



Water Draining System

CWDS-01



2023.12.14 Revised edition

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## 1. Safety precautions

This "CWDS-01 series" water draining system is a device that prevents the water of a welding gun from spouting out when replacing tips in spot welding lines. Never use it for purposes other than replacing or dressing tips. Our company shall bear no liability regarding any failures, repairs, accidents or other defects that occur for reasons other than those specified uses.

### Symbols



If the product is mishandled, injuries and damages to the parts may occur.

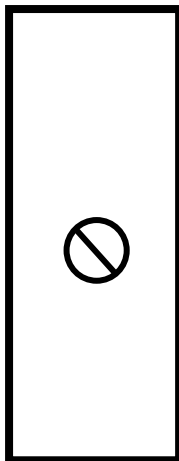


This symbol indicates "prohibited" content that must not be carried out.



This symbol indicates "compulsory" content that must be carried out.

### Precautions for use



Never disassemble or modify the product.



Doing so may cause abnormalities and the body of the product to break.

Do not damage, forcefully pull, or place anything heavy on the water pipe.

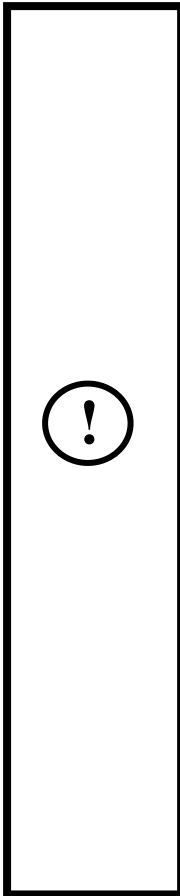


The water pipe may burst and interfere with normal operation.

Do not use saline or acidic types of cleaning solutions for maintenance of the product body.



Doing so may cause corrosion to the parts and members.



Make sure the frame is firmly secured before using.

↳ Failure to properly secure the frame during operation may cause the product to operate abnormally.

It may cause failures or accidents.

Install the base of the device perpendicular to the floor.

↳ Installing it at an angle will have an impact on the use effectiveness.

Regularly inspect the body of the product to check for water or air leaks.

↳ Such leaks can have an impact on use effectiveness and may cause damage to other facilities.

Select a water stop valve that can operate even if the pressure on the secondary side is higher than the primary side, or even if the pressure on the primary side is higher than the secondary side.

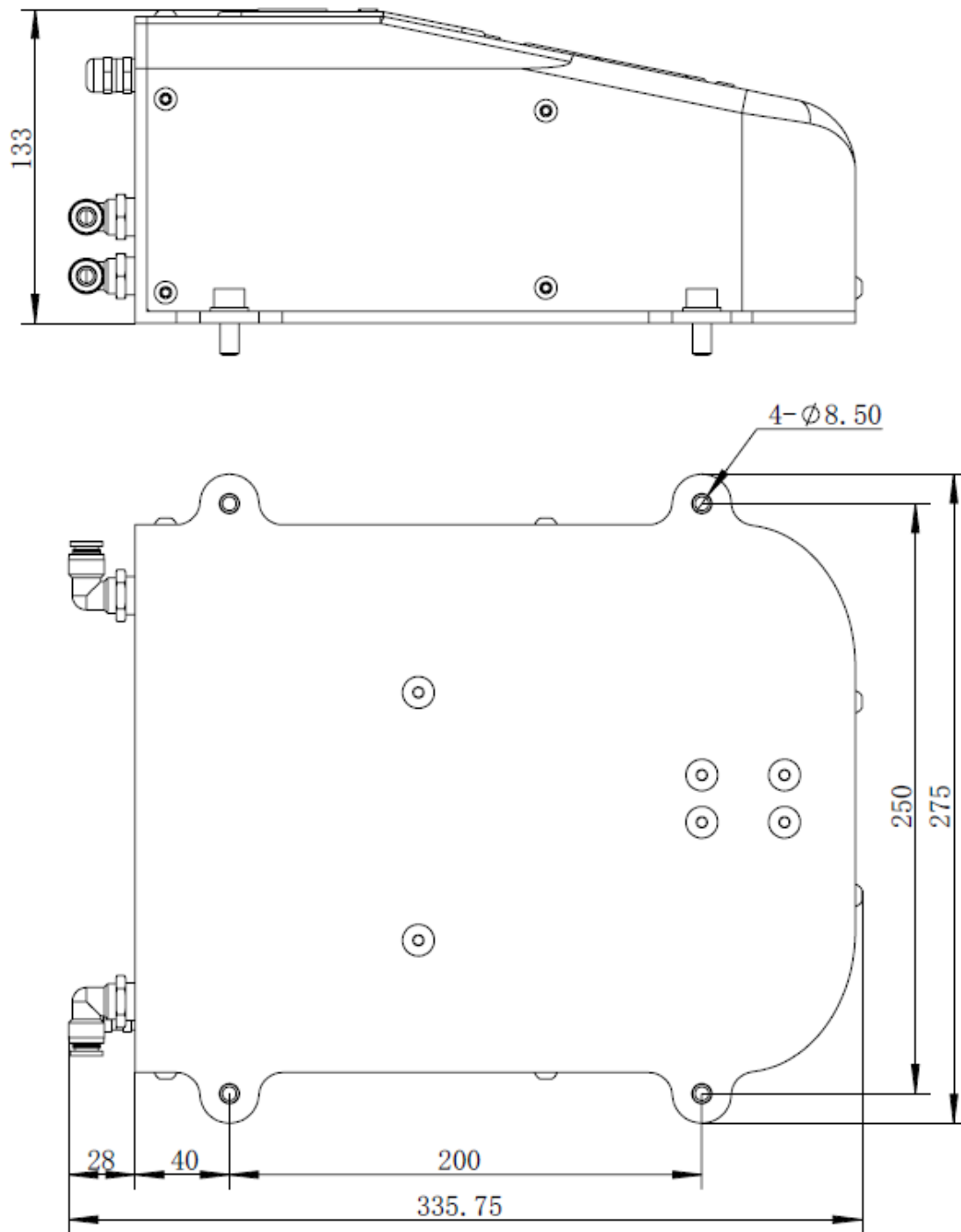
↳ The valve may not work and the water may not stop flowing.

## 2. Performance parameters

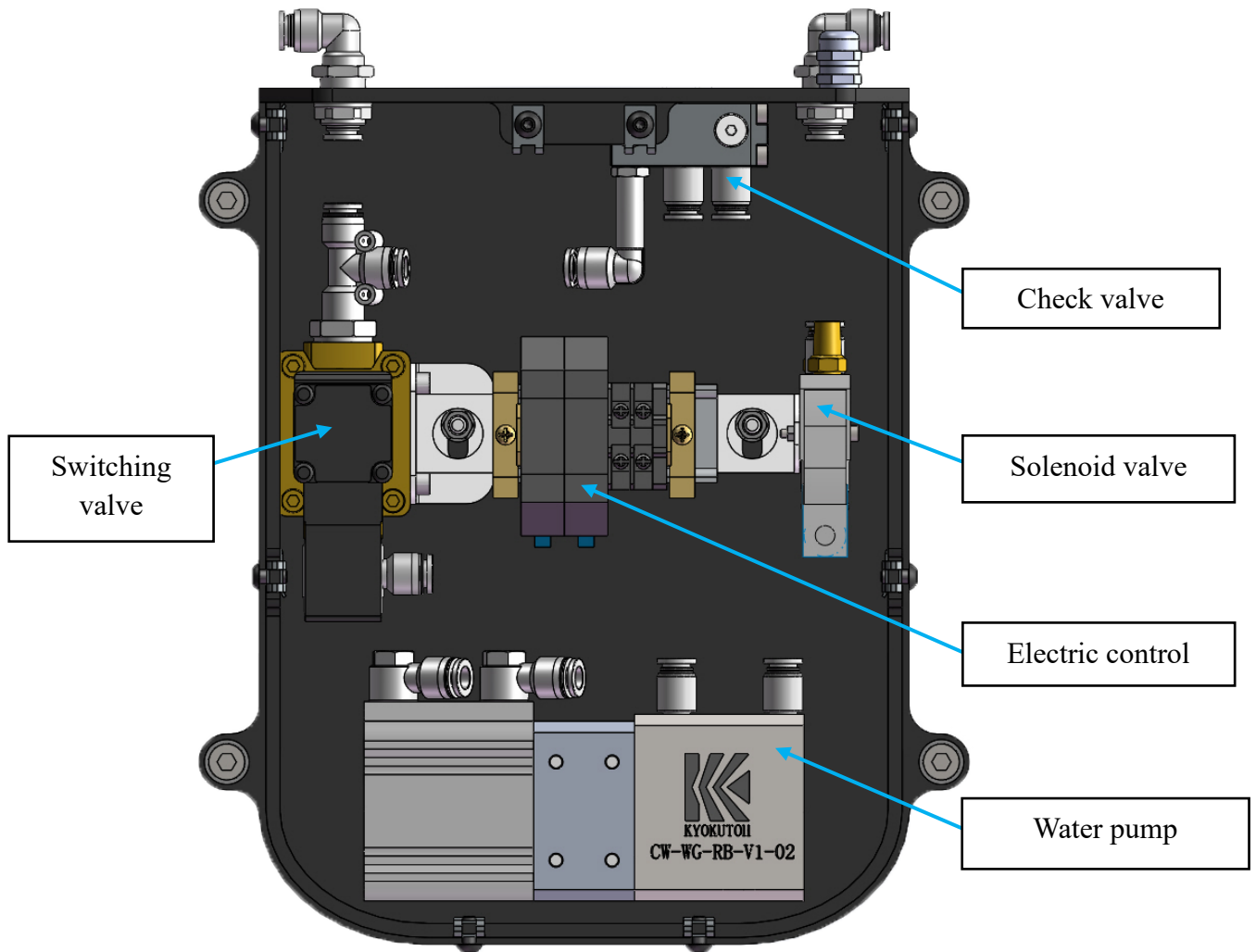
Model	CWDS-01
External dimensions	336W×275D×133H
Atmospheric pressure	0.5 - 0.8
Mounting holes	L200 x H255 (4-M8)
Effective mounting area	L240 x H290 mm
Voltage	DC24V
Power	10 W
Rated current	0.5 A
Applicable welding gun	C type gun / X type gun

※After reading this instruction manual, keep it in a place where the operators can read it at any time.

### 3. External dimensions



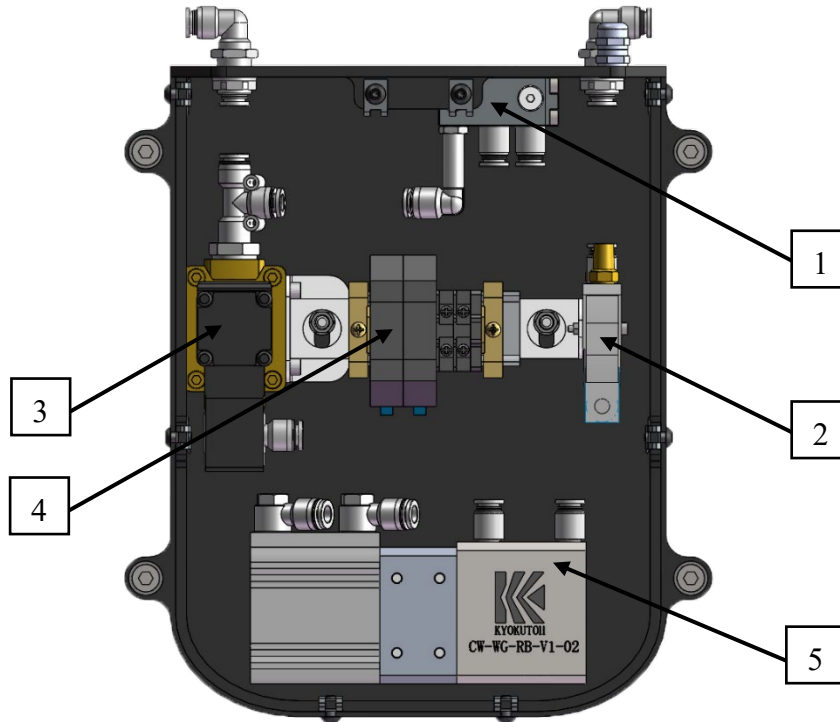
### 4. Parts description



Name of parts	Description of function
Check valve	Changes the direction of water pumping of water draining system.
Solenoid valve	Power system for water pumping of the water draining system.
Switching valve	Shuts off or connects the water supply and drainage pipe.
Electric control	Electric control hardware for the water draining system to repeatedly pump-up water.
Water pump	Starts the water draining system, sucks up any residual water into the water tank of the welding gun and discharges it into the condensate.
Cable joint (M14)	Drive power signal connection.
Air source connection (φ8)	Air source connection for the water draining system.
Condensate main pipe connection (φ8)	Connection for the water draining system to remove water into the condensate main pipe.
Water supply connection (φ8)	Water supply connection for the water of the welding gun, by which the removal of the incoming water is realized.
Condensate connection (φ8)	Condensate connection for the water of the welding gun, by which the removal of condensate is realized.

### 5. Main parts

No.	Name of part	Model	QTY	Remarks
1	Check valve	CW-WG-RB-V1-DXFZ	1	
2	Solenoid valve	CW-WG-RB-V1-DCFZ	1	
3	Switching valve	CW-WG-RB-V1-JZFZ	1	
4	Electric control	CW-WG-RB-V1-KC01	1	
5	Water pump	CW-WG-RB-V1-5020	1	





## **6. Installation**

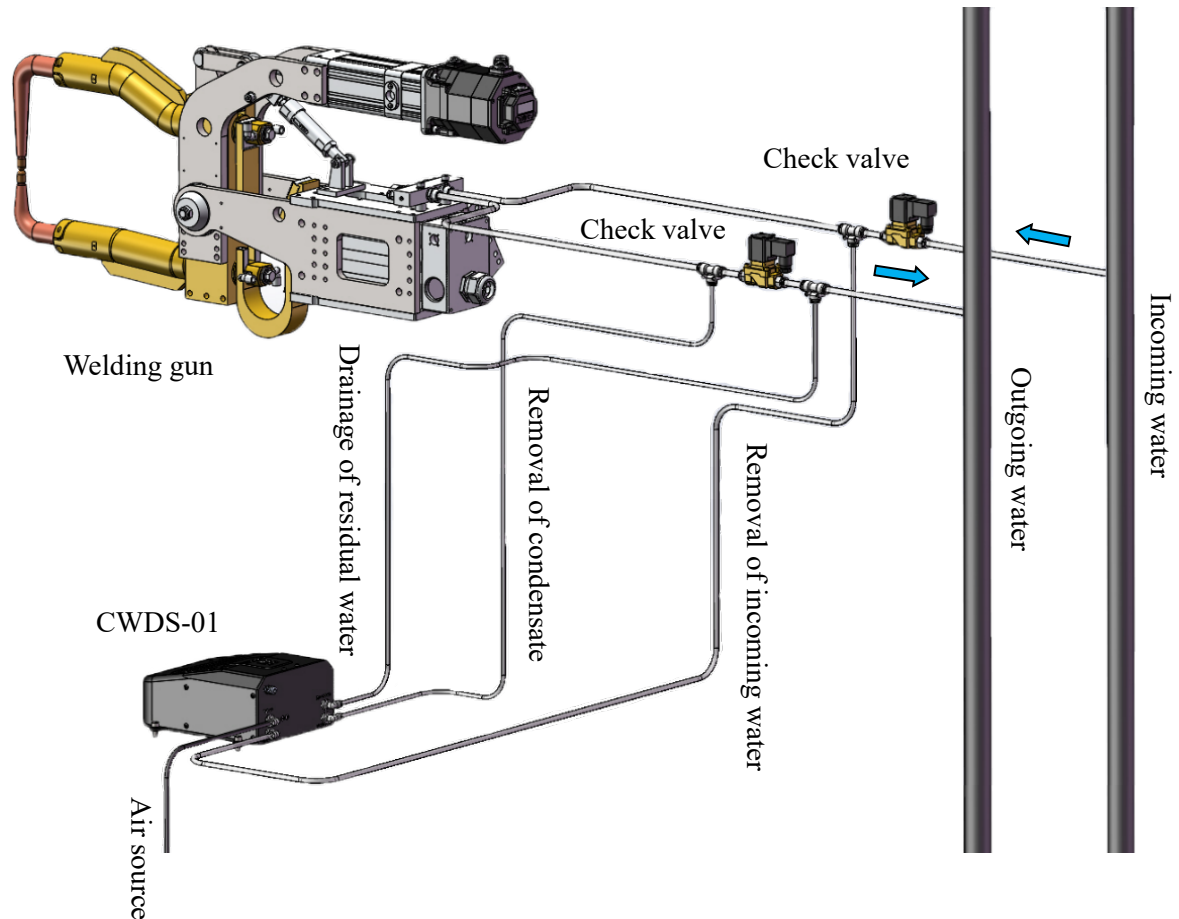
1. Install the base of the water draining system perpendicular to the floor and the pipe connection supine.
2. Secure it with 4-M8 screws.
3. Secure it firmly so that the water draining system will not be unbalanced.
4. When installing, ensure that the "Robot water outlet" is 200 mm lower than the "Cap tip removal check" limit switch on a tip changer.
5. When installing, the connection piping between the water of the robot base and the water draining system must be within 1500 mm.
6. Since some air will flow into the cooling conduit during the first installation, remove the air before using the water draining system.
7. Since the water draining system is activated by energization to the solenoid valve, keep the solenoid valve energized during tip replacement and switch off the solenoid valve after the replacement is complete.

### **Conduit connection conditions**

8. The solenoid valve is required to control the water being conveyed to the robotic gun and the water flow in and out of the air unit. It is therefore necessary to make sure that successful control of shutoff / connection of the conduit is ensured.
9. When using such residual water, connect the pipes appropriately according to the water inflow and outflow method. For more details, refer to the piping connection diagram.

## 7. Piping connection

★ Note: When using the water draining system, note that the welding gun has a separate cooling conduit, as shown below, which must be controlled by the separate valve.



※Please select a water stop valve that can operate even if the pressure on the secondary side is higher than the primary side, or even if the pressure on the primary side is higher than the secondary side.  
The valve may not work and the water may not stop flowing.

## 8. Operating principle

Start the water draining system before replacing the tip to prevent a large amount of water running out from the welding gun when the tip of the gun is removed. In the water draining system, the solenoid valve controls the cylinder movement, which drives the water tank to suck up water continuously. The residual water that is taken into the water tank is drained to the condensate by the check valve so that the welding gun and the piping are constantly maintained at a negative pressure at the same time.

## 9. Workflow

1. The robot starts the tip exchange program.



2. At the same time, shut off the water inflow/outflow check valve which controls the shutoff / connection of the welding gun conduit.



3. Start the water draining system and remove the water pressure in the welding gun to maintain a constant negative pressure.



4. Remove the tip.



5. The robot executes the tip replacement program.



6. Once the tip replacement is complete, turn off the water draining system and open the valve.



7. After the replacement is complete, make sure that the robot runs the water and that any air in the water pipe is removed before welding.

## 10. Elimination of failures

Problems and countermeasures		
Problem	Cause	Countermeasure
There is a large amount of residual water during the tip replacement.	When the water draining system operates, the inflow and outflow of water is not being shut off by the water inflow/outflow valve which controls the shutoff / connection of the welding gun conduit.	Check if there are any abnormalities with the solenoid valve controlling the welding gun conduit and if the solenoid valve is functioning to shut off the inflow/outflow of water.
	The residual water and welding gun conduit is not correctly connected.	Check the connection between the residual water and welding gun conduit.
	The check valve assembly is damaged.	Replace the check valve assembly.
	The water tank is damaged.	Replace the water tank.
	The solenoid valve assembly is damaged.	Replace the solenoid valve assembly.
	The water draining system does not respond.	Sequentially check the air sources, the power supply, and the electrical routes.

## 11. Maintenance

No.	Maintenance item	Period
1	Check for water leaks at the joints.	3 months
2	Check the amount of water during tip replacement.	6 months

## 12. List of supplies

No.	Name	Model	QTY	Remarks
1	Check valve	CW-WG-RB-V1-DXFZ	1	
2	Solenoid valve	CW-WG-RB-V1-DCFZ	1	
3	Switching valve	CW-WG-RB-V1-JZFZ	1	
4	Intermediate relay (Izumi)	RJ2S-CLD-D24 (with socket)	2	
5	Cylinder	CDQ2B50-20DZ-M9BA	1	
6	Water tank	CW-WG-RB-V1-02	1	

Water Draining System - CWDS-01 -



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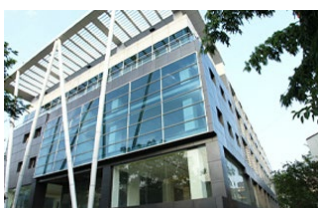


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