



WATER HEAT PUMP PACKAGE SPECIFICATIONS

General

The purpose of a water heat pump is to automatically heat or chill tank(s) water to the desired temperature. The heat pump is made-up of two components: the condensing unit and the heat exchanger (Evaporator). The heat pump is primarily mounted outdoors either on the ground outside of the building or located inside in the equipment room next to the tank(s)

The heat pump maintains the water temperature by removing (absorbing in chill mode) heat or releasing heat (heat mode) from the water via heat exchanger and puts the heated / cold into the air via the condensing unit.

Condensing unit.

The chiller is a refrigerant system providing dual stage heating and cooling operation. The unit shall have at least the capability of heating and cooling minimum of Btu/hr. (See specifications sheet) Unit shall have an air-cooled condenser. Unit shall be designed to operate with the tank water temperature down to 40 °F.

The condenser should be able to operate with ambient air temperatures from 115°F to 40°F (Standard) and down to 0°F with low ambient controls.(Optional)

All Trane condensing units are factory assembled and wired. Unit frames are constructed of 14 gauge welded galvanized steel with 14 to 16 gauge galvanized steel panels and access doors. The unit surface is phosphatized and finished with an air-dry paint to withstand 672 hours of continuous salt spray solution in accordance with ASTM B1117. On 2 through 5 ton units a decorative louvered panels provide condenser coil protection (Standard) and for 7.5 and larger ton units hail guards protect the condensers.(Optional)

Compressors

Trane 3-D Scroll compressors have simple mechanical design with only three (3) major moving parts. Scroll type compression provides inherently low vibration. 3-D compressors provide a completely enclosed compression chamber with no leakage paths. The compressor is suction gas cooled, direct drive, 3600 RPM hermetic motors. The Scroll compressor includes a centrifugal oil pump to provide positive lubrication to all moving parts Unit shall have two direct-drive hermetic compressor with centrifugal oil pump, oil level sight glass (some models) , and an oil charging valve (some models). Compressor shall have voltage utilization range of plus or minus 10 percent of nameplate voltage. Crankcase heater, internal temperature and current-sensitive motor overloads shall be included for maximum protection. External high and low pressure cutout devices shall be provided.

Single Circuited, Aluminum Fin Condenser Coils

Condenser coils are single circuit having configured aluminum fins mechanically bonded to copper tubing with an integrated subcooler. The coils are burst tested and leak tested underwater at 450 psig (3120.8 kPa).

Condenser Fans

Condenser fans are direct drive with motors having thermal overland protection and permanently lubricated ball bearings.

Low Ambient Control (Optional)

Low ambient control option extends unit from 40°F to 0°F (4.5°C to -17°C) by utilizing an external damper assembly for head pressure control (25 ton units and larger). Low ambient fan control option. (2 through 5 ton units)

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Heat exchanger (Evaporator)

The package consist of a titanium heat exchanger, copper refrigerant lines, driers, sight glass, TXV's, safety water flow cutout switch and digital controller. All components mounted on 304 stainless steel rack. Pre-wired and ready to install.

Heat exchanger shell

Heat exchanger is constructed of non-toxic, non-corrosive titanium and PVC materials. Unit shall be a titanium tube in PVC shell type. Heat exchanger shell shall be constructed of 8 inch schedule 40 PVC pipe with internal water baffles. The shell must be capable of handling maximum water flow rates (GPM) with a maximum water pressure drop of 5 psig (See specifications sheet). Removable heat exchanger shell must be flanged on one end for ease of cleaning. Flange fasteners shall be 304 stainless steel or better. The shell must be insulated with 1/2 inch Nitrolite™ foam. The shell shall have built-in titanium sensor well and air bleed (12 ton and larger units). Shell water inlet and outlet shall have slip pipe disconnect unions. (See specifications sheet)

Heat exchanger

Heat exchanger shall have titanium tube material ASTM B338 0.750" OD Grade 2 welded tubing with a wall thickness of at least .035". Titanium tubes shall have internal augmentation and orifices to increase performance. (7.5 ton and larger)

Heat exchanger shall be mounted on a 304 stainless steel rack with the heat exchangers mounted horizontal (2 though 10 ton units) or vertically (12 ton and larger units) on the rack.

Heat exchanger can be used for fresh or saltwater applications.

Control and refrigeration components

All Units shall have a electronic controller with a digital display and with a $\pm 1^{\circ}\text{F}$ differential and safety water flow cutout switch.

The complete unit is warrantee against defects in materials, workmanship and on parts and labor for a period of 1 year.

Chiller shall be Aqua Logic Inc. Model No.:

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