

# Guide Specifications

## Medium/High Static Hydronic Ducted Fan Coils

### HVAC Guide Specifications

Size Range: 3.23 to 22.3 kW, Nominal Cooling

2.73 to 23.0 kW, Nominal Heating

Polar Air Models: PDWH-V/P, PDWH-V/P-ECM

PDWH-VI/PI, PDWH-VI/PI-EC

#### **Part 1 — GENERAL INFORMATION**

##### **1.1 UNIT DESCRIPTION**

Concealed ceiling mounted, chilled or chilled and hot water coil, suitable for installation with medium/high static duct. Appropriate for connection to air-to-water or water-to-water heat pumps, boilers, and chillers.

##### **1.2 QUALITY ASSURANCE**

Unit shall be certified by Eurovent. Each coil shall be factory tested for leakage by water pressure test at 3.5 MPa for 3 minutes. Completed unit shall be air tested for leakage at 0.8 MPa for 3 minutes. The maximum working pressure is 2.0 MPa. Fan coils shall meet compliance requirements of ISO9001, and CE. All claims of capacity and sound performance shall be verified by an internationally recognized third-party testing agency.

##### **1.3 DELIVERY, STORAGE, AND HANDLING**

Unit shall be stored and handled per manufacturer's instructions.

#### **Part 2 — PRODUCTS EQUIPMENT AND CONFIGURATION**

##### **A: General**

Indoor, concealed ceiling mounted, horizontal, 2 or 4 pipe console fan coil unit complete with cooling coil or cooling and heating coils. Unit shall include AC or EC fan motor with on-off 3 speeds or modulating speed, single point primary electrical power connection (unless provided with optional electric heater), integral controller, heating, cooling, and entering coil air temperature sensors, transformer, capable of operating and capable of accommodating integrated, factory installed condensate pump. Control methods shall be available for AC and EC units. Infra-red receiver display for remote control, valves, and electric heater shall be available as optional items.

##### **B: Unit Casing**

Casing shall be constructed of electrostatic coating steel panels (RAL9010) with couplings for ducting and resistant to rust, corrosion, chemical agents, solvents, aliphatic compounds and alcohols. The casing shall be provided with thermal and acoustical internal insulation and mounting holes.

##### **C: Drain Pan**

Condensate drain pan shall provide ¾" male threaded outlet for drain pipe connection and be constructed of electrostatic coating steel. Stainless steel pan shall be available as an option.

##### **D: Coil**

1. Standard unit shall be equipped with a cooling coil for installation in a 2-pipe system.
2. Additional coil shall be provided for installation in a 4-pipe system.
3. Cooling coils shall be 3 rows selected to meet project requirements.
4. Heating coils shall be 1 row, independently circuited specifically designed for hot water application.
5. Coils shall be TP2 seamless copper tubes 10mm outside diameter, mechanically expanded into corrugated hydrophilic coating aluminum fins for a permanent primary to secondary surface bond. Fin spacing shall be 12.7 fins per inch. Coil connectors shall be ¾" female thread.
6. Each coil shall be provided with factory installed manual air vent and water purge valve.

##### **E: Insulation**

5mm thick NBR plastic foam.

##### **F: Motors**

1. AC motor shall be PSC, permanently lubricated type with internal thermal overload protection.
2. High efficiency EC motors shall be enclosed with thermal overload protection and sealed, permanently lubricated bearings. Motors shall be controlled via a factory installed electronic controller. Motors shall be constant torque, permanent magnet, brushless DC motor (EC motor only) with 3 speed or variable speed modulation functionality.
3. Fan motor shall be IP40 Class B.

### **G: Fan Section**

The fan section shall include 1 galvanized steel centrifugal fan consisting of forward curved, double air inlet blades directly attached to the motor. Fans shall be statically and dynamically balanced.

### **H: Control Options**

1. FULL CONTROL OPTION (I/S Type): Microprocessor controller shall control fan motor, water valves (ON/OFF or modulating, drain pump (optional), and electric heater (optional). Controller shall be capable of changing temperature settings, fan speed and other control functions using either infrared wireless handset or programmable wired wall mounted controller. Controller shall provide coil freeze and over heat protection using factory installed sensors, occupancy or economy mode contacts, auto restart, and error diagnostics. Controls shall include a coil sensor(s) and a room sensor to allow fans to operate when coil is chilled (during cooling mode) and heated (during heating mode). It allows BMS control, Master-Slave control, VWV and VAV control.
2. FLEXIBLE CONTROL OPTION (W Type): Microprocessor controller shall be suitable to use with a standalone thermostat or 0-10 VDC signal from external source. Controller shall provide simplified error diagnostics, optional drain pump and electric heater control. Controller shall include a coil sensor(s).
3. TERMINAL STRIP ONLY (T Type): To be used with an external thermostat. Available for AC Motor only.

### **I: Condensate Pump and Float Switch (Optional)**

Fan coil units shall be available with factory-installed condensate pumps and float switches controlled by onboard controllers.

### **J: Filters**

Nylon Filters shall be 8mm thick. 8mm G4 3M HAF shall be offered as an option.

### **K: Electrical Requirements**

Unit shall be available for 220~240V/1ph/50~60Hz power supply.

### **L: Electric Heat (Optional)**

PTC type stainless steel electric heaters shall be provided with two thermal protection switches, one manual fuse

type and one automatic reset type. Heaters shall be suitable for factory or field installation and controlled via onboard controller.

### **M: Safety Ratings and Performance Verification**

Fan Coil Unit shall be Eurovent certified. Performance shall be confirmed by accepted third party (Eurovent for performance and sound).

### **N: Wall Mounted Wired Pad**

A wired wall pad for communication shall be available as an optional accessory for the 'I' controller.

### **O: Infrared Remote Handset**

An infrared handset for remote communication shall be available as an optional accessory for the 'I' controller. (A LED receiver must be installed for single communication.)

### **P: Thermostat**

A thermostat shall be available as an optional accessory for the "W" controller (EC motor) or "T" terminal strip (AC motor).

## **Part 3 – MAINTENANCE**

Maintenance access shall be done by removal of cabinet for all unit components.

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