

HYGIENIC AIR HANDLING UNITS

Typical Ultra CPA Specifications



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Unit Construction

Casing

The exterior casing shall be constructed of 18 gauge, G235 galvanized steel, unpainted. The unit shall be single wall, un-insulated. The floor will be a 16 gauge G-235 flat galvanized steel floor.

If the unit is supplied with a cooling coil, this section and downstream shall be of a double wall construction with a 16-gauge G235 galvanized steel inner liner complete with drain pan and a 18 gauge, G235 unpainted exterior casing. The double wall section shall be insulated with 2" Polyisocyanurate. Drain pans are foamed in place (minimum of 3").

- Optional: Double wall fully insulated casing (2" Polyisocyanurate)
- Optional: Stainless steel exterior or interior
- Optional: 1.5" duct flanges (Can be mechanically fastened to fully welded)

Roof

The exterior of the roof shall be a minimum of 18 gauge, G235 galvanized steel or match the casing.

Base

The unit frame shall be a minimum of 10 gauge, G235 galvanized steel, fully welded.

- Optional: Stainless steel

Access Doors

The access doors shall be provided with 20 gauge material that matches the casing (stainless steel or galvanized steel). Door frames will be pre-hung extruded aluminum. Door handles to be polycarbonate and hinges will be stainless steel. All exterior doors will have a thermal break.

- Optional: Exterior doors will have test ports
- Optional: Exterior doors will have windows

Outside Air Dampers

The dampers shall be opposed blade, with nylon bearings. The construction shall be a minimum 16 gauge, G90 galvanized steel blades with a 12 gauge galvanized steel casing.

- Optional: Stainless steel to match casing

Blowers

The blowers shall consist of a centrifugal plenum type blower.

The blower wheel shall be supported by two outboard bearings, self-aligning, ball bearing, pillow-block and shall be designed for a minimum of L10, 80,000 hours average life.

The blower shaft shall be ground and polished and shall be coated with a rust inhibitor. The overload service factor used for V-belt drive selection shall be not less than 1.25. The V-belt drive shall be of a standard capacity and furnished with reinforced rubber belts.

- Optional: L10, 200,000 hours
- Optional: The blower wheel shall be complete with a blower cage
- Optional: The drive shall be complete with a belt guard
- Optional: Direct drive blower with VFD.

Motors

The motors shall be standard TEFC, premium efficiency, VFD ready duty. Motors have sealed bearings. If VFD is provided, motors will include grounding ring.

- Optional: Motor removal system with I-Beam and trolley

Heating Options

Steam Coils

The steam coil shall be constructed with stainless steel tubes and aluminum fins.

The coil shall be designed for a maximum operating pressure of 150 psi.

The coil shall be designed for a maximum face velocity of 800 feet per minute.

Optional: Face & bypass dampers for freeze protection

Optional: Copper tube / Copper fin coils

Hot Water or Glycol Heating Coils

The coil shall be constructed with stainless tubes and aluminum fins. Coil shall meet strength requirements of ASME/ANSI B31.5. Coils will have a design working pressure of 300 PSI. The coil shall be designed for a maximum face velocity of 800 feet per minute.

Optional: CRN certification for units going to Canada

Hot Gas Heating Coil

The unit frame shall be a minimum of 10 gauge, G235 galvanized steel, fully welded.

Optional: Stainless steel

Direct Fired Heating Section: When applicable

The unit shall be designed with a direct-fired heating section. The direct-fired burner shall have a cast iron header with stainless steel baffle plates.

The burner shall be designed for 2-5 PSI natural gas pressure. The controls shall be modulating and be designed in accordance with Factory Mutual (FM) insurance guidelines. The gas train shall be complete with all safety devices and controls.

Optional: Burner bypass damper for lower turndown on CFM.

Cooling Options

Recirculating/ Direct Expansion/ Flooded Cooling Coils

The coil shall be designed for refrigerant required for the application. Recirculating ammonia (1.2:1 to 1.3:1 feed rate), flooded ammonia, DX refrigerant coils (NH₃, CO₂, Freon) and recirculated CO₂.

The coil shall be constructed using stainless steel tubes and aluminum fins. Coil shall meet strength requirements of ASME/ANSI B31.5. Coils will have design working pressure of 300 PSI (650 PSI for recirc CO₂ or 1160 PSI for DX CO₂). All coils shall be charged with nitrogen prior to shipment.

The coil shall be designed for a maximum face velocity of 600 feet per minute.

Optional: CRN certification for units going to Canada

Chilled Water or Glycol Cooling Coils

The coil shall be constructed with stainless steel tubes and aluminum fins. Coil shall meet strength requirements of ASME/ANSI B31.5. Coils will have design working pressure of 300 PSI. All coils shall be charged with nitrogen prior to shipment.

The coil shall be designed for a maximum face velocity of 600 feet per minute.

Coil drain and vent connections shall be in the field piping, by others.

Optional: CRN certification for units going to Canada

Filtration

Prefilters

Prefilters shall be MERV 8 or higher, pleated filters, with synthetic media. The filters are designed for upstream service. The unit shall be supplied with one initial set of filters. The prefilters shall be held in individual stainless-steel Sani-clean filter frames with "P" type filter clip. Filters to have a max velocity of 625 FPM.

Optional: Aluminum or stainless-steel washable filters

Optional: Extra set of filters

Optional: Filter gauge – Dial indicating manometer or Dwyer 605 filter gauge with PLC communication

Final Filters

The final filters shall be a MERV 14 or higher, microfine glass wet laid paper with aluminum separators. The filters shall be of a cartridge filter. The filters are designed for upstream service. The unit shall be supplied with one initial set of filters. The filters shall be held in individual stainless-steel Sani-clean filter frames with "P" type filter clip. Filters to have a max velocity of 625 FPM. Filters will include a dial indicating manometer.

Optional: MERV 17 HEPA filters (Requires 500 FPM or less). The filter frame will match interior casing construction

Optional: Extra set of filters

Optional: Dwyer 605 filter gauge with PLC communication

Accessories

Outside Air Inlet Hood

The unit includes an outside air inlet hood constructed of G235 galvanized steel. The hood shall be complete with a bird screen. The hood shall be shipped separate from the unit. Typical hood velocities are 700 FPM or less but can be adjusted to the environment.

Optional: Insect screen

Electric Controls

Each unit shall be supplied with a PLC control system:

- All control panels shall be UL labeled
- Allen Bradley Compact Logix PLC control system
- Allen Bradley PanelView standard with a display on the main unit panel
- Main control panel, painted steel, NEMA 4, control transformer and terminal blocks
- Non-fused disconnect switches mounted in the control panel
- Siemens fused disconnect with class J fuses for arc-flash protection
- Outside air damper controls for systems with 100% makeup air
- Temperature sensors
- Humidity sensors
- Magnetic motor starters mounted in the control panel
- Natural gas heating controls

Optional: Allen Bradley Compact 5380 Series

Optional: Panel View standard with a larger display on the main panel

Optional: Dual control panel for voltage segregation

Optional: Stainless steel control panels

Optional: VFD drives for main blower

Optional: Remote control panels which can include:

- Blower on/off switch
- Blower indicating light
- Burner indicator light
- Dirty filter light
- Panel View

Optional: Discharge air ammonia detector

Optional: Smoke detectors

Optional: Interior service lights (120V service by others)

Optional: Service receptacles (120V service by others)

Optional: Room pressurization control (requires VFD on main blower)

Optional: Exhaust motor starters or VFD's.

Other Options

The following are some of the many options, which are available for the EDF units:

- Service platforms with handrail all around (60" wide for control panel access- ladder or stairs provided by others)
- Surge drum ladder/catwalk systems
- RVS, ASME surge drums mounted on top of the unit (bare vessel, all valves and piping by others)
- Motor removal system – includes manual trolley
- Shrink wrap unit for shipping
- UVC lights mounted on cooling coil

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