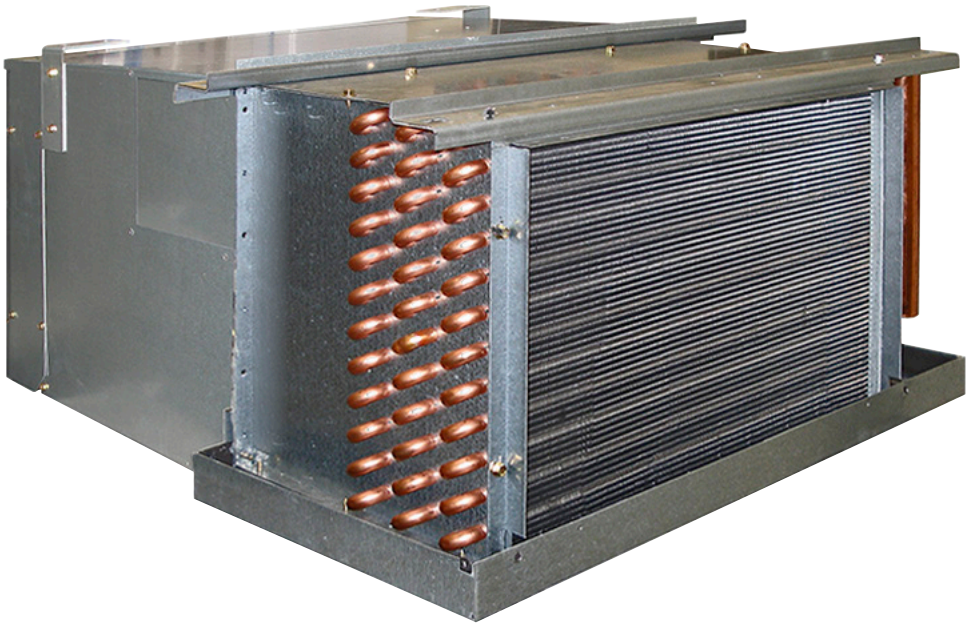
Large Capacity Fan Coil Units

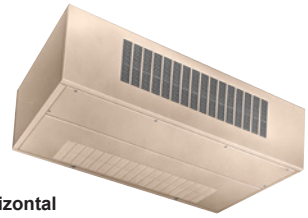
Catalog 735-12

Belt-Drive and Direct-Drive
Cabinet and Hideaway Models



Total system capability

ThinLine Fan-coils

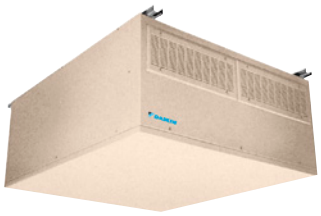


Horizontal

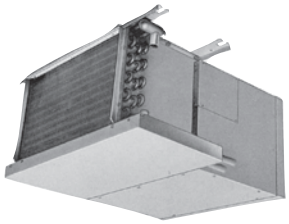
Vertical (Slope Top)

HiLine Fan-coil

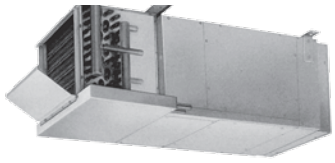
Large Capacity Fan-coils



Direct-Drive/Belt-Drive Cabinet Ceiling Unit (HCDB/HCBB)



Direct-Drive Hideaway Unit (HHDB)



Belt-Drive Hideaway Unit (HHBB)

Unit Heaters

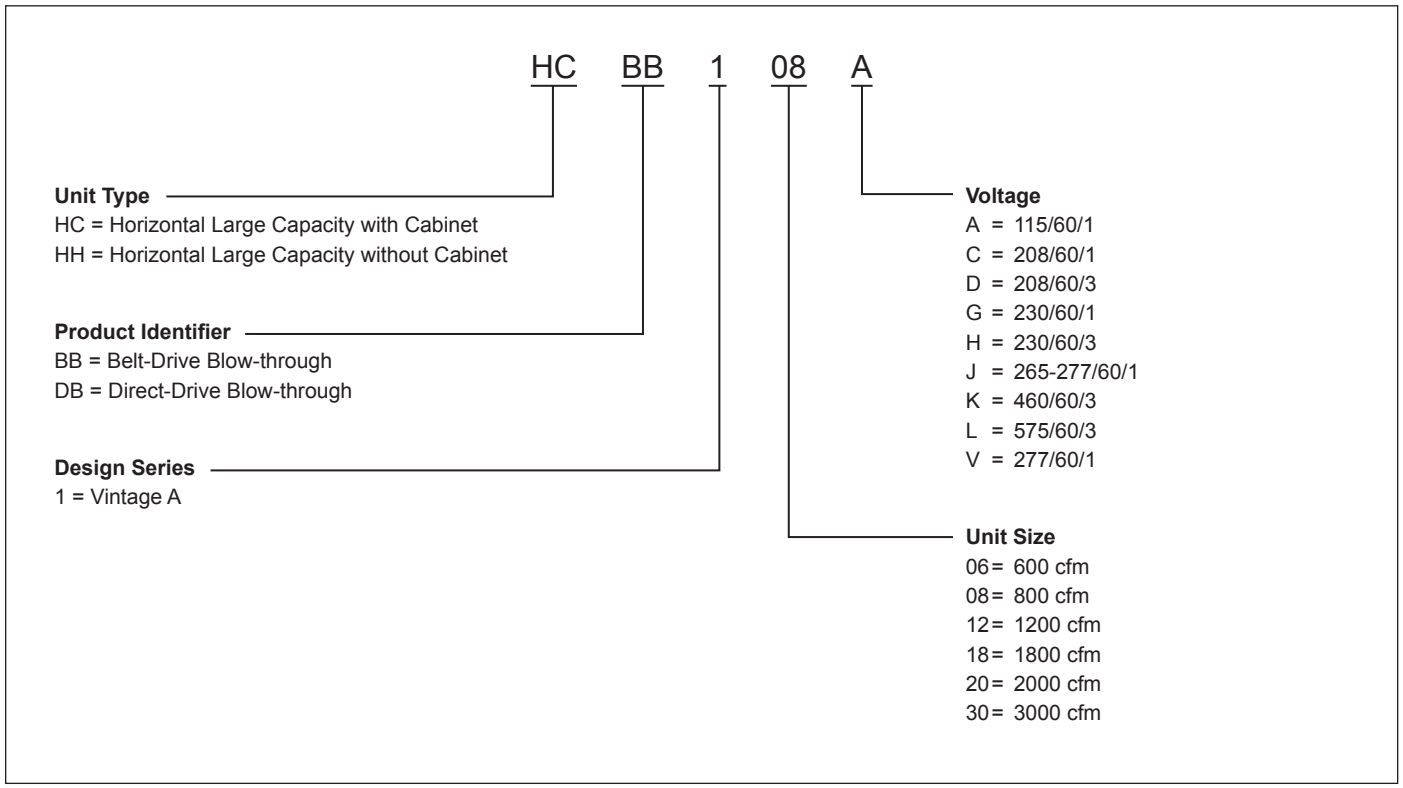
Vertical Unit Heater

Horizontal Unit Heater

Agency Listing

c UL us LISTED

Figure 1: Nomenclature



Direct-Drive Hideaway Unit (HHDB)

The Direct-drive hideaway unit is designed for installation in a fully concealed ceiling location. These units will deliver desired air flows against a wide range of external static pressures associated with varying duct layouts. Unit features include:

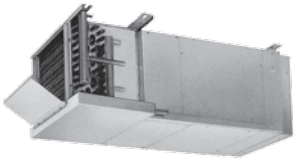
- 5 unit sizes from 600 to 2000 nominal CFM
- Heavy gauge galvanized steel basic frame and casing
- Vertically mounted 3- and 6-row primary water coils
- Multi-speed permanent-split capacitor (PSC) single phase motors
- Optional brushless DC Electronically Commutated Motors (ECM) are available
- Conduit-enclosed motor wiring
- 4-position speed switch shipped loose for field installation
- High performance large diameter FC centrifugal fan wheels
- 4-pipe systems supplied with blow-off plates
- Standard return air plenums with 2" filters (with optional no plenum/no filter units)
- Full width, insulated galvanized steel drain pan
- Optional stainless steel pan with secondary drain connection
- Field-reversible return connection (rear or bottom)
- Optional 1- and 2-row secondary reheat coils
- UL safety listings

Direct-Drive Cabinet Unit (HCDB)

The Direct-drive cabinet unit is designed for exposed ceiling suspension in the conditioned space, or installation in a fully or partially concealed location. Unit features include all of the features listed above for HHDB model, plus the following:

- Heavy gauge galvanized steel decorative cabinet with discharge grille or duct collar
- Attractive Antique Ivory painted exterior (standard). Other colors available
- Casing completely insulated with 1" neoprene coated fiberglass
- Removable bottom and side panels
- Standard 2" disposable filter

Belt-Drive Hideaway Unit (HHBB)



Belt-drive units offer 5 unit sizes from 800 to 3000 nominal CFM. The Belt-drive hideaway unit is designed for installation in a fully concealed ceiling location. These units incorporate most of the money-saving installation features of smaller Direct-drive fan coils, and include the flexibility and high performance afforded by Belt-driven fans. Unit features include, besides those for HHDB units:

- 5 unit sizes from 800 to 3000 nominal CFM
- Variable pitch sheave for ease of system balancing
- Single-speed single- or three-phase motors
- Standard blow-off plates prevent moisture carry-over
- Solid steel fan shaft with permanently lubricated, resiliently mounted, self-aligning ball bearings

Belt-Drive Cabinet Unit (HCBB)

The Belt-drive cabinet unit is designed for exposed ceiling suspension in the conditioned space, or for installation in a partially or fully concealed location. Unit features encompass all of the characteristics listed above for the HHBB model and include:

- Heavy gauge galvanized steel decorative cabinet with discharge grille or duct collar
- Attractive Antique Ivory painted exterior (standard). Other colors available
- Casing completely insulated with 1" neoprene coated fiberglass
- Removable bottom and side panels
- Standard 2" disposable filter

The Large Capacity Advantage

Large Capacity fan coil units combine cooling, heating, humidity control and filtering functions in a single compact unit expanding limitations usually associated with fan coil applications. These features make Large Caps desirable by building owners, specifying engineers, and contractors alike.

For Building Owners

By using Large Capacity Fan Coils, building owners have an economical option, with features found in more expensive air handling equipment (Destiny™ or Vision™).

- Simplicity of maintenance with easy access to filter, fan, and motor
- Optional secondary drain connection indicating whether the main drainage has any problem
- Quiet unit operation facilitated by large diameter fans and 1" thick insulation
- Heavy-gauge steel construction provides for long life of the unit. Optional stainless steel drain pan for superior corrosion resistance
- For direct-drive units, multi-speed motors assure optimal power consumption based on desired load with fan speed switch unit- or wall-mounted for owner and tenant convenience

For Specifying Engineers

Large Capacity fan coils provide specifying engineers with great versatility. Four different models are available with multiple arrangements and configurations.

- Coil options include 3- and 6-row primary cooling/heating coils for 2-pipe systems to provide precise heating and cooling performance for any requirement with any combination of header connection/motor hand locations
- Secondary 1- or 2-row coils are offered in reheat position for 4-pipe systems
- Filtration options include any 2" disposable filter. The standard option is a MERV 3 filter. Special options include MERV 8 and MERV 13 (belt-drive units)
- Enclosure options include hideaway and cabinet units for fully concealed or open ceiling installation
- Appearance options include standard Antique Ivory and multiple special cabinet colors
- Variety of motor voltages, sizes, and types are offered to best match the project specification

For Contractors

For contractors, Large Capacity fan coils offer a stock program for fast delivery and a number of factory- and field-installed features, making installation fast and simple.

- Speed control (direct-drive units) and 4" × 4" junction box shipped with the unit for optimal installation
- Header connections ready for field piping with or without valve packages
- Conduit-enclosed motor wiring harnesses
- Easy access for all components
- Reheat 1- or 2-row coil kit for field installation on stock units
- Various motor and drive kits for field installation on stock units
- Factory-preassembled valve packages available

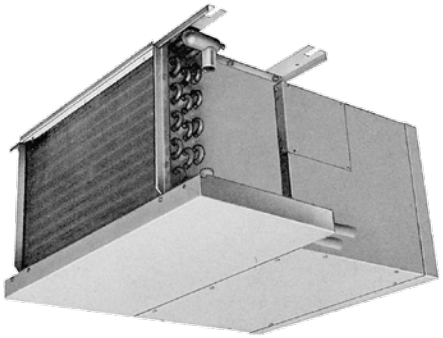
Hideaway and Cabinet Direct-Drive Units (HHDB & HCDB)

Hideaway type and cabinet type Large Capacity fan coil units are available for concealed installations or ceiling suspension within the conditioned space. Cooling, heating, dehumidifying and air filtering are combined in a single, compact unit. A full line of optional accessories makes these units completely versatile in application.

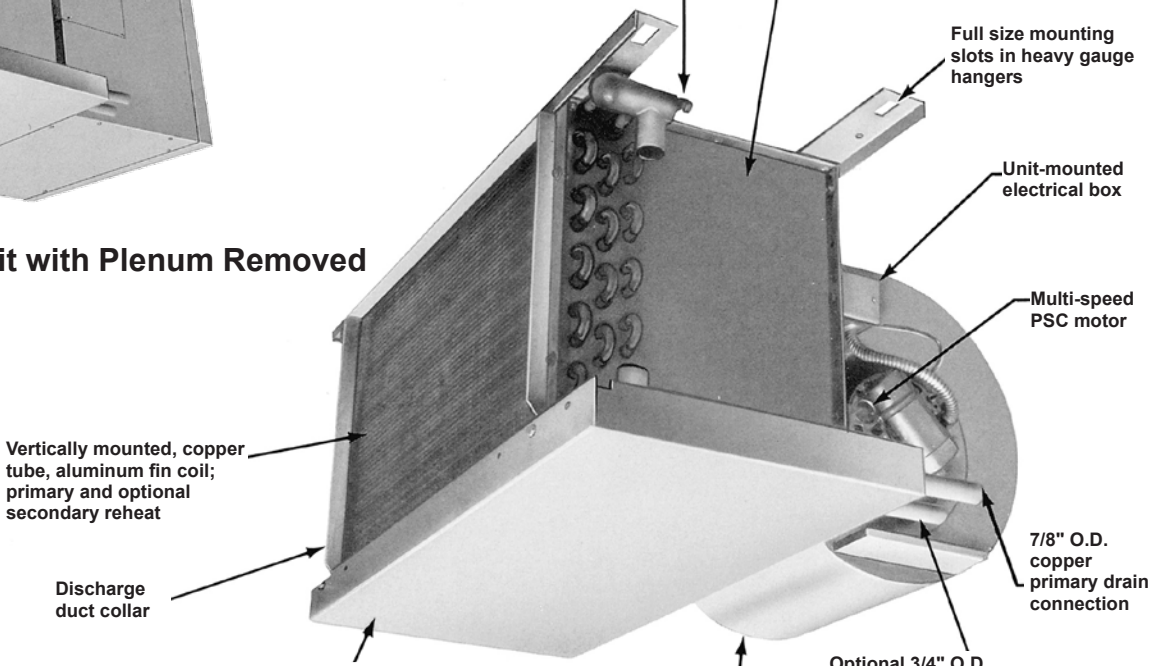
Large Capacity fan coil units are designed to deliver the rated capacity against normal external static pressures, and may be installed for either “free” or “ducted” air delivery. Large diameter direct-drive centrifugal fans and permanent-split-capacitor (PSC) motors assure quiet operation with minimum power consumption.

Speed control is achieved with tap-wound motors. A three speed control switch with off position (4-position switch) is supplied to provide simple adjustment of the unit output to maintain desired comfort conditions. The manual 4-position switch is shipped loose for remote mounting or mounting directly on the unit. Properly matched components, high quality construction, and thorough testing are your assurance of long life and dependable performance with a minimum of operating and maintenance costs.

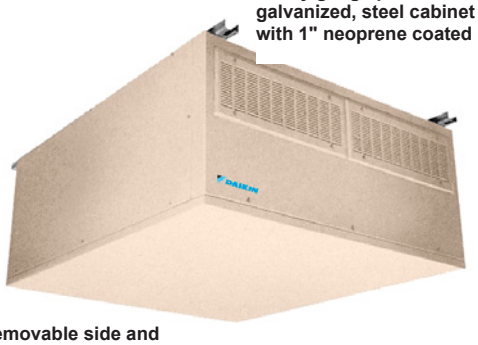
Figure 2: Hideaway Unit with Return Air Plenum



Hideaway Unit with Plenum Removed



Cabinet Unit



Heavy gauge painted, galvanized, steel cabinet with 1" neoprene coated

Removable side and bottom panels

Dependable Trouble-free Performance

Standard Features

Casing and Cabinet. Frame members and basic casing are constructed of G-60 galvanized steel. Cabinet unit casing is fabricated of G-60 galvanized steel with 1" thick neoprene coated fiberglass internal insulation. Internal insulation not only protects from sweating and corrosion but also serves as sound absorbing acoustic barrier. Side and bottom panels are removable for ease of installation and maintenance. Cabinet units are painted a standard Antique Ivory, optional colors include: Cupola White, Off White, Putty Beige, Soft Gray or Oxford Brown. Custom colors are available also.

Coils. All coils are constructed of seamless copper tubing expanded into aluminum fins. Copper headers with sweat connections are ready for field piping. Water coil fins have full-drawn collars to provide a continuous surface cover over the entire tube for maximum heat transfer. Primary 3- and 6-row coils are available. The primary coils are furnished with manual air vents and drain plugs.

Drain Pans. Primary drain pans are constructed of continuous G-60 galvanized steel, insulated with closed-cell insulation to provide maximum protection against sweating and corrosion. Standard galvanized steel drain pan has primary drain connection. An optional SS pan is also provided with secondary drain connection. A cabinet unit (HCDB type) is equipped with standard full length connection pipe extension, insulated to prevent any condensation inside the cabinet. Cabinet units have optional a drip pan or a secondary drain pan to collect condensate from field-supplied valves. Drip pans are also available for hideaway units. Drain pans may be trapped in the field if required.

Fans. Large-diameter DWDI forward-curved centrifugal fans are used in blow-through position. The fans are statically and dynamically balanced at the factory to assure smooth quiet operation.

Figure 3: Filter Removal from the Side

Motors. Motors are Permanent-Split Capacitor (PSC) type with oilers and built-in thermal overload protection and automatic reset. The motors are resiliently mounted. A fan is directly connected to a motor shaft. The motors are available for 115V/60Hz/1Ø, 208-230V/60Hz/1Ø, and 265-277V/60Hz/1Ø as standard selections. Other voltages are available as optional selections.

Optional Brushless DC ECM (Electronically Commutated Motors) are available for 115/1/60, 208–230/1/60 anf 277/1/60 volt applications.

Speed Control. Direct-driven fans are controlled by means of tap-wound motors with 4 taps. A three speed control switch (4-position: Off-Low-Medium-High) with wall plate, is furnished for wall installation in the field. As an option, the 4-position switch may be factory mounted on a unit.

Return Air Plenum. Provides a complete enclosure around a fan and motor, and simplifies duct connections in hideaway type (HHDB) units. Fabricated from G-60 galvanized steel, it is available with 2" filter framing on the back return opening (Figure 3). The return air position is field-reversible to the bottom. The plenums are internally insulated with 1" neoprene-coated fiber glass.

Filters. Standard cabinet units (HCDB) are provided with 2" disposable filters. The filters can be easily replaced through the bottom of the filter holding frame. Bottom filter access is available (Figure 4).

Air Discharge. All hideaway units (HHDB) are provided with a duct collar to facilitate ductwork installation.

Figure 4: Filter Removal from the Bottom

Hideaway and Cabinet Belt-Drive Units (HHBB & HCBB)

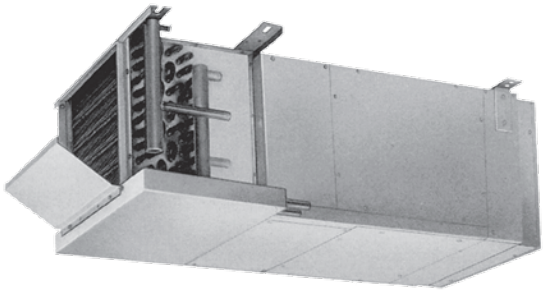
Higher Static and Flow Rates

Designed to handle higher flow rates than direct-drive units, belt-drive hideaway and cabinet type Large Capacity fan coils are available for concealed installations or ceiling suspension within the air conditioned space. Cooling, heating, dehumidifying and air filtering are combined in a single, compact unit. A full line of optional accessories makes these units completely versatile in application.

These units are designed to deliver the rated capacity against normal external static pressures, and may be installed for either “free” or “ducted” air delivery. Forward curved, double inlet, centrifugal fans provide low sound level operation.

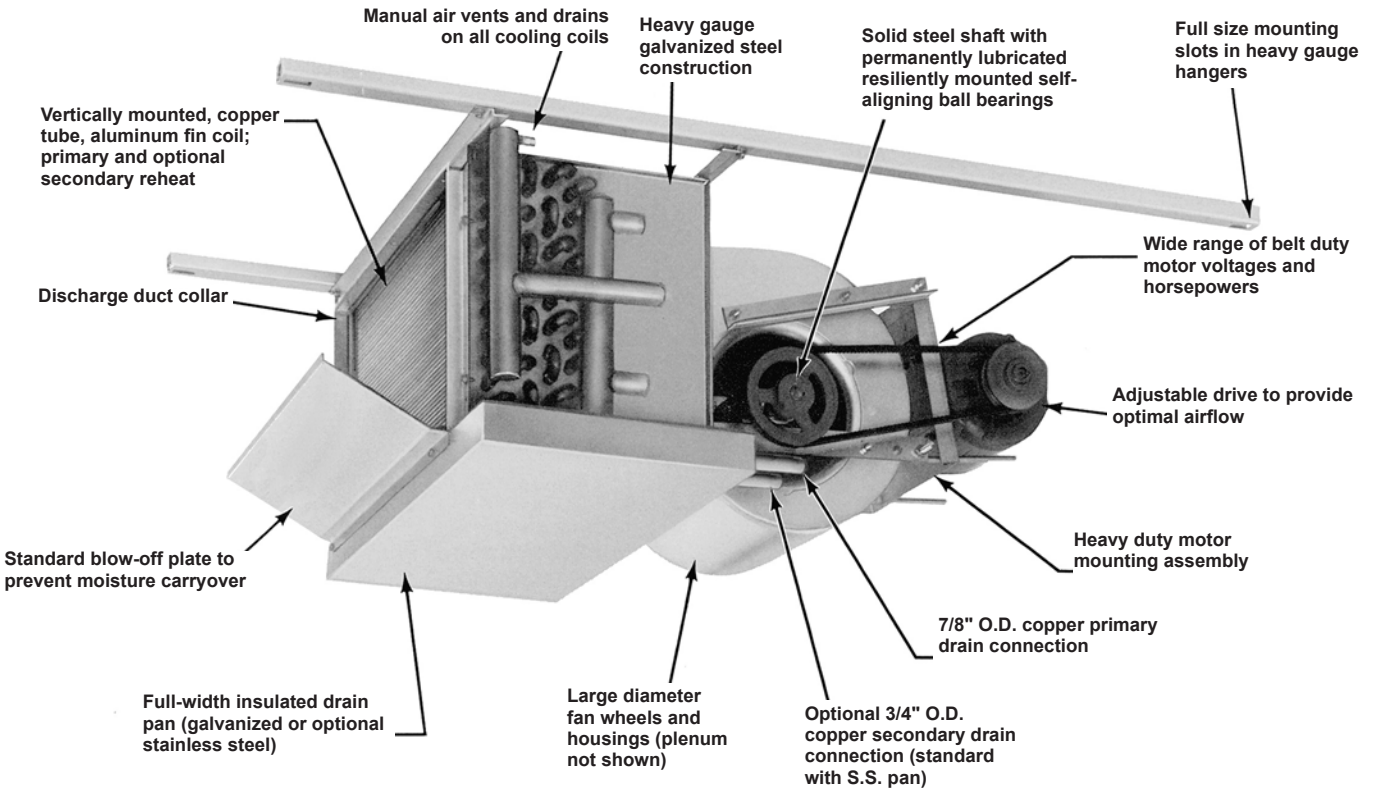
Properly matched components, high quality galvanized heavy gauge steel construction, and thorough testing assure a simple, trouble-free installation and long life with a minimum of operating and maintenance costs. Belt-drive units combine performance flexibility of a central station air handler, with the cost and compact size of a fan coil unit to give you a competitive advantage.

Figure 5: Hideaway Unit with Return Air Plenum



Cabinet Unit

Hideaway Unit with Plenum Removed



Heavy Construction for Exceptional Reliability

Standard Features

Casing and Cabinet. Frame members and basic casing are constructed of G-60 galvanized steel. Cabinet unit casing is fabricated of G-60 galvanized steel with 1" thick neoprene coated fiberglass internal insulation. Internal insulation not only protects from sweating and corrosion but also serves as sound absorbing acoustic barrier. Cabinet units are painted in a standard Antique Ivory. Other optional colors are available such as: Cupola White, Off White, Putty Beige, Soft Gray or Oxford Brown. Custom colors are available on request. Side and bottom panels are removable for ease of installation and maintenance.

Coils. All coils are constructed of seamless copper tubing expanded into aluminum fins. Copper headers with sweat connections are ready for field piping. Water coil fins have full-drawn collars to provide a continuous surface cover over the entire tube for maximum heat transfer. Primary 3- and 6-row coils are available. The primary coils are furnished with manual air vents and drain plugs.

Drain Pans. Primary drain pans are constructed of continuous G-60 galvanized steel, insulated with closed-cell insulation to provide maximum protection against sweating and corrosion. Standard galvanized steel drain pan has primary drain connection. An optional SS pan is also provided with secondary drain connection. Cabinet units are equipped with standard full-length connection pipe extension, insulated to prevent any condensation inside the cabinet. A factory-installed drip pan option or optional secondary drain pan is available for cabinet units with field-installed valve packages to collect condensate from field piping. Drip pans are also optional for hideaway units. Drain pans may be trapped in the field if required.

Fans. Large diameter, forward-curved, double-width, double-inlet (DWDI) centrifugal fans are statically and dynamically balanced to assure smooth, quiet operation. Fan wheels are mounted on a solid-steel shaft. Fan bearings are permanently lubricated, resiliently mounted, self-aligning ball bearings.

Motor and Drive. Standard belt-duty, 1800 nominal RPM, open drip-proof (ODP) motors are bolted to an adjustable platform to facilitate belt tensioning. Belt-duty motors are available in a wide range of voltages and sizes or can be field provided by others. Variable-pitch motor sheave is furnished as standard for ease and accuracy in balancing the system. Fixed-pitch fan sheave and belt are also included.

Return Air Plenum. The return air plenum provides a complete galvanized steel enclosure around fans and motors and simplifies duct connections on hideaway units. The plenum allows for field-reversibility back or bottom returns with a 2" filter frame on the return air opening (Figure 3). Plenums are insulated with 1" neoprene coated glass fiber.

Filters. Cabinet units are provided with 2" disposable filters which are easily removed through the bottom of the filter holding frame (Figure 4). The optional return air plenum for hideaway units accommodates a 2" filter.

Air Discharge. All hideaway (HHBB) units are provided with a duct collar to facilitate ductwork installation. Options for cabinet unit discharge are described in the next section (Accessories).

Blow-off Plates. Standard on all belt-drive units, cabinet or hideaway, to protect against moisture carry-over at high air flows.

Accessories for Field or Factory Installation

Optional Features for Application Flexibility

Secondary Drain Pan for Hideaway Units. A secondary drain pan to collect condensate from valves and piping manifolds is available for field mounting.

Stainless Steel Drain and Drip Pans. Optional SS secondary drain and drip pans are available (factory installation only). SS pan is equipped with ¾" secondary copper drain connection.

Extended Secondary Drain Pan for Cabinet Units. Available for collecting condensate from valve piping, valve packages, piping, and piping manifolds inside cabinet units. The pan covers entire length of the unit.

Double Deflection Grilles. Double deflection grilles complete with double set of airfoil louvers (front set parallel to the long side of the unit and rear set parallel to the short side) allow full adjustment for any degree of deflection in both vertical and horizontal planes.

Stamped Grilles. A stamped discharge grille is available as a field-installed accessory.

Duct Collar Accessory Kit. This kit is available for simple simple field installation in ducted applications.

Four-pipe Systems. Factory-installed secondary 1- or 2-row reheat coils are available for either hot water or steam application. All cabinet or hideaway 4-pipe units are supplied with blow-off plates.

Filters. Cabinet units accept any 2" thick standard size commercial disposable or cleanable filters. MERV 7, MERV 8 and MERV 13 filter efficiencies available as specials for belt-drive units.

Optional Heating Coils. Available kits with secondary one and two-row heating coils for field installation, in the reheat position, for either hot water or steam application in a four-pipe system.

Special Cabinet Colors. Alternative cabinet colors (Off White, Soft Gray, Cupola White, Putty Beige) are available as special options.

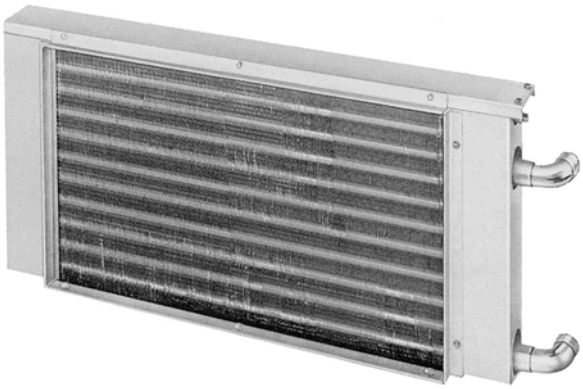
Vibration Isolators. Rubber-In-Shear (RIS) vibration isolation elements are available for external field mounting for both hideaway and cabinet units.

Valve and Piping Packages. Factory preassembled valve and piping packages for field installation are available for both two and four-pipe systems for either right or left-hand connections. Refer to Valve and Piping Packages.

Insulation. Close-cell insulation for plenums (HHDB and HHBB models) or cabinet (HCDB and HCBB models) is available as an factory-installed optional feature.

Insulated Drain Connections. For cabinet units, closed-cell insulation for extended drain connections is available as a special option.

Figure 6: Secondary Water Heating and Steam Coil

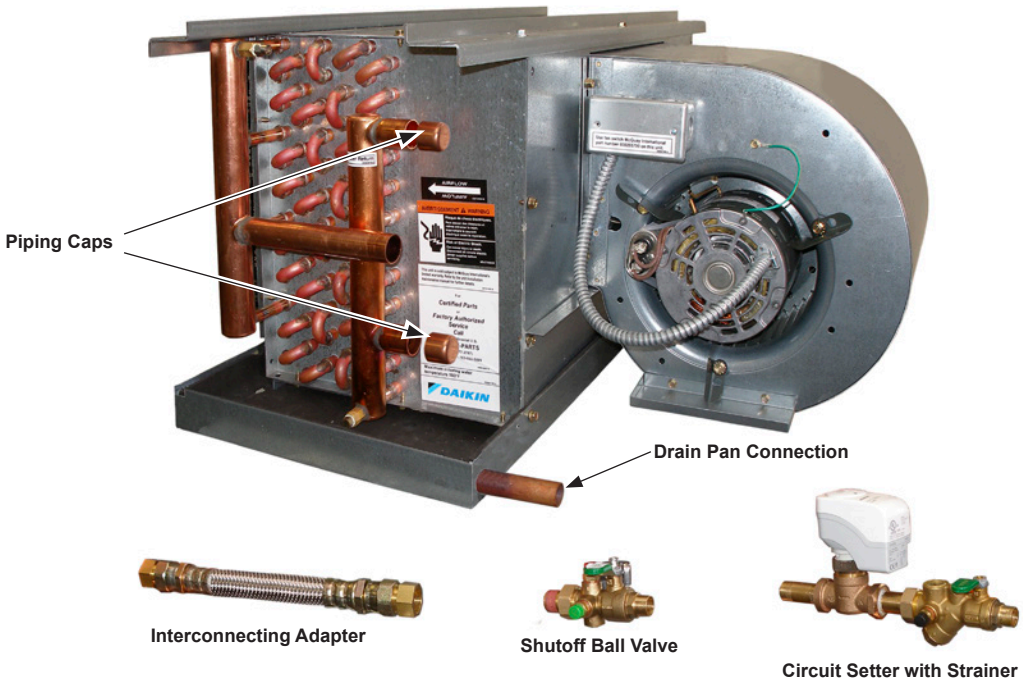


Valve and Piping Packages

(For Field Installation Only)

Three factory preassembled Valve & Piping packages for simple field installation are available for both two and four-pipe systems for either right or left-hand connections. Packages are shipped loose with the unit. 2-way or 3-way valves are available with line or low-voltage actuators.

- **Basic Package:** Interconnecting copper adapters and shutoff ball valves for supply and return lines, and control valve on supply water pipe complete with stainless steel flexible hoses.
- **Enhanced Package:** Enhanced valve and piping packages replace the ball valve on Basic package's leaving water pipe with a manual circuit setter (manual flow control valve). The circuit setter acts as both a flow-setting device and a shutoff valve, allowing water flow through the coil to be set quickly and accurately. The manual circuit setter includes P/T ports in the valve body. The ports are used to measure the temperature and pressure drop across the valve. This pressure drop can be compared to factory-supplied curves that relate the pressure to a specific flow rate. The valve also has a memory stop so that the correct setting can be found quickly
- **Deluxe package:** With Deluxe package, the customer receives the valves and piping of the Enhanced package, with the added value of automatic circuit-setter in lieu of a manual one and a strainer. The automatic circuit-setter includes a cartridge within the valve body that is sized to allow a specific flow rate through the coil without any action required by a system piping balancer. The auto circuit-setter is available on the leaving water pipe with a ball valve and includes 2 P/T plugs for pressure drop and temperature measurement through the valve. The strainer is attached to the entering water pipe at the coil connections.



The achievement of an efficient fan coil system is dependent upon accurate system design and proper equipment selection. Variations, limitations and control of fan coil systems, design conditions and design load calculations are not described in detail in this catalog. More detailed information may be found in the ASHRAE Guide, from which the design engineer can mike initial unit selections to meet the requirements of the system.

The mechanical system designer must select the unit types best suited to the overall system before the actual unit sizes can be determined. The factors that generally influence this decision are: intended building usage, building layout, architectural and aesthetic values, economics, geographical location, and type of maintenance service available. The general results may be a mixture of various unit types within a given system. Daikin manufactures a fan coil unit to meet your every need including ThinLine™, HiLine™ and Large Capacity models. For Daikin product information. please visit www.DaikinApplied.com

Basic Design Data

Prior to selecting the individual unit sizes. the design engineer must set or determine the following factors:

- Inside and outside wet and dry bulb design temperatures.
- Total and sensible heat gains and losses of the area to be served.
- Ventilation air.
- Properties of the heating and cooling medium.
- Available electric power service.
- Any special design requirements of the building or system.

Unit Size

The capacity ratings presented in this catalog are provided for initial unit selection only. Water cooling and heating capacities, unit air flow, static pressure, and glycol solutions are all incorporated into the program to provide the best possible selection. Consult your Daikin representative for a selection tailored to your application.

Unit sizes for the ideal system should be selected by calculating the peak load requirements due to unusually high occupancy or severe climatic conditions and with fan operating at high speed. Ordinary day-to-day cooling and heating requirements are then achieved at low and medium speeds.

The initial unit selection should be checked for air volume in the design system, and the cooling capacities checked at the actual operating conditions. While units selected on the basis of sensible load will generally meet the total cooling load, total load should be checked in all cases.

The unit size is generally selected on the basis of matching the sensible cooling capacity of the unit with the calculated requirements when operating at high speed.

Cooling Coil Requirements: Having checked the minimum unit size to meet the ventilation requirement, the unit size is generally selected on the basis of matching the sensible cooling capacity of the unit at high speed to the calculated requirements.

The initial unit selection should be checked for air volume in the design system and the cooling capacities checked at the actual operating conditions. While units selected on the basis of sensible load will generally meet the total cooling load, total load should be checked in all cases.

Water Coil Types: 3-row and 6-row primary coils are available for all unit sizes to permit unit selections for optimum performance.

Heating Requirements: Heating requirements for two-pipe systems are generally met by employing the same water flow rate as cooling, and adjusting the entering hot water temperature to obtain a matching unit heat output at-low fan speed. Four-pipe systems are generally designed by specifying a design hot water temperature and adjusting the flow rate through the secondary heating coil to meet the required heat load with the fan operating at low speed.

For applications where outside air is ducted to the unit, the fresh air must be tempered before entering the unit if freezing conditions can be expected.

Computer Fan Coil Selection Program

To provide optimal fan coil unit selection, Daikin provides Applied Systems Toolbox™ for computer fan coil selection software The computer program aids in the selection of the most economical unit size and coil option to meet the specification. The program capabilities include hot and chilled water, hot and chilled water with glycol, supplemental steam heat, and unit external static pressure. Use performance tables that follow for your initial rough estimates.

Contact your Daikin sales representative for selections specific to your applications.

Water Cooling Coil Ratings – Direct-Drive Units

Table 1: 3-Row Primary Coil Water Cooling Capacity Ratings[1]

Unit Types	Size	Cooling Capacity[2]		Water Flow (GPM)	Water P.D. (Ft. W.C.)
		Total Btuh	Sensible Btuh		
HCDB, HHDB	06	17,600	14,500	3.5	3.7
	08	26,000	19,700	5.2	3.5
	12	37,000	26,800	7.4	8.1
	16	53,100	40,000	10.6	3.2
	20	61,000	48,600	12.2	3.2

Note: 1. Cooling capacities based on 80°F DB/67°F WB entering air, 45°F entering water, 10°F water temperature rise in HHDB units with plenum operating at High fan speed with no external static pressure. See Table 13 and Table 14 for air volume capacities.
2. For cooling coil capacity ratings at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your Daikin representative.

Table 2: 6-Row Primary Coil Water Cooling Capacity Ratings[1]

Unit Types	Size	Cooling Capacity[2]		Water Flow (GPM)	Water P.D. (Ft. W.C.)
		Total Btuh	Sensible Btuh		
HCDB, HHDB	06	22,500	17,100	4.5	13.3
	08	31,700	23,100	6.3	8.1
	12	43,700	30,800	8.7	11.6
	16	64,500	47,100	12.9	11.6
	20	79,000	56,200	15.8	10.5

Note: 1. Cooling capacities based on 80°F DB/67°F WB entering air, 45°F entering water, 10°F water temperature rise in HHDB units with plenum operating at High fan speed with no external static pressure. See Table 13 and Table 14 for air volume capacities.
2. For cooling coil capacity ratings at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your Daikin representative.

Water Heating and Steam Coil Ratings – Direct-Drive Units

Table 3: 3-Row Primary Coil Water Heating Capacity Ratings[1]

Unit Types	Size	Heating Capacity (Sensible Btuh)	Water Flow (GPM)	Water P.D. (Ft. W.C.)
HCDB, HHDB	06	49,822	3.4	2.7
	08	61,724	4.2	1.9
	12	86,033	5.9	4.1
	16	126,962	8.7	1.7
	20	148,294	10.1	1.8

Note: 1 Heating capacities based on 70°F DB entering air , 180°F entering water, 30°F water temperature drop in HHDB unit with plenum operating at High fan speed with no external static pressure. See Table 13 and Table 14 for air volume capacities. For heating coil capacity ranges at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your representative.

Table 4: 6-Row Primary Coil Water Heating Capacity Ratings[1]

Unit Types	Size	Heating Capacity (Sensible Btuh)	Water Flow (GPM)	Water P.D. (Ft. W.C.)
HCDB, HHDB	06	63,006	4.3	9.4
	08	78,532	5.4	4.7
	12	111,215	7.6	7.0
	16	167,482	11.4	7.2
	20	197,727	13.5	6.1

Note: 1 Heating capacities based on 70°F DB entering air , 180°F entering water, 30°F water temperature drop in HHDB unit with plenum operating at High fan speed with no external static pressure. See Table 13 and Table 14 for air volume capacities. For heating coil capacity ranges at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your representative.

Table 5: Secondary 1-Row Coil Water Heating and Steam Capacity Ratings[1]

Unit Types	Size	Heating Capacity (Sensible Btuh)		Water Flow (GPM)	Water P.D. (Ft. W.C.)
		Steam[2]	Hot Water[3]		
HCDB, HHDB	06	33,554	12,291	0.8	0.6
	08	46,343	19,470	1.3	2.1
	12	54,862	26,570	1.8	3.6
	16	68,353	37,101	2.5	0.7
	20	88,161	47,175	3.2	0.8

Note: 1 Heating capacities based on 70°F DB entering air, 180°F entering water, 30°F water temperature drop in HHDB unit with plenum operating at high fan speed with no external static pressure
2 For water heating coil capacity ratings at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your representative
3 Heating coil capacities based on 2 psig steam pressure and 60°F DB entering air temperature in HHDB unit with plenum operating at high fan speed with no external static pressure. For steam heating coil capacity ratings other than those listed, use the Steam Heating Coil Conversion Factors on page 17 .

Table 6: Secondary 2-Row Coil Water Heating and Steam Capacity Ratings[1]

Unit Types	Size	Heating Capacity (Sensible Btuh)		Water Flow (GPM)	Water P.D. (Ft. W.C.)
		Steam[2]	Hot Water[3]		
HCDB, HHDB	06	52,309	17,905	1.2	0.3
	08	72,841	30,472	2.1	1.0
	12	87,975	46,327	3.2	2.6
	16	113,572	72,048	4.9	0.6
	20	144,386	85,713	5.8	0.6

Note: 1 Heating capacities based on 70°F DB entering air, 180°F entering water, 30°F water temperature drop in HHDB unit with plenum operating at high fan speed with no external static pressure
2 For water heating coil capacity ratings at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your representative
3 Heating coil capacities based on 2 psig steam pressure and 60°F DB entering air temperature in HHDB unit with plenum operating at high fan speed with no external static pressure. For steam heating coil capacity ratings other than those listed, use the Steam Heating Coil Conversion Factors on page 17.

Water Cooling Coil Ratings – Belt-Drive Units

Table 7: 3-Row Primary Coil Water Cooling Capacity Ratings[1]

Unit Types	Size	Airflow (CFM)	Cooling Capacity[2]		Water Flow (GPM)	Water P.D. (Ft. W.C.)
			Total Btuh	Sensible Btuh		
HCBB, HHBB	08	800	24,000	17,700	4.8	3.1
		900	25,615	19,241	5.1	3.4
	12	1200	37,265	27,027	7.5	8.2
		1300	38,898	28,581	7.8	8.8
	16	1600	48,421	35,472	9.7	2.7
		1800	51,521	38,482	10.3	3.0
	20	2000	57,596	45,014	11.5	2.9
		2200	60,565	48,102	12.1	3.1
	30	3000	91,633	66,864	18.3	2.9
		3200	94,813	69,923	19.0	3.1

Note: 1 Cooling capacities based on 80°F DB/67°F WB entering air, 45°F entering water, 10°F water temperature rise.
2 For cooling coil capacity ratings at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your Daikin representative.

Table 8: 6-Row Primary Coil Water Cooling Capacity Ratings[1]

Unit Types	Size	Airflow (CFM)	Cooling Capacity[2]		Water Flow (GPM)	Water P.D. (Ft. W.C.)
			Total Btuh	Sensible Btuh		
HCBB, HHBB	08	800	30,019	21,726	6.0	7.4
		900	32,502	23,845	6.5	8.5
	12	1200	46,515	33,107	9.3	13.0
		1300	49,140	35,276	9.8	14.3
	16	1600	59,924	43,270	12.0	10.2
		1800	64,860	47,477	13.0	11.7
	20	2000	77,358	54,939	15.5	10.1
		2200	82,482	59,209	16.5	11.3
	30	3000	117,951	79,983	23.6	3.6
		3200	123,360	84,205	24.5	3.9

Note: 1 Cooling capacities based on 80°F DB/67°F WB entering air, 45°F entering water, 10°F water temperature rise.
2 For cooling coil capacity ratings at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your Daikin representative.

Water Heating and Steam Coil Ratings – Belt-Drive Units

Table 9: 3-Row Primary Coil Water Heating Capacity Ratings[1]

Unit Types	Size	Airflow (CFM)	Heating Capacity (Sensible Btuh)[2]	Water Flow (GPM)	Water P.D. (Ft. W.C.)
HCBB, HHBB	08	800	56,160	3.8	1.6
		900	60,487	4.1	1.8
	12	1200	86,725	5.9	4.2
		1300	91,262	6.2	4.6
	16	1600	113,798	7.8	1.4
		1800	122,497	8.3	1.6
	20	2000	138,515	9.4	1.6
		2200	147,021	10.0	1.7
	30	3000	224,740	15.3	1.7
		3200	234,140	16.0	1.8

Note: 1 Heating capacities based on 70°F DB entering air, 180°F entering water, 30°F water temperature drop.
2 For heating coil capacity ratings at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your Daikin representative.

Belt-Drive Units (continued)

Table 10: 6-Row Primary Coil Water Heating Capacity Ratings[1]

Unit Types	Size	Airflow (CFM)	Heating Capacity (Sensible Btuh)[2]	Water Flow (GPM)	Water P.D. (Ft. W.C.)
HCBB, HHBB	08	800	71,080	4.8	3.9
		900	78,229	5.3	4.6
	12	1200	115,118	7.8	7.4
		1300	123,012	8.4	8.3
	16	1600	148,216	10.1	5.8
		1800	163,138	11.1	6.9
	20	2000	185,494	12.6	5.4
		2200	200,542	13.7	6.3
	30	3000	275,803	18.8	1.9
		3200	290,980	19.8	2.0

Note: 1 Heating capacities based on 70°F DB entering air, 180°F entering water, 30°F water temperature drop.
2 For heating coil capacity ratings at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your Daikin representative.

Table 11: Secondary 1-Row Coil Water Heating and Steam Capacity Ratings[1]

Unit Types	Size	Airflow (CFM)	Cooling Capacity[2]		Water Flow (GPM)	Water P.D. (Ft. W.C.)
			Steam[2]	Hot Water[3]		
HCBB, HHBB	08	800	44,625	18,741	1.3	1.9
		900	47,290	19,723	1.3	2.1
	12	1200	56,878	27,474	1.9	3.8
		1300	58,883	28,482	1.9	4.0
	16	1600	65,590	35,156	2.4	0.6
		1800	68,635	37,110	2.5	0.7
	20	2000	87,077	46,313	3.2	0.8
		2200	90,486	83,867	5.7	2.9
	30	3000	103,113	83,867	5.7	2.9
		3200	105,462	86,528	5.9	3.0

Note: 1 Heating capacities based on 70°F DB entering air, 180°F entering water, 30°F water temperature drop in HHDB unit with plenum operating at high fan speed with no external static pressure
2 For water heating coil capacity ratings at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your representative
3 Heating coil capacities based on 2 psig steam pressure and 60°F DB entering air temperature in HHDB unit with plenum operating at high fan speed with no external static pressure. For steam heating coil capacity ratings other than those listed, use the Steam Heating Coil Conversion Factors on page 17.

Table 12: Secondary 2-Row Coil Water Heating and Steam Capacity Ratings[1]

Unit Types	Size	Airflow (CFM)	Cooling Capacity[2]		Water Flow (GPM)	Water P.D. (Ft. W.C.)
			Steam[2]	Hot Water[3]		
HCBB, HHBB	08	800	72,807	30,155	2.1	1.0
		900	77,933	32,030	2.2	1.1
	12	1200	95,097	49,769	3.4	3.0
		1300	99,071	51,949	3.5	3.2
	16	1600	111,671	69,869	4.8	0.6
		1800	117,834	74,564	5.1	0.7
	20	2000	147,770	87,147	5.9	0.6
		2200	154,673	91,871	6.3	0.7
	30	3000	179,728	155,638	10.6	1.5
		3200	184,583	161,498	11.0	1.6

Note: 1 Heating capacities based on 70°F DB entering air, 180°F entering water, 30°F water temperature drop in HHDB unit with plenum operating at high fan speed with no external static pressure
2 For water heating coil capacity ratings at conditions other than those listed, refer to Applied Systems Toolbox computer selection program, or consult your representative
3 Heating coil capacities based on 2 psig steam pressure and 60°F DB entering air temperature in HHDB unit with plenum operating at high fan speed with no external static pressure. For steam heating coil capacity ratings other than those listed, use the Steam Heating Coil Conversion Factors on page 17.

Steam Heating Coil Conversion Factors

To determine the capacity conditions other than at 2 PISG steam and 60ºF entering air, multiply the rated capacity by the proper conversion factor below.

Steam Pressure	Steam Temperature (Saturation)	Latent Heat	Conversion Factor for Entering Air Temperature									
			0ºF	10ºF	20ºF	30ºF	40ºF	50ºF	60ºF	70ºF	80ºF	90ºF
0	212.0	970.3	1.34	1.27	1.21	1.15	1.08	1.02	0.96	0.90	0.83	0.77
2	218.5	966.1	1.38	1.31	1.25	1.19	1.13	1.06	1.00	0.94	0.87	0.81
5	227.1	960.6	1.43	1.37	1.31	1.24	1.18	1.12	1.06	0.99	0.93	0.87
10	239.4	952.6	1.51	1.45	1.38	1.32	1.26	1.20	1.13	1.07	1.01	0.94
15	249.7	945.6	1.57	1.51	1.45	1.38	1.32	1.26	1.20	1.13	1.07	1.01
20	258.8	939.6	1.63	1.57	1.51	1.44	1.38	1.32	1.25	1.19	1.13	1.06
25	266.8	934.0	1.68	1.62	1.56	1.50	1.43	1.37	1.31	1.24	1.17	1.12

Direct-Drive Units

Table 13: Air Volume versus External Static Pressure—HHDB Unit without Plenum

External Static Pressure (inches H_2O)		Air Volume (CFM) for Unit Size				
		06	08	12	16	20
0.00	High	838	990	1410	2013	2563
	Medium	657	810	1170	1811	2300
	Low	362	479	688	1049	1409
0.10	High	814	963	1339	1944	243
	Medium	627	797	1124	1782	2198
	Low	343	479	662	1042	1364
0.20	High	759	925	1261	1856	2290
	Medium	593	775	1062	1719	2081
	Low	312	471	627	1019	1298
0.30	High	700	882	1175	1761	2129
	Medium	554	750	992	1645	1943
	Low	274	457	584	979	1215
0.40	High	633	832	1081	1653	1943
	Medium	507	717	910	1553	1774
	Low	231	436	530	914	1113
0.50	High	553	769	974	1509	1708
	Medium	440	668	802	1406	1560
	Low	183	402	465	814	992
0.60	High	443	679	846	1285	1390
	Medium	340	590	643	1137	1284
	Low	128	347	387	664	850

Note: Air volumes based on 115V/60Hz/1Ø electrical service, standard water cooling coil (dry coil) and normal unit appurtenances. “High” indicates highest fan speed. “Medium” indicates air volume for medium high (second of four fan speeds). “Low” indicates lowest fan speed

Table 14: Air Volume versus External Static Pressure—HCDB & HHDB Unit with Plenum

External Static Pressure (inches H_2O)		Air Volume (CFM) for Unit Size				
		06	08	12	16	20
0.00	High	740	930	1185	1910	2232
	Medium	640	825	1068	1747	1996
	Low	365	505	687	1050	1233
0.10	High	697	886	1119	1834	2113
	Medium	599	793	1010	1700	1887
	Low	344	500	651	1040	1176
0.20	High	643	832	1044	1743	1974
	Medium	550	751	941	1634	1759
	Low	312	485	602	1025	1091
0.30	High	582	770	962	1641	1814
	Medium	496	702	865	1548	1614
	Low	274	464	543	989	992
0.40	High	516	702	873	1524	1634
	Medium	435	645	786	1437	1453
	Low	230	433	476	920	885
0.50	High	435	624	776	1379	1429
	Medium	361	576	699	1295	1274
	Low	179	382	399	810	766
0.60	High	325	530	670	1186	1193
	Medium	265	485	601	1108	1072
	Low	119	295	306	655	631

Note: Air volumes based on 115V/60Hz/1Ø electrical service, standard water cooling coil (dry coil) and normal unit appurtenances. “High” indicates highest fan speed. “Medium” indicates air volume for medium high (second of four fan speeds). “Low” indicates lowest fan speed

Belt-Drive Units

Table 15: Pressure Drop through Components

Model	CFM	Static Pressure (Inches of Water)							
		Plenum or Cabinet	Cooling Coil (wet)		Heating Coil		Grilles		Filters
			Standard	High Capacity	1-Row	2-Row	Stamped	Double Deflection	Disposable
08	500	0.06	0.18	0.25	0.05	0.10	0.03	0.02	0.09
	600	0.09	0.24	0.33	0.07	0.13	0.04	0.03	0.11
	700	0.12	0.31	0.42	0.09	0.17	0.05	0.04	0.13
	800	0.16	0.38	0.51	0.11	0.22	0.06	0.06	0.15
	900	0.20	0.46	0.61	0.13	0.26	0.07	0.07	0.17
12	800	0.09	0.21	0.30	0.06	0.12	0.03	0.02	0.11
	900	0.11	0.26	0.36	0.07	0.14	0.04	0.02	0.13
	1000	0.14	0.31	0.42	0.09	0.17	0.04	0.03	0.15
	1100	0.16	0.35	0.48	0.10	0.20	0.05	0.03	0.17
	1200	0.19	0.41	0.55	0.12	0.23	0.06	0.04	0.19
	1300	0.23	0.46	0.62	0.13	0.27	0.06	0.05	0.22
16	1200	0.10	0.25	0.35	0.07	0.14	0.05	0.03	0.11
	1300	0.12	0.29	0.39	0.08	0.16	0.05	0.04	0.12
	1400	0.14	0.32	0.44	0.09	0.18	0.06	0.04	0.13
	1500	0.16	0.36	0.49	0.10	0.21	0.07	0.05	0.14
	1600	0.19	0.40	0.54	0.11	0.23	0.07	0.06	0.15
	1700	0.21	0.44	0.59	0.13	0.25	0.08	0.06	0.16
	1800	0.24	0.48	0.64	0.14	0.28	0.09	0.07	0.17
20	1600	0.17	0.29	0.39	0.08	0.16	0.06	0.06	0.11
	1700	0.20	0.32	0.43	0.09	0.18	0.07	0.06	0.12
	1800	0.22	0.34	0.46	0.10	0.19	0.07	0.07	0.13
	1900	0.24	0.38	0.50	0.11	0.21	0.08	0.08	0.14
	2000	0.27	0.41	0.54	0.12	0.23	0.09	0.08	0.15
	2100	0.30	0.44	0.59	0.13	0.25	0.09	0.09	0.16
	2200	0.33	0.47	0.63	0.14	0.27	0.10	0.11	0.17
30	2000	0.06	0.22	0.30	0.06	0.12	0.04	0.03	0.11
	2200	0.07	0.25	0.35	0.07	0.14	0.05	0.03	0.13
	2400	0.09	0.20	0.40	0.08	0.16	0.06	0.04	0.14
	2600	0.10	0.33	0.45	0.09	0.19	0.06	0.05	0.16
	2800	0.12	0.37	0.50	0.11	0.21	0.07	0.06	0.17
	3000	0.14	0.41	0.56	0.12	0.24	0.08	0.07	0.19
	3200	0.15	0.46	0.61	0.13	0.26	0.09	0.07	0.21

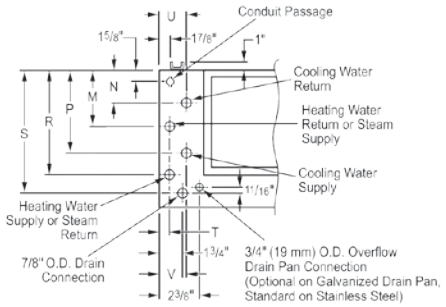
Table 16: Fan Performance

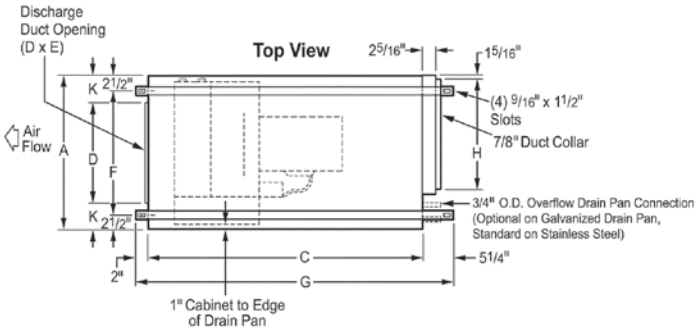
Model	CFM	Coil Face Velocity (FPM)	RPM and Brake Horsepower for Total Static Pressure (Inches of Water)															
			¼"		⅜"		½"		⅝"		¾"		1.0"		1-¼"		1-½"	
			RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
08	500	300	558	0.080	691	0.097	798	0.109	.888	0.130	970	0.165	1125	0.200	1257	0.243	1381	0.225
	600	360	563	0.090	683	0.110	790	0.130	879	0.150	959	0.190	1118	0.215	1250	0.260	1381	0.250
	700	420	581	0.100	690	0.135	792	0.145	877	0.170	950	0.205	1107	0.262	1238	0.290	1369	0.310
	800	480	599	0.110	698	0.160	793	0.160	876	0.190	946	0.220	1097	0.310	1226	0.320	1358	0.370
	900	540	621	0.125	715	0.165	803	0.175	881	0.205	950	0.240	1095	0.375	1220	0.385	1347	0.410
12	800	335	589	0.119	696	0.145	787	0.164	875	0.192	972	0.227	1127	0.285	1268	0.340	1400	0.415
	900	375	606	0.136	707	0.162	795	0.189	881	0.212	968	0.247	1118	0.309	1257	0.371	1387	0.445
	1000	415	623	0.153	717	0.178	803	0.204	887	0.231	964	0.266	1104	0.333	1245	0.402	1373	0.475
	1100	460	643	0.170	733	0.200	816	0.228	898	0.261	972	0.296	1110	0.364	1239	0.432	1363	0.504
	1200	500	663	0.188	748	0.222	828	0.251	909	0.290	980	0.325	1111	0.394	1233	0.462	1352	0.532
	1300	540	686	0.219	767	0.251	834	0.287	922	0.326	992	0.361	1117	0.409	1236	0.504	1351	0.577
16	1200	370	563	0.180	683	0.220	790	0.260	879	0.300	959	0.380	1118	0.430	1250	0.520	1381	0.500
	1300	400	572	0.190	686	0.246	791	0.276	878	0.320	952	0.394	1113	0.478	1244	0.550	1375	0.560
	1400	435	581	0.200	690	0.270	792	0.290	877	0.340	950	0.410	1107	0.524	1238	0.580	1369	0.620
	1500	465	590	0.210	694	0.296	792	0.306	876	0.360	948	0.424	1102	0.572	1232	0.610	1364	0.680
	1600	495	599	0.220	698	0.320	793	0.320	876	0.380	946	0.440	1097	0.620	1226	0.640	1358	0.740
	1700	525	610	0.236	706	0.326	798	0.336	878	0.396	948	0.460	1096	0.686	1223	0.706	1352	0.780
	1800	560	621	0.250	715	0.330	803	0.350	881	0.410	950	0.480	1095	0.750	1220	0.770	1347	0.820
20	1600	400	589	0.238	696	0.290	787	0.328	875	0.384	972	0.454	1127	0.570	1268	0.680	1400	0.830
	1700	425	598	0.256	701	0.306	791	0.354	878	0.404	970	0.474	1122	0.594	1263	0.712	1393	0.860
	1800	450	606	0.272	707	0.324	795	0.378	881	0.424	968	0.494	1118	0.618	1257	0.742	1387	0.890
	1900	475	615	0.290	712	0.340	799	0.384	884	0.442	966	0.512	1114	0.642	1251	0.774	1380	0.920
	2000	500	623	0.306	717	0.356	803	0.408	887	0.462	964	0.532	1104	0.666	1245	0.804	1373	950
	2100	525	633	0.324	725	0.378	810	0.432	893	0.492	968	0.562	1110	0.698	1242	0.832	1368	0.980
	2200	550	643	0.340	733	0.400	816	0.456	898	0.522	972	0.592	1110	0.728	1239	0.864	1363	1.008
30	2000	335	507	0.310	600	0.360	693	0.420	773	0.520	843	0.600	977	0.760	1102	0.940	1217	1.014
	2200	370	518	0.330	609	0.400	699	0.470	771	0.550	842	0.630	972	0.800	1094	0.960	1205	1.018
	2400	405	529	0.360	618	0.440	705	0.520	770	0.580	841	0.660	967	0.840	1086	0.980	1194	1.220
	2600	435	543	0.400	629	0.480	711	0.550	776	0.620	844	0.710	967	0.880	1082	1.036	1188	1.280
	2800	470	558	0.440	640	0.520	718	0.580	782	0.660	847	0.760	968	0.920	1078	1.090	1182	1.350
	3000	505	574	0.470	655	0.560	728	0.626	791	0.710	855	0.810	977	0.990	1080	1.156	1179	1.390
	3200	540	591	0.500	671	0.600	739	0.670	800	0.760	863	0.860	987	1.060	1082	1.220	1176	1.420

HCDB Direct-Drive Cabinet Dimensional Data

Right-hand Unit Shown

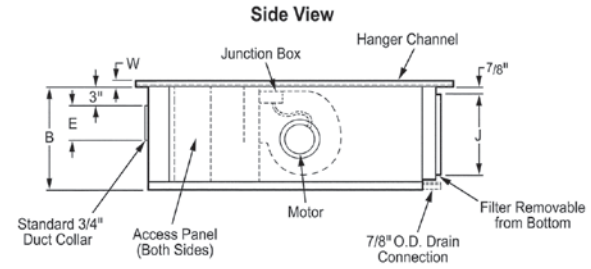
Hand determined by cooling coil connection when facing the discharge.





Knockout Dimensions (inches)			
Unit Size	**Elec**	**CLG S&R**	**HTG S&R**
06, 08	1-3/32	1-1/4	1-1/2
12	1-3/32	1-3/8	1-1/2
16	1-3/32	1-3/8	1-1/2
20	1-3/32	1-3/4	1-3/4

Note: Coil connection knockouts are not necessarily in line with coil connections.



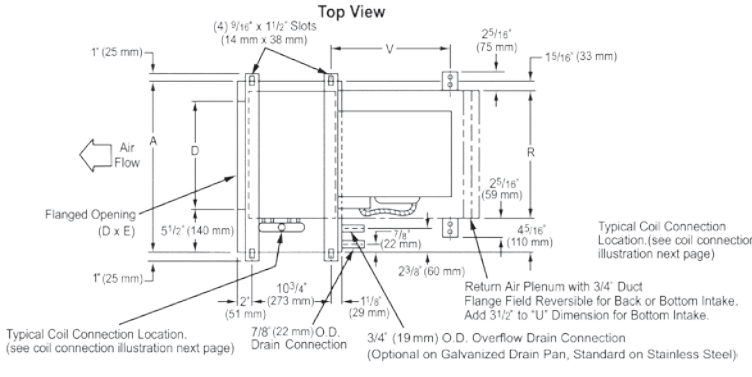
Unit Size	Dimensions (inches)																		
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**M**	**N**	**P**	**R**	**S**	**T**	**U**	**V**	**W**
06	24.0	17-5/8	37.0	20.0	4.0	19.0	44-1/4	18-1/2	14-5/8	2.0	4-7/16	2-11/16	9-9/16	11-3/8	14-1/4	1-9/16	1-9/16	1-9/16	1.0
08	26.0	17-5/8	46.0	20.0	6.0	21.0	53-1/4	18-1/2	14-5/8	3.0	4-7/16	4-7/16	12-1/16	13-7/8	16-3/4	1-9/16	1-9/16	3-3/4	1.0
12	33.0	17-5/8	46.0	24.0	8.0	28.0	53-1/4	23-1/2	14-5/8	4-1/2.0	4-7/16	4-7/16	12-1/16	13-7/8	16-3/4	1-9/16	1-9/16	3-3/4	1.0
16	44.0	17-5/8	46.0	36.0	8.0	39.0	53-1/4	38-1/2	14-5/8	4.0	4-7/16	2-11/16	8-3/16	13-3/4	16-3/4	2-1/4	2-1/4	2-1/4	1.0
20	46.0	21-1/8	50.0	41-3/4	6.0	41.0	57-1/4	38-1/2	18-5/8	2-1/8	5-1/16	4-1/8	9-7/16	16-1/4	19-1/4	2-1/4	4-3/16	4-3/16	1-1/4

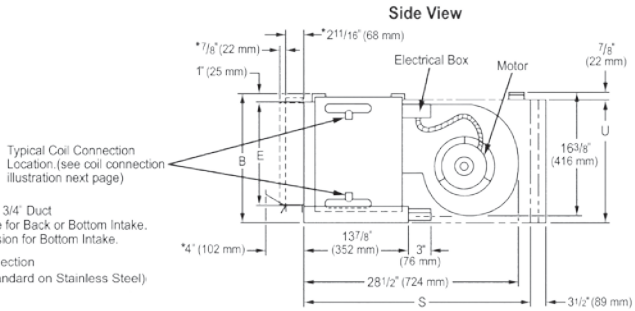
HHDB Direct-Drive Hideaway Dimensional Data

Right-hand Unit Shown

Hand determined by cooling coil connection when facing the discharge.

NOTE: Unit sizes 16 and 20 have 2 fans

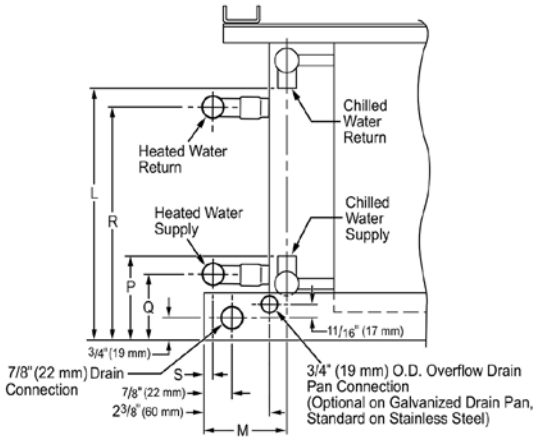




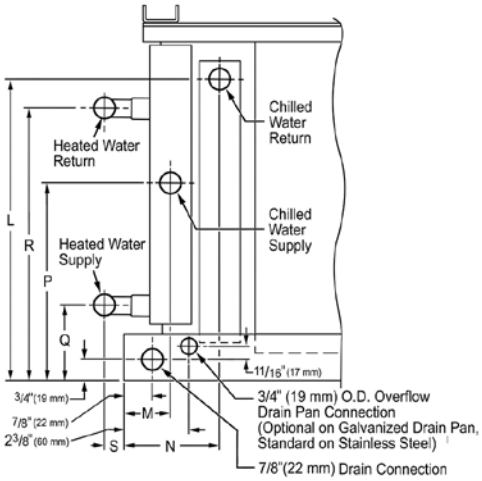
Unit Size	Dimensions (inches)							
	A	**B**	**D**	**E**	**R**	**S**	**U**	**V**
06	22.0	14.0	14.0	10-7/8	16-3/8	29-5/8	15-3/4	15-3/8
08	24.0	16-1/2	16.0	13-3/8	18-3/8	29-5/8	15-3/4	15-3/8
12	31.0	16-1/2	23.0	13-3/8	25-3/8	29-5/8	15-3/4	15-3/8
16	39.0	16-1/2	31.0	13-3/8	33-3/8	29-5/8	15-3/4	15-3/8
20	41.0	19.0	33.0	15-5/8	35-3/8	32-1/8	18-1/4	17-3/8

HHDB Coil Connection Locations for Chilled Water Coils

Rear View Sizes 06, 08, 12



Rear View Sizes 16, 20



All dimensions approximate. Certified drawings available upon request.

Unit Size	Dimensions (inches)						
	L	M	N	P	Q ±⅜	R ±⅜	S ±⅜
06	10-7/8	2-3/4	—	4.0	2-7/8	9-13/16	1-1/16
08	13-3/8	2-3/4	—	4.0	2-7/8	12-5/16	1-1/16
12	13-3/8	2-3/4	—	4.0	2-7/8	12-5/16	1/4
16	14.0	1-3/4	3-1/4	8.0	3-1/16	12-3/8	2.0
20	15-1/4	1-3/4*	3-1/4	8.0	3-1/8	14-5/16	1-5/8

* 1-1/4 for high capacity

Direct-Drive Physical Data (HCDB/HHDB)

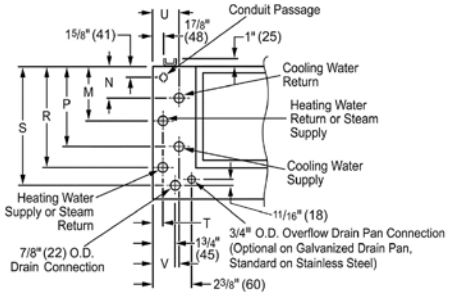
Unit Size	06	08	12	16	20
Nominal CFM	600	800	1200	1600	2000
Fans (Forwardly Curved — DWDI — Belt-Drive)					
Number - Diameter	1 – 9"	1 – 9"	1 – 9"	2 – 9"	2 – 9"
Water Connections					
1-Row Coil (OD Sw)	7/8	7/8	1-1/8	1-1/8	1-3/8
2-Row Coil (OD Sw)	7/8	1-1/8	1-1/8	1-3/8	1-3/8
3-Row Coil (OD Sw)	5/8	7/8	1-1/8	1-1/8	1-1/8
6-Row Coil (OD Sw)	5/8	7/8	1-1/8	1-1/8	1-5/8
Motors (115V, 60Hz, 1Ø, Permanent Split Capacitor — Direct-Drive)					
(Number) Nominal Horsepower	(1) 1/4	(1) 1/4	(1) 1/3	(2) 1/4	(2) 1/3
Full Load Amps	3.5	3.9	4.9	7.8	9.8
Watts (Total)	310	380	480	686	960
RPM	1010	1000	1080	1000	1100
Motors (265V, 60Hz, 1Ø, Permanent Split Capacitor — Direct-Drive)					
(Number) Nominal Horsepower	(1) 1/4	(1) 1/4	(1) 1/3	(2) 1/4	(2) 1/3
Full Load Amps	1.3	1.4	2.0	2.8	4.0
Watts (Total)	322	350	425	700	850
RPM	1020	1000	1100	1000	1100
Filters (Number - Nominal Size)					
HCDB Models	1 – 16 × 20 × 2	1 – 16 × 20 × 2	1 – 16 × 25 × 2	2 – 16 × 20 × 2	2 – 20 × 20 × 2
HHDB Models	1 – 15-1/2 × 16-1/8 × 2	1 – 15-1/2 × 18 × 2	1 – 15-1/2 × 25 × 2	1 – 15-1/2 × 33 × 2	1 – 18 × 35-1/8 × 2
Shipping Weights (Lbs.)					
HCDB with 3-Row Primary Coil	158	191	228	297	387
HCDB with 6-Row Primary Coil	167	203	245	318	415
HHDB with 3-Row Primary Coil	96	98	115	160	180
HHDB with 6-Row Primary Coil	105	110	132	181	208
Dry Weight 1-row Reheat Coil	4	4	8	10	13
Dry Weight 2-row Reheat Coil	6	6	10	12	15
Dry Weight 3-row Primary Coil	13	13	17	22	28
Dry Weight 6-row Primary Coil	22	25	34	43	56
Water Weight 1-row Reheat Coil†	18	23	23	23	47
Water Weight 2-row Reheat Coil†	33	40	41	42	50
Water Weight 3-row Primary Coil†	7	8	10	21	26
Water Weight 6-row Primary Coil†	14	22	25	29	55

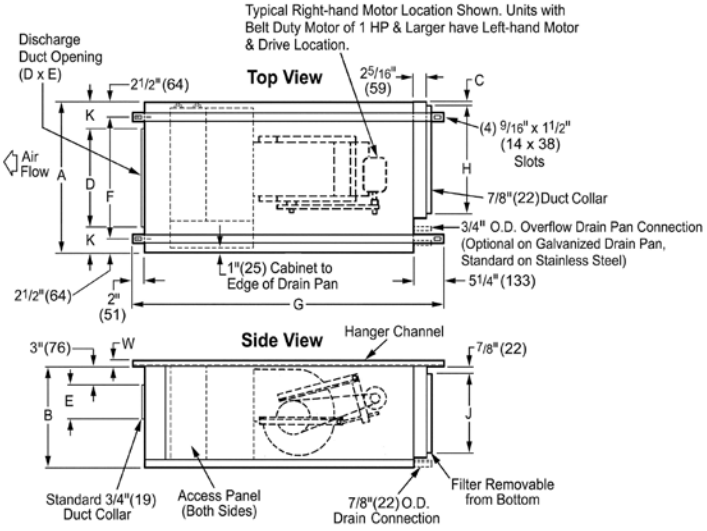
†Indicates weight of water within coil at 25°C/77°F and 14.7 psi/1 bar

HCBB Belt-Drive Cabinet Dimensional Data

Right-hand Unit Shown

Hand determined by cooling coil connection when facing the discharge.





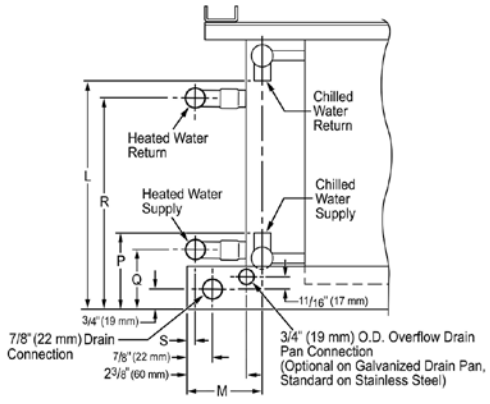
Knockout Dimensions (inches)			
Unit Size	**Elec**	**CLG S&R**	**HTG S&R**
08	1-3/32	1-1/4	1-1/2
12	1-3/32	1-3/8	1-1/2
16	1-3/32	1-3/8	1-1/2
20	1-3/32	1-3/8	1-3/4
30	1-3/32	1-3/4	1-3/4

Note: Coil connection knockouts are not necessarily in line with coil connections.

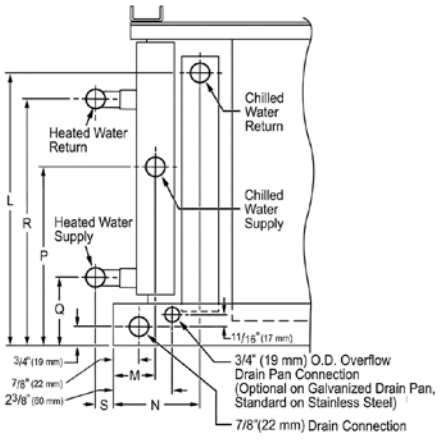
Unit Size	Dimensions (inches)																		
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**M**	**N**	**P**	**R**	**S**	**T**	**U**	**V**	**W**
08	26.0	17-5/8	1-1/4	20.0	6.0	21.0	53-1/4	18-1/2	14-5/8	3.0	4-7/16	4-7/16	12-1/16	13-7/8	16-3/4	1-9/16	1-9/16	3-3/4	1.0
12	33.0	17-5/8	1-1/4	24.0	8.0	28.0	53-1/4	23-1/2	14-5/8	4-1/2	4-7/16	4-7/16	12-1/16	13-7/8	16-3/4	1-9/16	1-9/16	3-3/4	1.0
16	44.0	17-5/8	1-1/4	36.0	6.0	39.0	53-1/4	38-1/2	14-5/8	5.0	4-7/16	2-11/16	8-3/16	13-7/8	16-3/4	2-1/4	2-1/4	2-1/4	1.0
20	46.0	21-1/8	1-1/4	41-3/4	6.0	41.0	57-1/4	38-1/2	18-5/8	2-1/8	5-1/16	4-1/8	9-7/16	16-1/4	19-1/4	2-1/4	2-1/4	4-3/16	1-1/4
30	62.0	21-1/8	6-3/4	49-3/4	8.0	57.0	57-1/4	48-1/2	18-5/8	6-1/8	5-1/16	2-7/8	9-7/16	16-1/4	19-1/4	2-1/4	2-1/4	4.0	1-1/4

HHBB Coil Connection Locations for Chilled Water Coils

Rear View Sizes 08, 12



Rear View Sizes 16, 20, 30



All dimensions approximate.

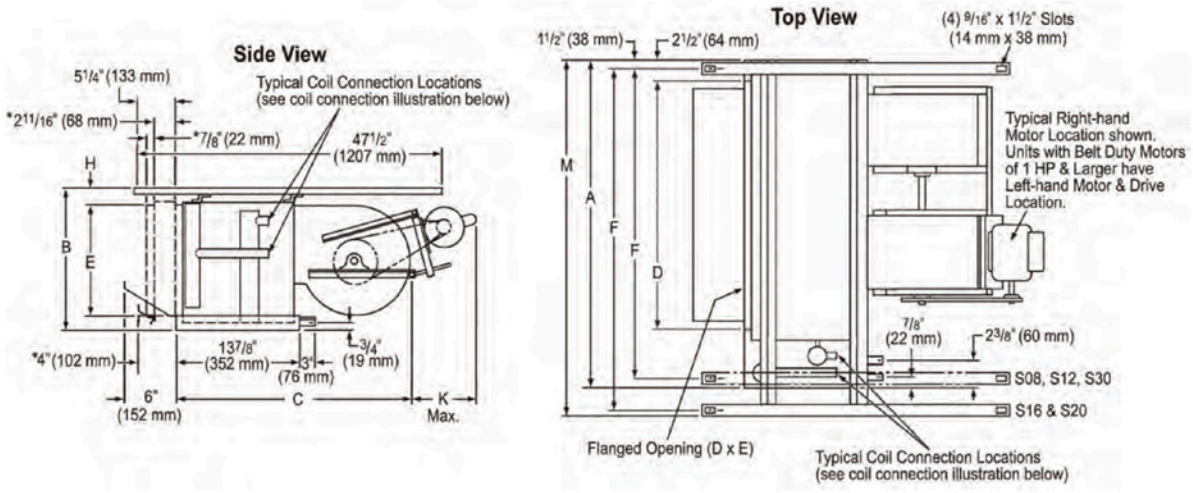
Unit Size	Dimensions (inches)						
	L	**M**	**N**	**P**	**Q ±3/8**	**R ±3/8**	**S ±3/8**
08	13-3/8	2-3/4	—	4.0	2-7/8	12-5/16	11/16
12	13-3/8	2-3/4	—	4.0	2-7/8	12-5/16	1/4
16	14.0	1-3/4	—	4.0	3-1/16	12-3/8	2.0
20	15-1/4	1-3/4*	3-1/4	8.0	3-1/8	14-5/16	1-5/8
30	16-1/4	4.0	3-1/4	8.0	3-1/8	14-5/16	2-1/2

* 1-1/4 for high capacity

HHBB Belt-Drive Hideaway with Hanging Rails Dimensional Data

Right Hand Unit Shown.

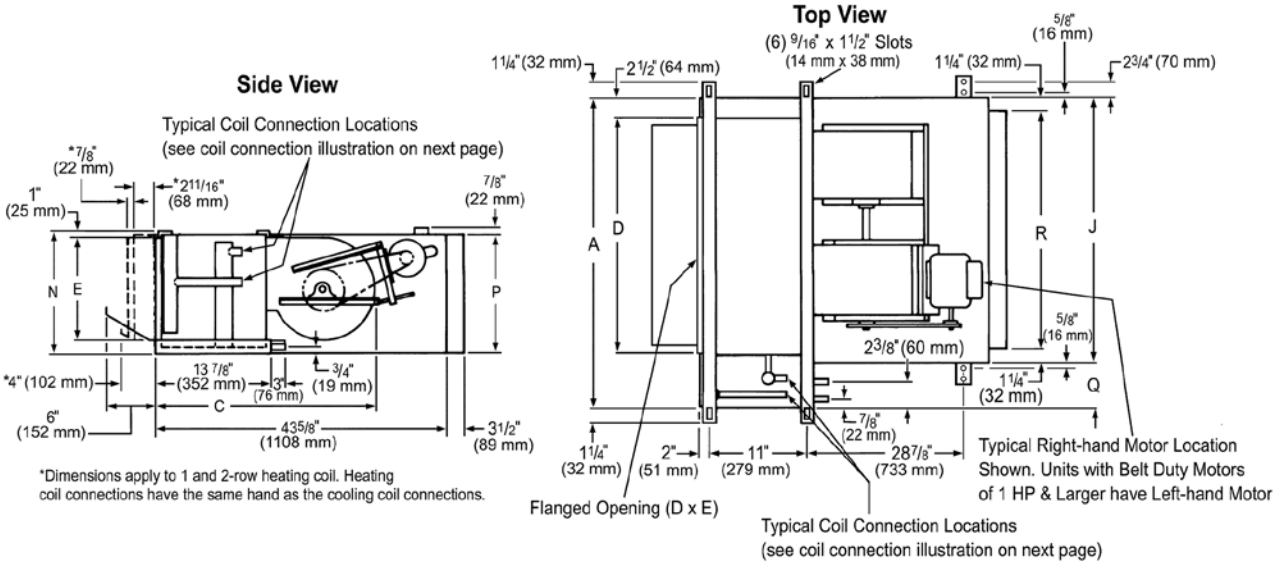
Hand determined by cooling coil connection when facing discharge.



HHBB Belt-Drive Hideaway Return and Air Plenum Dimensional Data

Right Hand Unit Shown.

Hand determined by cooling coil connection when facing discharge.



NOTE: 1 Unit must be supported at all six hanging slots.
2 Return air plenum with 3/4" duct flange is field reversible for back or bottom intake. Add 3-1/2" to “P” dimension for bottom intake

Unit Size	No. of Fans	Unit dimensions (in)[1]									
		A	C	D	E	F	J	N	P	Q	R
08	1	24.0	28-1/2	16-1/4	13-3/8	24.0	21.0	16-1/2	15-3/4	3.0	18-1/2
12	1	31.0	28-1/2	23.0	13-3/8	31.0	28.0	16-1/2	15-3/4	3.0	25-1/2
16	2	39.0	28-1/2	31.0	13-3/8	39.0	36.0	16-1/2	15-3/4	3.0	33-1/2
20	2	41.0	28-1/2	33-1/4	15-3/8	41.0	38.0	18-3/4	18-1/4	3.0	35-1/2
30	2	60.0	30.0	49.0	15-3/8	57.0	54.0	18-3/4	18-1/4	6.0	51-1/2

All dimensions approximate.

Belt-Drive Physical Data (HCBB/HHBB)

Unit Size	08	12	16	20	30
Nominal CFM	800	1200	1600	2000	3000
Fans (Forwardly Curved — DWDI — Belt-Drive)					
Number - Diameter	1 – 9"	1 – 9"	2 – 9"	2 – 9"	2 – 10"
Water Connections					
1-Row Coil (OD Sw)	7/8	1-1/8	1-1/8	1-3/8	1-3/8
2-Row Coil (OD Sw)	1-1/8	1-1/8	1-3/8	1-3/8	1-3/8
3-Row Coil (OD Sw)	7/8	1-1/8	1-1/8	1-1/8	1-5/8
6-Row Coil (OD Sw)	7/8	1-1/8	1-1/8	1-5/8	1-5/8
Filters (Number - Nominal Size)					
HCBB Models (CZ*)	1 – 16 × 20 × 2	1 – 16 × 25 × 2	2 – 16 × 20 × 2	2 – 20 × 20 × 2	2 – 20 × 25 × 2
HHBB Models (HZ*)	1 – 15 1/2 × 18 × 2	1 – 15 1/2 × 25 × 2	1 – 15 1/2 × 33 × 2	1 – 18 × 35 1/8 × 2	1 – 18 × 25 1/2 × 2
Shipping Weights (Lbs.)					
HCBB with 3-Row Primary Coil	206	233	315	407	512
HCBB with 6-Row Primary Coil	218	250	336	435	551
HHBB with 3-Row Primary Coil	113	130	178	200	230
HHBB with 6-Row Primary Coil	125	147	199	228	268
Dry Weight 1-row Reheat Coil	4	8	10	13	14
Dry Weight 2-row Reheat Coil	6	10	12	15	16
Dry Weight 3-row Primary Coil	13	17	22	28	36
Dry Weight 6-row Primary Coil	25	34	43	43	75
Water Weight 1-row Reheat Coil†	23	23	23	47	49
Water Weight 2-row Reheat Coil†	40	41	42	50	53
Water Weight 3-row Primary Coil†	8	10	21	26	50
Water Weight 6-row Primary Coil†	22	25	29	55	64

†Indicates weight of water within coil at 25°C/77°F and 14.7 psi/1 bar

Large Capacity Drive, HP, and Voltage Selection (Factory Installed)

Unit Size	Fan RPM Range	Low Motor Horsepower	High Motor Horsepower	Voltage Options
08	825 - 1170	0.33	0.75	115/208-230/60/1 208-230/460/60/3
12	825 - 1170	0.50	—	115/208-230/60/1 208-230/460/60/3
12	1030 - 1460	—	0.75	115/208-230/60/1 208-230/460/60/3
16	590 - 836	0.50	—	115/208-230/60/1 208-230/460/60/3
16	590 - 836	—	1.00	115/208-230/60/1
16	816 - 1110	—	1.00	208-230/460/60/3
20	690 - 975	0.75	—	115/208-230/60/1 08-230/460/60/3
20	816 - 1110	—	1.50	208-230/460/60/3
20	825 - 1170	—	1.50	115/208-230/60/1
30	590 - 836	1.00	—	115/208-230/460/60/1
30	819 - 1110	1.00	—	208-230/460/60/3
30	690 - 975	—	1.50	115/208-230/60/1
30	816 - 1110	—	1.50	208-230/460/60/3

Stock Units Shipped with the Following Drives	
Unit Size	**Fan RPM Range**
08	825 - 1170
12	825 - 1170
16	825 - 1170
20	1030 - 1460
30	965 - 1310

Note: 1 Stock unit sizes 08 thru 16 are fitted with drive kits sized for #56 frames
2 Stock unit sizes 20 and 30 are fitted with drive kits sized for 143T/145T frames
3 For applications requiring fan speeds outside the range of factory-provided drives, multiple sheave kits are available for field installation.
Contact your Daikin sales representative for more details
4 Other motor voltages (277/60/1, 575/60/3) are available.
Contact your Daikin sales representative for more details

Part 1: General

1.01 Section Includes

A Large Capacity Fan Coil units.

1.02 References

A. AFBMA 9—Load Ratings and Fatigue Life for Ball Bearings

B. AMCA 99—Standards Handbook

C. AMCA 300—Test Code for Sound Rating Air Moving Devices

D. AMCA 500—Test Methods for Louver, Dampers, and Shutters

E. AG.AHRI 430—Central-Station Air-Handling Units.

F. AHRI 435—Application of Central-Station Air-Handling Units

G. ASTMB117—Standard Practice for Operating Salt Spray Apparatus

H. NEMA MG1—Motors and Generators

I. NFPA 70—National Electrical Code

J. SMACNA—HVAC Duct Construction Standards – Metal and Flexible

K. UL 723—Test for Surface Burning Characteristics of Building Materials

L. UL 900—Test Performance of Air Filter Units

M. UL 1995—Standard for Heating and Cooling Equipment

N. UL 94—Test for Flammability of Plastic Materials for

O. Parts in Devices and Appliances

1.03 Submittals

A. Shop Drawings: Indicate assembly, unit dimensions, weight loading, required clearances, construction details, field connection details, and electrical characteristics and connection requirements. Computer generated fan curves for each air handling unit shall be submitted with specific design operating point noted. A computer generated psychometric chart shall be submitted for each cooling coil with design points and final operating point clearly noted.

B. Product Data:

Provide literature that indicates dimensions, weights, capacities, ratings, fan performance, finishes of materials, and electrical characteristics and connection requirements. Provide data of filter media, filter performance data, filter assembly, and filter frames.

C. Manufacturer's Installation Instructions.

1.04 Operation and Maintenance Data

A. Maintenance Data: Include instructions for lubrication, filter replacement and motor and drive replacement.

1.05 Qualifications

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience, which issues complete catalog data on total product.

1.06 Delivery, Storage, and Handling

A. Deliver, store, protect and handle products to site.

B. Accept products on site on factory-installed shipping skids. Inspect for damage.

C. Store in clean dry place and protect from weather and construction traffic. Handle carefully to avoid damage to components, enclosures, and finish.

1.07 Environmental Requirements

A. Do not operate units for any purpose, temporary or permanent, until ductwork is clean, filters are in place, bearings lubricated, and fan has been test run under observation.

Part 2: Products

2.01 Manufacturers

A. The following manufacturers are approved for use. No substitutions will be permitted.

1. Daikin – Large Cap is the basis of design, including standard product features and all special features required per plans and specifications.
2. Trane
3. ETI (JCI)

2.02 Fan Coil Type and Arrangement

A. The fan coil shall be furnished as a horizontal cabinet [hideaway] blow-through cooling coil only [cooling coil and heating coil in reheat position] type.

2.03 Fan Coil Casing

A. Cabinet Type

a. Unit shall be of horizontal console type. Unit panels shall fabricated of continuous galvanized steel exterior finished in Antique Ivory [Cupola White] [Off White] [Soft Gray] [Putty Beige] [Oxford Brown] [Textured Bronze] paint. All panels shall be insulated with 1" neoprene-coated glass fiber.

b. Removable panels on both sides and bottom of a unit shall provide full access to unit interior. Discharge panel shall be equipped with stamped grille [double deflection grille] [duct collar]. Back panel shall have a 2" filter frame with bottom filter access and be complete with duct collar.

C. Hideaway Type

a. Unit shall consist of a base casing with [without] return air plenum fabricated of continuous galvanized steel. Return air plenum shall be insulated with 1" neoprene-coated glass fiber. Return plenum shall have 2" filter frame for back or bottom return air.

2.04 Supply Fan, Drives, Bearings, and Motors

A. Direct-Drive unit.

a. Fan shall be double-width double-inlet (DWDI) forward-curved centrifugal type dynamically balanced and directly connected to the motor shaft.

b. Unit shall be equipped with 4-speed direct-drive motors. Motors shall be 115/60/1 [265/60/1] permanent-split capacitor type with resilient mount, sleeve bearings with oilers and built-in thermal overload protection with automatic reset.

c. An ECM blower motor shall be provided on all units. Factory motor wiring shall be set for optimum fan performance. The unit shall be shipped at one fixed setting. The ECM motor shall utilize a permanent magnet rotor, which is connected to the shaft through resilient rings to absorb high frequency torque ripple. ECM motor shall be programmed for constant CFM.

B. Belt-Drive unit

a. The supply fan shall be a DWDI forward-curved centrifugal type. Fan assemblies including fan, motor and sheaves shall be dynamically balanced by the manufacturer on all three planes and at all bearing supports. Manufacturer must ensure maximum fan RPM is below the first critical speed.

b. Shafts shall be solid, hot rolled steel, ground and polished, keyed to shaft, and protectively coated with lubricating oil. Hollow shafts are not acceptable

c. Bearings and Drives. Bearings to be heavy duty pillow block type, self-aligning, grease-lubricated ball bearings.

d. V-Belt-Drives shall be cast iron or steel sheaves, dynamically balanced, bored to fit shafts and keyed. Variable and adjustable pitch sheaves selected, so required RPM is obtained with sheaves set at mid-position and rated based on motor horsepower. Contractor to furnish fixed sheaves at final RPM as determined by balancing contractor.

e. Motor mount shall be a hinged type for simple belt tension adjustment and be securely fastened to the unit. Motor shall be Premium Efficiency Open Drip-Proof (ODP) type and must meet EPACT minimum efficiency standards (applicable only to 1 HP motors and larger). Electrical characteristics shall be as shown in schedule.

2.05 Electrical and Controls

A. Large Capacity Fan Coil power connections and any control devices shall be field provided.

B. [Opt. Direct-Drive units only] A 2" × 4" junction box shall be furnished by manufacturer for field mount and power connection to the motor.

C. [Opt. Belt-Drive units only] A 4" × 4" junction box with motor wires routed to it shall be furnished by manufacturer for final field mounting and power connection to the motor.

D. [Opt. Direct-Drive Hideaway units only] A 3-speed motor control switch with “Off” position shall be furnished for field wiring to any three of four motor speeds. The speed switch shall be suitable for field installation in a nominal 2" × 4" electrical box by others.

2.06 Coil Section

A. Hydronic Coils:

   a. Cooling performance shall be as specified on the unit schedule

   b. Coil tubes shall be ½" seamless copper, expanded into fins, brazed at joints.

   c. Aluminum fins shall have full drawn collars to provide a continuous surface cover over the entire tube for maximum heat transfer. Tubes shall be mechanically expanded into the fins to provide a continuous primary-to-secondary compression bond over the entire finned length for maximum heat transfer rates. Bare copper tubes shall not be visible between fins.

   d. Water coils shall be provided with headers of seamless copper tubing with intruded tube holes to permit expansion and contraction without creating undue stress or strain. Coil connections shall be carbon steel connection size to be determined by manufacturer based upon the most efficient coil circuiting.

   e. Vent connections shall be provided at the highest point to assure proper venting. Drain connections shall be provided at the lowest point for proper drainage.

   f. Coils shall be tested with 320 pounds air pressure and suitable for 250 psig working pressure.

   g. Coil casings shall be fabricated of galvanized steel.

B. Drain Pan

   a. Drain pan shall be constructed from continuous galvanized steel with sloping pitch to primary drain connection to allow for condensate drainage insulated with closed-cell insulation.

   b. [Opt] Stainless steel drain pan with primary and secondary drain connections.

2.07 Filters

A. Filter section shall be a 2" flat] type furnished with MERV 3 throwaway type [MERV 8 pleated type] [MERV 13 pleated type] filters

B. Filter media shall be UL 900 listed, Class I or Class II.

Part 3: Execution

3.01 Installation

A. Install in accordance with manufacturer's Installation & Maintenance instructions.

Daikin Applied Training and Development

Now that you have made an investment in modern, efficient Daikin equipment, its care should be a high priority. For training information on all Daikin HVAC products, please visit us at www.DaikinApplied.com and click on Training, or call 540-248-9646 and ask for the Training Department.

Warranty

All Daikin equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local Daikin Applied representative for warranty details. To find your local Daikin Applied representative, go to www.DaikinApplied.com.

Aftermarket Services

To find your local parts office, visit www.DaikinApplied.com or call 800-37PARTS (800-377-2787). To find your local service office, visit www.DaikinApplied.com or call 800-432-1342.

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to www.DaikinApplied.com.

Products manufactured in an ISO Certified Facility.