POLAR Global HVAC SYSTEMS

SIWA POLAR AIR

Guide Specifications

Double Skin Medium Static Ducted Fan Coils

HVAC Guide Specifications

Size Range: 1.68 to 26.29 kW, Nominal Cooling

1.84 to 34.39 kW, Nominal Heating

Polar Air Models:

PDWD-V/P-I-EC, PDWD-V/P-EC

Part 1 — GENERAL INFORMATION

1.1 UNIT DESCRIPTION

Concealed ceiling mounted, chilled or chilled and hot water coil, suitable for installation with duct. The unit casing is double skin (sandwich panel filled with PU foam insulation between two walls). Appropriate for connection to air-to-water or water-to-water heat pumps, boilers, and chillers.

1.2 QUALITY ASSURANCE

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 MPa. Fan coils shall meet compliance requirements of ISO9001, and CE.

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 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 EC units. Infra-red receiver display for remote control, valves, and electric heater shall be available as optional items.

B: Unit Casing

Outer casing shall be constructed of galvanized steel panels with powder finish. Inner casing shall be constructed of galvanized steel panels. Casing shall be double skin with inner high pressure PU foam insulation, 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" outlet for drain pipe connection and be constructed of coated 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, 4 or 6 rows selected to meet project requirements.
4. Heating coils shall be 1 or 2 rows, independently circuited specifically designed for hot water application.
5. Coils shall be TP2 seamless copper tubes 10 mm 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 3/4" female thread for sizes 400-1600 and 1" female thread for size 2000.
6. Each coil shall be provided with factory installed manual air vent and water purge valve.

E: Insulation

15 mm thick NBR plastic foam for coil top panel. 5 mm thick NBR plastic foam for drain pan.

F: Motors

1. 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.
2. Fan motor shall be IP40 Class B.

G: Fan Section

The fan section shall include 1/2/4 galvanized steel centrifugal fans consisting of forward curved, double air inlet blades directly attached to the EC 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 valve for EC, ON/OFF valve only for AC) 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 full function pendant controller with serial networking for addressable or global primary to secondary unit control. 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).
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 and electric heater control. Controller shall include a coil sensor(s).

I: Filters

Nylon Filters shall be 25mm thick. 25 mm G4 shall be offered as an option.

J: Electrical Requirements

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

K: Electric Heat Module (Optional)

Removable module included PTC type stainless steel electric heaters shall be provided with thermal protection switches. Heater Modules shall be suitable for factory or field installation and controlled via onboard controller.

L: Safety Ratings and Performance Verification

Fan Coil Unit shall be CE certified.

M: Wall Mounted Wired Pad

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

N: Infrared Remote Handset

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

O: Thermostat

A thermostat shall be available as an optional accessory for the "W" controller (EC motor).

Part 3 – MAINTENANCE

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

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