

## PTC DRY VAPORIZER PV-DR Series 30~50 Kg/hr

### OPERATION MANUAL

#### Important Notice

- ☞ Please read this Operation Manual completely before starting installation and/or operation of PV-DR Series PTC DRY VAPORIZER for safety reasons.
- ☞ Be aware that LPG in the VAPORIZER is a pressurized flammable material, so please always bear in mind the potential danger whenever handling the VAPORIZER for installation, start-up, operation and shut-off.
- ☞ Only qualified personal shall be allowed for the installation, operation and maintenance of the VAPORIZER.
- ☞ Please contact Gurbong Hanjin for technical support, if any.

#### Gurbong Hanjin Co., Ltd.

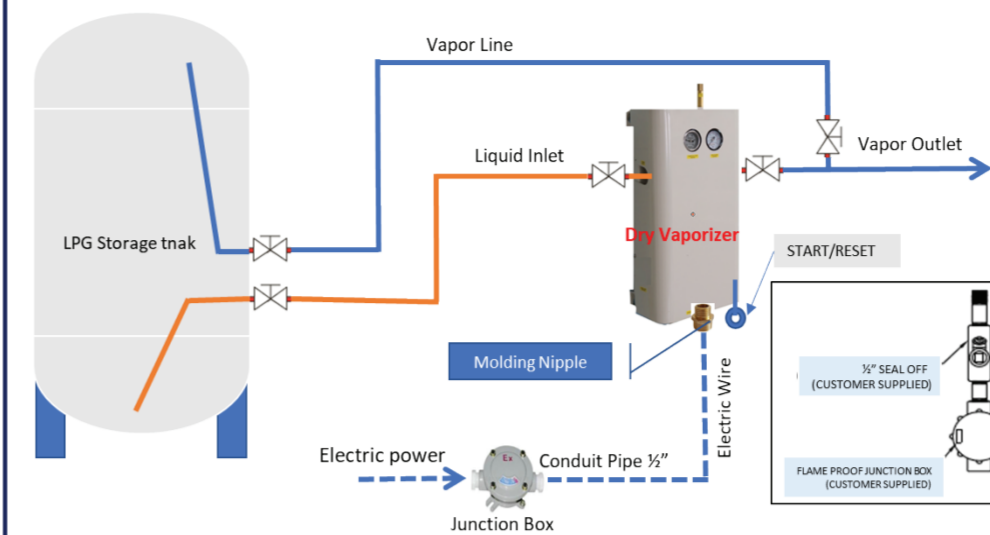
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#### Features of Vaporizer of PTC Heater Type

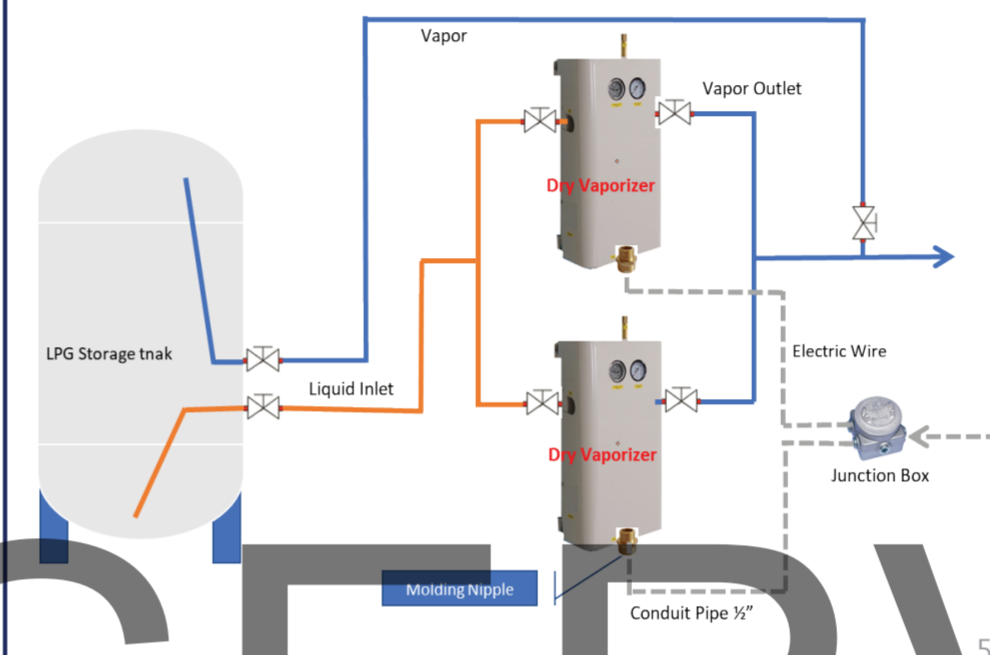


- ♣ Electric Vaporizer of Dry Type and Aluminum Body
- ♣ Compact, Light and Wall-hanging Type
- ♣ Ideal for Installation at a Narrow or Limited Space
- ♣ No Water, No Freezing
- ♣ No Electric Controls, Simple Operation
- ♣ Voltage Free, either 1 ∅ 100V~240V or 3 ∅ 200V~380V
- ♣ No Corrosion, Long life, 7~10 years Trouble Free
- ♣ PTC Heater, Self- Temperature Control
- ♣ Liquid Over Flow Prevention by Thermo Dynamic Bellows Valve
- ♣ Quick to Vaporizing Temperature
- ♣ Excellent Thermal Efficiency over 95%
- ♣ Explosion Proof KOSHA Ex d IIB T3

#### INSTALLATION DIAGRAM



#### PARALLEL INSTALLATION for TWO VAPORIZERS



#### Wiring

1. To check if the voltage and phase of electric power conform to the ones written in the name plate of the Vaporizer
2. To install the explosion-proof Junction Box within 1meter distance from the Vaporizer
3. To install conduit piping between the Junction Box and the Molding Nipple provided at the bottom of the Vaporizer, and then tightly connect to the Terminal Blocks by the Ring Tongue Terminal
4. To connect the earthing wire to the Earth Terminal
5. To use the Molding Nipple and Wire of Gurbong Hanjin in case of replacing the damaged or worn out wiring

#### Operation Sequence

1. Close all valves of the Vaporizer.
2. Turn the power switch "On".
3. Wait until the Temperature Gauge reaches to 50°C. (Lead time about 7~10 minutes).
4. Open the Inlet Valve slowly and supply liquid LPG from the storage tank or cylinders to the Vaporizer.
5. Check the pressure on "pressure gauge".
6. When the pressure and temperature become normal, and the Thermodynamic valve will be opened.
7. When the pressure of the Vaporizer becomes even balanced with the pressure of the storage tank or cylinders, supply the vaporized LPG gas for use by opening the Outlet Valve of the Vaporizer gradually.
8. In case the gas consumption exceeds the capacity of the Vaporizer, the temperature of the vaporized LPG gas comes down. Then the Thermo-dynamic Bellows Valve senses such temperature changes and shuts off the liquid LPG supply.
9. When the Vaporizer temperature is back to normal, the system will be operated automatically.

#### Specifications

1 Model	PV-DR-30	PV-DR-50
2 Capacity (kg/hr)	30kg/hr	50kg/hr
3 Design Temperature	-40°C~130°C	
4 Operating Temperature	-25°C~120°C	
5 Design Pressure	18kg/cm <sup>2</sup>	
6 Hydro-Test	LPG Side	27kg/cm <sup>2</sup>
	Electric Box	20kg/cm <sup>2</sup>
7 Material	Forged Aluminum	
8 Structure	Inserted PTC Heater in Aluminum Body, No Water, No Float, No Control Box	
9 Dimension	310W x 570L x 165H	310W x 750L x 165H
10 Weight	18kg	28kg
11 Electricity	Either Single Phase 110~240V Free Volt Or Three Phase 200~380V Free Volt	
12 Heater Power	Max. 3.5kw	Max. 5.8kw
13 Wiring Conduit	PTFE Sheath 3.5mm <sup>2</sup> / NPT 1/2" Molding Nipple	
14 LPG Inlet/Outlet	1/2" PT / 1/2"PT	
15 Liquid Over-flow Prevention	Thermo dynamic Bellows Shut-off Valve	
16 Safety Valve Setting Pressure	18kg/cm <sup>2</sup>	
17 Enclosures	Flame-proof KOSHA Ex d IIB T3	

#### Installation

1. To remove the front cover of the Vaporizer
2. To check where to install the Vaporizer
3. To check the 4 installation bolts
4. To check the 4 matching holes on the back of the Vaporizer
5. To mark the positions of the 4 installation bolts on the wall
6. To install the 4 installation volts on the wall
7. To hang and fix the Vaporizer on the wall by the 4 bolts & nuts
8. To make the connecting piping
9. To allow enough space around the Vaporizer for routine monitoring, maintenance, or repair
10. To provide a forced ventilation fan if no natural draft
11. To leak-test the piping to 18kg/cm<sup>2</sup> by means of air or inert gas
12. To remove any bits and dirt like dust, water or oil inside piping since they may cause malfunction of the Vaporizer in use

#### Trouble Shooting

Troubles	Causes	Actions
The Vaporizer temperature does not go up or rise even after power-on.	The Vaporizer body is getting warm.	○ The Gauge out of order ○ To replace the Gauge
	The Vaporizer body remains cool.	○ Elec. system out of order ○ To request A/S to the maker
Vaporizing rate gets far lower than the specification.	PTC Heater worn out	○ To replace the PTC Heater
The liquid LPG flow was shut off by the Thermo-dynamic Bellows Valve.	LPG gas consumption was higher than the Vaporizer capacity.	○ To wait till the temperature rises to normal, and the system will be back automatically
	Power failure	○ To resume the power ○ To restart the Vaporizer when the temperature rises to normal
Liquid LPG is not Shut off or Start/Reset is not working.	Thermo-Dynamic Bellows Valve out of order	○ To replace the Bellows Valve
	Overpressure into Vaporizer	○ Automatically reset after relief
LPG gas leaks at safety valve.	Safety Valve out of order	○ To replace the Safety Valve (Gas is not leaking during replacing thanks to a built-in check valve)
		○ To replace the Gauge (Gas is not leaking during replacing thanks to a built-in thermowell)
Temperature Gauge out of order		

#### Application

This Vaporizer shall serve the liquid LPG only, and is not allowed to serve for other type of gas liquid.

#### Safety Precautions

When it is required to open the cover of the Vaporizer for the purpose of repairing or checking, please turn off the power first, then wait for cooldown prior to opening the cover.

#### Operating Conditions

- 1) Operating Temperatures: - 40 °C ~ 50 °C
- 2) Humidity: Below 85%
- 3) Altitude: Below 4,000m

#### Scrap or Disposal

As for disposal of the Vaporizer at the end of use, it is recommended to separate the non-ferrous parts from the Vaporizer for recycling them respectively.