

Guide Specifications

STANDARD COMPONENTS

A. CABINET CONSTRUCTION

- 1 Exterior panels shall be 18 gauge metal with 5 lb/ft³ (80 kg/m³) density foam insulation. Insulation complies with UL94-5VA ASTM E84 flame spread and smoke developed rating of 25/50. Front and rear exterior panels shall be 18 gauge perforated steel with 69.5% open free area, and equipped with a keyed lock to provide a means of securing access to the internal components of the unit.
- 2 The frame shall be constructed of 16 gauge formed steel welded for maximum strength. All units shall provide full service from the front and rear, allowing units to be placed within a row of racks.
- 3 All exterior panels and frame shall be powder coated for durability and attractive finish. Exterior frame and panel color shall have color values: L = 74.50, a = -.53, b = +8.20.
- 4 Units shall include casters and leveling feet to allow ease of installation in the row and provide a means to level the equipment with adjacent IT racks.

B. VARIABLE SPEED DIRECT DRIVE MIXED FLOW DC FAN ASSEMBLY

- 1 Fan: Each unit shall include six 200 mm mixed flow direct drive DC axial fans. Three fan assemblies shall be designed to provide 400 CFM (680 m³/hr) each across the evaporator coil for total unit airflow of 1200 CFM (2039 m³/hr). The evaporator fans are designed to provide a draw-through air pattern to the unit and maintain a uniform air flow over the entire face of the coil. Three fan assemblies shall be designed to provide 283 CFM (480 m³/hr) each across the condenser coil for total unit airflow of 850CFM (1440 m³/hr).The condenser fans blow air across the condenser coil to provide heat rejection from the refrigerant system.
- 2 Variable Speed Fans: Fans shall be variable speed capable of modulating from 30-100%. Fans shall soft start to minimize in-rush current when starting.
- 3 Fan Protection: Each fan assembly shall consist of a plastic injection molded bezel with integral fan discharge finger guard. Inlet of the fan should include a cage type finger guard.
- 4 Operation and Service: The unit should be capable of operation in the event of a fan failure. Fans shall be replaceable while the unit is in operation.

C. POWER SUPPLY

- 1 Input Power Feed: Single power input should be a locking NEMA or IEC plug connection suitable for the input power selected. Unit power consumption is not to exceed 2950 watts during normal operation.
- 2 Power Supplies: Dual power supplies are capable of running the unit fans at 80% capacity in the event of a power supply failure. Power supplies shall be hot-swappable

D. MICROPROCESSOR CONTROLLER

- 1 Monitoring and Configuration: The master display shall allow monitoring and configuration of the air conditioning unit through a menu-based control. Functions include status reporting, set-up, and temperature set points. Four LEDs report the operational status of the connected air conditioning unit.

- 2 Controls: The microprocessor controller shall come equipped with control keys to allow the user to navigate between menus, select items, and input alpha numeric information.
- 3 Alarms: The microprocessor controller shall activate a visible and audible alarm in the occurrence of the following events:
 - a. Air Containment Pressure Sensor Fault
 - b. Air Filter Clogged
 - c. Air Filter Run Hours Violation
 - d. Condensate Pan Full Fault
 - e. Condensate Pump Fault
 - f. Condenser Fan #n Fault
 - g. Cooling Failure
 - h. Discharge Pressure Sensor Fault
 - i. Evaporator Fan #n Fault
 - j. External Communication Fault
 - k. Fan Power Supply Left Fault
 - l. Fan Power Supply Right Fault
 - m. Filter Sensor Fault
 - n. High Discharge Pressure Alarm
 - o. Internal Communication Fault
 - p. Lower Return Air Sensor Fault
 - q. Lower Supply Air Sensor Fault
 - r. Low Suction Pressure Alarm
 - s. On Standby: Input Contact Fault
 - t. Persistent High Discharge Pressure Alarm
 - u. Persistent Low Suction Pressure Alarm
 - v. Rack Inlet High Temperature Violation
 - w. Rack Inlet Temperature Sensor Fault
 - x. Return Air High Temperature Violation
 - y. Suction Pressure Sensor Fault
 - z. Suction Temperature Sensor Fault
 - aa. Supply Air High Temperature Violation
 - bb. Upper Return Air Sensor Fault
 - cc. Upper Supply Air Sensor Fault
 - dd. Water Detection Fault
- 4 Logging: The microprocessor controller shall log and display all available events. Each alarm log shall contain time/date stamp as well as operating conditions at the time of occurrence. Controller shall display the run time hours for major components.

E. NETWORK MANAGEMENT CARD

The unit shall include a network management card to provide management through a computer network through TCP/IP. Management through the network should include the ability to change set points as well as view and clear alarms.

F. EVAPORATOR AND CONDENSER COIL

Coil shall use raised lance with rippled edge type aluminum fin and 0.375" OD rifled copper tube coils with 0.012" wall thickness. Coil end supports shall be a minimum 18 gauge galvanized steel.

G. CONDENSATE PAN

- Drain pan shall include a condensate pump and dual floats for control and overflow protection. Condensate pans are V-0 thermal formed, anti-fungal, non-ferrous material for higher indoor air quality.

H. CONDENSATE PUMP

Factory Installed and wired condensate pump shall pump 1.3 gal/h (4.9 liters/hour) at 16 ft (4.9 m) of vertical lift and a 50 ft (15.2 m) horizontal run.

I. FILTERS

Standard Air filter: <20% efficient per ASHRAE 52.1, MERV 1 per ASHRAE 52.2, 1/2" washable mesh filter.

J. REMOTE TEMPERATURE SENSOR

Remote temperature sensor shall ship factory wired to the unit for placement in the field to provide control input based on rack inlet temperature.

K. HOT GAS BYPASS

The unit shall use an electronic stepper valve for hot gas bypass operation. The actuator will have 1596 steps from fully open to fully closed. The discharge gas will be piped to the unit thermostatic expansion valve.

L. DUCTING KIT

Ducting kit with ceiling tile adapter is included with the unit. Duct tubes shall be 10" (254 mm) in diameter and 6' (1.8 m) long and constructed from UL 181 Class 1 material. Ceiling tile adapter shall be suitable for either 24" x 24" or 600mm x 600mm suspended ceiling grids and constructed of powder coated metal.

M. CABLE WATER DETECTOR (OPTIONAL)

- 1 A leak detection sensing cable shall be shipped loose with the unit. If water or other conductive liquids contact the cable anywhere along its length, the main controller visually and audibly annunciates an alarm.
- 2 The detector shall be provided with a 20 ft (6.1 m) of cable. Additional cable may be cascaded up to 80 ft (24.4 m) total length.

N. CABLE SUPPORT BRIDGE TROUGH (OPTIONAL)

Overhead cable distribution bridge shall connect to adjacent racks and allow for removal of the unit without disrupting the. The trough shall be made of 16 gauge metal with powder coat finish. Trough shall be capable of carrying no less than 80 CAT5 cables.