Phillips® REFRIGERATION
VALVES • VESSELS • SYSTEMS • CONTROLS

For Ammonia (R717) and Other Refrigerants

FEATURES

- **Phillips® thermosyphon receivers are engineered to safely, effectively, and efficiently provide high-side liquid for oil cooling systems**
- **Phillips® thermosyphon receivers are sized to provide a minimum 5-minute reserve of liquid to the oil cooler, independent of condenser flow conditions**
- **Liquid connection locations are optimized to balance the volume requirements of the liquid reserve with the volume requirements for liquid-vapor separation**
- **All vessels are rated at 250 or 300 PSI, ASME stamped, and National Board Registered. Customer must specify rating that satisfies the Code requirements when requesting quotes.**

DESCRIPTION

By locating the thermosyphon receiver at a higher elevation than the oil-cooling heat exchanger, density differences are exploited to generate fluid motion. Liquid refrigerant from the thermosyphon receiver is gravity fed into the heat exchanger inlet. The liquid in this line provides a static head that raises the pressure at the heat exchanger inlet. The liquid enters the heat exchanger and absorbs heat from the oil through the heat transfer surface and begins to boil. The density of the resulting liquid-vapor refrigerant mixture, though lower than the liquid at the heat exchanger inlet, is higher than the thermosyphon receiver. The result is flow of the liquid-vapor mixture back up to the thermosyphon receiver via natural convection.

OPTIONAL APPLICATION—FEED TO CPR OR LOW-SIDE VESSEL

As an option, Phillips® thermosyphon receivers can feed liquid directly to a Controlled Pressure Receiver, Intercooler, or Low Pressure Accumulator with the addition of a model 700H high-side modulating valve with a model 275AP pilot float valve with chamber. Phillips can supply a fully assembled high-side control, including all components and service valves. Such an application requires alternate vessel connections. Contact Phillips Engineering for details.

APPLICATION TIPS

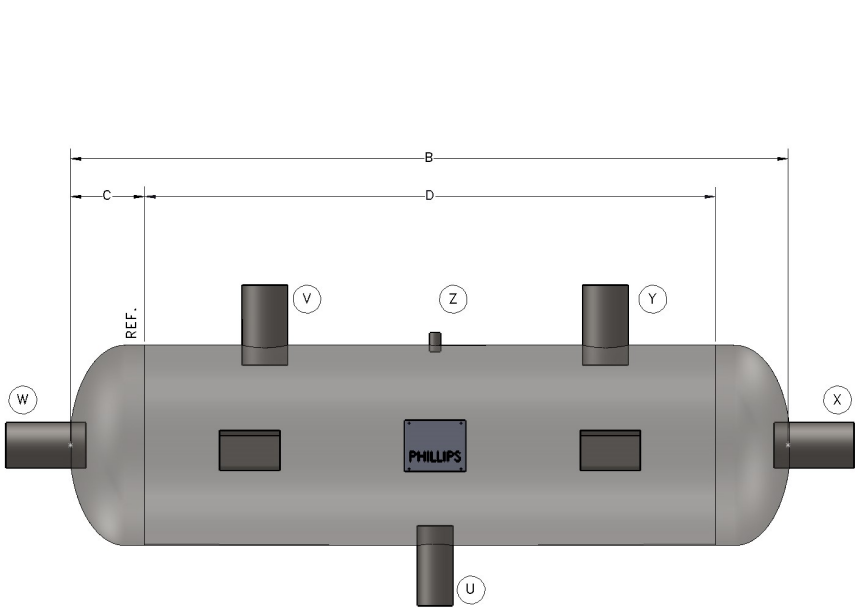
- Maintain a minimum 72” elevation difference between the thermosyphon receiver and the oil cooler to ensure the necessary liquid head to drive liquid circulation.
- Never pipe the return from the heat exchanger directly to the condenser inlet—the vapor may carry a considerable amount of liquid which could degrade condenser performance. Use the supplied return connection and allow the vapor to return to the condenser inlet through the vent line.
- Calculate the required heat of rejection for the oil cooling load and select the catalog vessel with a rating greater or equal to that value.

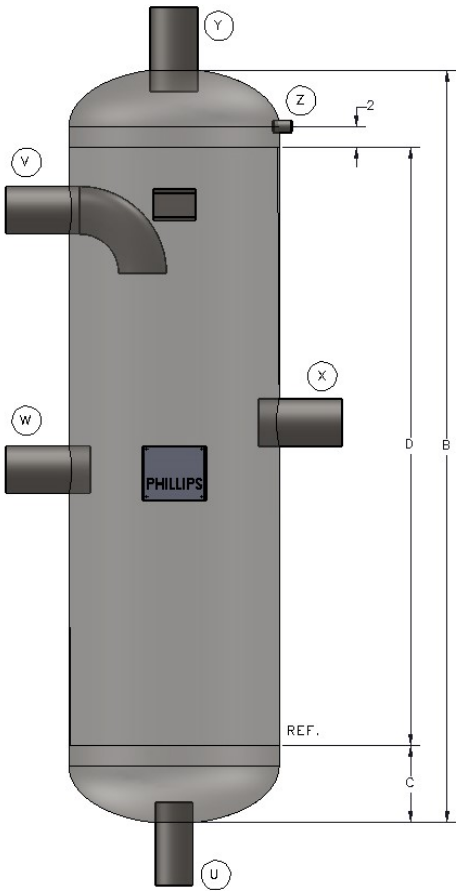
THERMOSYPHON RECEIVER DIMENSIONS

		A	B	C	D	U	V	W	X	Y	Z	
MODEL NUMBER*	HEAT OF REJECTION [BTU/MIN]**	DIA. (IN.)	OAH/L	HEAD	SHELL	OIL COOLER SUPPLY	OIL COOLER RETURN	LIQUID IN	LIQUID OUT	VENT	RELIEF	EST. Shipping Wt. (Lbs)
TSR0836V/H	1500	8	36	4	28	1-¼	1-½	1-½	1-½	1-½	½	120
TSR1048V/H	3000	10	48	5	38	1-½	2	2	2	1-½	½	170
TSR1060V/H	4500	10	60	5	50	2	2-½	2-½	2-½	2	½	200
TSR1272V/H	9000	12	72	5-½	61	2	2-½	3	3	2-½	½	260
TSR1672V/H	15000	16	72	6-½	59	2-½	3	4	4	3	½	370
TSR2072V/H	22500	20	72	7-½	57	3	4	4	4	4	¾	450
TSR2472V/H	30000	24	72	8-½	55	4	5	5	5	4	¾	730
TSR3072V/H	45000	30	72	10	52	5	6	5	5	5	¾	920
TSR3084V/H	60000	30	84	10	64	5	6	6	6	5	¾	1040

*Specify vertical or horizontal vessel by indicating either "V" or "H" suffix on model number

**Capacities listed are for R-717. For most halocarbon capacities, multiply heat of rejection by 0.3.





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