in the valve cannot be drawn out, and may cause faulty operation and vibrations. To stabilize solenoid valve operations, be sure to set the piping with the OUT port facing upward when performing vertical piping as seen in the below diagram.



- Securely wrap sealing tape around the threaded portion of the valve socket 5 cycles (50A) or 3 cycles (25A) and screw the socket in until the dimension of the portion below the screw head is 8 to 9 mm as shown below. Screwing the bolt too far in will cause damage. Do not use metal nipples.

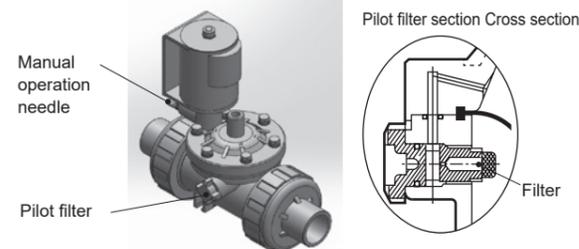


Bore size	Dimensions		Tightening torque N·m
	a	b	
25A	5	15	5.9
50A	7	17	9.3

- In cases when the piping is long (100 m or more), set the working pressure lower by approximately 20% to prevent water hammer.

### 2. When inspecting the filter

- A filter is integrated to the pilot filter section to prevent malfunctions of the solenoid valve due to foreign materials. Perform filter inspection after closing the IN side of the water control valve, loosening the manual operation needle, and lowering the pressure. Lightly tighten the needle by hand upon reassembly. The tightening torque is 0.8 to 1.2 N·m. Note that damage may occur if tightened excessively.



### 3. When using the product

- Use the product within the working pressure differential ranges.
  - GSV: 0.03 to 0.5 MPa
- Avoid direct exposure to sunlight.
- Use the following formula to calculate the flow rate.

$$Q \approx 45.58 Cv \sqrt{\frac{\Delta P}{G}}$$

Q : Flow rate L/min  
 ΔP : Primary pressure - Secondary pressure (MPa)  
 G : Specific gravity (water = 1)  
 Cv : Flow coefficient

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.