

### PRODUCT DESCRIPTION

VHW Series Hot Water Vaporizers are designed and engineered to provide an economical and dependable source of NH<sub>3</sub> vapor for a wide range of applications from 65 LB/HR up to 13,000 LB/HR. Standard units are completely self-contained requiring connection of NH<sub>3</sub> inlet and outlet, hot water inlet and water outlet.

### HOW THEY WORK

The VHW 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 NH<sub>3</sub> vapor stream. As temperature at the sensing bulb increases (as would occur during a low NH<sub>3</sub> 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 NH<sub>3</sub> 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 switch configuration. The high liquid level switch 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 ANSI K61.1.
- 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 compact, rectangular unit.

**PERFORMANCE**

Rated capacity in LB/HR of NH3 @ 0 F with a minimum vapor outlet temperature of 100 F.

Operating Temperature Range: 80-140 F

NH3 Safety Relief Valve Setting: 265 psig

Design pressure, NH3 side: 265 psig

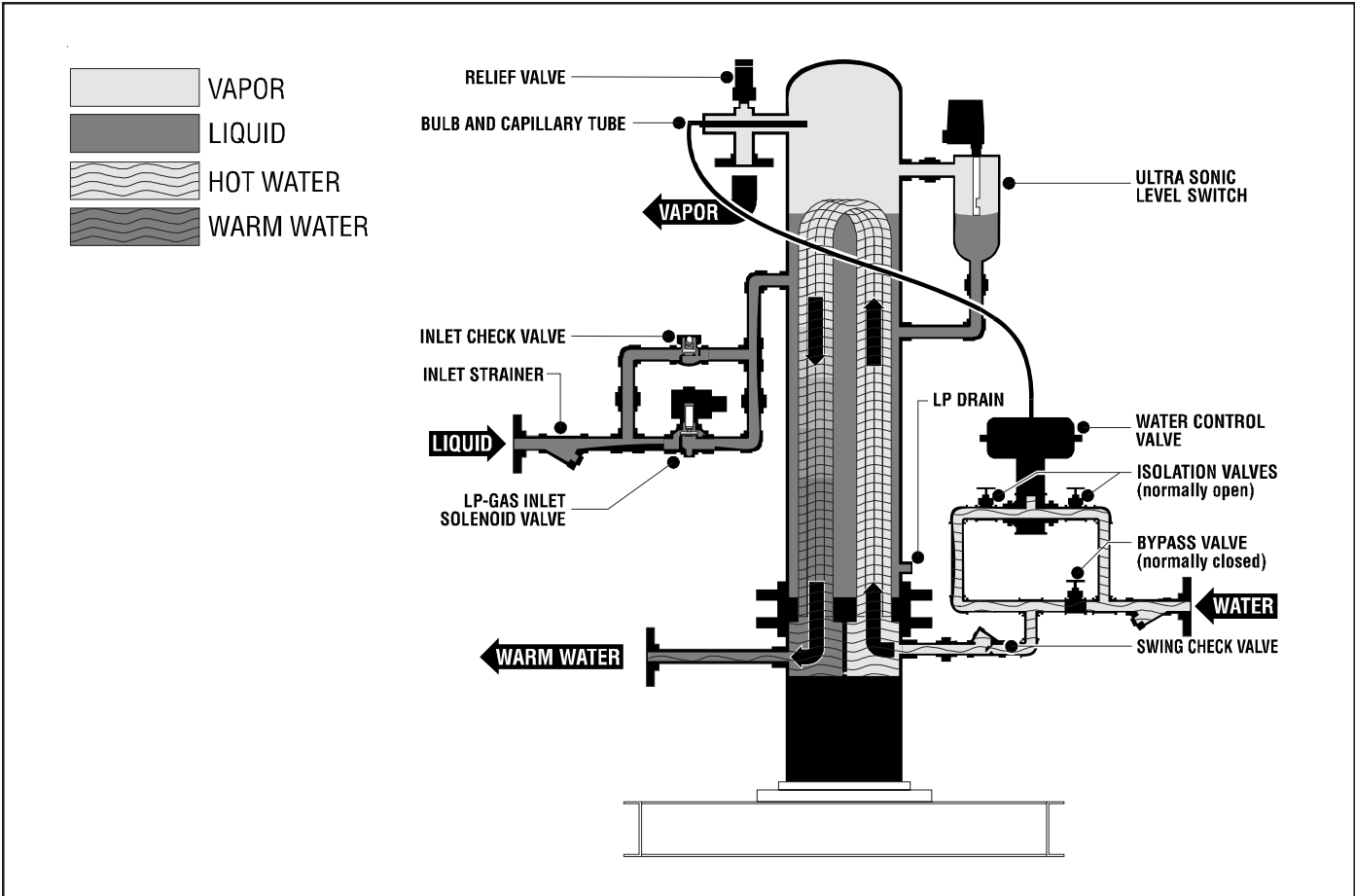
Design pressure, Water side: 100 psig

Design Temperature: 650 F

**CONSTRUCTION**

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

The high liquid level switch breaks on liquid rise.



**Selection Chart**

NH3 Capacity		Minimum Hot Water Required GPM	Maximum Water Pressure PSIG	Approximate Shipping Weight		Ransome Model
NH3 LB/HR	GAL/HR			LB	KG	
65	12.5	4	100	890	404.5	VHW 55
114	22	7	100	1,000	454.5	VHW 100
178	34	11	100	1,050	477.3	VHW 160
379	73	23	100	1,125	511.4	VHW 330
756	145	46	100	1,250	568.2	VHW 660
1,150	221	69	100	1,500	681.8	VHW 1000
1,640	315	99	100	1,805	820.5	VHW 1500
2,745	528	165	100	2,360	1072.7	VHW 2400
4,463	858	268	100	2,915	1325	VHW 3780
6,288	1,209	378	100	3,470	1577.3	VHW 5460
8,866	1,705	533	100	4,025	1829.5	VHW 7700
13,590	2,613	817	100	4,580	2081.8	VHW 11800