

Specification
SHR - TRAHP®
Sensible Heat Recovery Thermosyphon Run Around Heat Pipe

1.0 General

- 1.1 Furnish, install, test and place into service a SHR - TRAHP® Sensible Heat Recovery Thermosyphon Run Around Heat Pipe for air-to-air heat exchanger as shown in the design drawings and schedule to be manufactured by Carolina Heat Pipe. Controllable option available.
- 1.2 The SHR - TRAHP® will transfer heat between the air (outside) entering the duct and the exhaust air duct without any cross contamination using the heat pipe thermosyphon system process of passive vapor mass transfer.
- 1.3 Each SHR - TRAHP® section shall be provided in an insulated and drainable enclosure suitable for incorporation into a ducted air stream.
- 1.4 The SHR TRAHP® shall be capable of operating at temperatures ranging from -80F to 130F.
- 1.5 The SHR - TRAHP® shall be factory installed at Carolina Heat Pipe or field installed by factory certified technicians with CHP supervision.
- 1.6 Carolina Heat Pipe will provide a five-year limited warranty.

2.0 Construction

- 2.1 The SHR - TRAHP® heat transfer surfaces shall be constructed of seamless ½ inch OD, rifled copper tubing permanently expanded into aluminum or copper fins to form a rigid and complete metal to metal contact between the copper tube and the fin collar at all operating conditions. Special corrosion resistant coatings may be applied when so specified.
- 2.2 The SHR -TRAHP® working fluid (R134a) shall conform to Group I of the American National Safety Code for Mechanical Refrigeration unless otherwise specified.
- 2.3 The final circuiting and working fluid charge of the SHR - TRAHP® system will be determined by Carolina Heat Pipe Engineers to meet or exceed the specified performance.
- 2.4 The SHR - TRAHP® shall be controllable as specified to respond to an owner provided control signal.

- 2.5 The SHR - TRAHP® heat transfer surfaces shall have vertical tubes with upper and lower headers to allow a minimum of liquid and vapor connecting lines between the precool and reheat tubes. One control valve shall be provided to control two rows of heat transfer surfaces.
- 2.6 The SHR - TRAHP® shall have modulating valves unless otherwise specified.
- 2.7 Controllability Option: The SHR - TRAHP® shall have the capability of controlling the heat transfer BTUH by varying the refrigerant flow between heat transfer sections. This also makes it possible to frost control during winter operation by turning off or reducing the heat transfer when the outside air temperature is much colder than the exhaust air temperature.

When controllability is required, Carolina Heat Pipe installs modulating Danfoss Stepper valves in the interconnecting line between the heat transfer sections. These stepper valves allow controllability in an infinitely variable manner in the range of "0-100%" using the HS-KVS-001V3 control system which requires a 120-volt power supply and a control input signal from the local BMS. The analog control input signal, provided by others from a local BMS, may be: 0-20 ma, 4-20 ma, 0-5 vdc, or 0-10 vdc.

3.0 **Delivery, Storage and Handling**

- 3.1 The Air Handler drainable coil section equipment for installation of the SHR - TRAHP® coils will be shipped from the Air Handler Manufacturer to the Carolina Heat Pipe production facility at least 4 weeks prior to the date on which the completed system is to be delivered to the job site.
- 3.2 CHP shall inspect the delivered air handler equipment thoroughly and report any damaged or missing components to the original manufacturer. CHP will then store these in a clean dry space until ready for delivery upon completion of work.
- 3.3 The equipment provided with SHR -TRAHP® coils installed will be delivered as requested by the customer.