



- COAXIAL DESIGN FOR OPTIMUM HEAT TRANSFER
- 1/3 H.P. THROUGH 10 H.P. CONSTRUCTION WITH COPPER OUTER TUBE AND RED BRASS INNER TUBE
- 15 H.P. THROUGH 80 H.P. CONSTRUCTION WITH STEEL OUTER TUBE AND STAINLESS STEEL INNER TUBE
- CE and U.L. RECOGNIZED OR LISTED

## SELECTION PROCEDURES

Typically, refrigerant heat exchanger selection is predominantly dependent on nominal system horsepower. The HXR and LHXR models are designed and rated to provide a nominal 50°C liquid subcooling and 68°C suction gas superheat for R-22. At this rating point, the system is operating at 230°F condensing temperature. As an example, select model HXR-250A for a nominal 5 H.P. system.

Caution must be exercised to avoid selecting undersized model. The use of undersized models can cause system operation problems such as gas whistling and high suction side pressure drop. This also may have adverse effect on overall system performance. In some applications, the refrigerant heat exchangers selected are oversized to attain additional liquid subcooling and suction gas superheat. This is an acceptable application as long as the temperature of the return gas to the compressor is less than 150°C to maintain proper compressor performance. The selection of refrigerant heat exchanger can be based on matching of the system suction and liquid line sizes with the connection size of the heat exchanger, for standard low, medium, and high temperature refrigeration systems. Selection based on line size comparison also must have the nominal system horsepower rating closely matched with HXR, LHXR model rating.

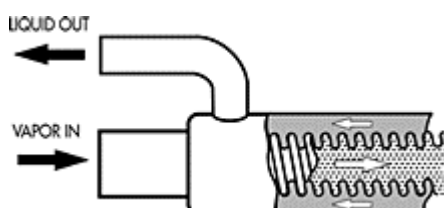
## TURBO HEAT EXCHANGERS

Totaline by Packless Turbo Heat Exchangers are specifically intended for application on refrigeration systems to transfer heat between liquid refrigerant leaving the condenser on the high pressure side of the system and refrigerant vapor leaving the evaporator on the low pressure side of the system.

This heat transfer may be desirable for several reasons:

1. To raise the vapor temperature to prevent frosting or condensation on the suction line.
2. To evaporate any remaining liquid in the vapor stream to prevent possible compressor damage.
3. To subcool the liquid to prevent flash gas in the liquid line.
4. To increase system refrigerating capacity.

Packless utilizes a counterflow "tube-in-tube" design for Turbo Heat Exchangers:



Refrigerant vapor flows through the inner tube in a counterflow direction to the liquid refrigerant flowing in the annulus between the inner and outer tube. This counterflow path provides the greatest temperature difference between the two refrigerant streams to yield optimum heat transfer. To further maximize heat exchanger performance with minimum size, the inner tube is convoluted to impart turbulence to both refrigerant flows while the straight-through design helps maintain low refrigerant pressure drops.

Turbo Heat Exchangers are available to fit refrigeration systems of 1/3 to 80 ton capacities:

- HXR Series - 8 standard sizes for nominal 1/3 to 10 ton systems.
- LHXR Series - 9 standard sizes from 15 to 80 ton systems.

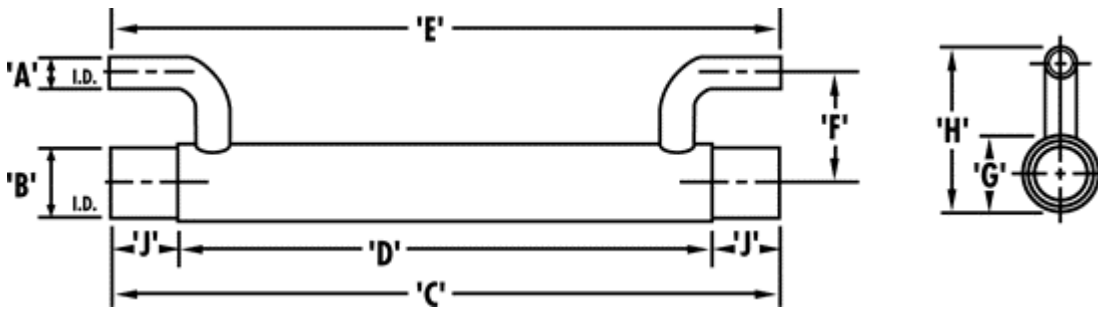
Each unit is furnished with I.D. sweat connections on both the vapor and liquid sides for ease of installation. Standard sizes are recognized or listed by Underwriter's Laboratories, Inc. (U.L.) for use with the following refrigerants:

R12, R22, R23, R125, R134A, R401A, R401B, R402A, R402B, R404A, R407A, R407B, R407C, R408A, R409A, R410A, R410B, R412A, R502, R507, R508, R509

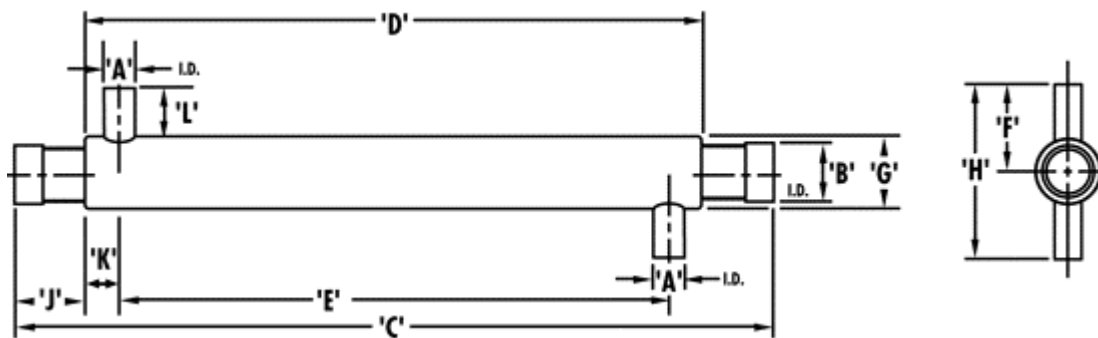
# Totaline Line Heat Exchangers data sheet



**MATERIAL SPECIFICATIONS: Outer Tube - Copper, Inner Tube - Red Brass, Refrigerant Connections - Copper**



NOM. H.P.	MODEL NO.	A	B	C	D	E	F	G	H	I
1/2	<b>HXR-25</b>	1/4	1/2	11-1/2	10	10-1/4	1-3/16	7/8	1-3/4	3/4
1	<b>HXR-50</b>	3/8	5/8	12-3/4	11	13	1-5/8	7/8	2-5/16	7/8
1-1/2	<b>HXR-75</b>	3/8	7/8	13-5/8	11	13	1-3/4	1-1/8	2-9/16	1-5/16
2	<b>HXR-100</b>	3/8	1-1/8	14-1/8	11	12-3/4	1-7/8	1-3/8	2-13/16	1-9/16
3	<b>HXR-150</b>	1/2	1-1/8	14-1/8	11	13-3/4	2	1-3/8	3	1-9/16
5	<b>HXR-250A</b>	5/8	1-3/8	14-1/4	11	14-1/4	2-3/8	1-5/8	3-9/16	1-5/8
7-1/2	<b>HXR-350A</b>	5/8	1-5/8	16-1/4	12	15-1/4	2-3/8	1-5/8	3-9/16	2-1/8
10	<b>HXR-500</b>	7/8	2-1/8	17-1/4	12	13	2-15/16	2-5/8	4-5/8	2-5/8



NOM. H.P.	MODEL NO.	A	B	C	D	E	F	G	H	J	K	L
15	<b>LHXR-15</b>	7/8	2-1/8	29-1/2	24	21-3/8	3-7/16	2-7/8	6-7/8	2-3/4	1-5/16	2
20	<b>LHXR-20</b>	1-1/8	2-1/8	29-1/2	24	21-3/8	3-7/16	2-7/8	6-7/8	2-3/4	1-5/16	2
25	<b>LHXR-25</b>	1-1/8	2-5/8	38	32-1/2	29-3/4	3-3/4	3-1/2	7-1/2	2-3/4	1-3/8	2
30	<b>LHXR-30</b>	1-3/8	2-5/8	38	32-1/2	29-3/4	4	3-1/2	8	2-3/4	1-3/8	2-1/4
35	<b>LHXR-35</b>	1-3/8	2-5/8	40-1/8	34-5/8	31-7/8	4	3-1/2	8	2-3/4	1-3/8	2-1/4
40	<b>LHXR-40</b>	1-3/8	3-1/8	31-3/4	26-1/4	22-3/4	4-3/8	4-1/2	8-3/4	2-3/4	1-3/4	2-1/4
50	<b>LHXR-50</b>	1-5/8	3-1/8	31-3/4	26-1/4	22-3/4	4-5/8	4-1/2	9-1/4	2-3/4	1-3/4	2-1/2
60	<b>LHXR-60</b>	1-5/8	4-1/8	38-5/8	32-5/8	29-1/8	4-3/4	4-1/2	9-1/2	3	1-3/4	2-1/2
80	<b>LHXR-80</b>	2-1/8	4-1/8	40-7/8	34-7/8	31-3/8	5-1/4	4-1/2	10-1/2	3	1-3/4	3

**MATERIAL SPECIFICATIONS: Outer Tube - Steel, Inner Tube -Stainless Steel, Refrigerant Connections - Copper, Paint Color - Black**

NOTES: All Dimensions in inches.

