LENNOX®
ENGINEERING DATA

INNOVATOR™ SERIES AQUAPLUS™ WATER HEATING SYSTEM

RWH21 CB30MWH

Bulletin #210165
February 1997

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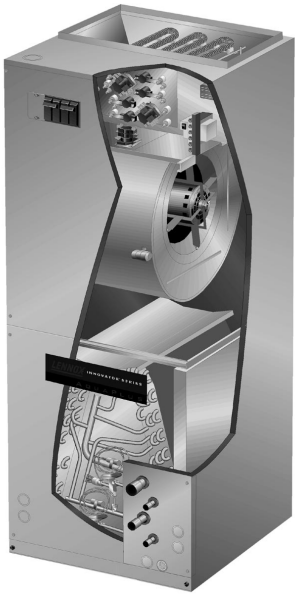
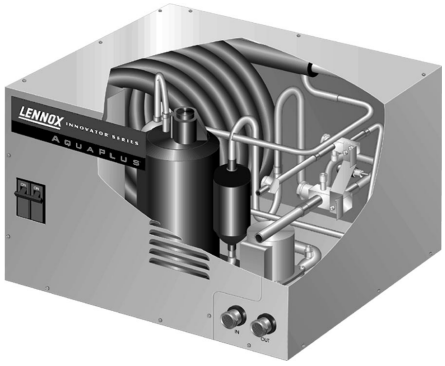
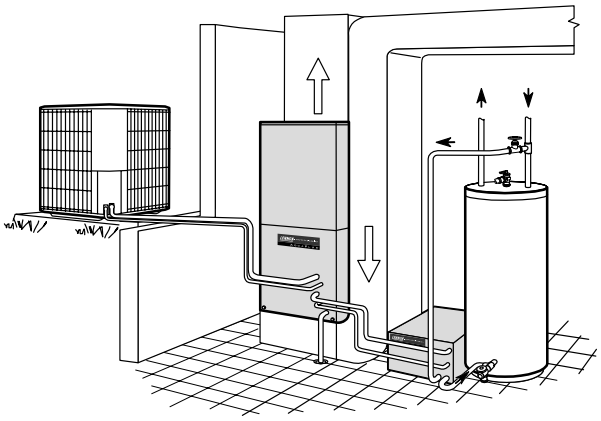


CB30MWH
Blower Coil Unit
(With Optional Electric Heat)



RWH21
Water Heater
Module

Typical Application



Applications

- Provides potable hot water and cool dehumidified air to conditioned space.
- System consists of RWH21 AquaPlus™ water heating module, CB30MWH multi–position blower coil unit and field provided conventional electric hot water heater.
- RWH21 module is installed close to water heater for proper electrical and plumbing connections. Maximum separation is 50 ft. (15 m).

System Operation

- RWH21 operation is controlled by water heater thermostat demand.
- RWH21 utilizes refrigerant–to–water coaxial heat exchanger to heat water.
- Water pump circulates heated water to water heater tank.
- Heats water up to 3 times more efficiently than electric resistance water heater with same capacity.
- RWH21 system coil in CB30MWH blower coil provides approximately 12,000 Btuh (3.52 kW) “free cooling” capacity as a by–product when RWH21 is heating water.
- CB30MWH operates on low speed during RWH21 hot water operation without indoor cooling or heating demand. Switches to high speed for indoor cooling or heating demand.
- Electric water heater and RWH21 cannot operate simultaneously.
- Outdoor thermostat furnished for field installation (if required).
- Module will not heat water when outdoor ambient temperature falls below 55°F (13°C) with outdoor thermostat installed. Conventional electric water heater takes over water heating operation.
- When outdoor ambient temperature rises above 65°F (18°C), module resumes water heating operation with thermostat demand.

Warranty

- Compressor – 10 years
- All other covered components – 5 years
- Refer to Lennox Limited Warranty certificate included with unit for specific details.

RWH21 FEATURES

Cabinet

- Heavy gauge steel construction.
- Separate compartments for control box and heat exchanger.

Control Box

- Contains capacitors, relays and circuit breaker.
- Easily accessible in module cabinet.
- Circuit breaker lever accessible from outside of cabinet.

Compressor

- Hermetically sealed rotary type.
- Built–in motor protection from excessive current or temperature.
- Resiliently mounted in module on rubber grommets for low sound and reduced vibration.
- Mufflers in suction and discharge lines reduce vibration and sound levels.
- Screens in suction muffler protects system from debris.

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RWH21 FEATURES (Continued)

Coaxial Tube–in–Tube Heat Exchanger
- Helix designed steel outer tube.
- Spiral double walled copper inner tubes.
- Double wall construction provides potable water and added safety to refrigerant system.
- Water flows through inner copper tubes, refrigerant flows between steel outer tube and exterior of inner tubes.
- Heat from compressor discharge gas is transferred to circulating water.

Water Circulating Pump
- Circulates water from conventional electric water heater to heat exchanger and back.
- Heavy duty pump constructed of cast bronze.
- Self lubricating.
- Pump motor is impedance protected.
- Motor and impeller removeable as single unit for servicing.

Refrigerant Line Connections
- All refrigerant line connections are sweat connections.

Water Line Connections
- All water line connections are 3/4 N.P.T. connections.

High Pressure Switch
- Shuts off unit if abnormal operating conditions cause discharge pressure to rise above setting. Switches system to conventional electric water heater operation
- Automatic reset.

High Capacity Drier
- Furnished in bag assembly for field installation.
- Drier traps moisture and dirt that could contaminate the refrigerant system.
- Drier is installed in RWH21 circuit as close as possible to CB30MWH blower coil.

Service Valves
- Fully serviceable brass service valves prevent corrosion and allow access to refrigerant system.

Outdoor Temperature Thermostat
- Shuts off RWH21 if outdoor temperature falls below 55°F (13°C).
- Furnished for field installation if required.

Sight Glass
- Furnished in liquid line for checking refrigerant charge.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Freezestat Kit
- Automatically circulates water when outdoor temperature falls below 45°F (7°C) to prevent freezing water lines.

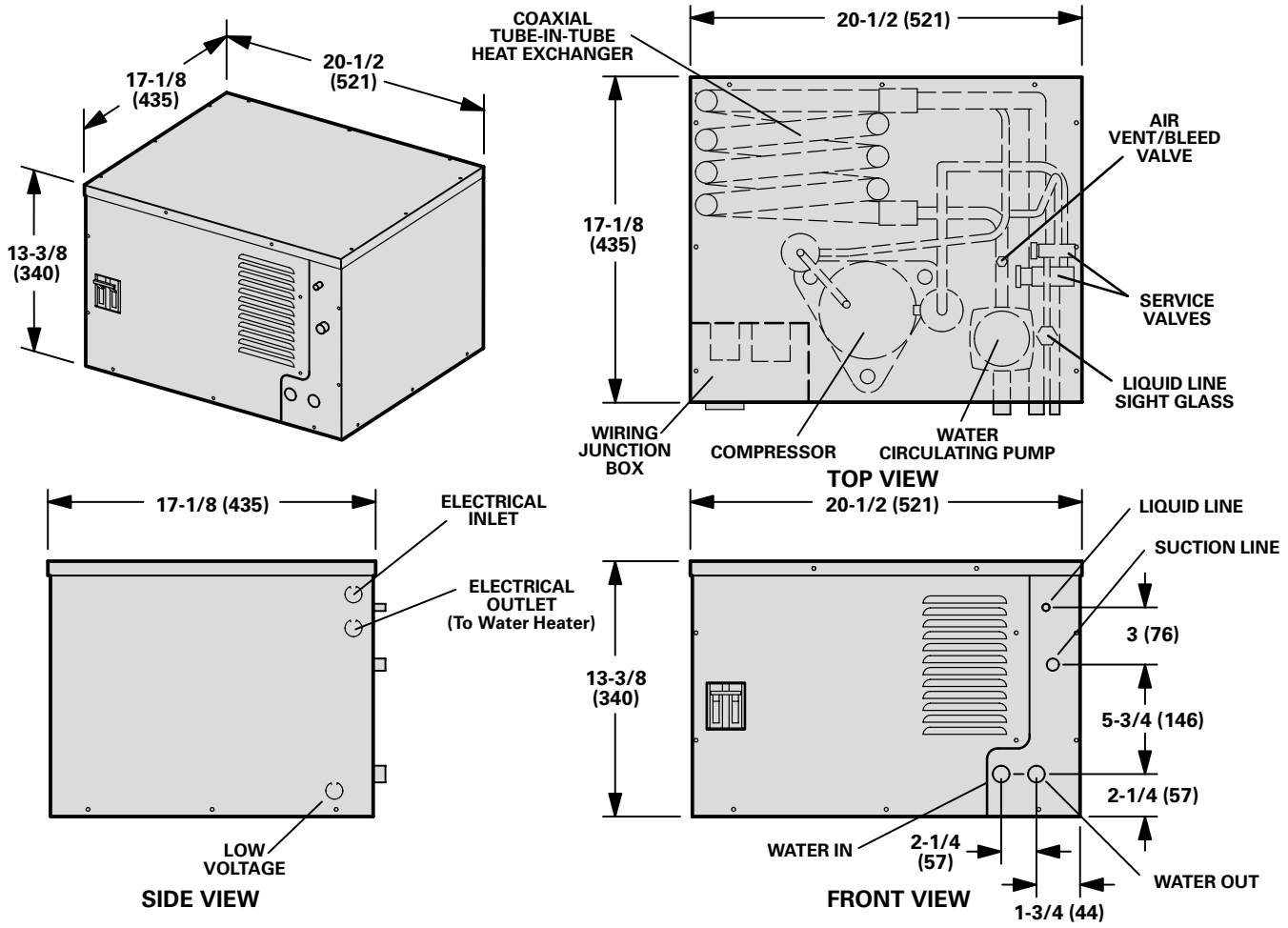
Compressor Sound Cover (80K67)
- Recommended whenever RWH21 is installed in conditioned area.

RWH21 SPECIFICATIONS

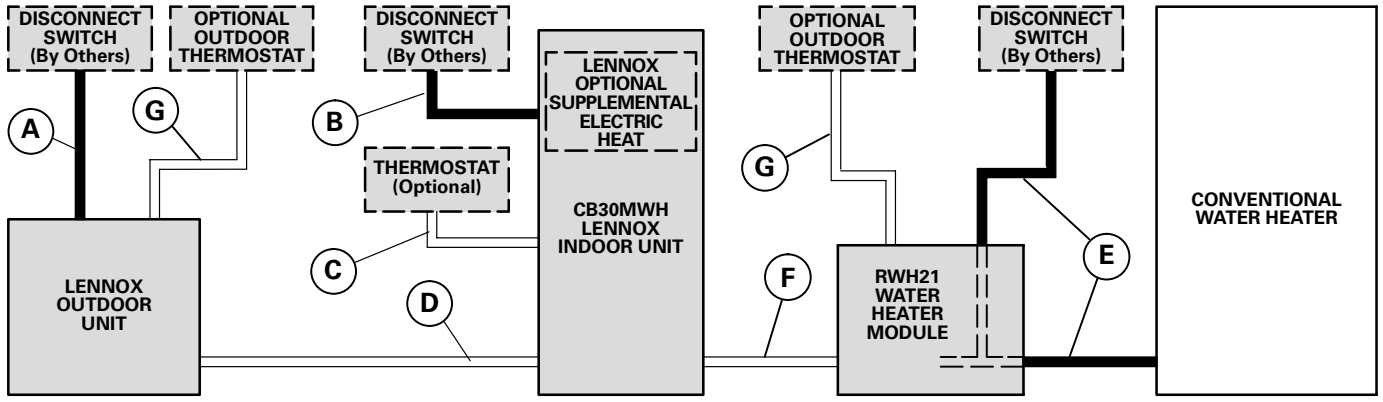
Model No.		RWH21–012
Water Heating Performance	Recovery rate	47 to 52 gal/hr (178 to 197 L/hr) Initial water temperature – 90°F (32°C) Final water temperature – 120°F (49°C) At 80°F (27°C) db / 67°F (19°C) wb air entering evaporator
	Capacity	Approximately 15,500 Btuh (4.5 kW) At 80°F (27°C) db / 67°F (19°C) wb air entering evaporator With 75°F (24°C) entering water temperature
Cooling Performance		Up to 12,000 Btuh (3.5 kW) during water heating cycle
Liquid line connection – in. (mm) o.d. (sweat)		1/4 (6.4)
Suction line connection – in. (mm) o.d. (sweat)		1/2 (12.7)
Sound rating number (db)		68
Electrical characteristics		208/230v – 60 hz – 1 ph
Compressor	[1]Refrigerant charge (HCFC-22)	2 lbs. 7 oz. (1.11 kg)
	Rated Load Amps	6.4
	Locked Rotor Amps	26.3
Compressor Electrical Data	Minimum Circuit Ampacity	28.7
	Maximum Fuse or Circuit Breaker Size	30
Water Circulating Pump	Motor output – hp (W)	1/40 (19)
	Capacity – U.S. gals per minute (L per Minute)	3.6 (13.6)
	Water supply connection N.P.T. – in. (mm)	3/4
	Water return connection N.P.T. – in. (mm)	3/4
	Full Load Amps	.40
Shipping Weight – lbs. (kg) 1 package		82 (37)
Optional Accessories (Must Be Ordered Extra)		
Freezestat Kit		**59K50**
Compressor Sound Cover		**80K67**

[1]Refrigerant charge sufficient for 20 ft. (6 m) of connecting refrigerant lines.

RWH21 DIMENSIONS — inches (mm)



SYSTEM FIELD WIRING



Condensing Unit — Single Speed Compressor

A — Two or Three Wire Power (see Electrical Data)
B — Two or Three Wire Power (size to indoor coil blower motor and electric heater capacity)
C — Seven Wire Low Voltage — 18 ga. minimum
D — Seven Wire Low Voltage — 18 ga. minimum
E — Two Wire Power (size to RWH21 and water heater)
F — Three Wire Low Voltage — 18 ga. minimum
G — Two Wire Low Voltage — 18 ga. minimum

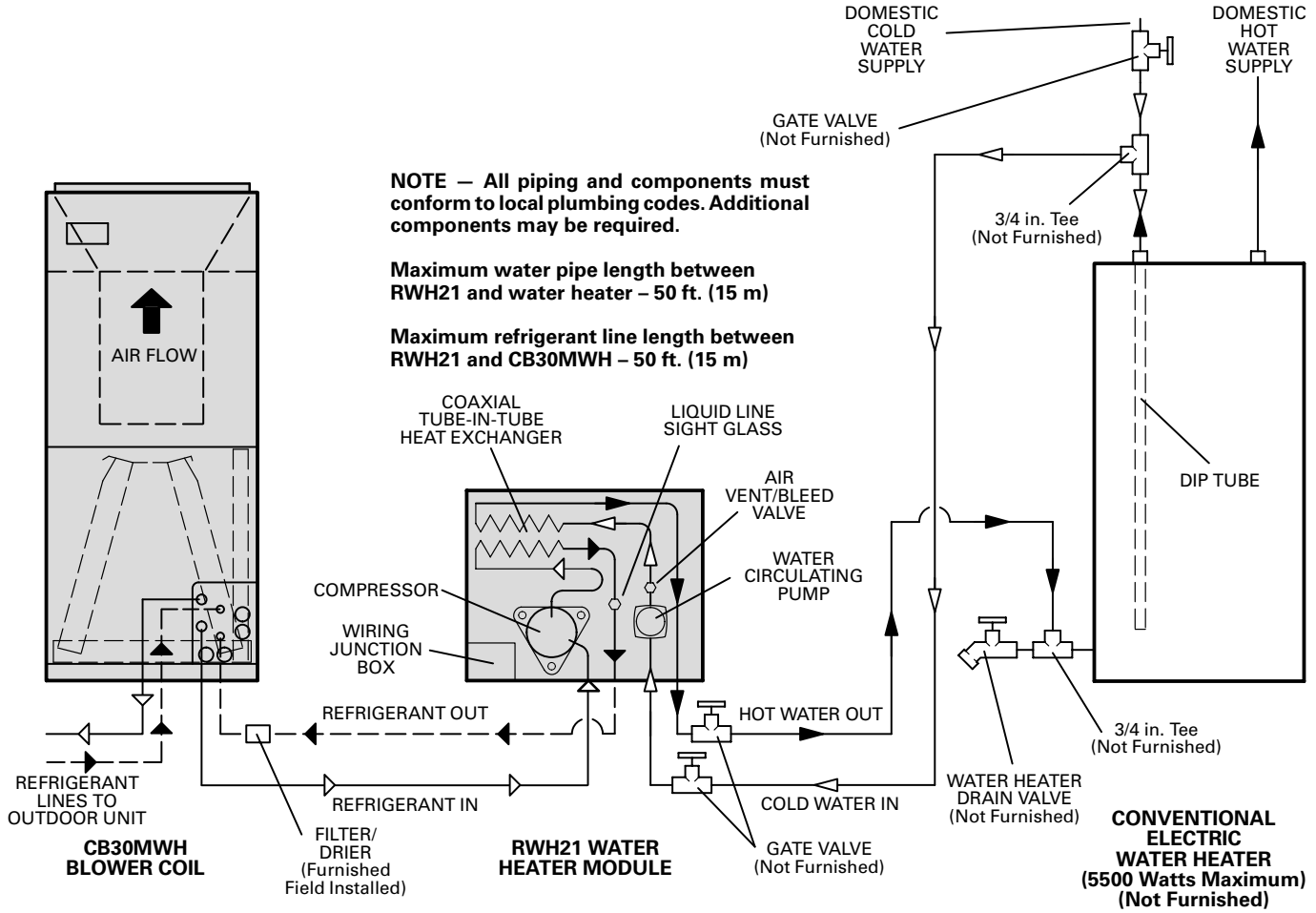
Heat Pump Unit — Single Speed Compressor

A — Two or Three Wire Power (see Electrical Data)
B — Two or Three Wire Power (size to indoor coil blower motor and electric heater capacity)
C — Eight Wire Low Voltage — 18 ga. minimum — with Electric Heat
— Ten Wire Low Voltage — 18 ga. minimum — with Optional indicator lights and Outdoor temperature sensor
D — Eight Wire Low Voltage — 18 ga. minimum
E — Two Wire Power (size to RWH21 and water heater)
F — Three Wire Low Voltage — 18 ga. minimum
G — Two Wire Low Voltage — 18 ga. minimum

NOTE – Not available for use with two speed units.

— Field Wiring Not Furnished —
All wiring must conform to NEC or CEC and local electrical codes.

SYSTEM PLUMBING SCHEMATIC



CB30MWH BLOWER COIL FEATURES

Applications
- 2.5 to 5 ton (8.8 to 17.6 kW) nominal sizes.
- Multi-position (up-flow, down-flow or horizontal) applications.
- Applicable to expansion valve systems in cooling applications and check and expansion valve systems in heat pump applications.
- Wide range check and expansion valve factory installed.
- See Condensing Unit bulletins in section Cooling Units — Condensing Units for cooling capacities.
- See Heat Pump Outdoor Unit Bulletins in section Heat Pumps — Matched Remote Systems for cooling and heating capacities.
  NOTE – CB30MWH units not rated with HS21, HS29/10ACB, HP21, HP29/10HPB units
- Optional field installed electric heaters available in several sizes for additive heating capacity.
- Filter furnished.
- Optional additive base available for models with electric heat installed in down-flow position on combustible floors.

Warranty
- All covered components — five years (residential applications), one year (non-residential applications).

Completely Tested and Approved
- Tested with matching condensing and heat pump units in the Lennox Research Laboratory environmental test room in accordance with ARI Standard 210/240-89.
- Optional electric heaters rated in accordance with U.S. Department of Energy (DOE) test procedures and Federal Trade Commission (FTC) labeling regulations.
- Blower performance data according to unit tests conducted in Lennox air test chamber.
- Blower-coil units are U.L. Listed to U.S. and Canadian safety standards and components within are bonded for grounding to meet safety standards for servicing required by CEC and NEC.
- Units developed in accordance with ISO 9002 quality system.

Cabinet
- Constructed of heavy gauge galvanized steel.
- Completely insulated with thick fiberglass insulation.
- Pre-painted steel cabinets have mildly textured enamel finish with primer coat on unpainted side of all panels.
- Units are shipped in one piece but may be disassembled into two separate sections for ease of installation in tight applications. See dimension drawings.
- Thick rubber gasket between sections provides air tight seal.
- No external screw heads on sides of cabinet for tight installations without damage to walls or woodwork.
- Removable panels provide complete service access.
- Electrical inlets provided in sides and top of cabinet. See dimension drawings for locations.

Multi-Position Capability
- Shipped for up-flow and horizontal right hand discharge.
- Quickly converted to down-flow or horizontal left hand air discharge.

Direct Drive Blower
- Lennox designed and built direct drive blower.
- Statically and dynamically balanced before installation in unit.
- Resiliently mounted multi-speed leadless motor with plug-in connections.
- Choice of blower speeds. See blower performance tables.
- Speed changes easily accomplished by a simple wiring change.
- CB30MWH operates on low speed during RWH21 hot water operation without indoor cooling or heating demand. Switches to high speed for indoor cooling or heating demand.
- Blower slides out of cabinet for servicing.

Dual Position Drain Pans
- Drain pans designed for up-flow, down-flow or horizontal applications.
- Deep, corrosion resistant plastic drain pans have dual pipe drains.
- See dimension drawings.

CB30MWH BLOWER COIL FEATURES

Copper Tube/Enhanced Fin Dual Circuit Evaporator Coil
- Lennox designed and fabricated twin coils.
- Assembled in "A" configuration.
- Dual refrigerant circuits (one for conventional condensing unit or heat pump, one for RWH21 Water Heater Module.
- Provides extra large surface and contact area, excellent heat transfer and low air resistance for maximum efficiency.
- Precise circuiting for uniform refrigerant distribution.
- Precisely spaced ripple-edged aluminum fins fitted to durable seamless copper tubes.
- Fins are strengthened to resist bending and are equipped with collars that grip tubing for maximum contact area.
- Lanced fins provide maximum exposure of fin surface to air stream.
- Long life copper tubing easy to service.
- Rifled tubing provides superior refrigerant flow with maximum heat transfer.
- Flared shoulder tubing joints and silver soldering provide tight, leakproof joints.
- Coil thoroughly factory tested under high pressure to insure leakproof construction.

Refrigerant Line Connections
- Suction (vapor) and liquid lines have sweat connections.
- Extended outside of the cabinet for ease of connection.
- See dimension drawings for locations.

Check and Expansion Valve Furnished (Conventional Coil)
- Wide range valve.
- Chatleff style fitting.
- Factory installed on all models internal to cabinet.

Expansion Valve Furnished (RWH21 Coil)
- Chatleff style fitting.
- Factory installed on all models internal to cabinet.

Transformer and Blower Cooling Relay
- 24 volt transformer with circuit breaker and two blower cooling relays furnished as standard.
- Factory installed in the unit control box.
- Terminal strip furnished.

Air Filter
- Tool-less access to filter area for quick and easy servicing.
- Disposable frame type filter furnished and factory installed in rails in cabinet.
- See Specifications tables for sizes.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Side Return Unit Stand (Optional for Up-Flow Only)
- Raises unit 16 in. (406mm) above floor for side return air duct connection.
- Eliminates need for wooden platform construction.
- All aluminum construction.
- Two adjustable frames fit all sizes.
- Order **(45K32)** for CB30MWH-31 thru -65 models.

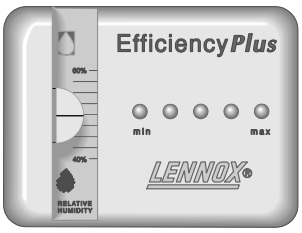
Wall Hanging Bracket Kit (45K30) (Optional for Up-Flow Only)
- Allows unit to be hung on wall at any height.
- Consists of heavy gauge steel support brackets (one for blower coil unit, one for wall mount).
- Screws furnished for fastening one bracket to unit.
- Bolts for fastening one bracket to wall are field provided.

Single-Point Power Source Control Box (Optional)
- Control Box **(21H39)** may be used with optional electric heat when two or three circuits (if required by code) are specified.
- Field installs external to the unit cabinet on either side or top.
- Constructed of heavy gauge steel, baked enamel finish, prepunched mounting holes, electrical inlet knockouts, and terminal strip.
- Removeable cover provides easy access.
- 7 x 7 x 4 in. deep (178 x 178 x 102mm), shipping weight is 5 lbs. (2 kg.).

Additive Electric Heat (Optional)
- Field install internal to unit cabinet.
- Available in several voltages and kw sizes.
- See Electric Heat tables.
- Helix wound nichrome heating elements exposed directly in air stream resulting in instant heat transfer, low element temperatures and long service life.
- Each element equipped with accurately located limit control with fixed temperature off setting and automatic reset.
- Supplemental thermal cutoff limit control, provides positive protection in case of excessive temperatures.
- Thermal sequencer relay brings elements on and off line, in sequence and equal increments, with time delay between each. Initiates and terminates blower operation.
- Heating control relay(s) furnished as standard.
- Control box and access cover constructed of heavy gauge galvanized steel.
- Factory assembled with controls installed and wired.
- Electric heat low voltage controls plug-in to blower coil unit.

Circuit Breaker Models
- ECB29-5CB, -8CB, -10CB, -12.5CB, -15CB, -20CB, -25CB, -30CB (208/240v-1ph) and ECB29-15CB, -20CB, -25CB (208/240v-3ph) heaters are equipped with circuit breakers for overload and short circuit protection.
- Factory wired and mounted on electric heat unit.
- Current sensitive and temperature actuated.
- Manual reset.
- Circuit breakers qualify as disconnect means at unit in many areas, eliminate the need for field provided disconnect.
- Consult local electrical code in your area.

CCB1 EfficiencyPlus™ Humidity Control (Optional)
- Electronic control **(35H00)** installs next to room thermostat, allows selection of desired indoor humidity level during cooling mode.
- During heating season control is inoperable.
- CCB1 controls indoor humidity by changing indoor blower speed and compressor speed (two speed outdoor units only).
- Humidity level is adjusted with vertical set point slide on scale of 40% thru 60%, 50% recommended setting.



- Five indicator LED's (MIN — MAX) in a bar graph configuration indicate difference in actual relative humidity and set point, indicates demand imposed on system equipment, more lights on, the longer equipment will operate to obtain desired humidity level. No lights on, humidity is at or below set point.
- Requires EBR1 Blower Relay Kit.

EBR1 Blower Relay Kit* (75H90) *(Optional)
- Allows CCB1 to be used with CB30MWH blower coil units.

Down-Flow Additive Base (Optional)
- Additive base required for models with electric heat installed in down-flow position on combustible floors.
- See Specifications table and dimension drawing.

CB30MWH SPECIFICATIONS

Model Number			CB30MWH-31	CB30MWH-41	CB30MWH-51	CB30MWH-65
Evaporator Coil (Main System)	Net face area — ft.^{2} (m^2)		7.22 (0.67)			
	Tube outside diameter — in. (mm)		3/8 (9.5)			
	Number of rows		3			
	Fins per inch (fins per m)		12 (472)			
	Suction (vapor) line connection – in. (mm) sweat		3/4 (19)		7/8 (22.2)	1-1/8 (28)
	Liquid line connection — in. (mm) sweat		3/8 (9.5)			
	Nominal cooling capacity — tons (kW)		2.5 (8.8)	3 (10.6)	4 (14.1)	5 (17.6)
Evaporator Coil (RWH21 System)	Suction line connection – in. (mm) sweat		1/2 (13)			
	Liquid line connection — in. (mm) sweat		1/4 (6)			
Condensate drain connection (fpt) — in. (mm)			(2) 3/4 (19)			
Refrigerant			HCFC-22			
Blower wheel nominal diameter x width — in. (mm)			10 x 8 (254 x 203)	11 x 8 (279 x 203)	11-1/2 x 9 (292 x 229)	12 x 9 (305 x 229)
Blower motor output — hp (W)			1/3 (249)			1/2 (373)
‡Number and size of filters		in.	(1) 20 x 24 x 1			
		mm	(1) 508 x 610 x 25			
Electrical characteristics			208/230v – 60 hz – 1 ph			
Shipping weight — lbs. (kg) 1 package			206 (93)			
Optional Accessories (Must Be Ordered Extra)						
Side Return Unit Stand (Up-Flow Only)		Catalog number	**45K32**			
		Ship. wt. – lbs. (kg)	6 (3)			
Wall Hanging Bracket Kit – Shipping weight – lbs. (kg)			**45K30** – 3 (1) (Up-Flow Only)			
Down-Flow Combustible Base – Ship. wt. – lbs. (kg)			**34J73** – 8 (4)			
Electric Heat Capacity (1 phase)	ECB29-5, ECB29-5CB	[1]Output – Btuh (kW)	18,500 (5.4)	18,500 (5.4)	19,000 (5.6)	19,000 (5.6)
		☆A.F.U.E.	100%	100%	100%	100%
	ECB29-8, ECB29-8CB	[1]Output – Btuh (kW)	28,500 (8.4)	28,500 (8.4)	29,000 (8.5)	30,500 (8.9)
		☆A.F.U.E.	100%	100%	100%	100%
	ECB29-10, ECB29-10CB	[1]Output – Btuh (kW)	35,500 (10.4)	35,500 (10.4)	36,000 (10.5)	37,000 (10.8)
		☆A.F.U.E.	100%	100%	100%	100%
	ECB29-12.5CB	[1]Output – Btuh (kW)	44,000 (12.9)	44,000 (12.9)	44,500 (13.0)	45,500 (13.3)
		☆A.F.U.E.	100%	100%	100%	100%
	ECB29-15CB	[1]Output – Btuh (kW)	52,500 (15.4)	52,500 (15.4)	53,000 (15.5)	54,000 (15.8)
		☆A.F.U.E.	100%	100%	100%	100%
	ECB29-20CB	[1]Output – Btuh (kW)	- - - -	69,500 (20.4)	70,000 (20.5)	71,500 (20.9)
		☆A.F.U.E.	- - - -	100%	100%	100%
	ECB29-25CB	[1]Output – Btuh (kW)	- - - -	- - - -	87,000 (25.5)	88,500 (25.9)
		☆A.F.U.E.	- - - -	- - - -	100%	100%
	ECB29-30CB	[1]Output – Btuh (kW)	- - - -	- - - -	- - - -	105,500 (30.9)
		☆A.F.U.E.	- - - -	- - - -	- - - -	100%

☆Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and according to FTC labeling regulations.
‡Disposable frame type filter.
[1]Includes additional blower motor heat capacity.

BLOWER DATA

CB30MWH-31 BLOWER PERFORMANCE (208/230v-1ph)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1510	710	420	1355	640	375	1190	560	340
.05	10	1490	700	400	1345	635	350	1200	565	320
.10	25	1425	670	390	1340	630	345	1190	560	310
.15	35	1410	665	380	1320	620	340	1185	560	305
.20	50	1360	640	375	1280	605	325	1155	545	300
.25	60	1300	610	365	1230	580	315	1130	530	290
.30	75	1210	570	350	1160	545	295	1080	510	275
.40	100	1095	515	330	1015	480	270	950	450	245
.50	125	840	395	300	585	275	220	760	360	220
.60	150	615	290	280	420	200	200	590	280	200

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB30MWH-41 BLOWER PERFORMANCE (208/230v-1ph)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1545	730	470	1245	585	390	1065	500	315
.05	10	1535	725	450	1265	595	380	1070	505	320
.10	25	1535	725	450	1270	600	380	1075	505	315
.15	35	1525	720	445	1280	605	375	1090	515	330
.20	50	1505	710	435	1280	605	370	1090	515	325
.25	60	1490	700	430	1280	605	375	1090	515	305
.30	75	1460	690	420	1270	600	370	1085	510	300
.40	100	1390	655	400	1230	580	340	1045	490	285
.50	125	1295	610	380	1160	545	320	1000	470	270
.60	150	1150	540	355	1065	500	315	930	440	260

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB30MWH-51 BLOWER PERFORMANCE (208/230v-1ph)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	1910	900	590	1785	845	520	1475	695	430
.05	10	1895	895	585	1770	835	515	1480	700	430
.10	25	1870	880	580	1750	825	510	1475	695	425
.15	35	1840	865	570	1720	810	500	1465	690	420
.20	50	1800	850	565	1685	795	490	1445	680	410
.25	60	1755	830	550	1645	775	480	1415	670	405
.30	75	1700	805	540	1600	755	465	1380	650	395
.40	100	1580	745	515	1485	700	440	1290	610	370
.50	125	1425	675	485	1350	635	410	1170	550	345
.60	150	1250	590	450	1190	560	380	1020	480	320
.70	175	1045	495	415	1000	470	350	840	395	295
.75	185	930	440	400	900	425	335	740	350	280

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

CB30MWH-65 BLOWER PERFORMANCE (208/230v-1ph)

External Static Pressure		Air Volume and Motor Watts at Specific Blower Taps								
		High			Medium			Low		
in. w.g.	Pa	cfm	L/s	Watts	cfm	L/s	Watts	cfm	L/s	Watts
.00	0	2115	995	780	2025	955	670	1775	835	585
.05	10	2100	990	770	2010	950	665	1775	835	590
.10	25	2085	985	765	1995	940	655	1770	835	580
.15	35	2060	970	750	1975	930	645	1760	830	570
.20	50	2030	960	740	1950	920	635	1745	825	560
.25	60	2000	945	730	1915	905	625	1725	815	550
.30	75	1960	925	715	1880	885	610	1695	800	535
.40	100	1870	880	685	1795	845	580	1630	770	505
.50	125	1755	830	655	1690	795	545	1540	725	475
.60	150	1620	765	625	1560	735	515	1425	675	440
.70	175	1465	690	590	1415	670	480	1295	610	410
.80	200	1290	610	560	1250	590	445	1140	535	375
.85	210	1195	565	545	1160	550	425	1050	495	360

NOTE — All air data is measured external to unit with air filter in place.
Electric heaters have no appreciable air resistance.

ELECTRIC HEAT DATA (1 Phase) — CB30MWH-31 & CB30MWH-41

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight		Number of Steps	Volts Input	kW Input	[1]Btuh Input	[2]Blower Motor Amps	†Minimum Circuit Ampacity	
								Circuit 1	Circuit 2
◆ 208/230v–1 ph ◆									
CB30MWH-31	**5 kW**	ECB29-5 **(28K31)** ECB29-5CB **(28K32)** 4 lbs. (2 kg)	1 step	208	3.8	12,800	1.73	25	– – – –
				220	4.2	14,300	1.73	26	– – – –
				230	4.6	15,700	1.73	27	– – – –
				240	5.0	17,100	1.73	28	– – – –
	8 kW	ECB29-8 **(28K33)** ECB29-8CB **(28K34)** 5 lbs. (2 kg)	2 steps	208	6.0	20,500	1.73	38	– – – –
				220	6.7	22,900	1.73	40	– – – –
				230	7.3	25,100	1.73	42	– – – –
				240	8.0	27,300	1.73	44	– – – –
	10 kW	ECB29-10 **(28K35)** ECB29-10CB **(28K36)** 5 lbs. (2 kg)	2 steps	208	7.5	25,600	1.73	47	– – – –
				220	8.4	28,700	1.73	50	– – – –
				230	9.2	31,400	1.73	52	– – – –
				240	10.0	34,100	1.73	54	– – – –
	12.5 kW	ECB29-12.5CB **(28K37)** 10 lbs. (5 kg)	3 steps	208	9.4	32,000	1.73	21	38
				220	10.5	35,800	1.73	22	40
				230	11.5	39,200	1.73	23	42
				240	12.5	42,600	1.73	24	43
	15 kW	ECB29-15CB **(28K38)** 10 lbs. (5 kg)	3 steps	208	11.3	38,400	1.73	25	45
				220	12.6	43,000	1.73	26	48
				230	13.5	47,000	1.73	27	52
				240	15.0	51,200	1.73	28	52
CB30MWH-41	**5 kW**	ECB29-5 **(28K31)** ECB29-5CB **(28K32)** 4 lbs. (2 kg)	1 step	208	3.8	12,800	1.73	25	– – – –
				220	4.2	14,300	1.73	26	– – – –
				230	4.6	15,700	1.73	27	– – – –
				240	5.0	17,100	1.73	28	– – – –
	8 kW	ECB29-8 **(28K33)** ECB29-8CB **(28K34)** 5 lbs. (2 kg)	2 steps	208	6.0	20,500	1.73	38	– – – –
				220	6.7	22,900	1.73	40	– – – –
				230	7.3	25,100	1.73	42	– – – –
				240	8.0	27,300	1.73	44	– – – –
	10 kW	ECB29-10 **(28K35)** ECB29-10CB **(28K36)** 5 lbs. (2 kg)	2 steps	208	7.5	25,600	1.73	47	– – – –
				220	8.4	28,700	1.73	50	– – – –
				230	9.2	31,400	1.73	52	– – – –
				240	10.0	34,100	1.73	54	– – – –
	12.5 kW	ECB29-12.5CB **(28K37)** 10 lbs. (5 kg)	3 steps	208	9.4	32,000	1.73	21	38
				220	10.5	35,800	1.73	22	40
				230	11.5	39,200	1.73	23	42
				240	12.5	42,600	1.73	24	43
	15 kW	ECB29-15CB **(28K38)** 10 lbs. (5 kg)	3 steps	208	11.3	38,400	1.73	25	45
				220	12.6	43,000	1.73	26	48
				230	13.5	47,000	1.73	27	50
				240	15.0	51,200	1.73	28	52
	20 kW	ECB29-20CB **(28K39)** 14 lbs. (6 kg)	4 steps	208	15.0	51,200	1.73	47	45
				220	16.8	57,300	1.73	50	48
				230	18.4	62,700	1.73	52	50
				240	20.0	68,200	1.73	54	52

†Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).
[1]Electric heater capacity only — does not include additional blower motor heat capacity.
[2]Minimum circuit ampacity for blower motor only.

ELECTRIC HEAT DATA (1 Phase) — CB30MWH-51 & CB30MWH-65

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight		Number of Steps	Volts Input	kW Input	[1]Btuh Input	[2]Blower Motor Amps	†Minimum Circuit Ampacity		
								Circuit 1	Circuit 2	Circuit 3
▼ 208/230v–1 ph ▼										
CB30MWH-51	**5 kW**	ECB29-5 **(28K31)** ECB29-5CB **(28K32)** 4 lbs. (2 kg)	1 step	208	3.8	12,800	2.4	26	– – – –	– – – –
				220	4.2	14,300	2.4	27	– – – –	– – – –
				230	4.6	15,700	2.4	28	– – – –	– – – –
				240	5.0	17,100	2.4	29	– – – –	– – – –
	8 kW	ECB29-8 **(28K33)** ECB29-8CB **(28K34)** 4 lbs. (2 kg)	2 steps	208	6.0	20,500	2.4	39	– – – –	– – – –
				220	6.7	22,900	2.4	41	– – – –	– – – –
				230	7.3	25,100	2.4	43	– – – –	– – – –
				240	8.0	27,300	2.4	45	– – – –	– – – –
	10 kW	ECB29-10 **(28K35)** ECB29-10CB **(28K36)** 5 lbs. (2 kg)	2 steps	208	7.5	25,600	2.4	48	– – – –	– – – –
				220	8.4	28,700	2.4	51	– – – –	– – – –
				230	9.2	31,400	2.4	53	– – – –	– – – –
				240	10.0	34,100	2.4	55	– – – –	– – – –
	12.5 kW	ECB29-12.5CB **(28K37)** 10 lbs. (5 kg)	3 steps	208	9.4	32,000	2.4	22	38	– – – –
				220	10.5	35,800	2.4	23	40	– – – –
				230	11.5	39,200	2.4	24	42	– – – –
				240	12.5	42,600	2.4	25	43	– – – –
	15 kW	ECB29-15CB **(28K38)** 10 lbs. (5 kg)	3 steps	208	11.3	38,400	2.4	26	45	– – – –
				220	12.6	43,000	2.4	27	48	– – – –
				230	13.5	47,000	2.4	28	49	– – – –
				240	15.0	51,200	2.4	29	52	– – – –
	20 kW	ECB29-20CB **(28K39)** 14 lbs. (6 kg)	4 steps	208	15.0	51,200	2.4	48	45	– – – –
				220	16.8	57,300	2.4	51	48	– – – –
				230	18.4	62,700	2.4	53	49	– – – –
				240	20.0	68,200	2.4	55	52	– – – –
	25 kW	ECB29-25CB **(28K40)** 18 lbs. (8 kg)	5 steps	208	18.8	64,100	2.4	41	38	38
				220	21.0	71,700	2.4	43	40	40
				230	23.0	78,300	2.4	45	42	42
				240	25.0	85,300	2.4	47	43	43
CB30MWH-65	**5 kW**	ECB29-5 **(28K31)** ECB29-5CB **(28K32)** 4 lbs. (2 kg)	1 step	208	3.8	12,800	3.9	28	– – – –	– – – –
				220	4.2	14,300	3.9	29	– – – –	– – – –
				230	4.6	15,700	3.9	30	– – – –	– – – –
				240	5.0	17,100	3.9	31	– – – –	– – – –
	8 kW	ECB29-8 **(28K33)** ECB29-8CB **(28K34)** 4 lbs. (2 kg)	2 steps	208	6.0	20,500	3.9	41	– – – –	– – – –
				220	6.7	22,900	3.9	43	– – – –	– – – –
				230	7.3	25,100	3.9	45	– – – –	– – – –
				240	8.0	27,300	3.9	47	– – – –	– – – –
	10 kW	ECB29-10 **(28K35)** ECB29-10CB **(28K36)** 5 lbs. (2 kg)	2 steps	208	7.5	25,600	3.9	50	– – – –	– – – –
				220	8.4	28,700	3.9	53	– – – –	– – – –
				230	9.2	31,400	3.9	55	– – – –	– – – –
				240	10.0	34,100	3.9	57	– – – –	– – – –
	12.5 kW	ECB29-12.5CB **(28K37)** 10 lbs. (5 kg)	3 steps	208	9.4	32,000	3.9	24	38	– – – –
				220	10.5	35,800	3.9	25	40	– – – –
				230	11.5	39,200	3.9	26	42	– – – –
				240	12.5	42,600	3.9	27	43	– – – –
	15 kW	ECB29-15CB **(28K38)** 10 lbs. (5 kg)	3 steps	208	11.3	38,400	3.9	28	45	– – – –
				220	12.6	43,000	3.9	29	48	– – – –
				230	13.5	47,000	3.9	29	50	– – – –
				240	15.0	51,200	3.9	31	52	– – – –
	20 kW	ECB29-20CB **(28K39)** 14 lbs. (6 kg)	4 steps	208	15.0	51,200	3.9	50	45	– – – –
				220	16.8	57,300	3.9	53	48	– – – –
				230	18.4	62,700	3.9	55	50	– – – –
				240	20.0	68,200	3.9	57	52	– – – –
	25 kW	ECB29-25CB **(28K40)** 18 lbs. (8 kg)	5 steps	208	18.8	64,100	3.9	43	38	38
				220	21.0	71,700	3.9	45	40	40
				230	23.0	78,300	3.9	47	42	42
				240	25.0	85,300	3.9	48	43	43
	30 kW	ECB29-30CB **(28K41)** 19 lbs. (9 kg)	5 steps	208	22.5	76,900	3.9	50	45	45
				220	25.2	86,000	3.9	53	48	48
				230	27.5	94,000	3.9	55	50	50
				240	30.0	102,400	3.9	57	52	52

†Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).
[1]Electric heater capacity only — does not include additional blower motor heat capacity.
[2]Minimum circuit ampacity for blower motor only.

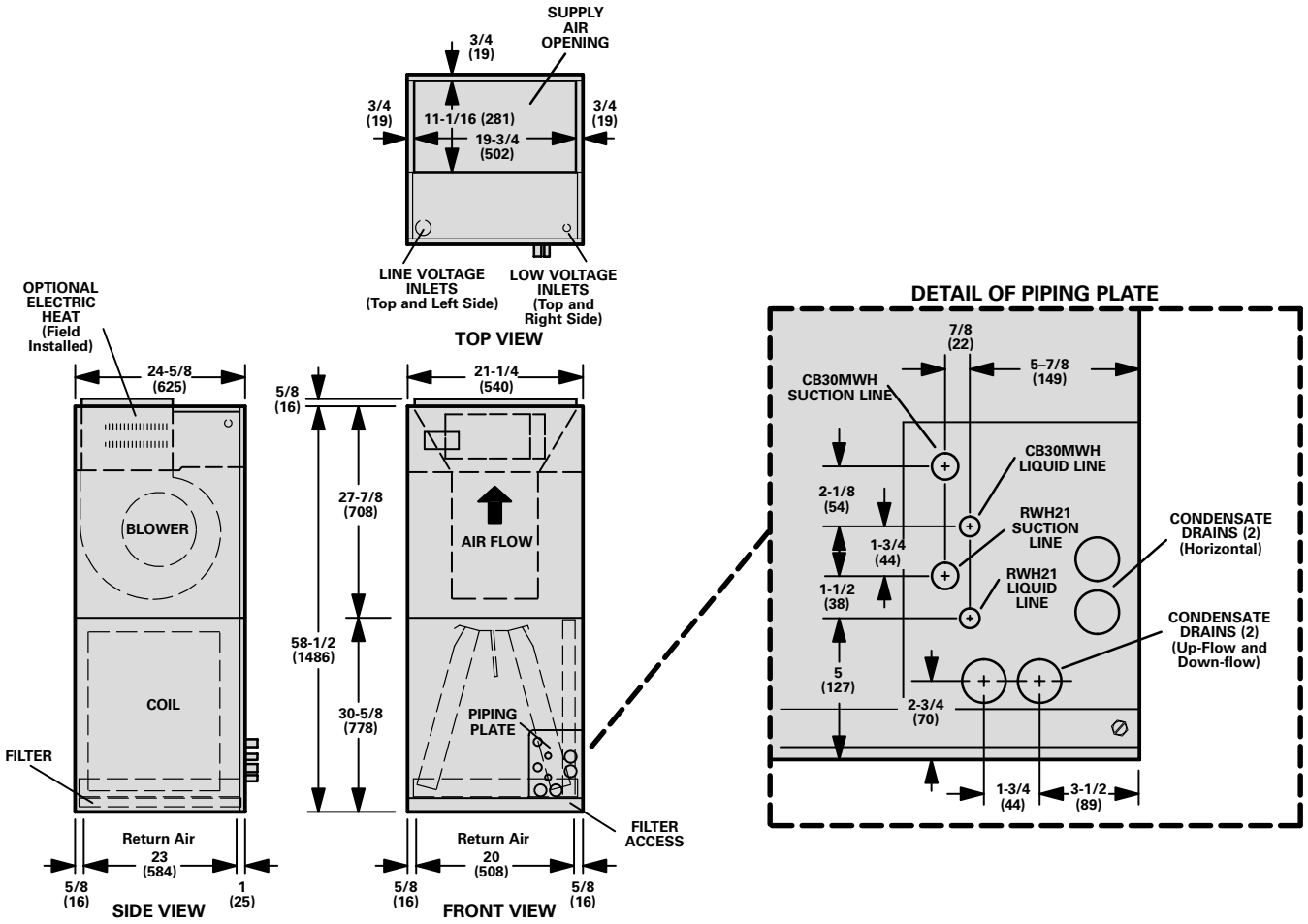
ELECTRIC HEAT DATA (3 Phase) — CB30MWH-41, CB30MWH-51 & CB30MWH-65

Blower Coil Model Number	Electric Heat kW, Model Number & Shipping Weight		Number of Steps	Volts Input	kW Input	[1]Btuh Input	[2]Blower Motor Amps	†Minimum Circuit Ampacity	
								Circuit 1	Circuit 2
◆ 208/230v–3 ph ◆									
CB30MWH-41	**8 kW**	ECB29-8 **(28K42)** 5 lbs. (2 kg)	3 steps	208	6.0	20,500	1.73	23	– – – –
				220	6.7	22,900	1.73	24	– – – –
				230	7.3	25,100	1.73	25	– – – –
				240	8.0	27,300	1.73	26	– – – –
	10 kW	ECB29-10 **(28K43)** 6 lbs. (3 kg)	3 steps	208	7.5	25,600	1.73	28	– – – –
				220	8.4	28,700	1.73	30	– – – –
				230	9.2	31,400	1.73	31	– – – –
				240	10.0	34,100	1.73	32	– – – –
	15 kW	ECB29-15CB **(28K44)** 9 lbs. (4 kg)	3 steps	208	11.3	38,400	1.73	41	– – – –
				220	12.6	43,000	1.73	44	– – – –
				230	13.5	47,000	1.73	45	– – – –
				240	15.0	51,200	1.73	47	– – – –
CB30MWH-51	**8 kW**	ECB29-8 **(28K42)** 5 lbs. (2 kg)	3 steps	208	6.0	20,500	2.4	24	– – – –
				220	6.7	22,900	2.4	25	– – – –
				230	7.3	25,100	2.4	26	– – – –
				240	8.0	27,300	2.4	27	– – – –
	10 kW	ECB29-10 **(28K43)** 6 lbs. (3 kg)	3 steps	208	7.5	25,600	2.4	29	– – – –
				220	8.4	28,700	2.4	31	– – – –
				230	9.2	31,400	2.4	32	– – – –
				240	10.0	34,100	2.4	33	– – – –
	15 kW	ECB29-15CB **(28K44)** 9 lbs. (4 kg)	3 steps	208	11.3	38,400	2.4	42	– – – –
				220	12.6	43,000	2.4	44	– – – –
				230	13.5	47,000	2.4	45	– – – –
				240	15.0	51,200	2.4	48	– – – –
	20 kW	ECB29-20CB **(28K45)** 19 lbs. (9 kg)	6 steps	208	15.0	51,200	2.4	29	26
				220	16.8	57,300	2.4	31	28
				230	18.4	62,700	2.4	32	29
				240	20.0	68,200	2.4	33	30
	25 kW	ECB29-25CB **(28K46)** 19 lbs. (9 kg)	6 steps	208	18.8	64,100	2.4	36	33
				220	21.0	71,700	2.4	37	34
				230	23.0	78,300	2.4	39	36
				240	25.0	85,300	2.4	41	38
CB30MWH-65	**8 kW**	ECB29-8 **(28K42)** 5 lbs. (2 kg)	3 steps	208	6.0	20,500	3.9	26	– – – –
				220	6.7	22,900	3.9	27	– – – –
				230	7.3	25,100	3.9	28	– – – –
				240	8.0	27,300	3.9	29	– – – –
	10 kW	ECB29-10 **(28K43)** 6 lbs. (3 kg)	3 steps	208	7.5	25,600	3.9	31	– – – –
				220	8.4	28,700	3.9	32	– – – –
				230	9.2	31,400	3.9	34	– – – –
				240	10.0	34,100	3.9	35	– – – –
	15 kW	ECB29-15CB **(28K44)** 9 lbs. (4 kg)	3 steps	208	11.3	38,400	3.9	44	– – – –
				220	12.6	43,000	3.9	46	– – – –
				230	13.5	47,000	3.9	47	– – – –
				240	15.0	51,200	3.9	50	– – – –
	20 kW	ECB29-20CB **(28K45)** 19 lbs. (9 kg)	6 steps	208	15.0	51,200	3.9	31	26
				220	16.8	57,300	3.9	32	28
				230	18.4	62,700	3.9	34	29
				240	20.0	68,200	3.9	35	30
	25 kW	ECB29-25CB **(28K46)** 19 lbs. (9 kg)	6 steps	208	18.8	64,100	3.9	38	33
				220	21.0	71,700	3.9	39	34
				230	23.0	78,300	3.9	41	36
				240	25.0	85,300	3.9	43	38

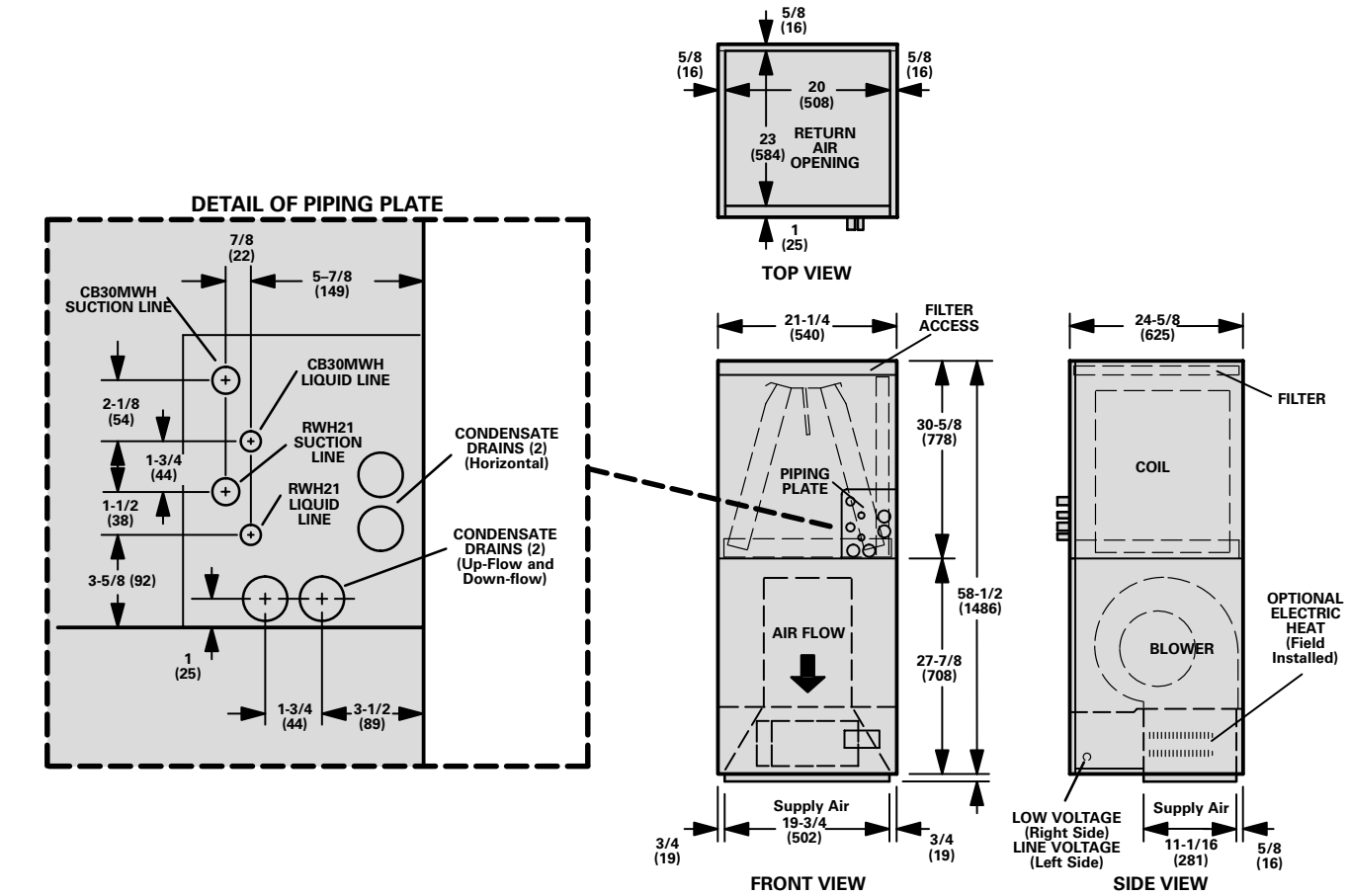
†Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).
[1]Electric heater capacity only — does not include additional blower motor heat capacity.
[2]Minimum circuit ampacity for blower motor only.

CB30MWH DIMENSIONS — inches (mm)

CB30MWH UP-FLOW POSITION

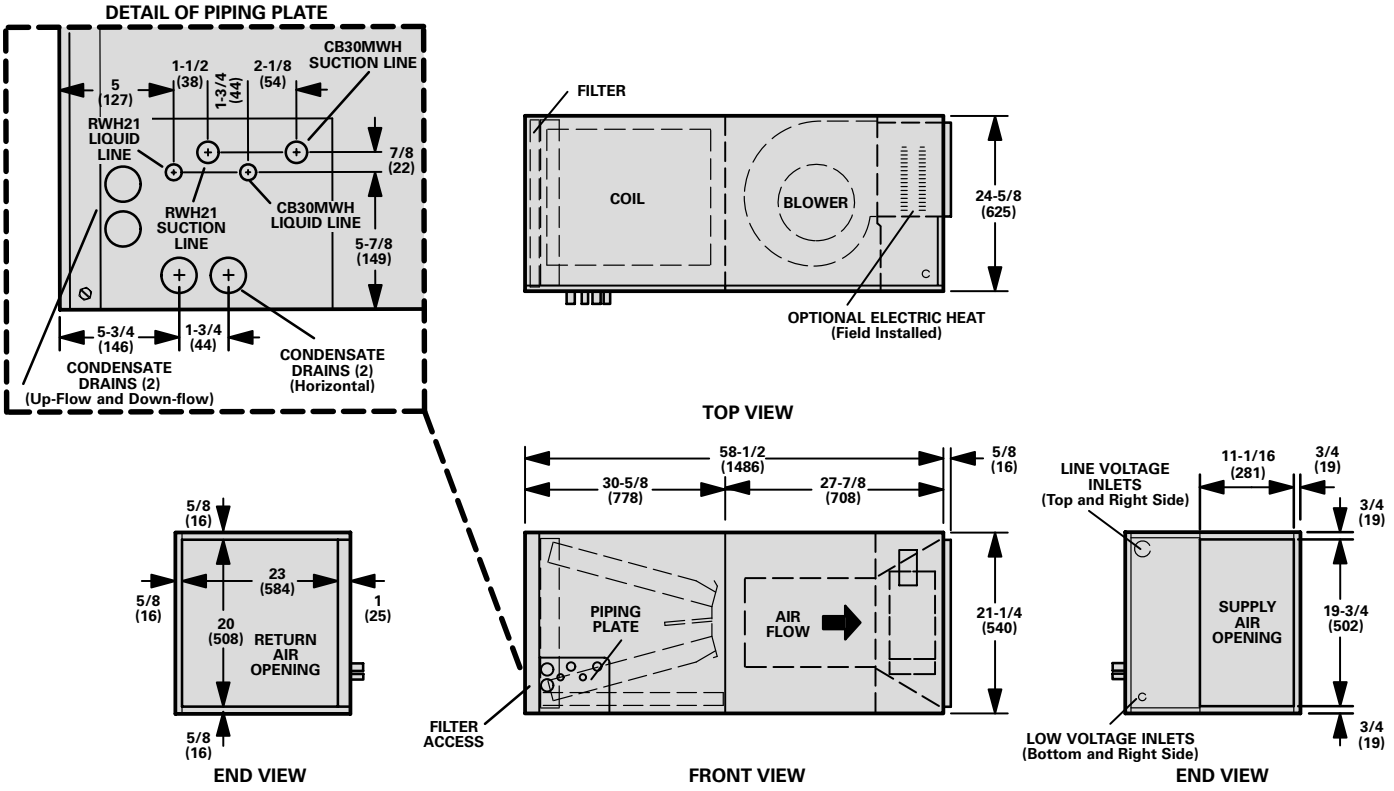


CB30MWH DOWN-FLOW POSITION

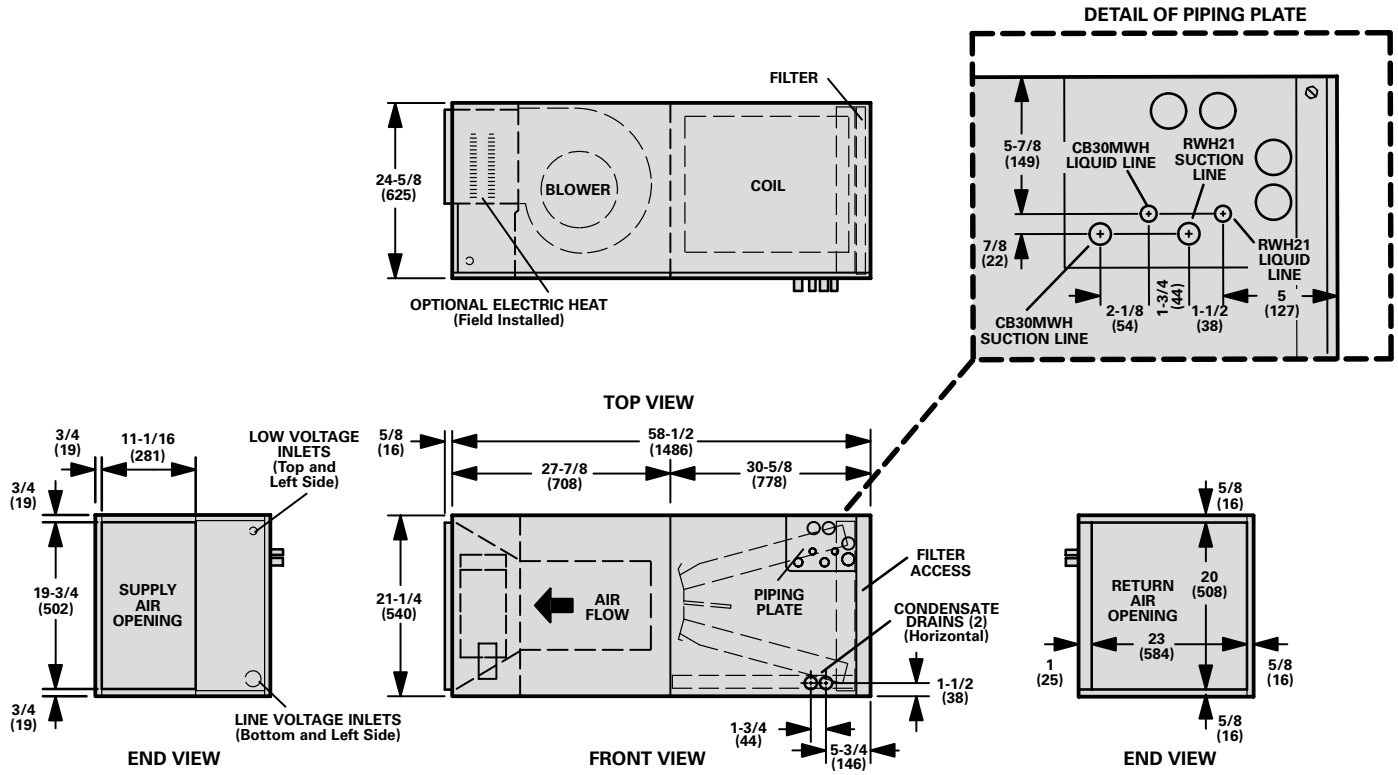


CB30MWH DIMENSIONS — inches (mm)

CB30MWH HORIZONTAL POSITION (RIGHT-HAND AIR DISCHARGE)

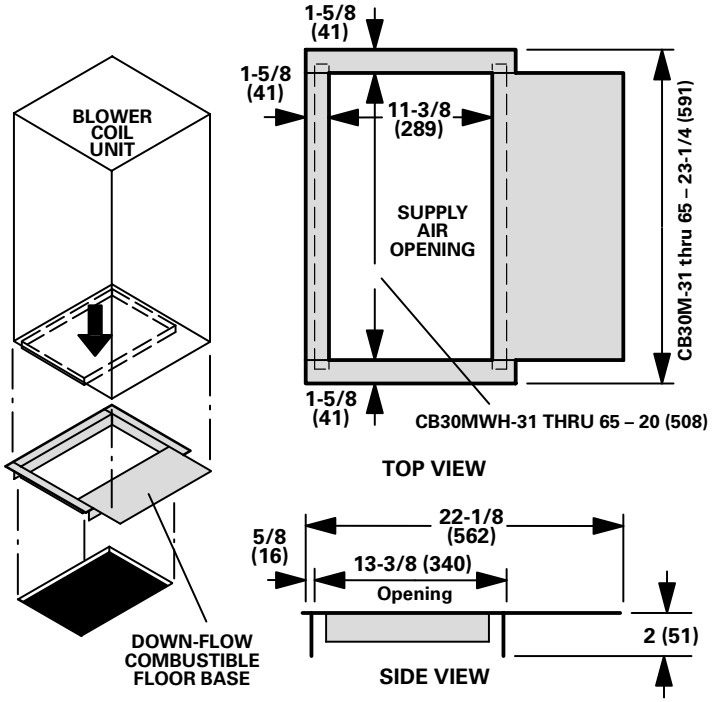


CB30MWH HORIZONTAL POSITION (LEFT-HAND AIR DISCHARGE)

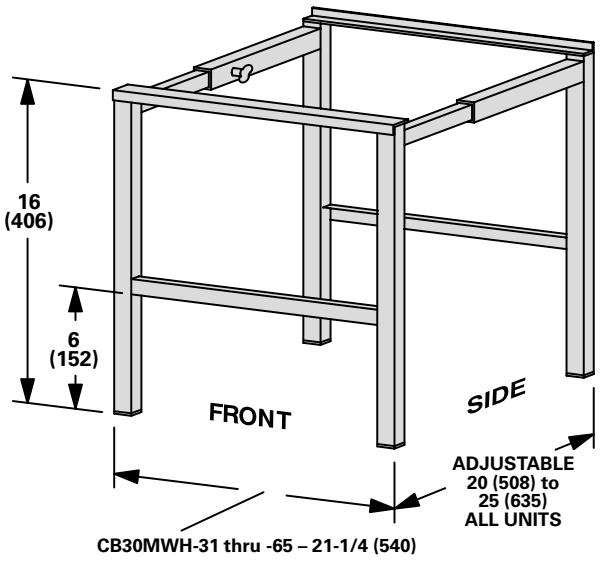


CB30MWH DIMENSIONS — inches (mm)

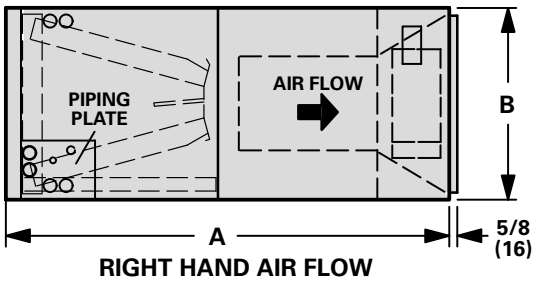
DOWN-FLOW COMBUSTIBLE FLOOR BASE



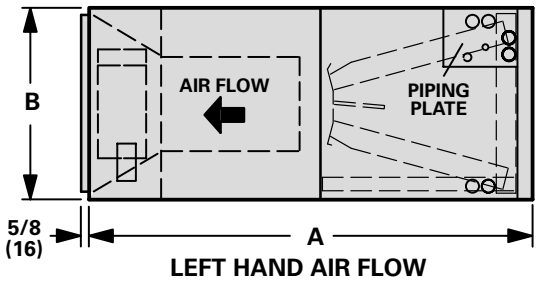
SIDE RETURN UNIT STAND
(Up-Flow Only)



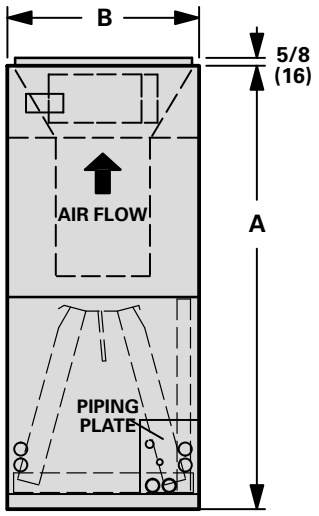
AIR FLOW



RIGHT HAND AIR FLOW

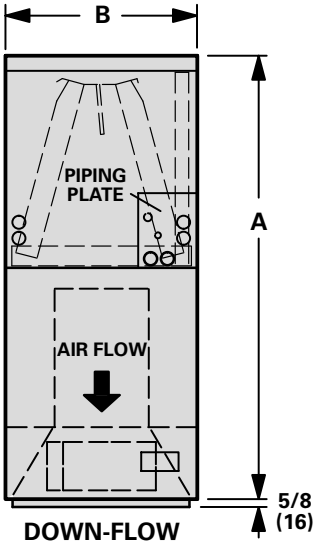


LEFT HAND AIR FLOW



UP-FLOW

Blower Coil Model No.	A		B	
	in.	mm	in.	mm
CB30MWH-31 CB30MWH-41 CB30MWH-51 CB30MWH-65	58-1/2	1486	21-1/4	540



DOWN-FLOW

INSTALLATION CLEARANCES — ALL MODELS

Cabinet	0 inch (0 mm)
Plenum and Outlet duct on blower/coil units	1 inch (25 mm)
Plenum and Warm air duct within 3 feet (914mm) of cabinet	1 inch (25 mm)
Floor	*Combustible

*When unit is installed in the down-flow position with electric heat on a combustible floor an optional down flow base is required.