

Product Description

RE Series Horizontal Tank Heaters are pressure controlled evaporators capable of providing the heat required to vaporize NH₃ liquid (Anhydrous ammonia) and thereby "heat" an NH₃ storage vessel. Units are available in standard capacities ranging from 40 to 900 pounds per hour.

Limits and Safety Features

RE Series Tank Heaters have high temperature and high pressure protection devices to protect the system in the event of an over-temperature or over-pressure condition. A Snapdisk type high temperature switch is installed in the potentially hottest part of immersion vessel. It monitors the temperature of the surrounding ammonia bath and the immersion heater elements. The high pressure switch monitors the system pressure. If either of these safety limits are exceeded, a safety shutdown occurs. Manual restart of the system is required once the source of the problem has been resolved.



**Model RE50 TH
Tank Heater**

Features and Benefits

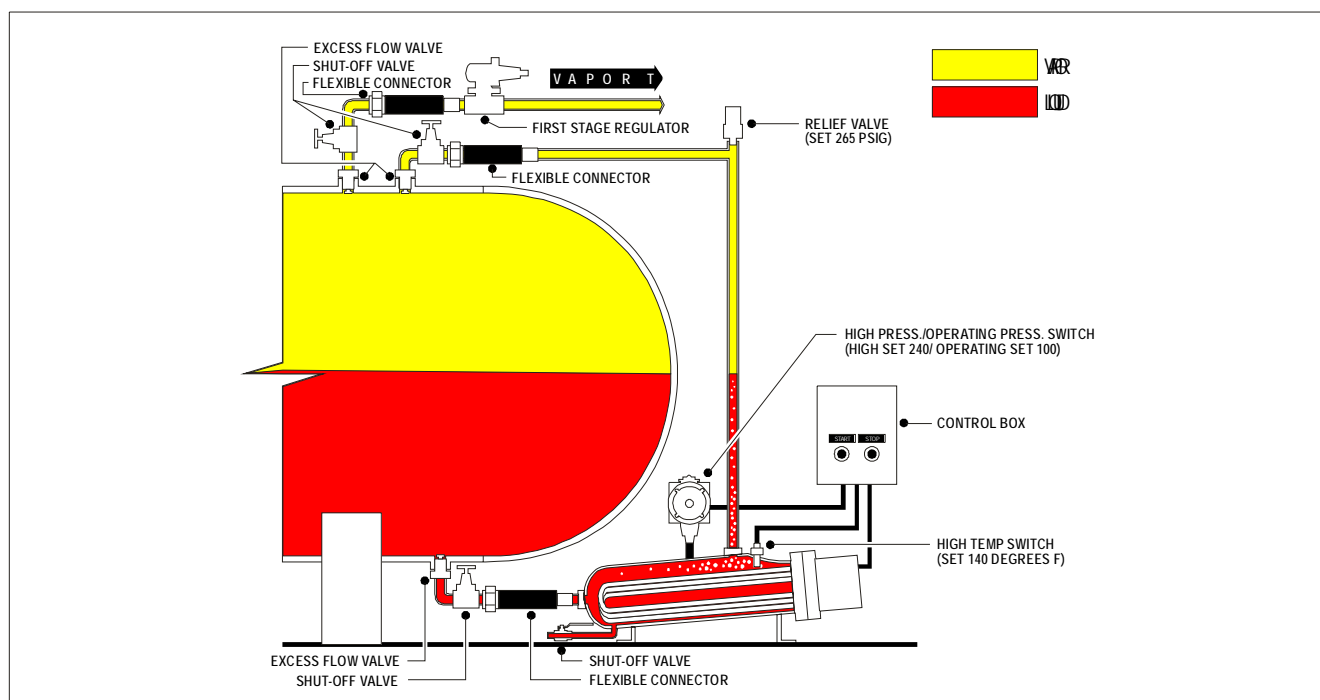
- ASME Code Pressure Vessel. Each vessel is constructed of high strength carbon steel as per Section VII, Div. I of the ASME Code.
- Precision operating and safety limit switches. All parts are steel or stainless steel. All wetted parts are of stainless steel construction.
- Top quality flanged immersion heater. Steel elements are standard. Stainless steel available. Heaters are sized for the exact heat required.
- ASME stamped relief valve. ASME pressure vessel is adequately protected by an external safety relief valve.
- All controls (contactors, relays, etc.) are located inside a NEMA 4 control panel for dependable performance even in extreme weather conditions.
- All sizes are capable of infinite turndown and will maintain heat supply and resultant pressure in NH₃ storage vessel from zero load to full capacity. At no load, only enough heat will be generated to maintain set point pressure.
- Standard electrical configuration Class I, Div. II. (Class I, Div. I also available)

Control

The RE Series Tank Heater uses pressure actuated ON/OFF control to maintain a desired pressure in the NH₃ storage vessel. An operating pressure switch cycles an immersion heater full ON or OFF. Pressure sensitivity (hysteresis) is designed into the control action between ON and OFF. This sensitivity is designed to prevent the switching of the immersion heater ON and OFF within a pressure span that is too narrow. Pressure is always maintained "about the set point." This is dictated by the switching sensitivity of the ON/OFF control. The control action further dictates that there will be a certain amount of pressure overshoot and undershoot. The degree of overshoot and under-shoot will be dependent on the characteristics of the entire thermal system.

Operation

The RE Series Tank Heater is installed as close to and as far below the NH₃ storage tank as practical. This is very important since the tank heater is dependent on gravity for the flow of NH₃ liquid into it. The shortest possible run of adequately sized supply piping minimizes pressure drop and maximizes the value of liquid head pressure to the tank heater. As liquid flows into the tank heater, it is immediately vaporized by the warm immersion heater. The resultant warm vapor is naturally re-circulated back into the NH₃ storage vessel. This addition of heat raises the temperature and consequently raises the pressure in the system. As system pressure varies due to rise and fall of ambient temperature or vapor withdrawal from tank, the tank heater will circulate sufficient NH₃ to maintain desired set point pressure as long as heat losses do not exceed capacity of tank heater input.



Electrical and Physical Specifications

NH ₃ LB/HR	KW	Amps/Line 480V - 3Ph 50/60 Hz	Number of Lines	Shell O.D.	NH ₃ Inlet	NH ₃ Outlet	Approx. Overall Length	Approx. Overall Height	Ransome Model
40	8	10A	3	4-1/2"	2" NPT	2" NPT	56"	24"	RE 25
80	16	19A	3	8-5/8"	2" NPT	2" NPT	36"	30"	RE 50
128	25	31A	3	8-5/8"	2" NPT	2" NPT	45"	30"	RE 80
256	50	30A	6	10-3/4"	2" NPT	3" 300 CL	64"	32"	RE 160
384	75	45A	6	10-3/4"	2" NPT	3" 300 CL	82"	32"	RE 240
512	100	40A	9	12-3/4"	3" 300 CL	3" 300 CL	74"	36"	RE 320
640	125	50A	9	12-3/4"	3" 300 CL	3" 300 CL	92"	36"	RE 400

NOTE: 1. All control circuits 120V AC, 50/60 Hz, 10A 2. Consult factory for larger sizes.

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