

RANSOME

MANUFACTURING

Engineering and Equipment Manufacturing

VS Series Hot Water Vaporizer Bulletin

PRODUCT DESCRIPTION

VS Series Hot Water Vaporizers are designed and engineered to provide an economical and dependable source of LP-Gas vapor for a wide range of applications from 280 GPH up to 5,900 GPH. Standard units are completely self-contained requiring connection of LP-Gas inlet and outlet, water inlet and warm water outlet. All are factory tested on propane and shipped ready for use.

HOW THEY WORK

The VS Series Hot Water Vaporizer uses a thermally actuated control system to regulate the flow of hot water into a shell and tube heat exchanger. The thermal system consists of a liquid filled diaphragm actuator connected by means of a filled, semi-flexible capillary tube to a partially filled sensing bulb inserted in the LP-Gas vapor stream. As temperature at the sensing bulb increases (as would occur during a low LP-Gas flow condition), the fluid in the bulb partially vaporizes, applies pressure to the diaphragm and closes the valve. As temperature at the sensing bulb decreases (during a higher LP-Gas flow condition), the fluid would recondense, reducing pressure on the diaphragm and opening the valve. Depending on gas flow conditions, the valve will throttle the flow of hot water to maintain the desired temperature range.

LIMITS AND SAFETY FEATURES

- ASME Code Heat exchange pressure vessels. The shell is constructed of rugged carbon steel for high strength and good heat exchange characteristics.
- The removable, field replaceable tube bundle is constructed entirely of stainless steel to ensure long life and corrosion resistance.
- Ransome's unique liquid level float configuration. The high liquid level float prevents liquid from entering the outlet.
- Inlet solenoid valve with bypass back check valve. The solenoid valve, in conjunction with the high liquid level switch, closes the inlet preventing the liquid from spilling over into the outlet.
- Bottom hot water feed protects against freeze up. The warm water is constantly warmed by incoming hot water. Even if the vaporizing temperature in the shell falls below freezing, there is no risk of the warm water freezing with the resultant bursting of the tube.
- ASME stamped safety relief valve. Each vaporizer unit is adequately protected in accordance with NFPA 58 and California Title 8 codes.
- All sizes are capable of infinite turndown and will maintain a ready supply of vapor from zero load to full capacity.
- Standard electrical configuration Class I, Division I.
- Vertical design provides maximum capacity in a compact unit.



PERFORMANCE

Rated capacity in GPH of Propane @ 0 F with a minimum vapor outlet temperature of 100 F. (Note: Rated capacity for butane and other LP-Gas mixtures will be lower than that of propane. For units operating on hot water (180 F) capacity is reduced approximately 50%.

CONSTRUCTION

Base and Frame: Carbon Steel structural channel
Vap. Vessel Shell: Carbon Steel
Vap. Tube Bundle: Stainless Steel
Connections: Carbon Steel

Operating Temperature Range: 80-140 F

LP-Gas Safety Relief Valve Setting: 250 psig

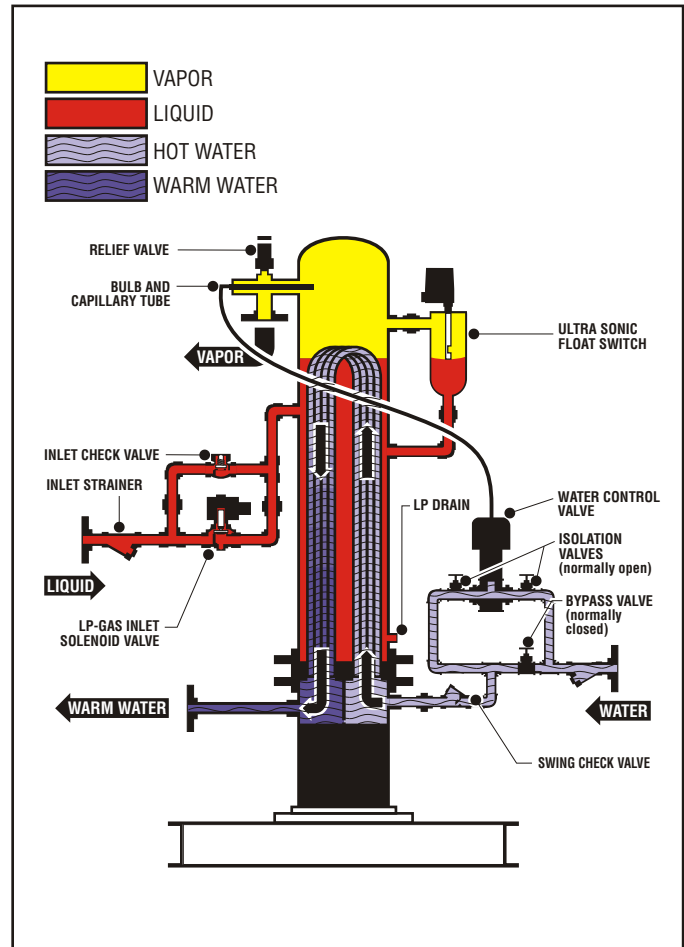
Hot Water Temperature Setting: 180 psig

Design pressure, LP-Gas side: 250 psig

Design pressure, Hot Water side: 100 psig

Design Temperature: 650 F

The high liquid level float breaks on liquid rise.



Physical Description

Dimensions							Ransome Model
Height Overall	Shell O.D.	LP Liquid Inlet	LP Vapor Outlet	Hot Water Inlet	Hot Water Outlet	Base Dimensions Width/Length	
73-1/2"	3-1/2"	1" NPT	1-1/2" NPT	1/2" NPT	1/2" NPT	42" x 48"	VS 55
78"	4-1/2"	1" NPT	1-1/2" NPT	3/4" NPT	1/2" NPT	42" x 48"	VS 100
84"	6-5/8"	1" NPT	2" NPT	1-1/4" NPT	3/4" NPT	42" x 48"	VS 330
84"	8-5/8"	1" NPT	2" NPT	1-1/4" NPT	3/4" NPT	48" x 60"	VS 660
84"	10-3/4"	1" NPT	3" 300 # F.	2" NPT	1" NPT	48" x 60"	VS 1000
84"	12-3/4"	1-1/4" NPT	3" 300 # F.	2-1/2" NPT	1-1/4" NPT	48" x 60"	VS 1500
84"	16"	1-1/2" NPT	4" 300 # F.	2-1/2" NPT	1-1/2" NPT	60" x 72"	VS 2400
92"	20"	2" NPT	4" 300 # F.	3" 150 # F.	2" NPT	72" x 84"	VS 3780
92"	24"	3" 300 # F.	4" 300 # F.	4" 150 # F.	3" 150 # F.	Call Factory	VS 5460
116"	30"	3" 300 # F.	6" 300 # F.	6" 150 # F.	3" 150 # F.	Call Factory	VS 7700
126"	36"	3" 300 # F.	8" 300 # F.	8" 150 # F.	4" 150 # F.	Call Factory	VS 11800

Selection Chart

Propane Capacity			Approx. Required BTU/Hr	Min. Heated Hot Water 60 F to 180 F GPH	Approximate Shipping Weight		Ransome Model
Millions of BTU/Hr	CF/Hr	GAL/Hr			LB	KG	
2.51	1,000	28	53,570	10	890	404.5	VS 55
4.75	1,819	50	97,400	10	1,000	454.5	VS 100
15.10	6,004	165	321,420	10	1,125	511.4	VS 330
30.20	10,508	330	642,840	10	1,250	568.2	VS 660
45.75	18,195	500	974,000	10	1,500	681.8	VS 1000
65.65	27,292	750	1,461,000	10	1,805	820.5	VS 1500
109.80	43,668	1,200	2,435,000	15	2,360	1072.7	VS 2400
172.70	68,777	1,890	3,896,000	25	2,915	1325	VS 3780
249.80	99,344	2,730	5,318,040	25	3,470	1577.3	VS 5460
352.30	140,101	3,850	7,291,900	25	4,025	1829.5	VS 7700
539.85	214,701	5,900	11,493,200	50	4,580	2081.8	VS 11800

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