

Mechanical Specification for SC6 Refrigeration Chassis

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Heat pump refrigeration units (chassis) for replacing ClimateMaster chassis models "816" and "817" used in Climatemaster VHS Series vertical-stacked water-source heat pump cabinets.

1.02 REFERENCES

- A. ETL Listed under Underwriters Laboratories Standard for Safety UL1995 4th Ed.
- B. AHRI / ISO Standard 13256-1.

1.03 DELIVERY, STORAGE AND HANDLING

A. Deliver products to point of use or as requested by customer, store and protect from the weather and debris. The chassis must be individually packaged and be tagged with order number, model number, unit voltage, control voltage, options, and factory test date.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Protect chassis from debris by storing in its shipping package until installation for permanent use. Chassis must not be used for heating, cooling, or ventilation prior to proper installation in the correct cabinet intended for permanent use. Operation of the chassis for the temporary heating, cooling or ventilation is prohibited.

1.05 FACTORY TESTING

A. All chassis shall be factory-tested at normal operating conditions, cataloged water flow rates, and sequenced to verify the proper operation of safety controls. Testing without utilizing cataloged water flow rates is unacceptable.

1.06 SUBMITTAL DOCUMENTATION

A. Standard submittals shall include capacities, dimensions, electrical data, and operating ranges; and the Installation Operation and Maintenance manual.

PART 2 PRODUCT

2.01 TYPE

A. Vertical-stack (Water Source) (Ground Source) heat pump chassis with optional hose kits and other accessories **(ADD SPECIFIC OPTIONS HERE)**. Units shall be (standard range 60°F to 90°F (15.6°C to 32.2°C)) (extended

range 20⁰F to 120⁰F (–6.7⁰C to 48.9⁰C)) entering fluid temperature for (water source) (ground source) heat pump applications.

2.02 CAPACITY AND PERFORMANCE

- A. Shall be as indicated on the cut sheet, based upon testing performed per AHRI/ISO Standard 13256-1 and adjusted for nominal fan power.

2.03 CHASSIS CONSTRUCTION

- A. The refrigeration chassis shall have overall dimensions compatible with the original for ease of installation, and its electrical connectors shall plug directly into the original cabinet.
- B. The refrigeration chassis safety-labeled for the United States and Canada, and operate using an environmentally-friendly HFC refrigerant.
- B. The refrigeration chassis shall be labeled with model and serial numbers, compressor electrical data, order number, unit voltage, control voltage, options, and factory test date.
- C. The refrigeration chassis consisting of the compressor, air coil, water coil, reversing valve, expansion device, filter-drier, and safety controls shall be designed for base-mounting on rails inside the cabinet, and shall be designed for easy removal after disconnecting the two hoses or couplings and polarized electrical power plugs.
- D. The refrigeration circuit shall include access ports on both the low and high pressure sides for ease of service. The tubing shall be clean refrigeration grade soft copper. Access ports shall be provided on the low and high side to allow for diagnostics along with refrigerant recovery and charging. The ports shall include internal valve cores and external caps to prevent leakage.
- E. The chassis shall utilize three independent isolation methods to minimize noise and vibration. The compressor must rest upon engineered isolators utilizing a mounting system designed to maximize vibration dampening. A sound dampening package shall be provided that encases the refrigeration circuit with an enclosure constructed from minimum 18 gauge steel and lined with acoustical insulation. The chassis base must enclose the water coil, and extend beneath the entirety of the chassis with a structure designed for maximized rigidity, and be lined internally with acoustical insulation.
- F. The compressor shall be the sealed hermetic type approved and tested for reversing-cycle (heat pump) operation. Thermal overload protection shall be provided. Compressor motors shall be permanent split capacitor (PSC) type.
- G. The air coils shall be copper tubes mechanically bonded to aluminum fins, multi-circuited to insure maximum refrigerant distribution and effectiveness, and a minimum of three rows deep. The coil shall be rated to withstand 600 psig refrigerant working pressure. **(OPTION 1) Provide tin-dipped tube. (OPTION 2) Provide epoxy coating.**
- H. Condensation from the air coil shall collect in a drain pan constructed of stainless steel, with copper tube for draining into the cabinet drain pan.
- I. The water coils shall incorporate an electro-coated steel outer tube and a copper inner tube. The inner tube shall be spirally fluted and bonded to the

outer tube to insure controlled refrigerant velocity and distribution. The coil shall be rated to withstand 650 psig refrigerant and 400 psig fluid working pressures.

(OPTION) Provide Cupro-nickel COAX coil.

- J. The reversing valve shall be 4-way electric type, pilot operated for quiet reversal.
- K. (OPTION) Automatic flow control valve – An automatic flow control valve shall be provided with each chassis and be factory preset for a fixed flow rate regardless of system pressure. Each automatic balancing valve shall be capable of operation over a pressure differential range of 2 to 80 PSID up to and including 5.00 GPM, and 3 to 80 PSID above 5.00 GPM. Valve cartridge must be easily removable for cleaning and maintenance. Valve body must be suitable for 600 PSIG.
- L. (OPTION) Two-way, two-position (On/Off) standard close-off pressure electric control valve, the valve shall be factory mounted and wired into the refrigeration chassis.
- M. The chassis shall be boxed individually for shipment.

2.04 AIR FILTERS

B. (STANDARD) Filters shall be 1” thick disposable polyester media, MERV 4.

(OPTION 1) Filters shall be 1” thick disposable pleated and reinforced polyester media, MERV 8.

2.05 ELECTRICAL POWER SUPPLY

A. The chassis shall be powered by directly plugging into the original cabinet.

2.06 CONTROLS

- A. The chassis controls shall function in accordance with the original control system in the cabinet. The controls shall be powered by directly plugging into the original cabinet.
 - a. Control type shall be specified by installer to match the original control system in the cabinet.
 - b. Safety components shall be included that protect the chassis from the following conditions:
 - i. High pressure
 - ii. Low pressure/loss of refrigerant charge
 - iii. Air coil frosting
 - iv. Water coil freeze
 - v.



PART 3 EXECUTION

3.01 INSTALLATION

- A. Furnish as shown on the drawings and as specified herein, vertical-stack water-source heat pump chassis with capacity, electrical characteristics, and options as ordered. Units shall be Shorefit HVAC and manufactured Easton, MD, USA.
- B. Install, operate, and maintain in accordance with manufacturer's instructions as outlined in the Installation Operation and Maintenance manual.