

CATALOG

HL Fan-Coil Units Low-Profile, Horizontal Series C



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NOTES:

- A web-based Computer Selection Program, “Web-Select”, is available to facilitate the selection process. Contact your representative to obtain access to this powerful and time-saving program.
- Some drawings are not shown in this catalog.
- All data herein is subject to change without notice.
- Drawings not for installation purposes; refer to IOM manual.
- ETL Report Number 539840.

FEATURES AND BENEFITS

HIGH PERFORMANCE

ENVIRO-TEC® HL Series horizontal low profile fan coil units are designed to maximize flexibility of selection and installation.

The units are also designed to exceed the stringent quality standards of the institutional market, while remaining cost competitive in the light commercial segment of the market.

ENVIRO-TEC® horizontal fan coil units set the new standards for quality, flexibility, and competitive pricing.

DESIGN FLEXIBILITY

The extensive variety of standard options available on the HL Series units are where you find the versatility to fit any HVAC system designer's needs.

Options include: rear or bottom ducted return, foil faced or elastomeric closed cell foam insulation, solid or telescoping bottom panels for unit recessing, single wall stainless steel drain pans, electric heat with single point power connection. All electric heat units are listed with ETL as an assembly and carry the cETL label.

All units comply with the latest edition of AHRI Standard 440 for testing and rating fan coil units, are certified, and display the AHRI symbol.

High Efficiency motors, fan relays, disconnects and fusing mean easier coordination between mechanical and electrical trades.

Coil options allow for three or four row chilled water or DX cooling coils. One or two row hot water or standard steam coils may be placed in the preheat or reheat position.

Silent solid state relays are available for fan and electric heat control in sound sensitive environments.

CONVENIENT INSTALLATION

All HL Series fan coil units are shipped completely assembled, reducing field installation time and labor. All units are thoroughly inspected and tested prior to shipment, eliminating potential problems at startup. Motor wiring is brought to a junction box on the outside of the unit casing, reducing electrical hook-up time.

Plenum units are field reversible for either rear or bottom return without special adapters, tools or additional parts.

All HL Series fan coil units have the option of a hinged cover electrical enclosure in the bottom of the unit. The expansive compartment allows for easy access to all electrical components, terminal blocks and wiring.

Factory furnished valve packages assure proper fit, operation and performance.

For fast track jobs, the HL Series fan coil is available on Quick Ship with 5, 10 or 15 day lead times.

QUALITY PRODUCT

Concealed Model HL Series fan coil units are built from galvanized steel. Exposed Model HLE cabinetry is powder coated galvanized steel.

Standard insulation is 1/2 inch thick fiberglass, complying with UL 181 and NFPA 90A. Optional foil faced or elastomeric closed cell foam insulation may be specified.

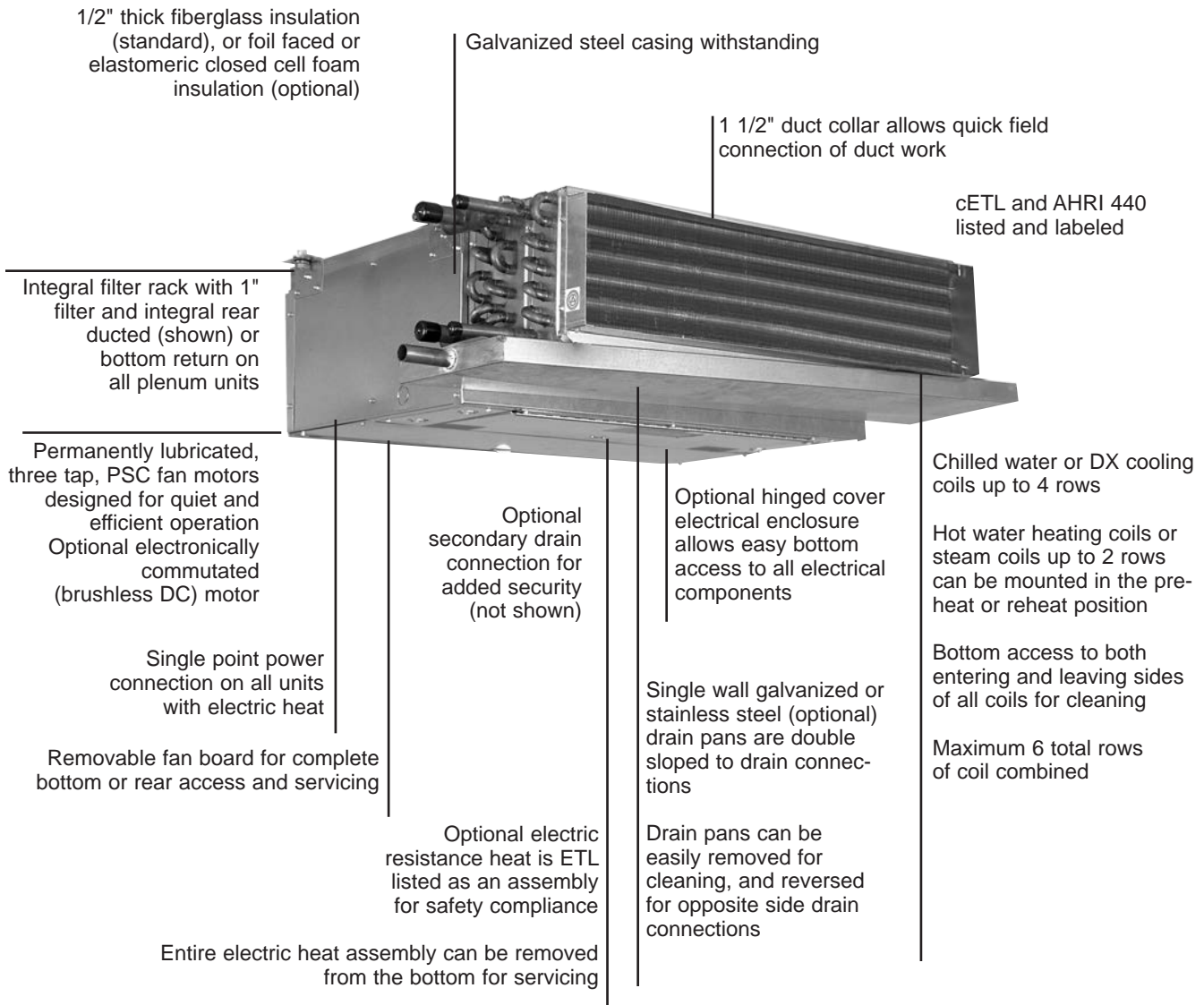
All units, with or without electric heat, are cETL listed and labeled. All wiring is in compliance with NEC, assuring safety and quality for the owner.

HL Series fan coil units have a removable fan assembly. The entire fan assembly can be removed from the unit and serviced easily on a workbench.

CONSTRUCTION FEATURES

MODEL HLP

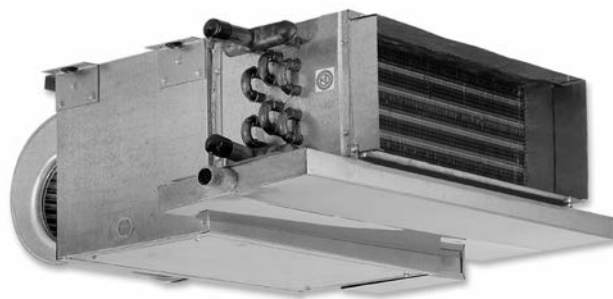
HL Series fan coils have many standard and optional features which are unique to the industry (see page 6 for a complete listing).



MODEL HLE
Horizontal Exposed Cabinet



MODEL HLF
Horizontal Free Return



MODELS HLF/HLP/HLE



ELECTRICAL ENCLOSURE

The bottom hinged electrical enclosure provides access to a spacious electrical compartment. This compartment houses all electric heat and control components. Terminal strips are furnished for simple power and control wiring connections. Multiple knockouts allow wiring entries from either side of the compartment.

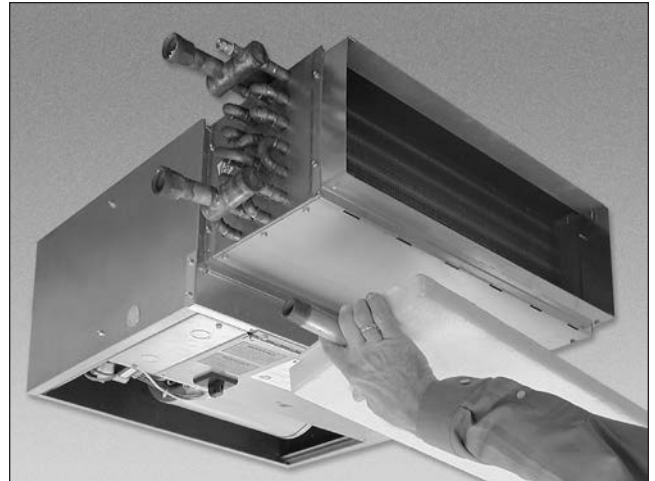


FILTERS

One inch throwaway filters are tight fitting to prevent air bypass. Filters are easily removable from the bottom through the access panel or plenum.

COILS

All fan coils are available in 2 or 4 pipe configurations. The heating coil may be placed in the reheat or preheat position. On concealed models, heating and cooling coils are available with right, left or opposite side connections.



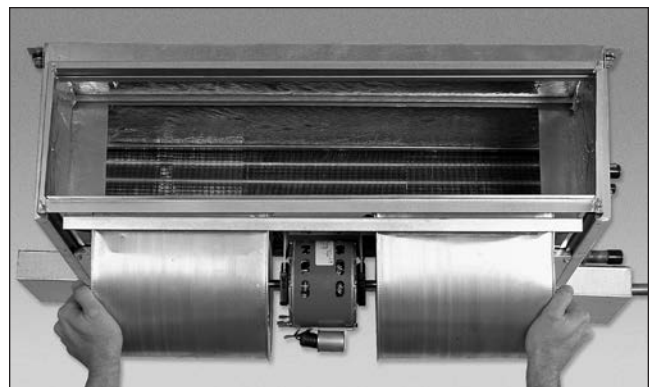
DRAIN PAN

Standard drain pans are externally insulated, single wall galvanized steel with an option for stainless steel. Drain pans are available with secondary drain connection. On concealed models, the HL Series drain pan is easily removable for cleaning or reversing connections.



TELESCOPING BOTTOM PANEL

The telescoping bottom panel allows for fully recessing the unit while permitting service access into the ceiling plenum. The architectural ceiling panel is finished with a durable powder coat paint.



FAN DECK

The fan assembly is easily removed without disconnecting the ductwork for service access to motors and blowers at, or away from the unit.

STANDARD AND OPTIONAL FEATURES

STANDARD FEATURES

Construction

All Units

- AHRI 440 certified and labeled
- Galvanized steel construction
- 1/2" thick fiberglass insulation
- 1 1/2" duct discharge collar
- Four point hanger mounting brackets (hanger rod holes provided on exposed units)

Plenum units

- Integral filter rack with 1" throwaway filter
- Integral rear ducted return - field reversible to bottom return

Exposed units

- Stamped louver supply and return air grilles
- Durable powder coat paint
- 18 gauge bottom panel construction

Coils

- Cooling - 3 or 4 row chilled water or DX, heat pump compatible
- Heating - 1 or 2 row hot water or steam – reheat or preheat position
- 6 total rows of cooling and heating coils maximum
- High efficiency aluminum fin surface for optimizing heat transfer, pressure drop and carryover
- Left or right hand, same or opposite side connections
- Access to entering and leaving air sides for cleaning
- Removable for service
- Manual air vents

Drain Pans

- Single wall, galvanized steel, externally insulated – fire retardant and antimicrobial
- Double sloped to drain connection
- Removable, field reversible
- 7/8" O.D. primary drain connection

Fan Assemblies

- Forwardly curved, DWDI centrifugal type
- 115 volt, single phase, three tap PSC motors
- Quick disconnect motor connections
- Removable fan/motor deck for service

Verification of Equipment Efficiencies

- Fan coil units that are not certified to AHRI-440 shall furnish ratings that are verified by an independent laboratory test report (per ASHRAE 90.1)

Electrical

- cETL listed for safety compliance
- Electrical junction box for field wiring terminations
- Unit rated for 5kAIC short circuit current rating (SCCR)

Electric Heat

- ETL listed as an assembly for safety compliance
- Integral electric heat assembly with removable elements for easy service
- Automatic reset primary and back-up secondary thermal limits
- Single point power connection
- Bottom hinged electrical enclosure

OPTIONAL FEATURES

Construction

All units

- Foil faced fiberglass insulation
- Elastomeric closed cell foam insulation

Plenum units

- Bottom return
- 1" pleated filters (MERV 6)
- Spare 1" throwaway filters
- Telescoping Bottom Panels

Exposed units

- 1" pleated filters (MERV 6)
- Double deflection discharge grille
- Ducted supply and/or return

Coils

- Automatic air vents
- Stainless steel coil casings

Drain Pans

- Stainless steel construction with external insulation
- 5/8" O.D. secondary drain connection
- Auxiliary drip pans, galvanized or stainless steel

Fan Assemblies

- 208-230, 220 & 277 volt, single phase, three tap PSC motors

Electrical

- Electronically commutated motor
- Bottom hinged cover electrical enclosure
- SCR fan speed controller (high speed only)
- Fan relay packages
- Silent solid state fan relays

-
- Toggle disconnect switch
 - Condensate overflow switch (drain pan)
 - Main fusing
 - Unit and remote mounted 3-speed fan switches (unit mounted three speed switch is mounted within the control enclosure)

Electric Heat

- Manual reset secondary thermal limits
- Door interlocking disconnect switches
- Main fusing
- Silent relay/contactors

Piping Packages

- Factory assembled – shipped loose for field installation

- 1/2" and 3/4", 2 way and 3 way normally closed, two position electric motorized valves
- Isolation ball valves with memory stop
- Fixed and adjustable flow control devices
- Unions and P/T ports
- Floating point modulating control valves
- High pressure close-off actuators (1/2" = 50 PSIG; 3/4" = 25 PSIG)

Thermostats

- Remote mounted analog, digital display or programmable
- 2 and 4 pipe control sequences
- Automatic and manual changeover
- Integral three speed fan switches

COILS, PHYSICAL DATA

COILS

ENVIRO-TEC® offers hot water, chilled water, direct expansion (DX), and standard steam coils for specific application with all HL Series Fan Coil Units. Strict on-site inspection before, during, and after installation guarantees the highest quality and performance available.

STANDARD FEATURES

- Cooling - 3 or 4 row chilled water or DX
- Heating - 1 or 2 row hot water or steam
- 6 total rows of cooling and heating coils maximum
- High efficiency aluminum fin surface for optimizing heat transfer, pressure drop and carryover
- Left or right hand, same or opposite side connections
- Manual air vents

OPTIONAL FEATURES

- Automatic air vents
- Stainless steel coil casings
- DX coils are heat pump compatible

ENVIRO-TEC® offers Web-Select™, the industry's first web-based fan coil rating and selection program for complete unit, coil and sound selection. See your representative for more information.

| UNIT SIZE | COIL FACE AREA | MODEL HLE | | | | MODEL HLP | |
|-----------|----------------|-----------------------------|-----------------------------|------------------|---|------------------|---|
| | | RETURN AIR GRILLE FREE AREA | SUPPLY AIR GRILLE FREE AREA | FILTER FACE AREA | NOMINAL FILTER SIZES | FILTER FACE AREA | NOMINAL FILTER SIZES |
| 20 | 1.11 [0.1] | 0.47 [.04] | 0.40 [.04] | 1.77 [.16] | 30 x 8.5 x 1 [762 x 216 x 25] | 1.18 [.11] | 20 x 8.5 x 1 [508 x 216 x 25] |
| 25 | 1.44 [0.13] | 0.58 [.05] | 0.50 [.05] | 2.36 [.22] | (2) 20 x 8.5 x 1 [508 x 216 x 25] | 1.54 [.14] | 26 x 8.5 x 1 [660 x 216 x 25] |
| 30 | 1.67 [0.15] | 0.68 [.06] | 0.56 [.05] | 2.36 [.22] | (2) 20 x 8.5 x 1 [508 x 216 x 25] | 1.77 [.16] | 30 x 8.5 x 1 [762 x 216 x 25] |
| 40 | 2.22 [0.21] | 0.81 [.08] | 0.80 [.07] | 2.95 [.27] | (1) 20, (1) 30 x 8.5 x 1 [508, 762 x 216 x 25] | 2.36 [.22] | (2) 20 x 8.5 x 1 [508 x 216 x 25] |
| 50 | 2.78 [0.26] | 1.01 [.09] | 0.96 [.09] | 3.54 [.33] | (2) 30 x 8.5 x 1 [762 x 216 x 25] | 2.95 [.27] | (1) 20, (1) 30 x 8.5 x 1 [508, 762 x 216 x 25] |
| 60 | 3.33 [0.31] | 1.15 [.11] | 1.20 [.11] | 4.13 [.38] | (2) 20, (1) 30 x 8.5 x 1 [508, 762 x 216 x 25] | 3.54 [.33] | (2) 30 x 8.5 x 1 [762 x 216 x 25] |

NOTES:

1. Face and free areas are in square feet [square meters].
2. Filter sizes are in inches [millimeters].
3. Return Air Grille Free Area applies to HLE and Telescoping Bottom Panel return grilles.
4. Supply Air Grille Free Area applies to HLE supply grille and minimum free area allowable for a supply grille supplied by others.

PHYSICAL DATA

AHRI STANDARD RATINGS

| MODEL / SIZE | COIL | | AIRFLOW CFM (Dry Flow) | COOLING CAPACITY | | WATER | | POWER INPUT (WATTS) |
|--------------|------|-----|------------------------------|------------------|--------------|--------------------|--------------|---------------------------|
| | Rows | FPI | | QT (BTUH) | QS (BTUH) | Flow Rate (GPM) | WPD ft-wg | |
| HLF 20 | 3 | 10 | 330 | 10060 | 7380 | 2.0 | 5.8 | 57 |
| HLF 25 | 3 | 10 | 448 | 14580 | 10410 | 2.9 | 11.4 | 125 |
| HLF 30 | 3 | 10 | 772 | 16263 | 14173 | 3.9 | 7.2 | 165 |
| HLF 40 | 3 | 10 | 793 | 19374 | 16088 | 4.6 | 11.2 | 261 |
| HLF 50 | 3 | 10 | 1196 | 31640 | 23930 | 6.4 | 10.6 | 472 |
| HLF 60 | 3 | 10 | 1443 | 35570 | 27740 | 7.0 | 5.0 | 522 |
| HLF 20 | 4 | 10 | 309 | 12970 | 8870 | 2.6 | 11.1 | 57 |
| HLF 25 | 4 | 10 | 432 | 16360 | 11550 | 3.3 | 6.4 | 125 |
| HLF 30 | 4 | 10 | 712 | 20124 | 16559 | 4.8 | 12.0 | 165 |
| HLF 40 | 4 | 10 | 775 | 24169 | 19350 | 5.8 | 9.9 | 261 |
| HLF 50 | 4 | 10 | 1157 | 38130 | 28040 | 7.5 | 9.6 | 472 |
| HLF 60 | 4 | 10 | 1353 | 43970 | 32830 | 8.7 | 4.5 | 522 |
| HLP 20 | 3 | 10 | 265 | 8470 | 6160 | 1.7 | 4.3 | 57 |
| HLP 25 | 3 | 10 | 415 | 13810 | 9810 | 2.8 | 10.8 | 125 |
| HLP 30 | 3 | 10 | 621 | 14136 | 12089 | 3.4 | 5.7 | 165 |
| HLP 40 | 3 | 10 | 768 | 18948 | 15701 | 4.5 | 10.7 | 261 |
| HLP 50 | 3 | 10 | 1069 | 29480 | 22060 | 5.9 | 9.0 | 472 |
| HLP 60 | 3 | 10 | 1325 | 34010 | 26230 | 6.8 | 4.7 | 522 |
| HLP 20 | 4 | 10 | 253 | 10980 | 7450 | 2.2 | 8.7 | 57 |
| HLP 25 | 4 | 10 | 404 | 15630 | 10970 | 3.1 | 6.0 | 125 |
| HLP 30 | 4 | 10 | 604 | 18240 | 14711 | 4.4 | 10.2 | 165 |
| HLP 40 | 4 | 10 | 744 | 23627 | 18813 | 5.7 | 9.7 | 261 |
| HLP 50 | 4 | 10 | 1022 | 35510 | 25680 | 7.1 | 8.8 | 472 |
| HLP 60 | 4 | 10 | 1258 | 41980 | 31070 | 8.4 | 4.1 | 522 |
| HLE 20 | 3 | 10 | 265 | 8470 | 6160 | 1.7 | 4.3 | 57 |
| HLE 25 | 3 | 10 | 415 | 13810 | 9810 | 2.8 | 10.8 | 125 |
| HLE 30 | 3 | 10 | 621 | 14136 | 12089 | 3.4 | 5.7 | 165 |
| HLE 40 | 3 | 10 | 768 | 18948 | 15701 | 4.5 | 10.7 | 261 |
| HLE 50 | 3 | 10 | 1069 | 29480 | 22060 | 4.7 | 4.4 | 472 |
| HLE 60 | 3 | 10 | 1325 | 34010 | 26230 | 9.0 | 3.4 | 522 |
| HLE 20 | 4 | 10 | 253 | 10980 | 7450 | 2.2 | 8.7 | 57 |
| HLE 25 | 4 | 10 | 404 | 15630 | 10970 | 3.1 | 6.0 | 125 |
| HLE 30 | 4 | 10 | 604 | 18239 | 14710 | 4.4 | 10.2 | 165 |
| HLE 40 | 4 | 10 | 744 | 23627 | 18812 | 5.7 | 9.7 | 261 |
| HLE 50 | 4 | 10 | 1022 | 35510 | 25680 | 7.1 | 4.2 | 472 |
| HLE 60 | 4 | 10 | 1258 | 41980 | 31070 | 8.4 | 3.1 | 522 |

NOTE: Based on 80°F DB and 67°F WB EAT, 45°F EWT, 10°F temperature rise, high fan speed. Motor type is PSC and motor voltage is 115/1/60. Airflow under dry coil conditions. Models HLE tested at 0.0" external static pressure. Models HLF and HLP tested at 0.05" external static pressure.

PHYSICAL DATA

HEATING CAPACITY

| UNIT TYPE | UNIT SIZE | NOMINAL CFM | 1 ROW | | | 2 ROW | | |
|------------|-----------|-------------|----------|-----|-----|----------|-----|-----|
| | | | QS (MBH) | GPM | WPD | QS (MBH) | GPM | WPD |
| HLP HLF | 20 | 250 | 8.6 | 0.4 | 0.2 | 15.7 | 0.8 | 0.9 |
| | 25 | 400 | 15.0 | 0.6 | 0.6 | 21.0 | 1.1 | 3.1 |
| | 30 | 500 | 16.1 | 0.8 | 0.6 | 29.2 | 1.5 | 3.2 |
| | 40 | 750 | 23.6 | 1.2 | 1.5 | 40.5 | 2.1 | 1.6 |
| | 50 | 1000 | 28.7 | 1.5 | 0.7 | 53.7 | 2.7 | 2.9 |
| | 60 | 1400 | 36.1 | 1.9 | 1.1 | 66.9 | 3.4 | 4.7 |
| HLE | 20 | 250 | 7.9 | 0.4 | 0.3 | 14.0 | 0.8 | 1.5 |
| | 25 | 350 | 10.8 | 0.6 | 0.5 | 19.3 | 1.0 | 2.6 |
| | 30 | 450 | 13.5 | 0.7 | 0.9 | 24.0 | 1.3 | 4.8 |
| | 40 | 650 | 20.4 | 1.1 | 2.0 | 34.0 | 1.8 | 1.7 |
| | 50 | 850 | 22.5 | 1.2 | 0.7 | 40.7 | 2.1 | 3.1 |
| | 60 | 1200 | 30.9 | 1.6 | 1.2 | 55.4 | 2.9 | 5.5 |

NOTE: Based on 70°F DB EAT, 180°F EWT, 40°F temperature drop, high fan speed.

UNIT WEIGHT DATA

| COMPONENT | | UNIT SIZE | | | | | |
|---------------|-------------|-----------|----------|----------|----------|-----------|-----------|
| | | 20 | 25 | 30 | 40 | 50 | 60 |
| HLF BASE UNIT | | 40 [18] | 51 [23] | 59 [27] | 69 [31] | 91 [41] | 111 [50] |
| HLP BASE UNIT | | 45 [20] | 56 [25] | 65 [30] | 80 [36] | 103 [47] | 123 [56] |
| HLE BASE UNIT | | 119 [54] | 138 [63] | 155 [70] | 181 [82] | 220 [100] | 257 [117] |
| COIL ROWS | 1 ROW - DRY | 7 [3] | 8 [4] | 9 [4] | 10 [5] | 12 [5] | 14 [6] |
| | 1 ROW - WET | 8 [4] | 10 [4] | 10 [5] | 12 [5] | 14 [6] | 16 [7] |
| | 2 ROW - DRY | 9 [4] | 11 [5] | 12 [5] | 14 [6] | 17 [8] | 20 [9] |
| | 2 ROW - WET | 12 [5] | 13 [6] | 14 [7] | 17 [8] | 21 [10] | 25 [11] |
| | 3 ROW - DRY | 12 [5] | 14 [6] | 15 [7] | 19 [9] | 23 [10] | 26 [12] |
| | 3 ROW - WET | 14 [6] | 17 [8] | 19 [9] | 24 [11] | 28 [13] | 33 [15] |
| | 4 ROW - DRY | 14 [6] | 16 [7] | 18 [8] | 23 [10] | 28 [13] | 33 [15] |
| | 4 ROW - WET | 17 [8] | 20 [9] | 23 [11] | 29 [13] | 35 [16] | 41 [19] |
| | 5 ROW - DRY | 16 [7] | 19 [8] | 21 [9] | 25 [12] | 31 [14] | 35 [16] |
| 5 ROW - WET | 21 [9] | 24 [11] | 27 [12] | 32 [14] | 38 [17] | 44 [20] | |

NOTE: Unit weight data is in pounds [kilograms].

ELECTRIC HEAT

ENVIRO-TEC® offers electric heating coils for specific application with all HL Series Fan Coil units. This allows the flexibility to provide an unrivaled amount of electric heat options in one complete package.

STANDARD FEATURES

- ETL listed as an assembly for safety compliance
- Single point power connection
- Mounted in preheat position
- Automatic reset primary and back-up secondary thermal limits
- Internal wiring rated at 105°C
- Integral electric heat assembly with removable element for easy service
- Stainless steel terminals and hardware



USEFUL FORMULAS

$$kW^* = \frac{CFM \times \Delta T \times 1.085^{**}}{3413}$$

$$1\emptyset \text{ AMPs} = \frac{kW \times 1000}{Volts}$$

* 1kW = 3413 BTU/H

** Capacity at sea level

Altitude Considerations:

Reduce by 0.034 for each 1000 ft. of altitude above sea level.

Example: 5000 ft./1000 ft. = 5

$$5 \times 0.034 = 0.17$$

$$1.085 - 0.17 = 0.915$$

OPTIONAL FEATURES

- Silent solid state relays
- Manual reset secondary limits
- Door interlocking disconnect switch
- Main fusing (Branch fusing for EH>48 amps)

ELECTRICAL CALCULATIONS INFORMATION

1. Refer to MCA/MOP calculator at www.enviro-tec.com for MCA and/or MOP calculations.
2. Non-Fused Door Interlock Disconnect Switch shall be sized according to MCA.
3. Fused Door Interlock Disconnect Switch and Main Fusing shall be sized according to MOP.

ELECTRIC HEAT SELECTION CHART (AMPS)

| UNIT SIZE | MBH | 5.1 | 6.8 | 10.2 | 13.7 | 17.1 | 20.5 | 25.6 | 27.3 | 34.1 |
|-----------|-------|------|------|------|------|------|------|------|------|------|
| | KW | 1.5 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 10.0 |
| | VOLTS | AMPS | | | | | | | | |
| 20 | 115 | 13.0 | 17.4 | 26.1 | | | | | | |
| | 208 | 7.2 | 9.6 | 14.4 | | | | | | |
| | 230 | 6.5 | 8.7 | 13.0 | | | | | | |
| | 277 | 5.4 | 7.2 | 10.8 | | | | | | |
| 25 | 115 | 13.0 | 17.4 | 26.1 | | | | | | |
| | 208 | 7.2 | 9.6 | 14.4 | | | | | | |
| | 230 | 6.5 | 8.7 | 13.0 | | | | | | |
| | 277 | 5.4 | 7.2 | 10.8 | | | | | | |
| 30 | 115 | 13.0 | 17.4 | 26.1 | 34.8 | 43.5 | | | | |
| | 208 | 7.2 | 9.6 | 14.4 | 19.2 | 24.0 | 28.8 | | | |
| | 230 | 6.5 | 8.7 | 13.1 | 17.4 | 21.7 | 26.1 | | | |
| | 277 | 5.4 | 7.2 | 10.8 | 14.4 | 18.1 | 21.7 | | | |
| 40 | 115 | | 17.4 | 26.1 | 34.8 | 43.5 | | | | |
| | 208 | | 9.6 | 14.4 | 19.2 | 24.0 | 28.8 | 33.7 | | |
| | 230 | | 8.7 | 13.1 | 17.4 | 21.7 | 26.1 | 30.4 | | |
| | 277 | | 7.2 | 10.8 | 14.4 | 18.1 | 21.7 | 25.3 | | |
| 50 | 115 | | | 26.1 | 34.8 | 43.5 | | | | |
| | 208 | | | 14.4 | 19.2 | 24.0 | 28.8 | 33.7 | 38.5 | |
| | 230 | | | 13.1 | 17.4 | 21.7 | 26.1 | 30.4 | 34.8 | |
| | 277 | | | 10.8 | 14.4 | 18.1 | 21.7 | 25.3 | 28.9 | |
| 60 | 115 | | | 26.1 | 34.8 | 43.5 | | | | |
| | 208 | | | 14.4 | 19.2 | 24.0 | 28.8 | 33.7 | 38.5 | |
| | 230 | | | 13.1 | 17.4 | 21.7 | 26.1 | 30.4 | 34.8 | 43.5 |
| | 277 | | | 10.8 | 14.4 | 18.1 | 21.7 | 25.3 | 28.9 | 36.1 |

NOTES:

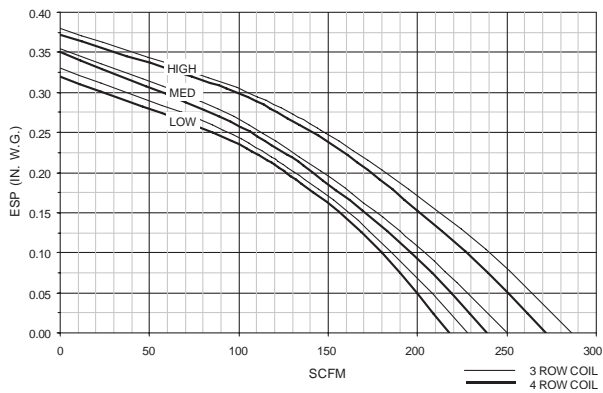
1. Shaded areas of the electric heat selection chart indicate kW and voltage options not available.
2. Available voltages are single phase, 60 hertz.
3. Size heater for Leaving Air Temperature (LAT) less than 104°F.
4. Silent, solid state heater relay is available for sound sensitive environments.
5. Ask your ENVIRO-TEC® representative about continuously modulating electric heat using SSR and special control options.

FAN PERFORMANCE CURVES (PSC MOTORS)

1. Fan curves on the following pages depict actual performance of each motor tap without any additional fan balance adjustment. Actual capacities which fall below each curve can be obtained by adding an adjustment device. Units should not be run prior to installation of downstream ductwork; otherwise, damage to the motor may result.
2. ENVIRO-TEC® Fan Coil Units are equipped with permanent split-capacitor (PSC) motors with three taps (High, Medium and Low) which provides variable horsepower outputs. Most often, size selections are conservative and actual CFM requirements and/or external static pressure requirements are lower than those specified. In this case, the unit fan motor can be run at low or medium tap, substantially reducing the operating cost of the unit.
3. All fan curves are for 115/1/60 motors and include pressure losses for cabinet, electric heater, and 3 or 4 row coil. Plenum units include a clean 1" throwaway filter. For other coil configurations, adjust performance curves based on pressure losses for the coils using Web-Select®.
4. See page 14 for fan motor electrical data.
5. For additional high static pressure applications and rating points, contact factory.

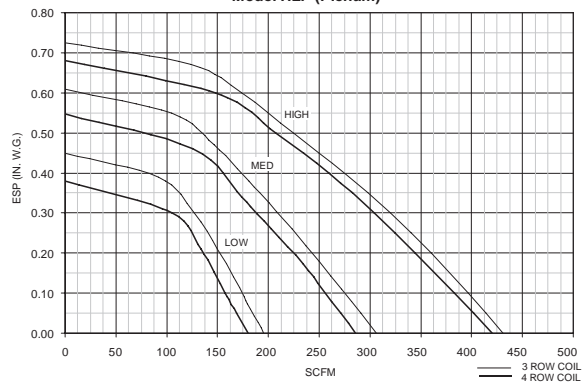
Size 20

Model HLP (Plenum)

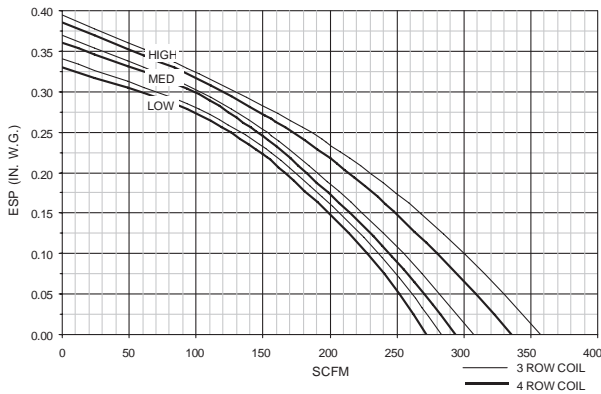


Size 25

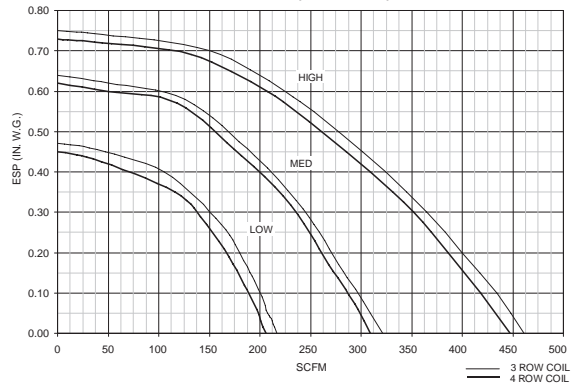
Model HLP (Plenum)



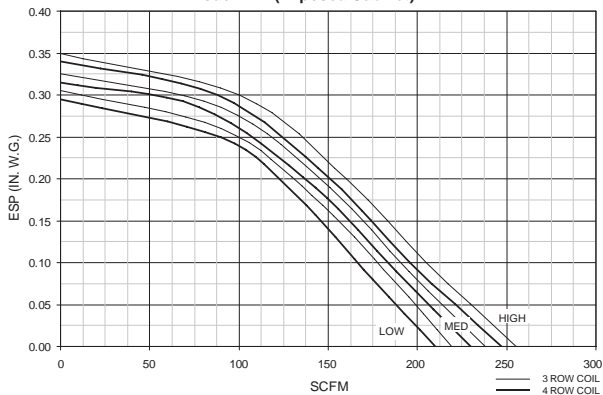
Model HLF (Free Return)



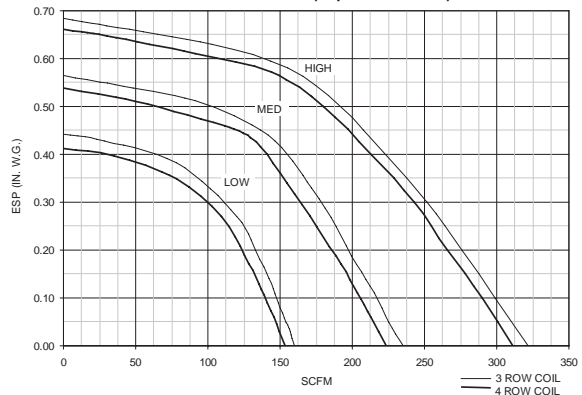
Model HLF (Free Return)



Model HLE (Exposed Cabinet)



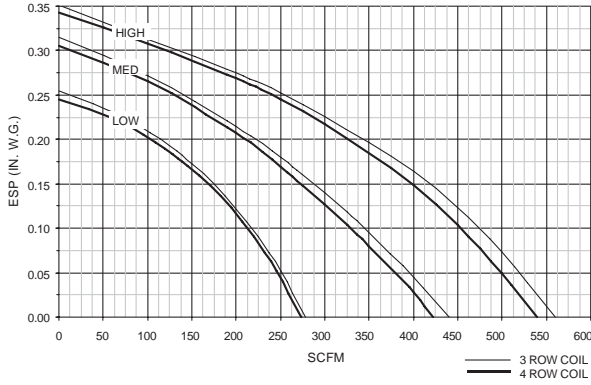
Model HLE (Exposed Cabinet)



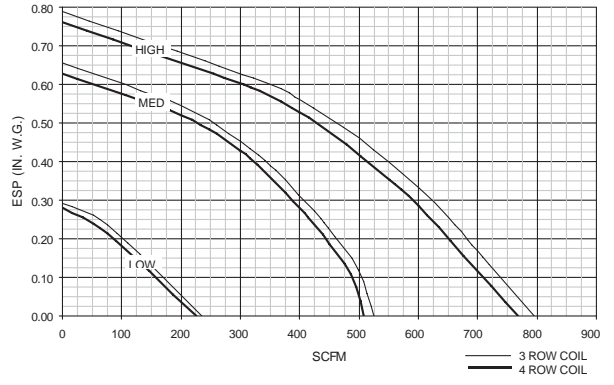
Size 30

Size 40

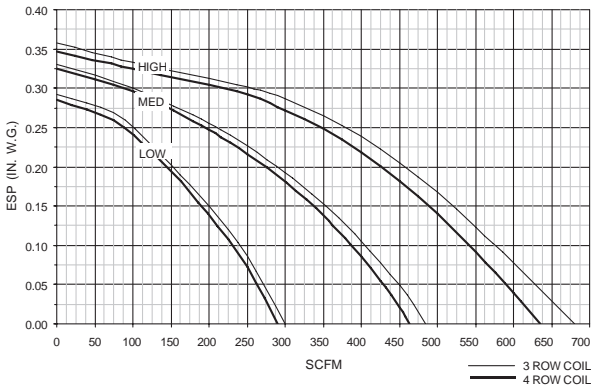
Model HLP (Plenum)



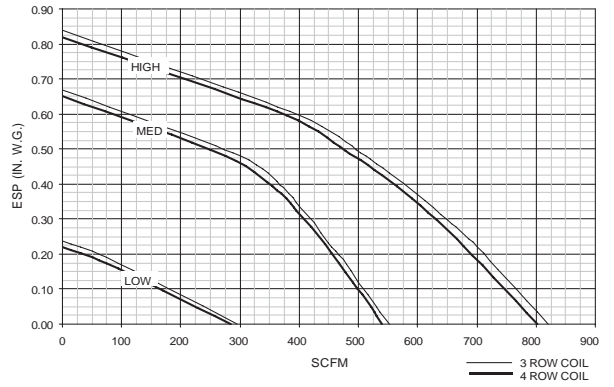
Model HLP (Plenum)



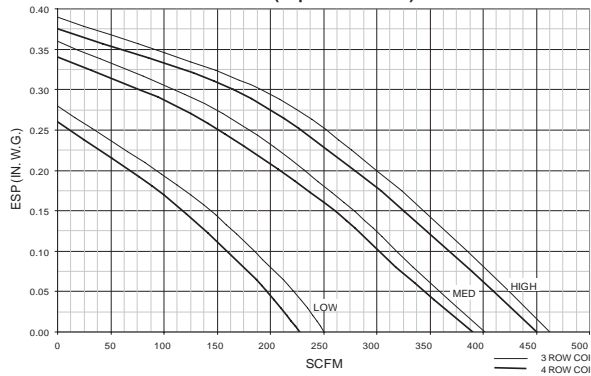
Model HLF (Free Return)



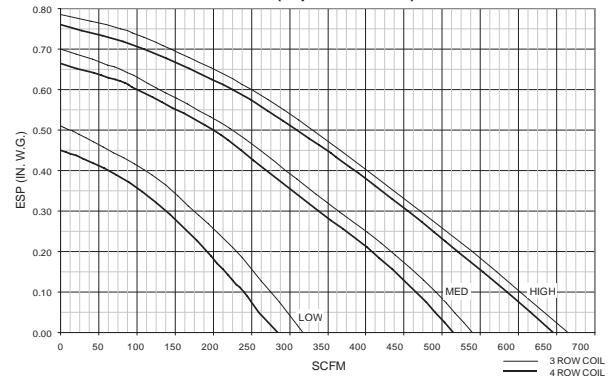
Model HLF (Free Return)



Model HLE (Exposed Cabinet)



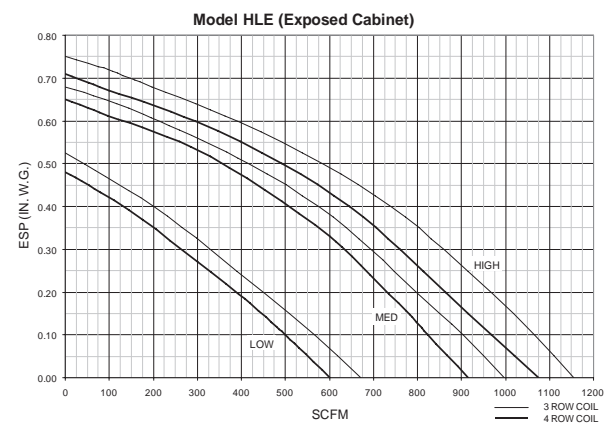
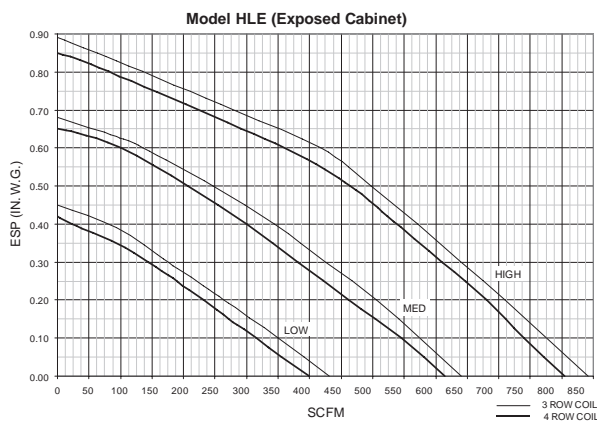
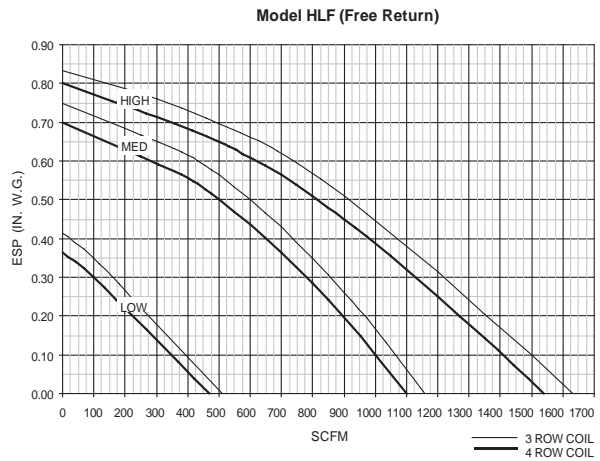
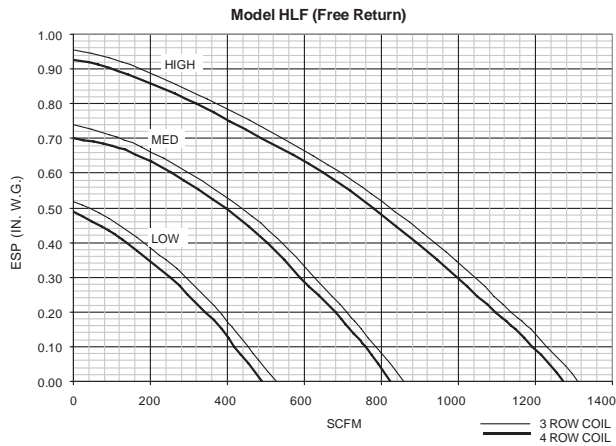
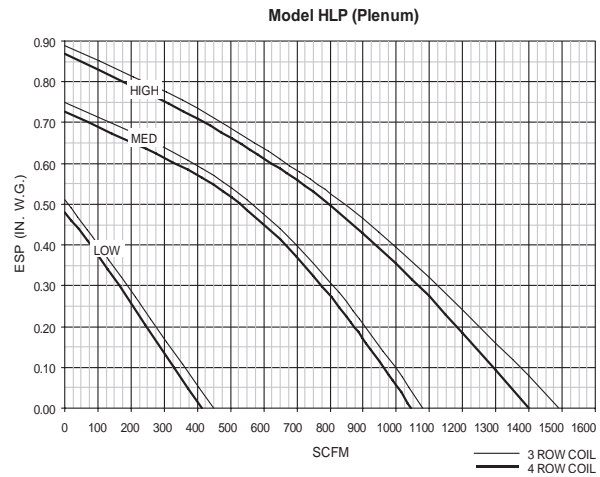
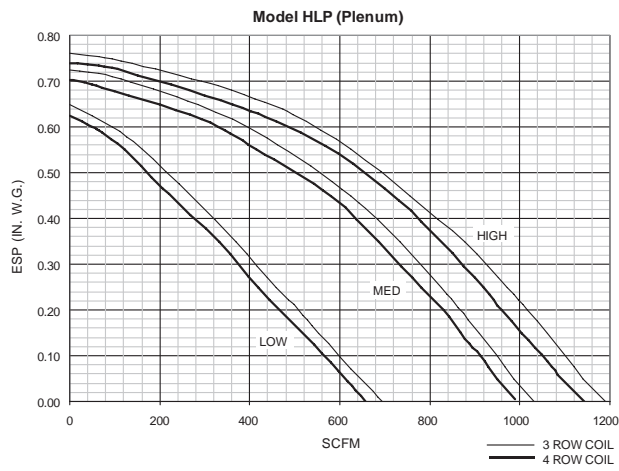
Model HLE (Exposed Cabinet)



FAN PERFORMANCE CURVES (PSC MOTORS)

Size 50

Size 60



MOTOR, FAN AND SOUND DATA

PSC MOTOR AND FAN DATA

| UNIT SIZE | FAN SPEED | MOTOR H.P. (QTY.) | # OF FANS | 115 VOLTS | | | | 208-230 VOLTS | | 277 VOLTS | |
|-----------|-----------|-------------------|-----------|-----------|--|------|--|---------------|--|-----------|--|
| | | | | WATTS | | AMPS | | AMPS | | AMPS | |
| 20 | High | (1) 1/30 | 1 | 57 | | 0.8 | | 0.4 | | 0.3 | |
| | Medium | (1) 1/50 | | 39 | | 0.4 | | 0.3 | | 0.3 | |
| | Low | (1) 1/60 | | 33 | | 0.3 | | 0.3 | | 0.3 | |
| 25 | High | (1) 1/15 | 1 | 125 | | 1.0 | | 0.5 | | 0.45 | |
| | Medium | (1) 1/30 | | 90 | | 0.9 | | 0.3 | | 0.3 | |
| | Low | (1) 1/60 | | 60 | | 0.5 | | 0.2 | | 0.2 | |
| 30 | High | (1) 1/10 | 2 | 165 | | 1.6 | | 0.7 | | 0.6 | |
| | Medium | (1) 1/30 | | 76 | | 0.8 | | 0.3 | | 0.5 | |
| | Low | (1) 1/60 | | 47 | | 0.5 | | 0.2 | | 0.4 | |
| 40 | High | (1) 1/6 | 2 | 261 | | 2.6 | | 0.9 | | 0.85 | |
| | Medium | (1) 1/12 | | 162 | | 1.5 | | 0.5 | | 0.5 | |
| | Low | (1) 1/40 | | 75 | | 0.6 | | 0.4 | | 0.3 | |
| 50 | High | (1) 1/8 | 3 | 215 | | 1.6 | | 0.9 | | 0.68 | |
| | | (1) 1/6 | | 257 | | 2.1 | | 0.9 | | 0.85 | |
| | Medium | (1) 1/15 | | 145 | | 1.3 | | 0.6 | | 0.5 | |
| | | (1) 1/12 | | 156 | | 1.5 | | 0.5 | | 0.5 | |
| | Low | (1) 1/40 | | 69 | | 0.8 | | 0.3 | | 0.3 | |
| | | (1) 1/40 | | 75 | | 0.6 | | 0.4 | | 0.3 | |
| 60 | High | (2) 1/6 | 4 | 522 | | 4.2 | | 1.8 | | 1.7 | |
| | Medium | (2) 1/12 | | 324 | | 3.0 | | 1.0 | | 1.0 | |
| | Low | (2) 1/40 | | 150 | | 1.2 | | 0.6 | | 0.6 | |

NOTES:

1. Motor electrical data is nameplated data. Actual data will vary with application. Watts shown are for 115V.
2. 230 volt motor is nameplated for 208-230/1/60. Use 230 volt motor data for 208 volt applications.
3. Unit size 30, 208-230 and 277 volt motors are 1/12 HP at high tap.

EC MOTOR AND FAN DATA

| HORIZONTAL PLENUM | | | | | | | | | | |
|-------------------|-----------|-------------------|-----------|-------|-----------|-----------------|---------------|-----------------|-----------|-----------------|
| UNIT SIZE | FAN SPEED | MOTOR H.P. (QTY.) | # OF FANS | WATTS | 115 VOLTS | | 208-230 VOLTS | | 277 VOLTS | |
| | | | | | FLA | 3-PHASE NEUTRAL | FLA | 3-PHASE NEUTRAL | FLA | 3-PHASE NEUTRAL |
| 20 | High | (1) 1/4 | 1 | 39 | 1.00 | 1.50 | 0.70 | 1.00 | 0.70 | 1.00 |
| 25 | High | (1) 1/4 | 1 | 74 | 1.70 | 2.50 | 1.30 | 1.90 | 1.20 | 1.70 |
| 30 | High | (1) 1/4 | 2 | 70 | 1.70 | 2.50 | 1.30 | 1.90 | 1.20 | 1.70 |
| 40 | High | (1) 1/4 | 2 | 124 | 2.80 | 4.00 | 2.10 | 3.00 | 2.10 | 3.00 |
| 50 | High | (2) 1/4 | 3 | 185 | 4.00 | 5.80 | 3.00 | 4.40 | 2.80 | 4.00 |
| 60 | High | (2) 1/4 | 4 | 250 | 5.20 | 7.40 | 4.00 | 4.80 | 3.80 | 5.40 |

| HORIZONTAL EXPOSED | | | | | | | | | | |
|--------------------|-----------|-------------------|-----------|-------|-----------|-----------------|---------------|-----------------|-----------|-----------------|
| UNIT SIZE | FAN SPEED | MOTOR H.P. (QTY.) | # OF FANS | WATTS | 115 VOLTS | | 208-230 VOLTS | | 277 VOLTS | |
| | | | | | FLA | 3-PHASE NEUTRAL | FLA | 3-PHASE NEUTRAL | FLA | 3-PHASE NEUTRAL |
| 20 | High | (1) 1/4 | 1 | 25 | 0.70 | 1.00 | 0.60 | 0.90 | 0.60 | 0.90 |
| 25 | High | (1) 1/4 | 1 | 40 | 1.00 | 1.50 | 0.70 | 1.00 | 0.70 | 1.00 |
| 30 | High | (1) 1/4 | 2 | 44 | 1.00 | 1.50 | 0.80 | 1.20 | 0.80 | 1.20 |
| 40 | High | (1) 1/4 | 2 | 79 | 1.90 | 2.70 | 1.40 | 2.00 | 1.40 | 2.00 |
| 50 | High | (2) 1/4 | 3 | 92 | 2.40 | 3.40 | 1.80 | 2.60 | 1.80 | 2.60 |
| 60 | High | (2) 1/4 | 4 | 148 | 3.60 | 5.20 | 2.80 | 4.00 | 2.80 | 4.00 |

NOTES:

1. Watts as shown are for a Plenum / Exposed unit with .05" ESP, 4 row coil, 115/1/60, 12 FPI, and throwaway filters
2. Motors nameplated for 208-230/1/60. Data is at 230 volts
3. Motor HP as noted is a nominal rating
4. Data as supplied is for reference only. For project specific operational points see selection tool report out.

SOUND DATA

SOUND DATA

| UNIT SIZE | FAN SPEED | SCFM | TOTAL SOUND POWER LEVEL | | | | | | |
|-----------|-----------|------|-------------------------------------|-------|-------|--------|--------|--------|--------|
| | | | OCTAVE BAND / CENTER FREQUENCY (HZ) | | | | | | |
| | | | 2/125 | 3/250 | 4/500 | 5/1000 | 6/2000 | 7/4000 | 8/8000 |
| 20 | High | 282 | 55 | 59 | 53 | 50 | 46 | 38 | 36 |
| | Medium | 216 | 50 | 52 | 47 | 44 | 38 | 31 | 32 |
| | Low | 175 | 47 | 48 | 43 | 39 | 32 | 27 | 31 |
| 25 | High | 420 | 58 | 62 | 57 | 54 | 51 | 44 | 39 |
| | Medium | 286 | 53 | 53 | 49 | 45 | 41 | 34 | 29 |
| | Low | 180 | 48 | 42 | 38 | 36 | 33 | 27 | 27 |
| 30 | High | 522 | 60 | 60 | 57 | 56 | 50 | 44 | 40 |
| | Medium | 458 | 57 | 55 | 54 | 52 | 46 | 40 | 36 |
| | Low | 269 | 48 | 44 | 43 | 39 | 32 | 27 | 31 |
| 40 | High | 810 | 65 | 68 | 64 | 60 | 55 | 51 | 47 |
| | Medium | 565 | 59 | 59 | 57 | 51 | 46 | 40 | 35 |
| | Low | 300 | 51 | 46 | 41 | 36 | 28 | 27 | 30 |
| 50 | High | 1050 | 61 | 66 | 68 | 62 | 56 | 52 | 49 |
| | Medium | 840 | 56 | 61 | 63 | 55 | 49 | 44 | 40 |
| | Low | 490 | 48 | 53 | 59 | 46 | 39 | 33 | 32 |
| 60 | High | 1400 | 67 | 72 | 70 | 68 | 59 | 54 | 51 |
| | Medium | 1050 | 61 | 65 | 67 | 57 | 52 | 47 | 42 |
| | Low | 500 | 50 | 56 | 48 | 40 | 33 | 28 | 31 |

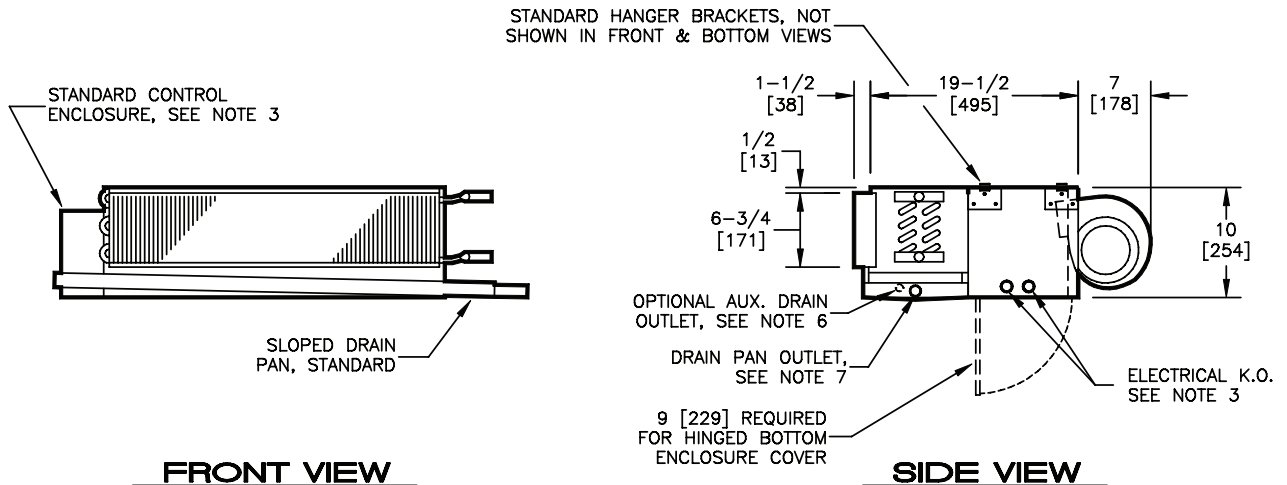
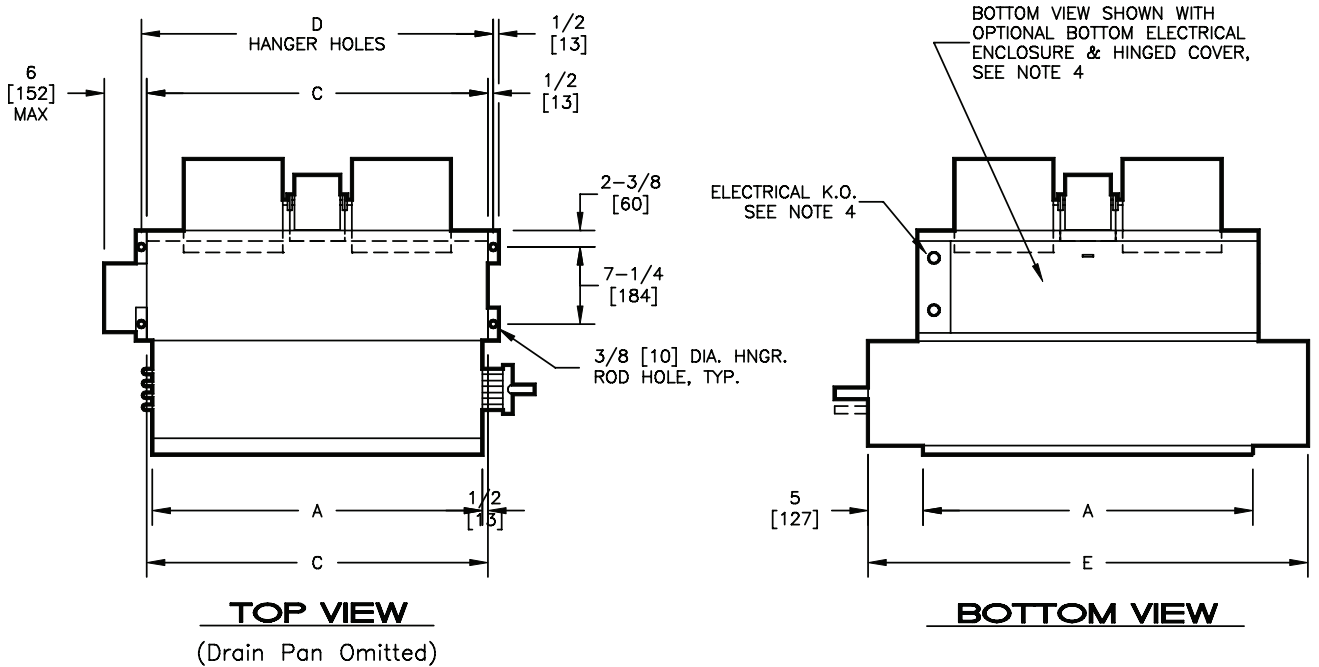
NOTES:

1. Sound data tested in accordance with AHRI 350-2000.
2. Sound levels are expressed in decibels, dB RE: 1 x 10⁻¹² watts.
3. Total sound power level data based on Model HLP with fan CFM at corresponding motor tap with 115/1/60 volt motor, 3 or 4 row coil, 1" throwaway filter, 0.0" external static pressure and standard rated internal pressure losses.

DIMENSIONAL DATA

MODEL HLF FREE RETURN UNITS

Drawings are not to scale and not for submittal or installation purposes.



DIMENSIONS - In [mm]

| UNIT SIZE | A | C | D | E |
|-----------|-----------|-----------|-----------|-----------|
| 20 | 20 [508] | 21 [533] | 22 [559] | 30 [762] |
| 25 | 26 [660] | 27 [686] | 28 [711] | 36 [914] |
| 30 | 30 [762] | 31 [787] | 32 [813] | 40 [1016] |
| 40 | 40 [1016] | 41 [1041] | 42 [1067] | 50 [1270] |
| 50 | 50 [1270] | 51 [1295] | 52 [1321] | 60 [1524] |
| 60 | 60 [1524] | 61 [1549] | 62 [1575] | 70 [1778] |

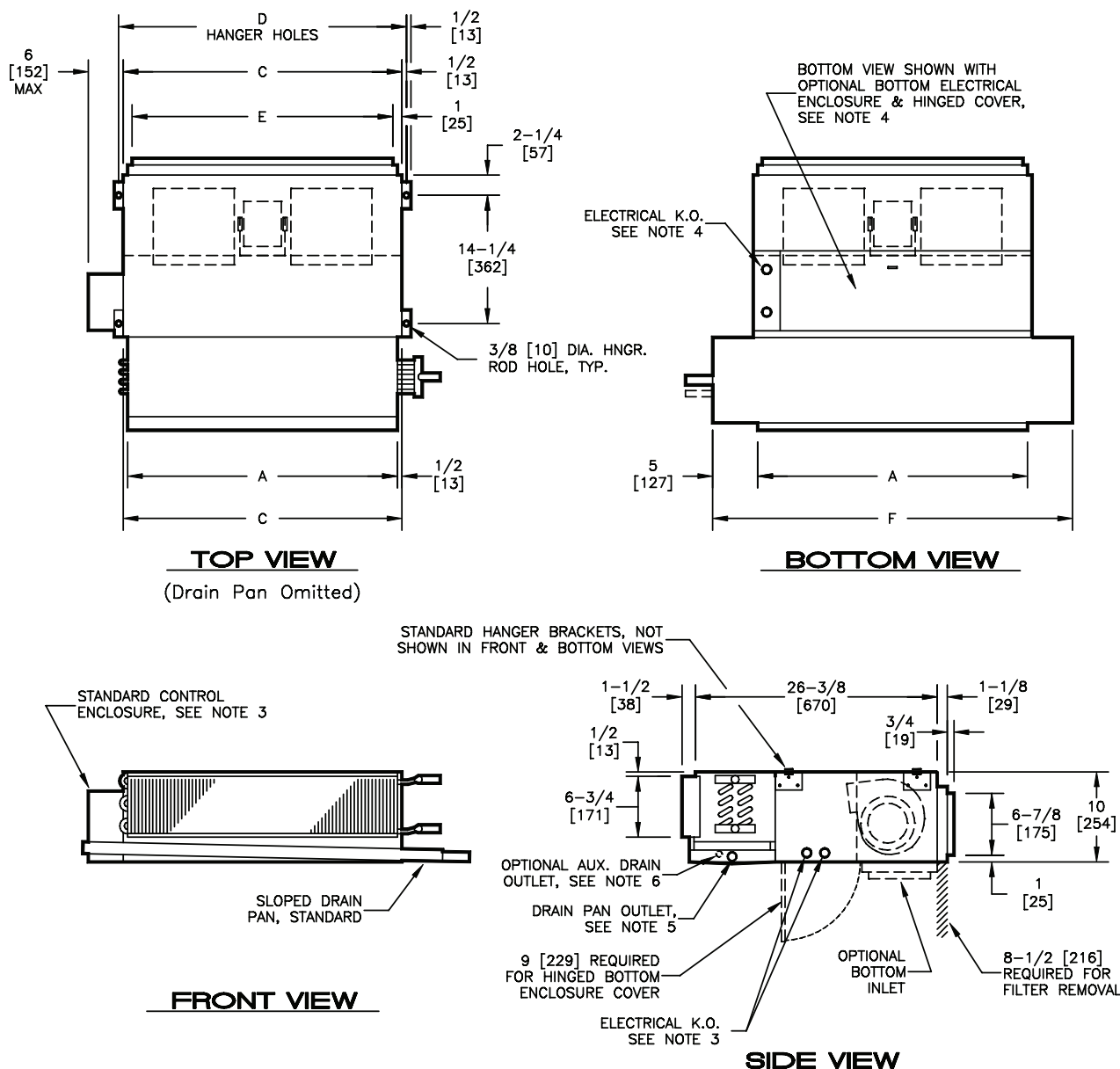
NOTES:

1. All dimensions in Inches [millimeters]. All dimensions $\pm 1/4"$ [6mm]. Metric values are soft conversion.
2. Left hand unit shown, right hand unit opposite.
3. Standard control enclosure is mounted on unit side opposite cooling coil connections. Unit casing includes (2) knockouts on each side. Provide sufficient clearance to access electrical controls and comply with applicable codes and ordinances.
4. Optional bottom control enclosure with hinged cover replaces standard side mounted enclosure and includes (2) additional knockouts on bottom of unit, on left side.
5. Standard externally foam coated galvanized steel drain pan has 7/8" ODM copper outlet. Stainless steel drain pan has 3/4" MPT galvanized steel outlet.
6. Aux. drain outlet is 5/8" ODM copper or 3/8" MPT galvanized steel respectively.
7. See coil connection drawings for coil connection sizes and locations.

DIMENSIONAL DATA

MODEL HLP PLENUM UNITS

Drawings are not to scale and not for submittal or installation purposes.



DIMENSIONS - In [mm]

| UNIT SIZE | A | C | D | E | F |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 20 | 20 [508] | 21 [533] | 22 [559] | 19 [483] | 30 [762] |
| 25 | 26 [660] | 27 [686] | 28 [711] | 25 [635] | 36 [914] |
| 30 | 30 [762] | 31 [787] | 32 [813] | 29 [737] | 40 [1016] |
| 40 | 40 [1016] | 41 [1041] | 42 [1067] | 39 [991] | 50 [1270] |
| 50 | 50 [1270] | 51 [1295] | 52 [1321] | 49 [1245] | 60 [1524] |
| 60 | 60 [1524] | 61 [1549] | 62 [1575] | 59 [1499] | 70 [1778] |

NOTES:

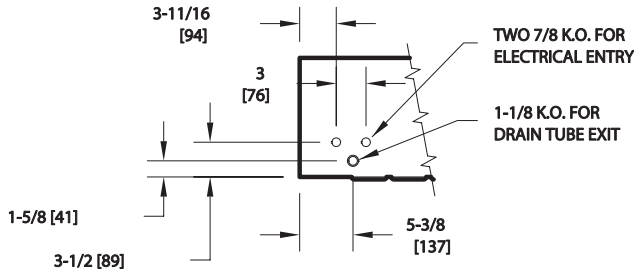
1. All dimensions in Inches [millimeters]. All dimensions $\pm 1/4"$ [6mm]. Metric values are soft conversion.
2. Left hand unit shown, right hand unit opposite.
3. Standard control enclosure is mounted on unit side opposite cooling coil connections. Unit casing includes (2) knockouts on each side. Provide sufficient clearance to access electrical controls and comply with applicable codes and ordinances.
4. Optional bottom control enclosure with hinged cover replaces standard side mounted enclosure and includes (2) additional knockouts on bottom of unit, on left side.
5. Standard externally foam coated galvanized steel drain pan has 7/8" ODM copper outlet. Stainless steel drain pan has 3/4" MPT galvanized steel outlet.
6. Aux. drain outlet is 5/8" ODM copper or 3/8" MPT galvanized steel respectively.
7. See coil connection drawings for coil connection sizes and locations.

MODEL HLE EXPOSED CABINET UNITS

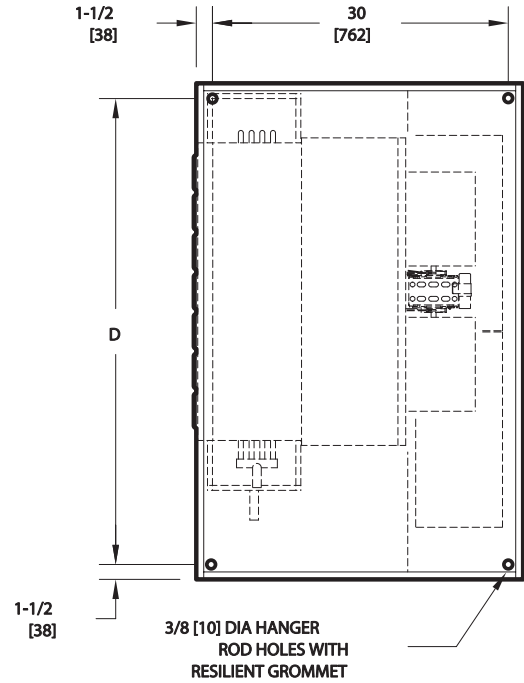
Drawings are not to scale and not for submittal or installation purposes.

NOTES:

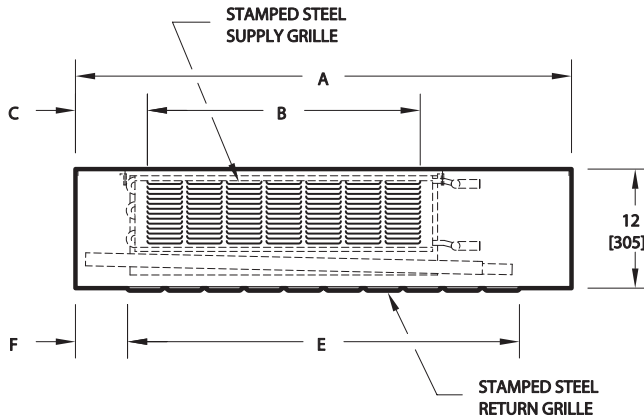
1. All dimensions are Inches [millimeters]. All dimensions $\pm 1/4"$ [6mm]. Metric values are soft conversion.
2. Left hand unit shown, right hand unit opposite.
3. Electrical enclosure size and location may vary with optional features.
Provide sufficient clearance to access electrical controls and comply with applicable codes and ordinances.
4. Drain piping should be routed through casing opening indicated to provide proper drain slope.
5. Louvered bottom panel is hinged and removable for access to filter and fan assembly.
6. Fixed bottom panel is removable for access to optional electrical enclosure, coil, and drain pan.
7. Internal insulation of field piping may be required.
8. Field piping casing penetrations must be cut in the field to match individual job requirements.



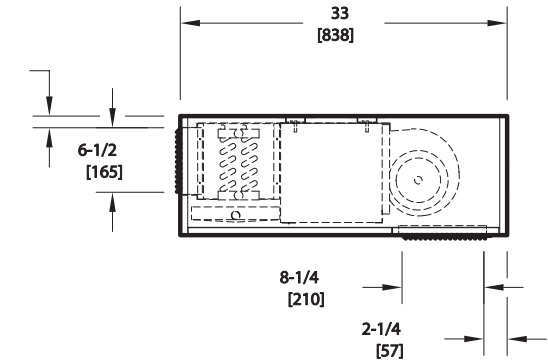
PARTIAL REAR VIEW
(TYPICAL EACH SIDE)



TOP VIEW



FRONT VIEW



SIDE VIEW

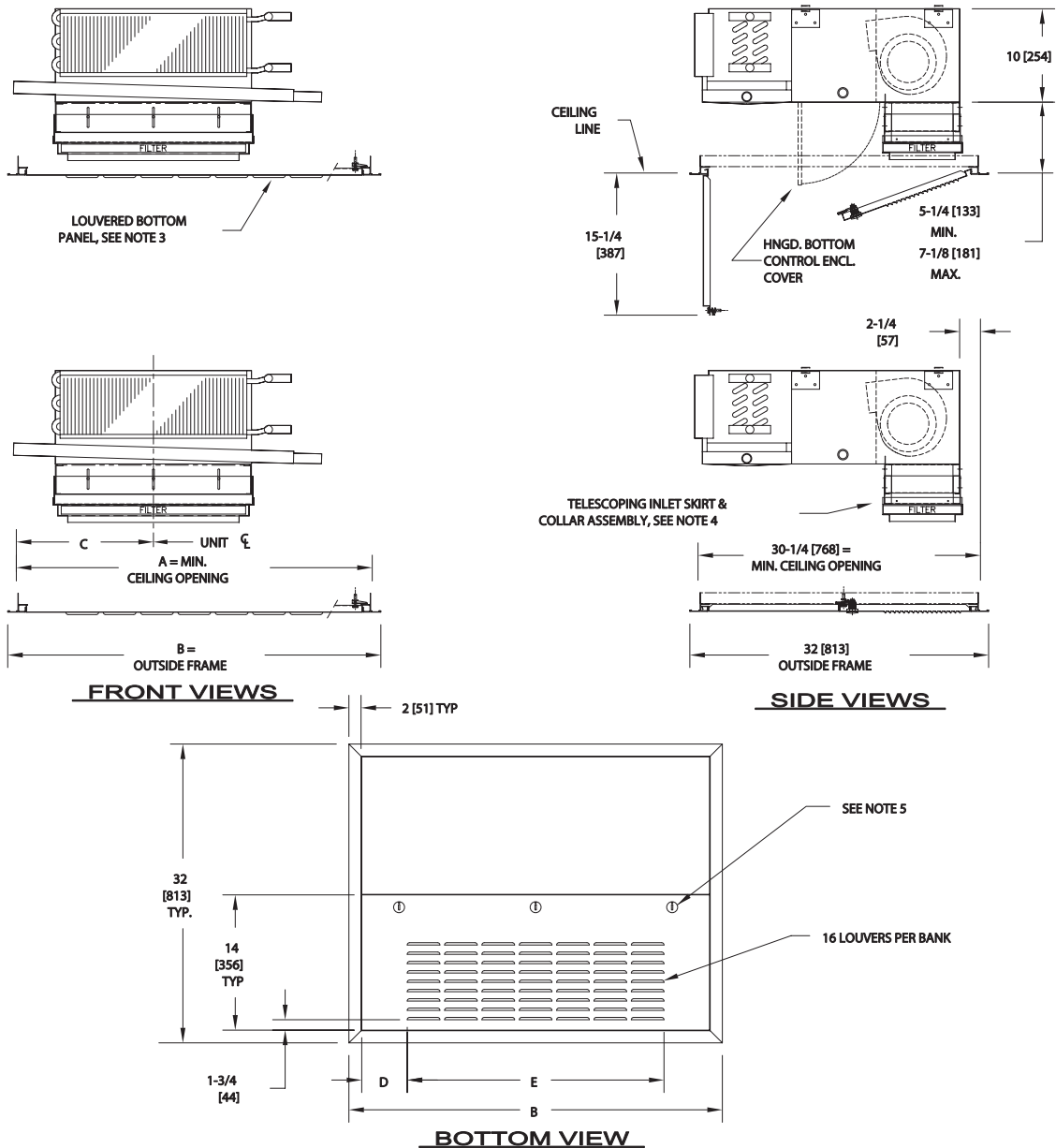
DIMENSIONS - In [mm]

| UNIT SIZE | A | B | C | D | E | F |
|-----------|-----------|---------------|-------------|-----------|---------------|-------------|
| 20 | 40 [1016] | 19-1/2 [495] | 6-1/4 [159] | 37 [940] | 27-1/2 [699] | 6-1/4 [159] |
| 25 | 46 [1168] | 23-1/2 [597] | 6-1/4 [159] | 43 [1092] | 35-1/2 [902] | 5-1/4 [133] |
| 30 | 50 [1270] | 27-1/2 [699] | 7-1/4 [184] | 47 [1194] | 39-1/2 [1003] | 5-1/4 [133] |
| 40 | 60 [1524] | 39-1/2 [1003] | 6-1/4 [159] | 57 [1448] | 47-1/2 [1207] | 6-1/4 [159] |
| 50 | 70 [1778] | 47-1/2 [1207] | 7-1/4 [184] | 67 [1702] | 59-1/2 [1511] | 5-1/4 [133] |
| 60 | 80 [2032] | 59-1/2 [1511] | 6-1/4 [159] | 77 [1956] | 67-1/2 [1715] | 6-1/4 [159] |

DIMENSIONAL DATA

TELESCOPING BOTTOM PANEL

Drawings are not to scale and not for submittal or installation purposes.



DIMENSIONS - In [mm]

| UNIT SIZE | STANDARD PANEL | | | | |
|-----------|----------------|-----------|--------------|-------------|---------------|
| | A | B | C | D | E |
| 20 | 38-1/8 [968] | 40 [1016] | 14-1/2 [368] | 4-1/4 [108] | 27-1/2 [699] |
| 25 | 44-1/8 [1121] | 46 [1168] | 17-1/2 [445] | 3-1/4 [83] | 35-1/2 [902] |
| 30 | 48-1/8 [1222] | 50 [1270] | 19-1/2 [495] | 3-1/4 [83] | 39-1/2 [1003] |
| 40 | 58-1/8 [1476] | 60 [1524] | 24-1/2 [622] | 4-1/4 [108] | 47-1/2 [1207] |
| 50 | 68-1/8 [1730] | 70 [1778] | 29-1/2 [749] | 3-1/4 [83] | 59-1/2 [1511] |
| 60 | 78-1/8 [1984] | 80 [2032] | 34-1/2 [876] | 4-1/4 [108] | 67-1/2 [1715] |

- NOTES:
- All dimensions are Inches [millimeters]. All dimensions $\pm 1/4"$ [6mm]. Metric values are soft conversion.
 - Left hand unit shown, right hand unit opposite.
 - Portions of the inlet louver not directly below unit inlet may require covering in the field on applications where infiltration of ceiling plenum air into space is undesired.
 - Telescoping skirt and collar assembly must be field adjusted to assure a proper fit between filter frame and louvered inlet panel assembly.
 - 1/4 Turn latch, (2) qty for standard sizes, (3) qty for sizes 40-60.

GUIDE SPECIFICATIONS

GENERAL

Furnish and install ENVIRO-TEC® Model HL Horizontal Concealed Direct Drive Fan Coil Units where indicated on the plans and in the specifications. Units shall be completely factory assembled, tested and shipped as one piece. All units shall be capable of meeting or exceeding the scheduled capacities for cooling, heating and air delivery. All unit dimensions for each model and size shall be considered maximums. Units shall be ETL listed in compliance with UL/ANSI Standard 1995, and be certified as complying with the latest edition of AHRI Standard 440.

CONSTRUCTION

All unit chassis shall be fabricated of heavy gauge galvanized steel panels. All exterior panels shall be insulated with 1/2" thick insulation with a maximum k value of .24 (BTU - in) / (hr - ft² - °F) and rated for a maximum air velocity of 5000 f.p.m. Insulation must meet all requirements of ASTM C1071 (including C665), UL 181 for erosion, and carry a 25/50 rating for flame spread/smoke developed per ASTM E-84, UL 723 and NFPA 90A.

All concealed units shall have a minimum 1-1/2" duct collar on the discharge. Plenum and exposed units shall have a minimum 3/4" duct collar on the return.

All exposed units shall have exterior panels fabricated of galvanized steel. The fan and filter bottom access panel shall be attached with quarter turn quick open fasteners to allow for easy removal and access for service.

Option: Provide foil faced insulation in lieu of standard. Foil insulation shall meet or exceed the requirements stated above, and in addition meet ASTM Standards C-665 and C-1136 for biological growth in insulation. Insulation shall be lined with aluminum foil, fiberglass scrim reinforcement, and 30 pound kraft-paper laminated together with a flame resistant adhesive. All exposed edges shall be sealed to prevent any fibers from reaching the air stream.

Option: Provide Elastomeric Closed Cell Foam Insulation in lieu of standard. Insulation shall conform to UL 181 for erosion and NFPA 90A for fire, smoke and melting, and comply with a 25/50 Flame Spread and Smoke Developed Index per ASTM E-84 or UL 723. Additionally, insulation shall comply with Antimicrobial Performance Rating of 0, no observed growth, per ASTM G-21. Polyethylene insulation is not acceptable.

Unit mounting shall be by hanger brackets provided at four locations.

PAINTED FINISH

All painted cabinet exterior panels shall be finished with a heat cured anodic acrylic powder paint of the standard factory color.

SOUND

Units shall have published sound power level data tested in accordance with AHRI Standard 350-2000 (non-ducted equipment).

FAN ASSEMBLY

Unit fan shall be a dynamically balanced, forwardly curved, DWDI centrifugal type constructed of 18 gauge zinc coated galvanized steel for corrosion resistance. Motors shall be high efficiency, permanently lubricated sleeve bearing, permanent split-capacitor type with UL and CSA listed automatic reset thermal overload protection and three separate horsepower taps. Single speed motors are not acceptable.

The fan assembly shall be easily removable for servicing the motor and blower at, or away from the unit. The entire fan assembly shall be able to come out of the unit by removing two screws and unplugging the motor. Plenum unit fan assemblies shall be easily serviced through an access panel provided.

Option: Provide Electronically Commutated (EC) Motor capable of operation with low voltage 3 speed thermostat. Motor shall come factory programmed and configured for 3 speed operation. Each speed shall be manually adjustable in the field. All manual speed adjustments shall be stored in non-volatile memory. Motor shall be capable of accepting a 2-10 VDC output from BAS. Motor bearings shall be rated for L10-40,000 hours.

Option: Provide an electronic (SCR) fan speed controller as an aid in balancing the fan capacity. The speed controller shall have a turn down stop to prevent the possibility of harming the motor bearings, and incorporate electrical noise suppression to minimize noise on the incoming power lines.

Option: Devices used to energize and de-energize (switch) fan speeds must be totally silent. Magnetic, mercury, and/or quiet relays and/or contactors are not acceptable.

GUIDE SPECIFICATIONS

COILS

All cooling and heating coils shall optimize rows and fins per inch to meet the specified capacity. Coils shall have seamless copper tubes and shall be mechanically expanded to provide an efficient, permanent bond between the tube and fin. Fins shall have high efficiency aluminum surface optimized for heat transfer, air pressure drop and carryover.

All coils shall be hydrostatically tested at 450 PSIG air pressure under water, and rated for a maximum of 300 PSIG working pressure at 200°F.

Steam coils shall be standard steam type suitable for temperatures above 35°F and 15 PSIG maximum working pressure.

Option: Coil casing shall be fabricated from Stainless Steel.

All coils shall be provided with a manual air vent fitting to allow for coil venting.

Option: Provide automatic air vents in lieu of manual air vents.

Heating coils shall be furnished in the reheat or preheat position on units with chilled water coils, or in the reheat position for DX coils.

DRAIN PANS

Primary condensate drain pans shall be single wall, heavy gauge galvanized steel for corrosion resistance, and extend under the entire cooling coil. Drain pans shall be of one-piece construction and be double sloped for condensate removal. Drain pans on concealed models shall be field reversible for right or left hand connections.

The drain pan shall be externally insulated with a fire retardant, closed cell foam insulation. The insulation shall carry no more than a 25/50 Flame Spread and Smoke Developed Rating per ASTM E-84 and UL 723 and an Antimicrobial Performance Rating of 0, no observed growth, per ASTM G-21.

Option: Provide a single wall primary drain pan constructed entirely of heavy gauge stainless steel for superior corrosion resistance. Stainless steel drain pans shall be externally insulated and meet or exceed the requirements stated above.

Option: Provide a secondary drain connection on the primary drain pan for condensate overflow.

FILTERS

All plenum and exposed units shall be furnished with a minimum 1" nominal glass fiber throwaway filter. Filters shall be tight fitting to prevent air bypass. Plenum unit filters shall be easily removable from the bottom of the unit without the need for tools.

Option: Provide unit with 1" pleated filter (MERV 8).

ELECTRICAL

Units shall be furnished with single point power connection. Provide an electrical junction box for motor and other electrical terminations.

Option: Provide a hinged electrical enclosure in the bottom of the unit for easy access to all electrical components, terminal blocks and wiring.

ELECTRIC HEAT

Furnish an electric resistance heating assembly as an integral part of the fan coil unit, with the heating capacity, voltage and kilowatts scheduled. The heater assembly shall be designed and rated for installation on the fan coil unit without the use of duct extensions or transitions, and be located in the unit as to not expose the fan assembly to excessive leaving air temperatures that could affect motor performance.

The heater and unit assembly shall be listed for zero clearance and meet all NEC requirements, and be ETL listed with the unit as an assembly in compliance with UL/ANSI Standard 1995.

All heating elements shall be open coil type nichrome wire mounted in ceramic insulators and located in an insulated heavy gauge galvanized steel housing. All elements shall terminate in a machine staked stainless steel terminal secured with stainless steel hardware for corrosion resistance. The element support brackets shall be spaced no greater than 3-1/2" on center. All internal wiring shall be rated for 105°C minimum. All heaters shall include overtemperature protection consisting of an automatic reset primary thermal limit and back up secondary thermal limit. All heaters shall be single stage.

Option: Provide a manual reset secondary thermal limit.

All units with electric heat shall have a bottom hinged electrical enclosure for easy access and service to the electrical components and wiring. An incoming line power distribution block shall be provided and designated to accept single point power wiring capable of carrying 125% of the calculated load current.

Option: Devices used to energize and de-energize (switch) electric heat must be totally silent. Magnetic, mercury, and/or quiet relays and/or contactors are not acceptable.

PIPING PACKAGES

Provide a standard factory assembled valve piping package to consist of a 2 or 3 way, on/off, motorized electric control valve and two ball isolation valves. Control valves are piped normally closed to the coil. Maximum entering water temperature on the control valve is 200°F, and maximum close-off pressure is 40 PSIG (1/2") or 20 PSIG (3/4"). Maximum operating pressure shall be 300 PSIG.

Option: Provide 3-wire floating point modulating control valve (fail-in-place) in lieu of standard 2-position control valve with factory assembled valve piping package.

Option: Provide high pressure close-off actuators for 2-way on/off control valves. Maximum close-off pressure is 50 PSIG (1/2") or 25 PSIG (3/4").

Option: Provide either a fixed or adjustable flow control device for each piping package.

Option: Provide pressure-temperature ports for each piping package.

Piping package shall be completely factory assembled, including interconnecting pipe, and shipped separate from the unit for field installation on the coil, so as to minimize the risk of freight damage.

NOTES

NOTES

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