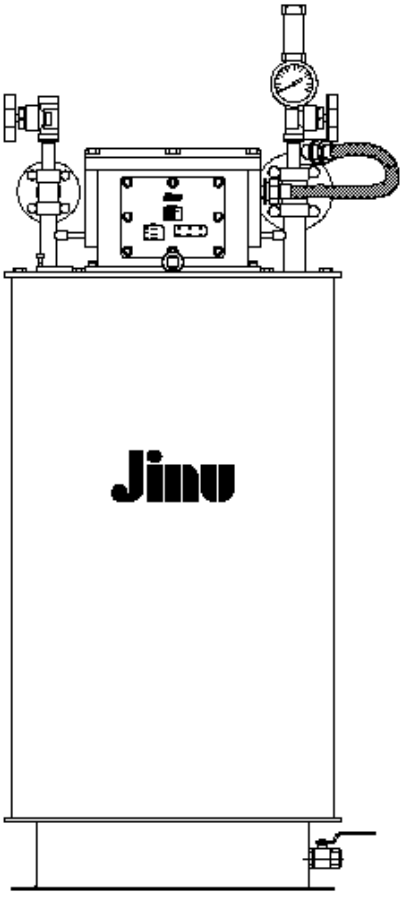
Operating Manual

JEV Series

VAPORIZER



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VAPORIZER

Thank you for purchasing our product.
Please read this Instruction Manual carefully prior to use.

CONTENTS

Ⅰ. VAPORIZER SPECIFICATIONS

1. Features

- Digital Vaporizer measured and controlled by MICOM
- Self Diagnosis & Display function makes it easy to check the cause of trouble and to correct.
- Built-in liquid gas outflow prevention device ensures safety.

2. Strecture

Our Vaporizer is composed of automatic control system which controls Water System, Electric Heating System that heat the water, and Gas System with which gas passes through heated water.

2.1 Components of Water System

- Cylindrical water tank in which heat transfer coil necessary for vaporizing capacity can be immersed;
- Overflow pipe which controls the water level in the tank, and prevents pressure increase by discharging vapor generated inside;
- Drain valve used for exhausting water inside
- Warm water circulating basket that helps the heater transfer heat evenly;
- Water Level Switch that maintains the water level safely, and the Temperature Sensor that measures and controls how the water is heated.

2.2 Components of Electric Heater System

- Electric heater for exclusively heating water (Installed in the center of Vaporizer Upper Board)
- Magnet Contactor that controls power supply to heater depending on water temperature

* Specification of heater and magnetic contactor depends on the capacity of Vaporizer.

2.3 Components of Gas System

- Inlet of liquefied gas
- Liquified Gas Inlet Gas Drain Valve
- Vaporizing Coil
- Outlet of Gas
- Solenoid valve for shutting off supplied gas and safety valve in Gas Outlet
- Sensor that can measure temperature of liquid and gas for activating outflow preventing device

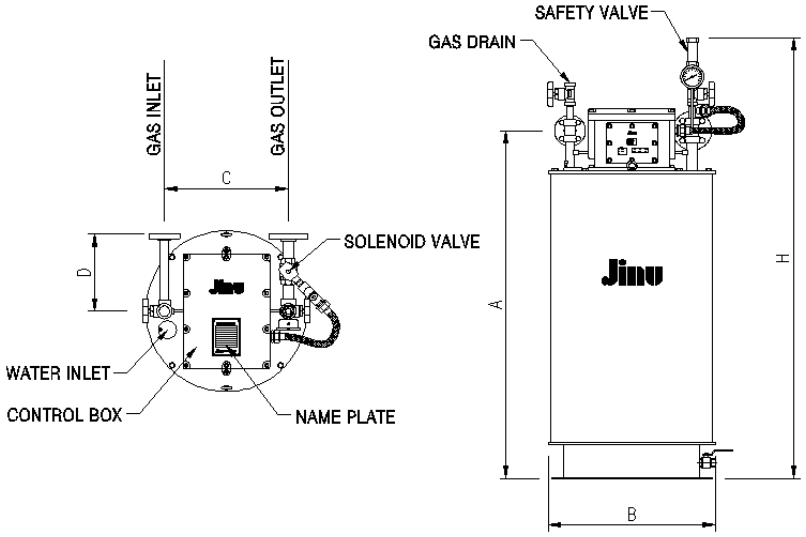
2.4 Components of Automatic Control System

Our Vaporizer is the digital type measured and controlled by MICOM, and adopts

220V exclusively (provided that Power Source of Heater is decided by customer request), and the internal circuit uses DC 12V.

- 8 bit MICOM
- Water Temperature Sensor, Water Level Switch, Liquefied Gas Temperature Sensor, CONNECTOR for connecting Gas Temperature Sensor
- Output for controlling Solenoid Valve
- Output for Magnet Contactor that controls the Power of Heater
- Power source of our Vaporizer's electronic circuit board, solenoid valve, and magnet contactor except electric heater adopts 220V, whereas for 380V, Voltage-reducing Transformer should be installed.

2.5 Outside View



MODEL	VAPORIZING CAPACITY (kg/hr)	HEATER CAPACITY (kW)	DIMENSION (mm)					INLET	OUTLET	EMPTY WEIGHT	WATER CAPACITY	ANTI FREEZE (-20℃)
			A	B	C	D	H					
JEV-300	300	45	1145	680	480	340	1440	20A	25A	180kg	265ℓ	80ℓ
JEV-400	400	60	1360	870	640	400	1675	25A	40A	270kg	520ℓ	156ℓ
JEV-500	500	75	1360	870	640	400	1675	25A	40A	300kg	520ℓ	156ℓ
JEV-600	600	90	1430	870	640	400	1735	25A	40A	360kg	580ℓ	174ℓ

II PREPARING INSTALLATION

1. Installation guideline

1.1 Installation Location

- Vaporizer should be installed by the guideline specified in the law.
- Vaporizer should be preferably installed in the open space since it uses flammable gas.
- In case when it has to be installed indoor, there should be adequate circulation of air in and out of the area, as specified in the law.
- In case when it has to be installed indoor, the structure of the building structure should be made of inflammable material.
- Vaporizer should be installed in a location that allows sufficient space to repair.

1.2 Requirements of Installation Location

- Attach warning signs such as 'LPG Storage', 'Authorized Personnel Only', 'No Smoking', and 'No Fire', etc. near the installation place, as specified in the law.
- Fire extinguishers of the type and capacity in accordance with the law should be prepared.
- Gas Leakage Alarm & Shutoff System specified in the law should be installed.
- There should be no flammable material near Vaporizer.

2. How to Install

2.1 Base

- Vaporizer should be installed on the concrete structure.
- Vaporizer should be fixed using base bolt (over M12) so that it can not moved after installation.

2.2 Electricity

- Vaporizer is for combustible gas, so every electrical part is manufactured for explosion proof, and the electric device and piping connected to the unit part should be installed for explosion-proof type.
- This product must be grounded to prevent static electricity.
- Circuit Breaker of sufficient capacity should be installed.

2.3 Piping

- Safety valve and drain piping should be installed at the height of over 5 meter.
- Shutoff Valve should be installed in the Supply Piping and Outlet Piping, and especially filtering system should be installed in the Supply Piping.
- Pressure Regulator should be installed near Outlet Piping.
- Should be installed according to the standard by the law.

Ⅲ. SAFETY DEVICE

1. Controlling Water Level

- Top Water Level is controlled by Overflow Pipe.
  Therefore, when filling the water initially, just do it until water overflows.
- Level Indication Lamps comprise 3 levels such as Normal, Make-up, Danger.
  * Normal : Shows normal level;
  * Make-up : Shows low water level, activating remote alarm device;
  * Danger : Normal operation is not possible, so Heater Power Supply is shut off and Alarm Device is activated.

※ If water is replenished when the Level indicates Make-up and Danger, the unit gets back to normal operation.

2. Controlling Water Temperature

- Water temperature can be set to 65, 70, 75℃ (factory setting: 65℃)
- How to Set
  Use UP/DOWN KEY of TEMP SET by separating the transparent window of the Display Panel.
- Heater's operating condition according to Set Temperature

Set Temperature	Heater Power Supply	Heater Power Supply Shut-off
65℃	64℃	66℃
70℃	68℃	71℃
75℃	73℃	76℃

At this time, the Heater's operating condition is displayed on the Display Panel.

3. Liquid Outflow Preventing Device

- Detects the Inlet Liquefied Gas Temperature;
- Detects the Outlet Gas Temperature.
- Detects the water temperature of Vaporizer after power is turned ON, and if it is over 50℃, opens the Solenoid Valve;
- Close the Solenoid Valve if the water temperature of Vaporizer goes down below 50℃.
- Detects the temperature variation of Inlet and Outlet, 5 minutes after the Solenoid Valve is opened;
- If the temperature difference between Inlet and Outlet is below Set Temperature, it is presumed that Liquefied Gas is discharged, then shut off the Solenoid

Valve.

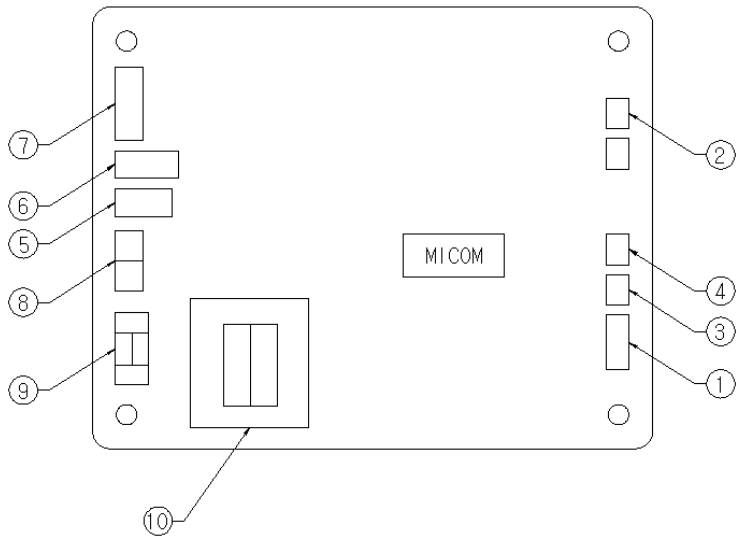
- When liquid outflow preventing action is completed, the MAIN Switch of the Distributing Board should be reset.

4. Discharge Device of Abnormal Pressure

- If the design pressure of Vaporizer is over 18Kg/cm², the extra pressure is discharged to the atmosphere through safety valve.

IV CONTROLLER: FUNCTION & DISPLAY

1. Description of Display Panel



1) MAIN CONTROL PBA

① Water Temperature Sensor
- Detect the present temperature of Water Temperature

② Water Level Switch
- Detects Water Level (Normal; Make-up; Danger)

③ Inlet Liquefied Gas Temperature Sensor
- Detects temperature change of liquefied gas

④ Outlet Gas Temperature Sensor
- Detects temperature change of discharged gas

⑤ Magnet Contactor for Heater
- Connects and shuts off power to control water temperature depending on Set Temperature of the Vaporizer

⑥ Solenoid Valve (Liquid Outflow Preventing Device)
- Open/Close the Solenoid Valve in the Outlet

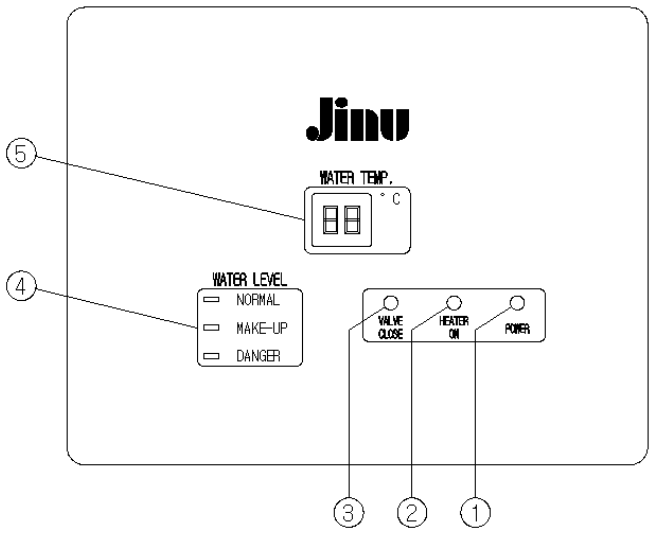
⑦ Alarming Output : If normal function fails, Alarm results in.

⑧ Power Supply

⑨ Fuse

⑩ Transformer

2) INDICATING PANEL PBA



① Power Indication LED(Green) : Displays Power ON/OFF
② Heater Indication LED(Green) :
- LED flashes when Electromagnetic Switch ON.
- LED extinguishes when OFF

③ Valve Close(Red) :
- LED extinguishes when the Valve opens.
- LED starts flashing when the Valve shuts off.

④ Water Level Indication LED :
- Normal Level LED (Green) will light-on
- Make-up Level LED (Yellow) will light-on
- Danger Level LED (Red) will light-on

⑤ Warm Water Temperature Indicator (Green) :
- Shows present water temperature;
- Displays Set Temperature when setting Warm Water Temperature
- Shows Error code when Error occurs

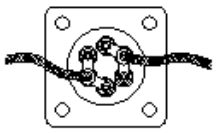
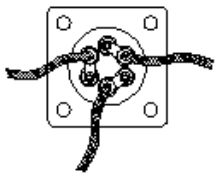
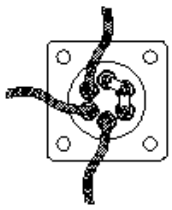
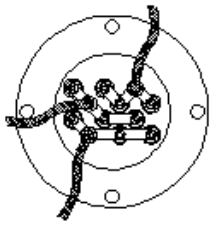
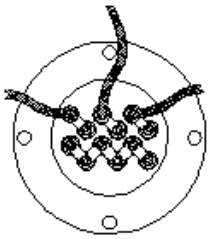
* If all LED Lamps are normal, Green LED only will light-on.
If Yellow LED lights on, it indicates that water supply is needed, and Red LED shows the water level is make-up or solenoid valve is shut off.

2. Description of Electricity Specifications

1) Earth Leakage Breaker, Magnet Capacity

Voltage / Capacity	Heater Capacity	220V 3Φ			380V 3Φ		
		Ampere	Breaker	Magnet	Ampere	Breaker	Magnet
JEV-300	45KW	118	150A	125P×1	69	100A	85P×1
JEV-400	60KW	157	225A	85P×2	91	150A	65P×2
JEV-500	75KW	196	225A	100P×1 125P×1	113	150A	65P×1 85P×1
JEV-600	90KW	236	300A	150P×1	136	175A	150P

2) Heater Wiring Daigram

Valtage / Capacity	220V 2P	220V 3P	380V 3P
30(4.5KW) 50(7.5KW) 100(15KW)			
150(22.5KW) 200(30KW) 300(45KW)			

3) Wire Capacity

Wire : CV or CVV 600V

Voltage / Model	220V 3Φ	380V 3Φ
JEV-300	38㎟ × 3C	22㎟ × 3C
JEV-400	120㎟ × 3C	50㎟ × 3C
JEV-500	150㎟ × 3C	70㎟ × 3C
JEV-600	150㎟ × 3C	95㎟ × 3C

4) Heater Inter-phase Resistance Value

Voltage / Capacity	220V 3Φ	380V 3Φ
30KW	3.2Ω	9.7Ω
45KW	2.2Ω	6.4Ω

5) Electric Panel Connector & T/R Standard (Compound)

Model	WIRE Pipe connector	T/R Standard
JEV-300	36㎜	50VA
JEV-400	42㎜	100VA
JEV-500	54㎜	100VA
JEV-600	54㎜	100VA

V HOW TO USE

1. Checkpoint prior to use

- Check if the Vaporizer voltage matches with Supply Voltage.
- Check if inflammable and combustible material are around.
- Check if the Front/Rear Valve of Vaporizer are closed.
- Check if there is any leakage.
- Supply and fill water until it is overflowed.
- Open the valve under the Safety Valve.
- Check the pressure of Supply Piping.

2. How to Use

- Check the unit prior to use, and turn the power on.
- When Power is ON, lamps will light on the Display Panel (Initial Screen).
  * Green lamp will light on 'Water Level Lamp Normal';
  * Shows the present Warm Water Temperature;
  * Gas Pressure is displayed as 'O.OO';
  * Valve Shutoff Red Lamp lights on;
  * Heater Green Lamp lights on;
  * Power Green Lamp on
    ※ When Error Mode occurs in Warm Water Temperature (Troubleshooting & Correction), reset the MAIN Switch.

- When Warm Water Temperature becomes 50℃, Valve Shut-off Red Lamp blinks, the Front Valve is ready to operate automatically.
- After water temperature reaches 50℃, Gas Inlet Valve is slowly opened.
- Check the pressure.
- Open the Gas Outlet Valve slowly, and use the gas.
- When Warm Temperature reaches 65℃, Heater Green Lamp will be extinguished (Heater operation stops), and when 60℃ is reached, Heater Green Lamp will be light ON (Heater is turned ON)

VI. TROUBLESHOOTING

If any trouble occurs while in use, refer to the following.

If no cause is known or any correction can not be made, please call our Customer Service Dept.

Error Display Specification on Display Panel

CODE	FUNCTION	OUTPUT	CORRECTION
OO	Failure of Overheat/Water Temperature Sensor	Heater Power Off/Solenoid Valve Closed/Alarm	Replace Water Temperature Sensor.
O1	Liquid Outflow Preventing Device Activated	Solenoid Valve Closed/Alarm	Contact our Customer Department.
O2	Failure of Water Level Sensor	Alarm	Replace Water Level Switch.
O3	Heater Power Short-circuit	Alarm	Measure Heater Inter-phase Resistance; Replace Heater.
O4	Failure of Inlet Gas Sensor	Alarm	Replace Input Gas Sensor.
O5	Failure of Outlet Gas Sensor	Alarm	Replace Output Gas Sensor.

- When the above situation occurs, turn off the power and check if each sensor is properly connected. If everything is OK, follow the methods suggested below.
- Error Signal blinks every 2 seconds.
- When the same Error occurs, the most significant Error will be displayed, and after the Error mentioned is dissolved, the second most significant Error will be displayed when activated again. (The most significant Error : OO , The lowest significant Error : O5)
- In order to re-operate the vaporizer after error occurred, the MAIN Switch must be reset again.
- If Alarm or Error Mode occurs, contact our Customer Service Department immediately.

Service Department
+82-70-7011-6669(MAIN)

Ⅶ. Customer Service

▣ How to Get Customer Service

① Keep your Warranty.

Warranty should be filled in where you purchased, and keep it well.

② Where do you get service?

If any problem arises, contact your nearest authorized JINU service facility or local dealer.

③ Information to Prepare

When you contact us, check the Vaporizer Name Plate for model, capacity, voltage, purchase date, product serial number, and inform us the details of the trouble accurately.

▣ Service Center Operation

JINU will supply, at no charge, new or rebuilt replacements for defective parts. This warranty does not cover failures which result from misuse, abnormal power supply, natural disaster.

▣ Indemnity for Customer

Category of Customer Indemnity			Indemnity	
			Within warranty period	After warranty period
Failures that can occur under normal use	Repair possible	For the same troubles 3 times	No charge	Repair with charge
		For the same troubles 3 times	Replace at no charge	Repair with charge
	Repair not possible(within parts maintenance period)	When repair is not possible, though parts are available	Replace at no charge	Replace with similar product
		When repair is not possible, because parts are not available	Replace at no charge	Refund
Failures due to defects caused by customers' intentional abuse or mishandling	Repair possible		Repair with charge	Repair with charge
	Repair not possible (Except when repair is not possible due to the defect in external appearance, not by the functional malfunction)		Charge proper amount	Separate guideline

▣ We at Jinu DEV, Inc., a leader in manufacturing Vaporizer, will consider our customers first, and will supply reliable products with perfect quality control, and further we will do our best to satisfy out customers.

For a period of 1 year from the date of purchase, JINU will repair or supply new or rebuilt replacements at no charge for defective parts.