

Air Heating Type Vaporizer

SR Super Rizer

太陽熱エネルギーを利用する、省エネルギー型



ITO KOKI CO., LTD.

SR Super Rizer

The SR series vaporizer is an air heating type vaporizer, and it utilizes thermal energy.

This type of vaporizer does not need a special heat source.

The concept of this vaporizer is

safety, economic efficiency and saving energy.



The SR vaporizer continuously maintains a stable supply of LPG by using thermal energy. This type of vaporizer can save running costs greatly compared to conventional vaporizers; for example electricity heat type, steam type or hot water circulating type, because of the sole use thermal energy. The SR Series offer you tremendous benefits.

Specification (standard)

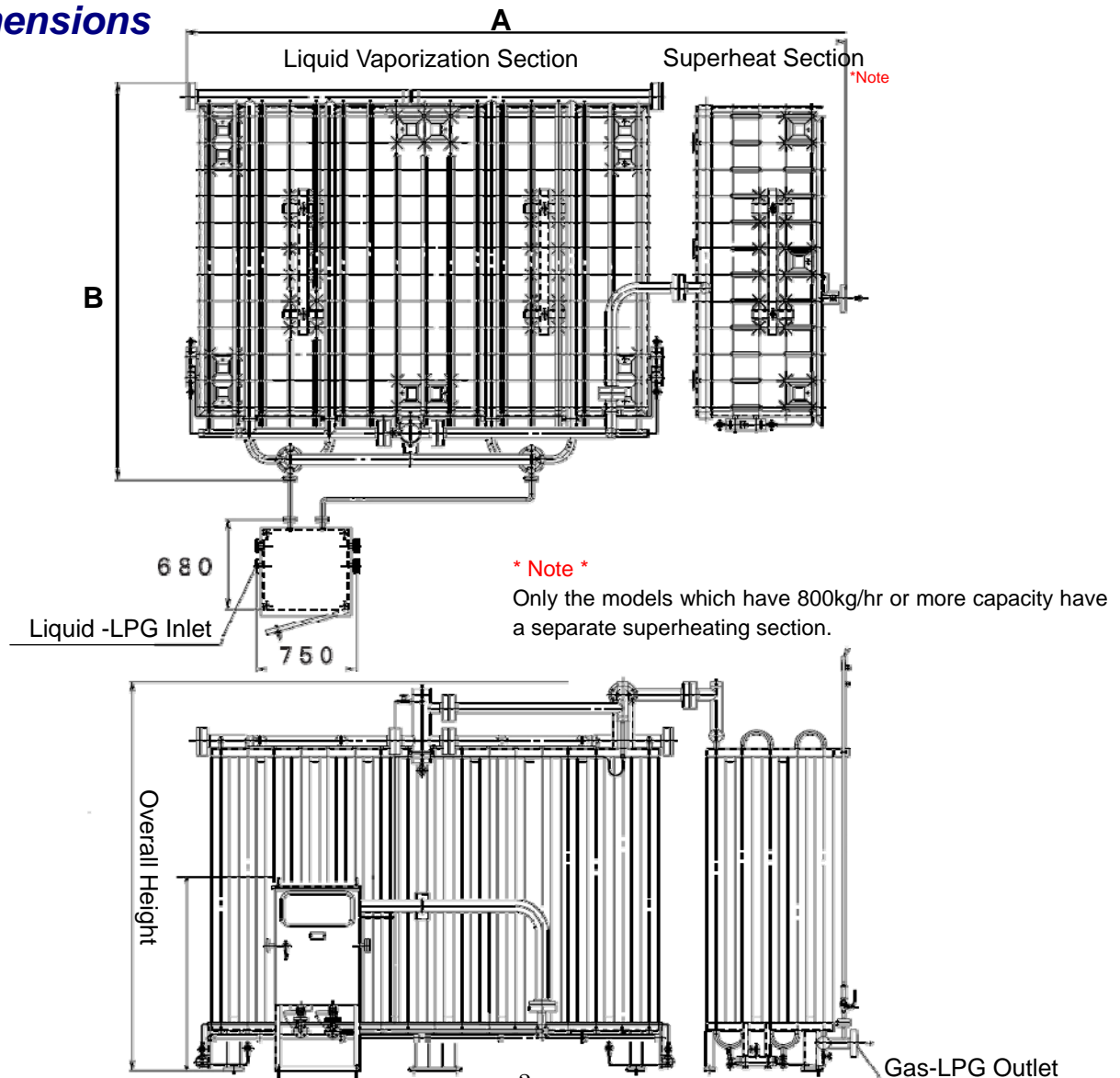
Gas type	LPG (C ³ H ⁸ 90% or more)
Required Ambient Temperature	- 5 °C or higher
Designed Continuous Operating Time with Max Gas Consumption	5 hours or shorter (With the winds of 1 metres per second)
Design Temperature	-30°C~50°C
Design Pressure	1.8MPa (18 bar)
Resistance to Pressure Test Pressure	2.7MPa (27bar)
Airtight test Pressure	2.0MPa (20bar)
Inlet Pressure Range	0.15 ~ 1.56 MPa (1.5 ~ 15.6 bar)
Vaporization Pressure (Liquid Regulator Outlet Pressure)	Service side 0.10~0.12MPa (1.0~1.2 bar) Reserve side 0.07~0.09MPa (0.7~0.9 bar)

Model	Nominal Vaporization Capacity (kg/h)	Body Specification								
		No. of Fins	Body Dimension(mm)			Weight(kg)		Connections		
			Width <i>A</i>	Depth <i>B</i>	Over Height	Body	Control Box	JIS 20K Flange		Gas Inlet for Shut-off Impulse
						Liquid Inlet	Gas Outlet			
SR-100W	100	36	2032	1105	2850	315	200	20A	25A	φ 8 Copper Pipe
SR-150W	150	52	2832	1165	2850	365	200	20A	40A	
SR-200W	200	65	2832	1365	2850	513	200	20A	40A	
SR-300W	300	98	3032	1765	2850	755	200	20A	40A	
SR-400W	400	130	2832	2365	2850	994	200	20A	50A	
SR-500W	500	170	3632	2365	2850	1300	200	20A	50A	
SR-600W	600	200	4232	2565	2900	1548	200	20A	50A	
SR-700W	700	231	4432	2775	2950	1783	200	20A	80A	
SR-800W	800	264	4932	3005	2950	2050	200	20A	80A	
SR-1000W	1000	327	5812	3005	2950	2557	210	20A	80A	
SR-1500W	1500	510	5812	5394	3131	4110	210	20A	80A	

* The nominal vaporization capacity is based on the following conditions:

- LPG Composition : C³H⁸ 95% or more
- Outlet Gas Temperature : -5 °C
- Ambient Temperature : -5 °C
- Vaporization Pressure (Liquid Regulator Outlet Pressure) : 0.1MPa (1.0bar)
- Continuous Operation Time : 4 hours

Dimensions



Vaporization capability for varying ambient temperatures

- LPG Composition: C³H⁸ 95% or more
- Outlet Gas Temperature: -5 °C
- Vaporization Pressure (Liquid Regulator Outlet Pressure): 0.1MPa (1.0bar)
- Continuous Operating Time with Max Gas Consumption : 5 hours

Unit: kg/h

Model	Continuous Operating Time (hr/day)	Ambient Temperature(°C)			
		-10	-5	0	5
SR-100W	4	70	100	125	125
	10	35	57	62	105
	24	28	40	50	68
SR-150W	4	105	150	187	187
	10	60	85	106	142
	24	42	60	75	102
SR-200W	4	140	200	250	250
	10	79	113	141	192
	24	56	80	100	136
SR-300W	4	210	300	375	375
	10	119	170	212	289
	24	84	120	150	204
SR-400W	4	280	400	500	500
	10	158	227	283	386
	24	112	160	200	272
SR-500W	4	350	500	625	625
	10	198	283	353	481
	24	140	200	250	340
SR-600W	4	420	600	750	750
	10	238	340	425	578
	24	168	240	300	408
SR-700W	4	490	700	875	875
	10	277	396	495	673
	24	196	280	350	476
SR-800W	4	560	800	1000	1000
	10	317	453	566	770
	24	224	320	400	544
SR-1000W	4	700	1000	1250	1250
	10	396	566	707	962
	24	280	400	500	680
SR-1500W	4	1050	1500	1500	1500
	10	595	850	1062	1445
	24	420	600	750	1020

This vaporization capability is greatly affected by various factors.

Please feel free to ask us for further information.

The features of the SR-W series

Outstanding economic efficiency

1 No-running cost!

These types of vaporizer are very economical because they don't need an initial cost for a heat source and running cost for vaporizing LPG

2 Extremely long life!

The vaporizer fins are manufactured in aluminum alloy. This material has extremely good efficiency of heat transfer and is very durable. The lifetime is semi permanent.

3 No- rusting!

The vaporizer's control box is manufactured from stainless steel. It doesn't corrode and keeps beautiful luster for a long time.

Safety and reliable design

1 Safety Shut-off system

Utilizing the [patent pending] ITO KOKI innovative temperature sensing liquid carry over protection system ensures that no liquid runs over to the downstream gas supply system, and only superheated gas leaves the vaporizer.

2 Easy operation and maintenance

SR Vaporizers operate on their own gas pressure. There is no electricity, air pressure or any other power. Its simple structure is easily operated and maintained - even if there is a power failure a stable gas supply is ensured.

Reliable Dual Line Structure

1. SR-W series have a dual line structure in both of the control box and the vaporization section fin blocks.
2. In the vaporization Section fin blocks, there is the service side block and reserve side block. If the liquid level in the service side reaches around the position of half the fin length, then liquid will automatically flow away into another block via the connection pipe. Moreover, you can achieve more stable vaporization capacity continuously by changing the service side to another one manually at regular intervals and defrosting the ice formed on outside surfaces of the service side block bottom.
3. Our dual line structure also allows the user to use the vaporizer without suspending gas supply during maintenance.
4. If required the combined inlet connection can be replaced with dual connections for use with a manifold removing the requirement for an additional changeover

System Outline

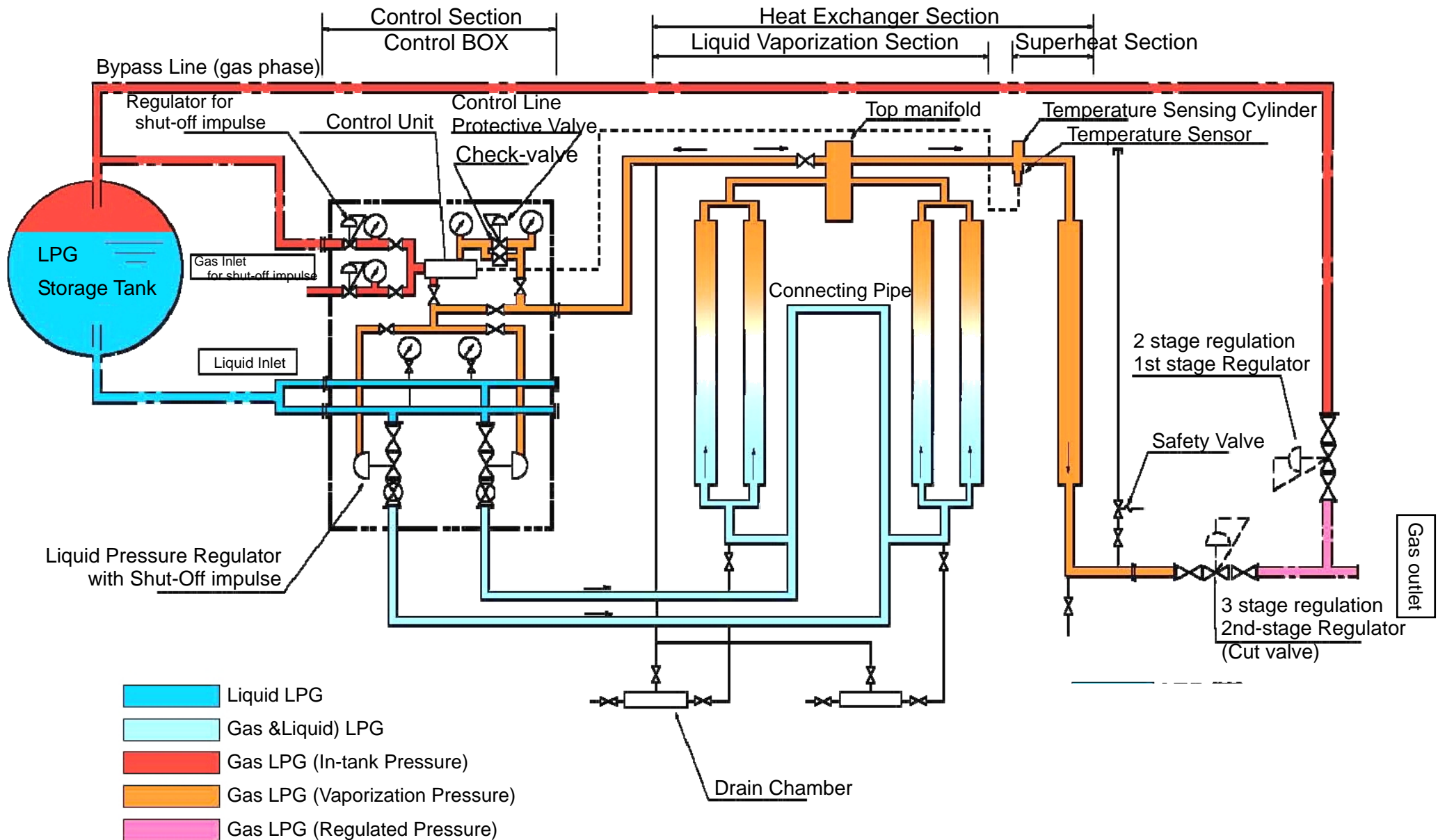
1. Firstly, the Liquid Pressure Regulator reduces the pressure of liquid LPG from the tank. When the fluid expands adiabatically, the internal energy drops and the temperature also drops and it is vaporized to gas practically. Then, the fluid changes to a gas & liquid mixture. This low-temperature mixture flows into the fin block of the Liquid vaporization section where it changes to low-temperature gas LPG absorbing the latent heat of vaporization from the ambient air in the section. This low-temperature gas LPG flows into the gas LPG heating section of the unit via the top manifold and temperature sensing cylinder, and it is heated up to the level of the atmospheric air temperature absorbing the heat from the ambient air in the section - then supplied to the gas consumers.
2. If a bypass line (gas phase) is constructed as the operation flow chart shows, gas supply will not be stopped even if the Liquid carryover protection system is activated in the case of too much gas consumption. If there is a shut-off at the liquid pressure regulation stage LPG (liquid phase) in the liquid vaporization section continues to vaporize. If it fails to maintain the proper supply pressure, the first-stage regulator on the bypass line opens and draws a gas supply from the gas LPG from the tank or cylinders directly. This double gas supply system offers complete peace of mind.
3. After the shut off, the gas consumption leads to a vaporization of liquid LPG in the temperature sensing section and the temperature recovers. Then the control unit operates and re-opens the liquid pressure regulator to resume the liquid LPG supply automatically. (See diagrams of the mechanism of the liquid carryover protection system)
4. The SR-W series incorporates an innovative liquid carry over protection system comprising the temperature sensor, the control unit (a 3-way selector valve) and the liquid pressure regulators with shut-off impulse line.

The following factors greatly affect the vaporization capacity.

We will choose the appropriate model for you, please complete the blanks and send it to us.

1. Max gas LPG consumption per hours	() kg / hrs
2. LPG Composition	C ³ H ⁸ ()% C ₄ H ₁₀ ()%
3. Delivery pressure of gas LPG	() MPa or bar
4. Automatic change-over is installed or not	(Installed / No changeovers)
5. Lowest temperature at the installation site	()°C
6. Continuous Operating Time	() hours

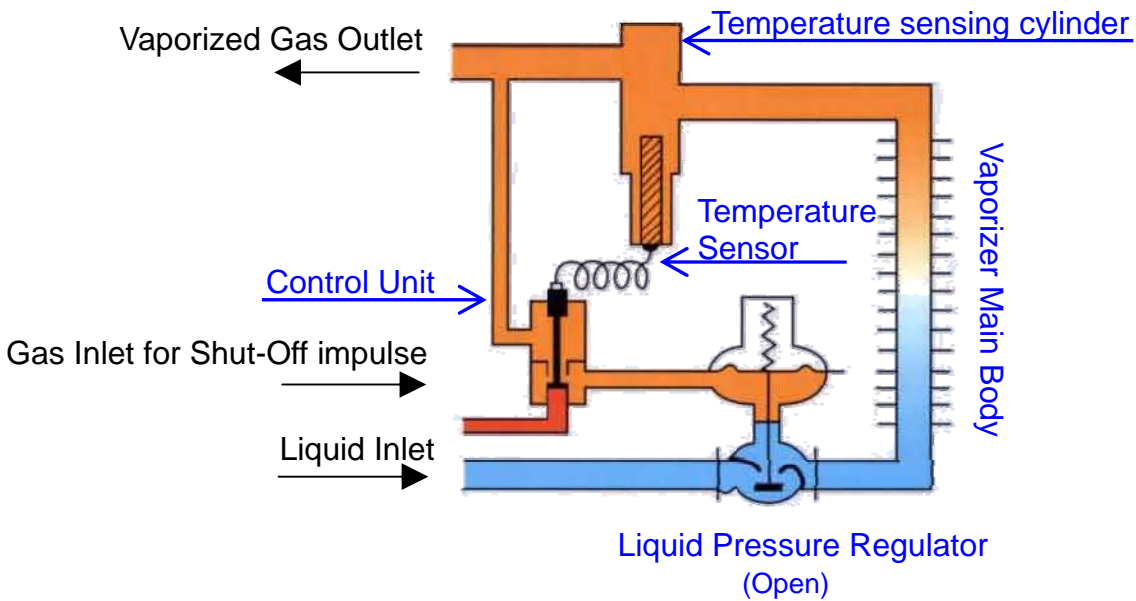
SR-W Series Operation Flow Chart



Mechanism of the Liquid Carryover Protection System

If the system operates outside of the prescribed specifications due to unusual weather or other outside factors the system may be over capacity in which case the system ensures that no liquid runs over to the downstream side of the vaporizer.

Normal Situation



Shut-off Situation

