



Innovative atmospheric type vaporizer of LPG that does not require any electricity.



❑ AMBIENT TYPE LPG VAPORIZER

SNC PROCESS SERVICES SDN BHD

1083340-D



Characteristics of LPG

- 1) When the ambient temperature is 12 ° C, the vapor pressure of the LPG storage tank is maintained at about 7 bar.
- 2) When LPG TANK's natural vaporized gas is used, the vapor pressure is lowered, so the LPG liquid temperature in the TANK is lowered, and the heat exchange occurs by the temperature deviation (Δt) between the atmosphere and vaporized gas.
- 3) At this time, only a small amount of gas can be continuously used because of the shortage of heat transfer area (surface area outside the tank). When a large amount of gas is needed, the gas is often supplied using an LPG electro thermal vaporizer.
- 4) In this case, LPG is vaporized with electric power energy, so energy consumption and relative facilities should be facilitated.

Atmospheric Pressure	Vapor Pressure LPG(C3H8 90%,C4 H10 10%)
1.0bar	-42.4°C
2.0bar	-25.9°C
3.0bar	-16.9°C
5.0bar	+1.2°C
7.0bar	+11.2°C
10.0bar	+26.3°C



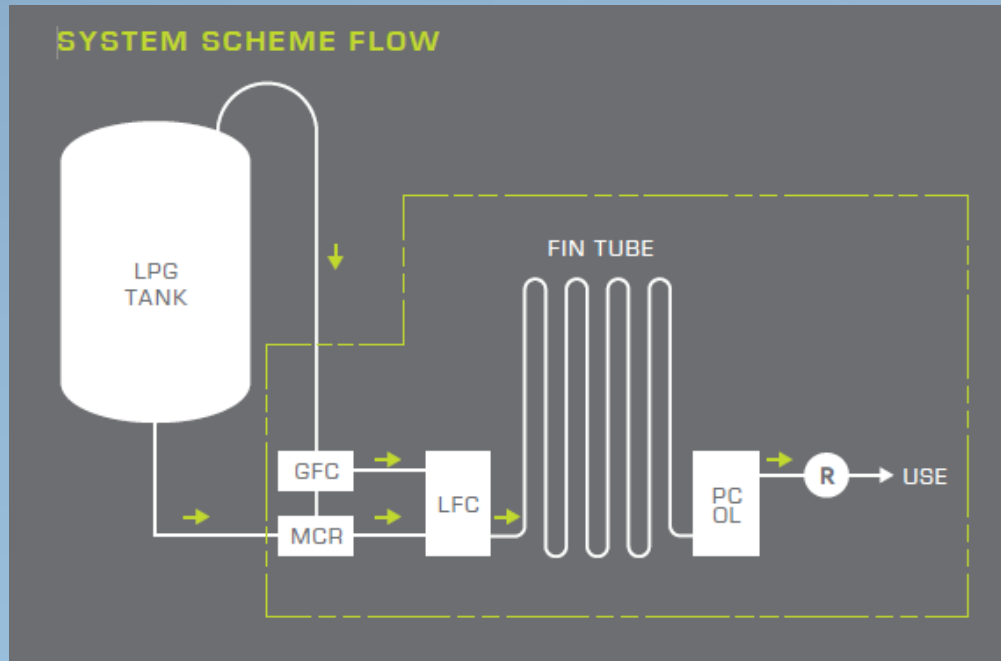
AMBIENT TYPE LPG VAPORIZER

Innovative gas supply system of LPG storage tank that does not require any electricity by combining an atmospheric vaporizer.



- ✓ **ECO-FRIENDLY PRODUCT
WITHOUT ENERGY CONSUMPTION
(NO ELECTRICITY!)
(NO CONTROL PANEL!)**
- ✓ **NO EXPLOSION-PROOF EQUIPMENT**
- ✓ **MAINTENANCE FREE**
- ✓ **SELF REGULATION**

System Layout



This system consists of four key controllers;

- GFC (Gas Flow Controller)
- LFC (Liquid Flow Controller)
- MCR (Mixing Ratio Control Regulator)
- PCOL(Prevention Carry Over Liquid)



System outline

The system uses a gas feeder (GFC) that maximizes the use of evaporated gas in an LPG storage tank.

And a mixing control regulator(MCR) is producing the saturated low temperature LPG by the operation that mixes the gaseous and the liquid.

The operation method is to promote the vaporization efficiency by increasing the temperature deviation between the atmosphere temperature and the saturated LPG.

The liquid flow rate regulator (LFC) serves to supply an appropriate flow rate of liquid to preventing excessive liquid from being flowed to the fin tube.

The liquid carry over prevention device (PCOL) is a safety device that prevents the liquid overflowing by excessive using of LPG.



AMBIENT TYPE LPG VAPORIZER

Reference Data - Dimension

L.P.G AMBIENT VAPORIZER.							
MODLE	CAPACITY (Kg/hr)	DIMENSION(mm)			INLET	OUTLET	EMPTY WHGHT (Kg)
		W	L	H			
SHV-30L	30	728	548	1970	20A	20A	90
SHV-50L	50	928	928	2270	20A	20A	110
SHV-100L	100	1178	1428	2470	20A	20A	220
SHV-200L	200	1678	1678	2770	25A	25A	380
SHV-300L	300	1678	1928	3470	25A	25A	550
CONDITION	AIR TEMPERATURE 0°C AMOSPHERIC PRESSURE 1atm						

AMBIENT TYPE LPG VAPORIZER



Aluminum Extruding Factory

Installed : March 2014

- LPG Tank 4.9 ton x 1 unit
- Ambient Vaporizer 100kg/h x 2 units

Shin Il Electric

Installed : April 2014

- LPG Tank 2.45 ton x 1 unit
- Ambient Vaporizer 100kg/h x 1 unit



AMBIENT TYPE LPG VAPORIZER



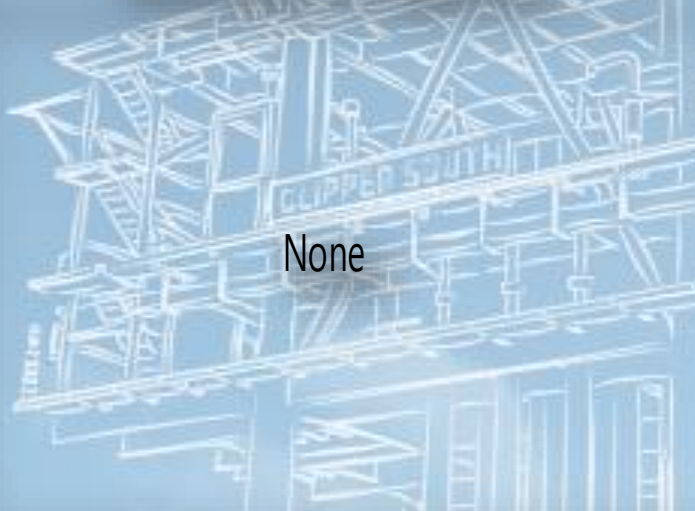
Injae Chemical

Installed : May 2014

- LPG Tank 1.0 ton x 1 unit
- Ambient Vaporizer 1 units



2.9Ton LPG Tank/ 100KG/Hr Vaporizer

Items	Electric heating vaporizer	Atmospheric vaporizer
Electric rate	Vaporizing capacity 100kg/h	 None
	Heater capacity: 14kw	
	Electricity cost	
	Base fee: 14kw x U\$6/kw= U\$84	
	Usage fee: 8hr/d, load rate805 = US\$268 (14kw x 80% load x 8h/D x 30D x US\$0.1/kw)	
	US\$ 352/month	
Durability of vaporizer	Average life-year: 4~6 years	Can be used semi-permanently
	Electric heater replacement: 2~3 years	
Facility cost	Installation cost of power line	None
Area to install	Smaller, but may be larger for security zone	Larger
Location to install	Regardless of temperature (in severely cold area, may be frozen to burst)	Average yearly temperature shall be 0°C or above. (the lowest temperature shall be -15°C or above)



Comparison Table/ Japan Type vs. Korean type

	Electricity	Size	Durability	Additional Facilities	Other Merits
Japan Type	Control Power necessary	Double Size	Complicate System. More maintenance Efforts Required.	Control Box	Tree time than Korean Type No Mixing Sys.
Korean Type	Electric Free		Semi permanent	None	Easy Operation



Product Record			
	2015	2016	2017
50Kg/HR	5	8	4
100Kg/HR	10	40	52
150Kg/HR		1	3
200Kg/HR	2	6	12
250Kg/HR			1
300Kg/HR		2	3
Sub Toeal	17	57	75



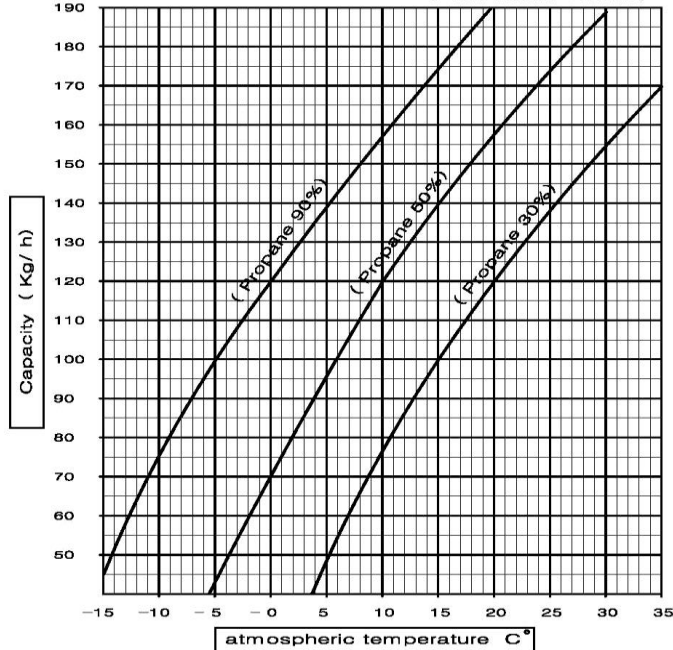
Reference Data-Vaporization Capacity

LPG AMBIENT VAPORIZER

SHV -100 VAPORIZATION CAPACITY CHART

Indicates vapor pressure of 0.1 Mpa
Composition of LPG (C_3H_8 + C_4H_{10})

(Peak within 4 hours)

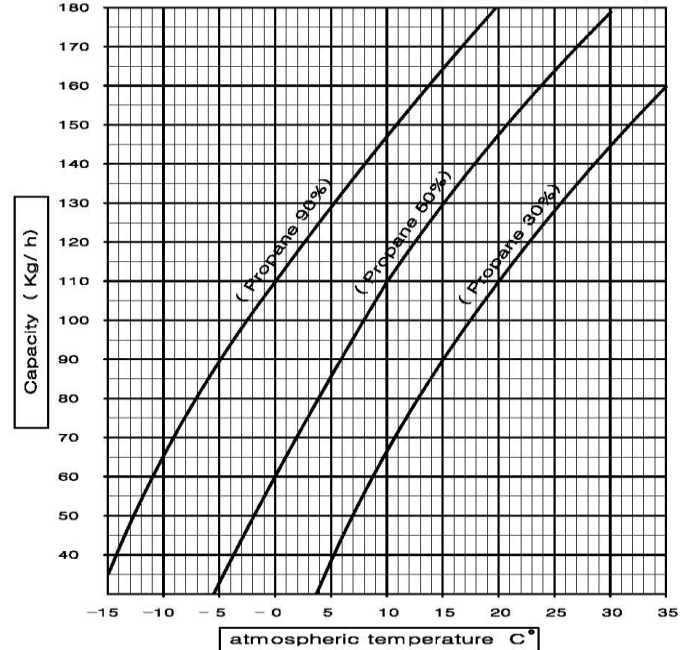


LPG AMBIENT VAPORIZER

SHV -100 VAPORIZATION CAPACITY CHART

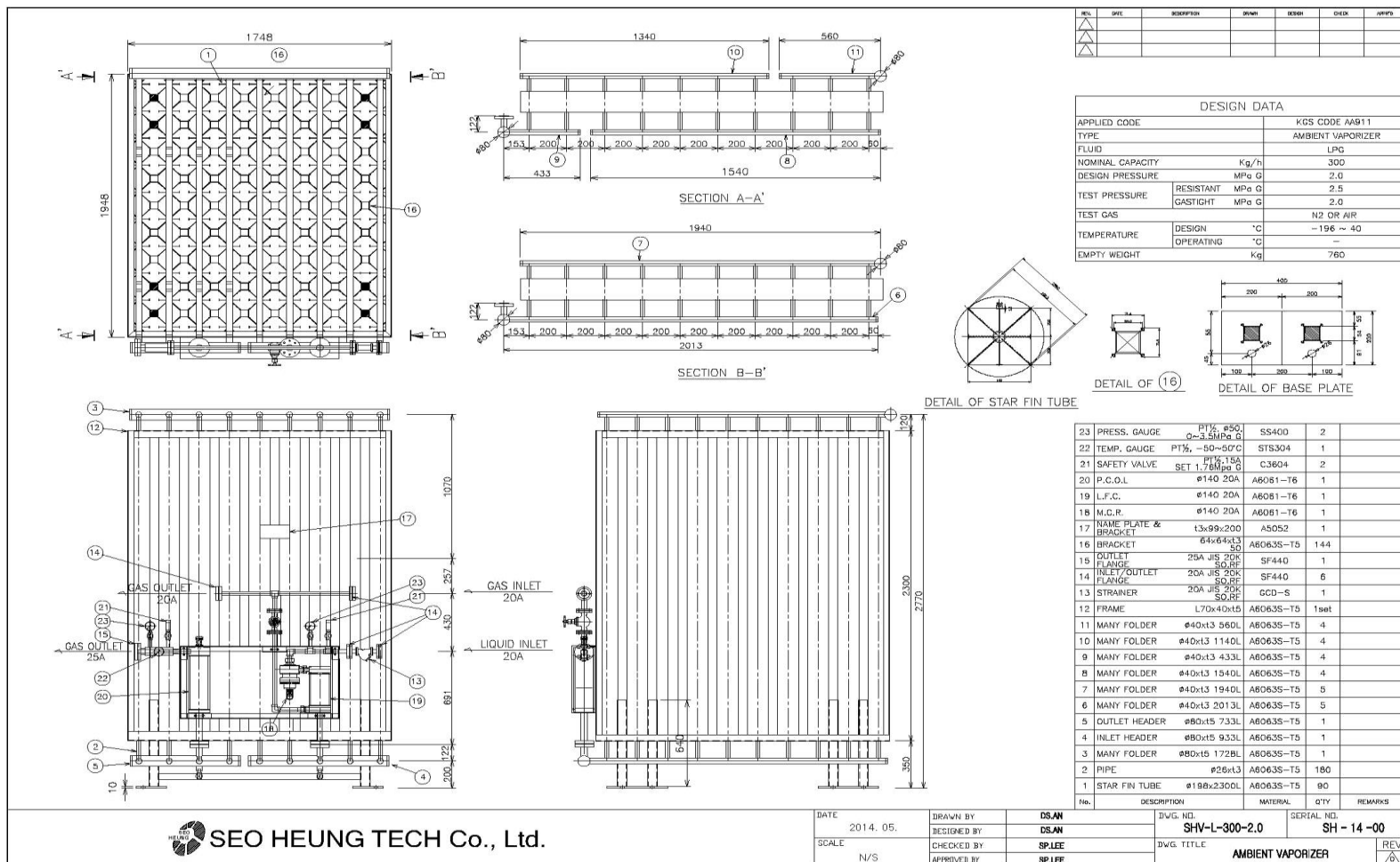
Indicates vapor pressure of 0.1 Mpa
Composition of LPG (C_3H_8 + C_4H_{10})

(Peak within 4 hours)



Reference Data-Product Drawing

❖ Ambient type LPG 300kg/hr Vaporizer





Reference Data-Specification

MODLE	CAPACIT Y (Kg/hr)	DIMENSION(mm)			INLET	OUTLET	EMPTY WHGHT (Kg)
		W	L	H			
SHV-50L	50	748	748	2270	20A	25A	110
SHV-100L	100	948	1148	2470	20A	25A	220
SHV-200L	200	1548	1748	2470	20A	25A	510
SHV-300L	300	1748	1948	2770	20A	25A	760
CONDITION	AIR TEMPERATURE 0°C AMOSPHERIC PRESSURE 1atm						



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