Product Catalog

UniTrane™ Fan-Coil

Air Terminal Devices

Horizontal, Vertical, and Low Vertical, Sizes 02–12

May 2012

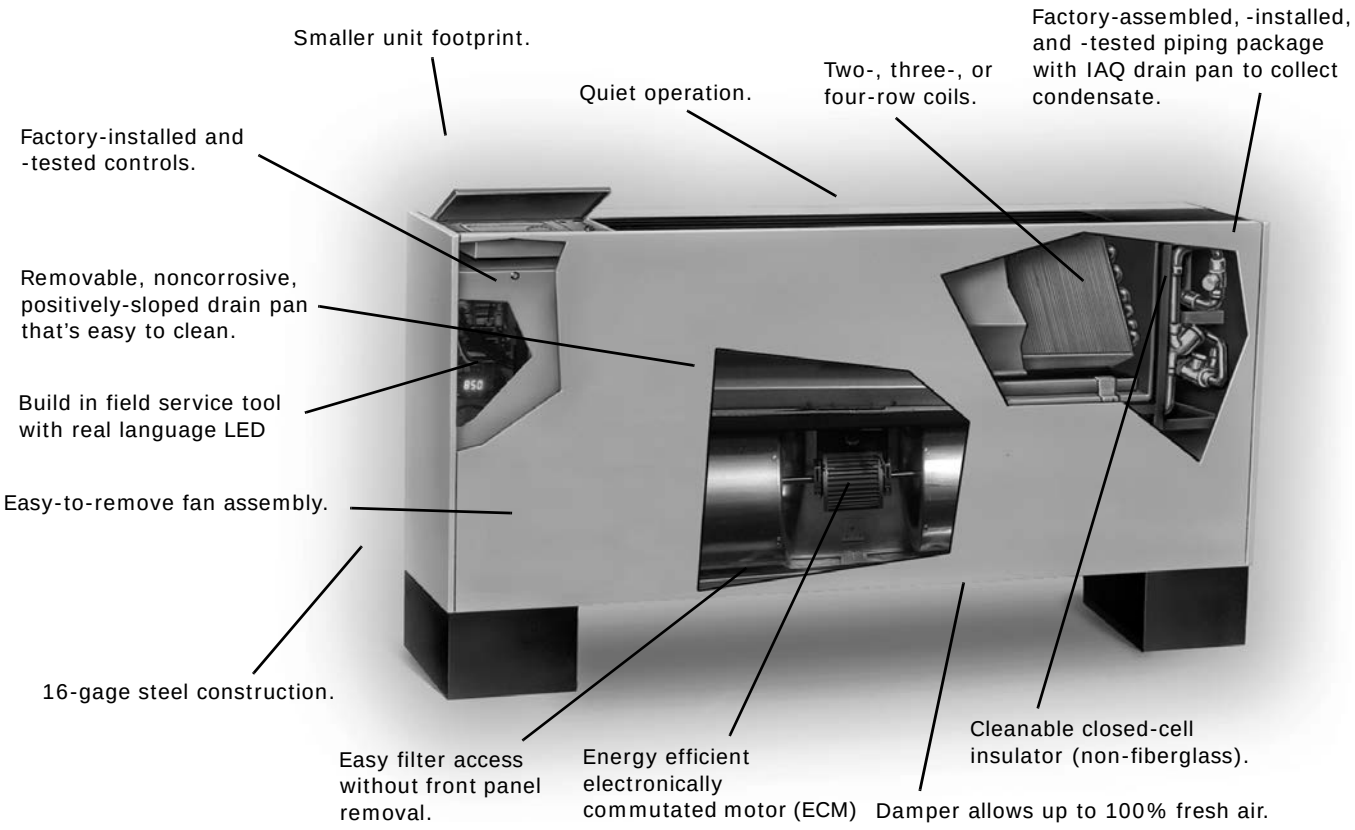
UNT-PRC001-EN

Introduction

It isn't just a fan and a coil…

The Trane Company has redesigned the traditional fan-coil to lead the industry in:

- indoor air quality (IAQ) features
- easy installation and maintenance
- high quality and durability
- advanced controls



Revision History

The revision of this literature dated 08 May 2012 includes information for Tracer™ UC400 controls, coil performance updates, and revised performance table formats per new AHRI listing requirements.

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AHRI CERTIFIED™
www.ahridirectory.org
Room Fan-Coils
AHRI Standard 440

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Features and Benefits

The UniTrane fan-coil meets the standards of today's market, as well as the anticipated needs of tomorrow's market. The tradition that company founder Reuben Trane began in the 1930s continues with the latest generation of fan-coils from The Trane Company.

The UniTrane fan-coil is the leader in these key areas:

- Energy Efficiency
- Indoor Air Quality (IAQ)
- Controls
- Flexibility
- Quality
- Serviceability

Today's HVAC market is concerned with issues such as indoor air quality (IAQ) and CFCs that demand a change in HVAC products. In addition, renovation has overtaken new construction in the fan-coil market—demanding a design that caters to renovation issues. Trane is concerned with these issues, too. That's why we designed the UniTrane fan-coil as an integral part of the company's system solutions with standard IAQ-related features that fully comply with ASHRAE 62.

Energy Efficiency

Trane's commitment to providing premium quality products has led to the exclusive use of Electronically Commutated Motors (ECM) in all fan coil models. These brushless DC motors incorporate the latest technology for optimized energy efficiency, acoustical abatement, maintenance free and extended motor life. Each motor has a built-in microprocessor that allows for programmability, soft ramp-up, better airflow control, and serial communication.

- Trane units equipped with ECMs are significantly more efficient than the standard Permanent Split Capacitor (PSC) motor.
- Lower operating costs on average of 50 percent (versus a PSC motor).
- The Reduced FLA feature allows units to ship with a nameplate FLA rating much lower than a typical ECM unit.

IAQ Design

- Closed-cell insulation is standard on all units to help prevent fiberglass in the airstream.
- The main and auxiliary drain pans are constructed of a noncorrosive engineered plastic (ABS and CyColac T).
- The main and auxiliary drain pans are positively sloped in every plane to assure proper drainage and help maximize protection from microbial growth.
- The drain pans are removable for cleaning.
- Easy filter access encourages frequent changing.
- The auto-economizer damper option allows free cooling and ventilation to help comply with ASHRAE 62—and save energy and operating costs.
- UniTrane fan-coils have a blow-thru design. Low vertical units are drawthru.

Controls

- This is the industry's first solution that is factory-mounted, -wired, and -programmed for infinite modulation of fan speed based on space loads, using the Tracer UC400. Auto Fan Speed control with the Tracer ZN520 ramps the fan speed up and down to meet space loads.
- All controls are factory-mounted and tested to minimize field setup and improve reliability.
- Controls are wired with a 24 Vac transformer to keep only a single source power connection requirement to the unit.

- All wall-mounted zone sensors require only low voltage control wiring from the device to the unit control box. (No line voltage.)
- The controller automatically determines the unit's correct operating mode (heat/cool) by utilizing a proportional/integral (PI) control algorithm to maintain the space temperature at the active setpoint, allowing total comfort control.
- Entering water temperature sampling eliminates the need for inefficient bleedlines to sense automatic changeover on two-pipe changeover units.
- The random start-up feature helps reduce electrical demand peaks by randomly staggering multiple units at start-up.
- Occupied/unoccupied operation allows the controller to utilize unoccupied temperature setpoints for energy savings.
- Warm-up and cool-down energy features are standard with Trane controls.
- Continuous fan or fan cycling is available with Tracer ZN010 or ZN510.
- Monitor unit operation using Tracer TU building management system with Tracer ZN510 or ZN520 and UC400.
- To customize unit control, Tracer TU or Rover™ software will allow field modification of Tracer ZN510 and ZN520 default settings. Tracer ZN010 uses Rover to field modify default settings. UC400 uses Tracer TU.
- Maximize fan-coil system efficiency with free cooling economizers and modulating valves on units with Tracer ZN520 and UC400.

Flexibility

- Two, three, and four-row coils allow greater design flexibility in two and four-pipe systems.
- One-row steam or hot water reheat coils for dehumidification on units with ZN520 controls.
- Fan motors are available for either high static (0.4-inch external static pressure) or free discharge applications.
- Piping is factory assembled, mounted and tested. Units are also available without piping. Reheat coil piping is available on 2-pipe units with hot water reheat coils and either a fan speed switch or Tracer ZN520 and UC400.
- Factory piping options include interconnecting piping, control valves, and end valves. Deluxe piping also has unions and a strainer.
- Control options range from a simple fan speed switch to a DDC controller that can tie into a Tracer Summit building automation system.
- An 8-inch extended end pocket is an available option on the piping end of cabinet style units.
- Slope-top vertical cabinet units are also available for school and dormitory applications to prevent items from being placed on top of the units.

Quality

- Coils and piping packages are air and leak-tested before mounting on the fan-coil.
- Coil piping connections are also air and leak-tested after mounting on the unit.
- All control end devices and moving components (fans and motors) are computer-tested after units are complete.

Serviceability

- Touch-safe control box.
- Integrated user interface with real language LED display.
- Built-in tachometer.

- Filters are easily removable and changed without removing the front panel on vertical cabinet units.
- Motors are easy to disconnect from the fan board, allowing easy service.
- The main and auxiliary drain pans are easily removable and wipe clean with a wet cloth.
- The manual output test function is an invaluable troubleshooting tool. By simply pressing the test button on the Tracer ZN510, ZN520, or ZN010; service personnel can manually exercise outputs in a pre-defined sequence.

Model Number Descriptions

UniTrane Fan-Coil

Following is a complete description of the fan-coil model number. Each digit in the model number has a corresponding code that identifies specific unit options.

Note: *Not all options are available on all cabinet styles. Contact your local Trane sales representative for more information.*

Digits 1, 2 — Unit Type

FC = Fan-Coil

Digit 3 — Cabinet Type

A = Vertical Concealed
B = Vertical Cabinet
C = Horizontal Concealed
D = Horizontal Cabinet
E = Horizontal Recessed
H = Vertical Recessed
J = Vertical Cabinet Slope Top
P = Compact Concealed

Digit 4 — Development Sequence "B"

Digits 5, 6, 7 — Unit Size

020	040	080
030	060	100
120		

Digit 8 — Unit Voltage

1	=	115/60/1	4	=	230/60/1
2	=	208/60/1	9	=	220/50/1
3	=	277/60/1			

Digit 9 — Piping System/ Placement

A = No piping, RH, No Auxiliary Drain Pan
B = No piping, LH, No Auxiliary Drain Pan
C = No piping, RH, with Auxiliary Drain Pan
D = No piping, LH, with Auxiliary Drain Pan
E = No piping, RH, No Auxiliary Drain Pan, Extended End Pocket
F = No piping, LH, No Auxiliary Drain Pan, Extended End Pocket
G = No piping, RH, with Auxiliary Drain Pan, Extended End Pocket
H = No piping, LH, with Auxiliary Drain Pan, Extended End Pocket
J = With piping package, RH
K = With piping package, LH
L = With piping package, RH, Extended End Pocket
M = With piping package, LH, Extended End Pocket

Digits 10, 11 — Design Sequence

Digit 12 — Inlets

A = Front Toe Space
B = Front Bar Grille
C = Front Stamped Louver
D = Bottom Stamped Louver
E = Bottom Toe Space
F = Back Duct Collar
G = Back Open Return
H = Back Stamped Louver
K = Exposed fan (Model P only)
L = Bottom filter (Model P only)

Digit 13 — Fresh Air Damper

0 = None
A = Manual, Bottom Opening
B = Manual, Back Opening
C = Manual, Top Opening
D = Auto, 2-Position, Bottom Opening
E = Auto, 2-Position, Back Opening
F = Auto, 2-Position, Top Opening
G = Auto, Economizer, Bottom Opening
H = Auto, Economizer, Back Opening
J = Auto, Economizer, Top Opening
K = No Damper, Bottom Opening
L = No Damper, Back Opening
M = No Damper, Top Opening

Digit 14 — Outlets

A = Front Duct Collar
B = Front Bar Grille
C = Front Stamped Louver
D = Front Quad Grille
G = Top Quad Grille
H = Top Bar Grille
J = Top Duct Collar

Digit 15 — Color

0 = No Paint (Concealed Units Only)
1 = Deluxe Beige
2 = Soft Dove
3 = Cameo White
4 = Driftwood Grey
5 = Stone Grey
6 = Rose Mauve

Digit 16 — Tamperproof Locks/ Leveling Feet

0 = None
B = Keylock Access Door
C = Keylock Panel and Access Door
D = Leveling Feet
F = Keylock Access Door with Leveling Feet
G = Keylock Panel and Access Door with Leveling Feet

Digit 17 — Motor

A = Free Discharge ECM
B = High Static ECM

Digit 18 — Coil

A = 2-Row Cooling/Heating[1]
B = 3-Row Cooling/Heating[1]
C = 4-Row Cooling/Heating[1]
D = 2-Row Cooling/1-Row Heating
E = 2-Row Cooling/2-Row Heating
F = 3-Row Cooling/1-Row Heating
G = 2-Row Cooling Only
H = 3-Row Cooling Only
J = 4-Row Cooling Only
K = 2-Row Cooling/Heating[1] with Electric Heat
L = 3-Row Cooling/Heating[1] with Electric Heat
M = 4-Row Cooling/Heating[1] with Electric Heat
P = 2-Row Cooling/Heating[1] with 1-Row Heating
Q = 2-Row Cooling/Heating[1] with 2-Row Heating
R = 3-Row Cooling/Heating[1] with 1-Row Heating
X = 2-Row Cooling Only, Electric Heat
Y = 3-Row Cooling Only, Electric Heat
Z = 4-Row Cooling Only, Electric Heat

Digit 19 — Drain Pan Material

3 = Polymer Drain Pan
4 = Stainless Steel Main Drain Pan

Digit 20 — Coil Air Vent

A = Automatic Air Vent
M = Manual Air Vent

[1] Designates coils provided with a changeover sensor.

Digits 21, 22, 23 — Electric Heat kW — ( ) = 208V Derate

000 = No Electric Heat
010 = 1.0 kW (0.75 kW)
015 = 1.5 kW (1.1 kW)
020 = 2.0 kW (1.5 kW)
025 = 2.5 kW (1.9 kW)
030 = 3.0 kW (2.3 kW)
040 = 4.0 kW (3.0 kW)
050 = 5.0 kW (3.8 kW)
060 = 6.0 kW (4.5 kW)
070 = 7.0 kW (5.3 kW)
080 = 8.0 kW (6.0 kW)
100 = 10.0 kW

Digit 24 — Reheat Coil

0 = None
A = Steam Coil
B = Hot Water Coil
D = High Capacity Hot Water Coil

Digit 25 — Disconnect Switch

0 = None
D = Disconnect Switch

Digit 26 — Filter

0 = None
1 = 1″ Throwaway Filter
2 = 1″ Throwaway MERV 8 Filter
3 = 1″ Throwaway, 1 Extra
4 = 1″ Throwaway MERV 8, 1 Extra
5 = 1″ Throwaway, 2 Extras
6 = 1″ Throwaway MERV 8, 2 Extras
7 = 1″ Throwaway, 3 Extras
8 = 1″ Throwaway MERV 8, 3 Extras
A = 1″ Throwaway MERV 13 Filter
B = 1″ Throwaway MERV 13, 1 Extra
C = 1″ Throwaway MERV 13, 2 Extras
D = 1″ Throwaway MERV 13, 3 Extras

Digit 27 — Main Control Valve

0 = None
A = 2-Way, 2-Position, NO (30 psig)
B = 3-Way, 2-Position, NO (28 psig)
C = 2-Way, 2-Position, NC (30 psig)
D = 3-Way, 2-Position, NC (20 psig)
E = 2-Way, 2-Position, NO (50 psig)
F = 3-Way, 2-Position, NO (28 psig)
G = 2-Way, 2-Position, NC (50 psig)
H = 3-Way, 2-Position, NC (28 psig)
J = 2-Way, Mod., 0.6 Cv (60 psig)
K = 3-Way, Mod., 0.6 Cv (60 psig)
L = 2-Way, Mod., 1.1 Cv (60 psig)
M = 3-Way, Mod., 1.1 Cv (60 psig)
N = 2-Way, Mod., 2.3 Cv (60 psig)
P = 3-Way, Mod., 2.7 Cv (60 psig)
Q = 2-Way, Mod., 3.3Cv (60 psig)
R = 3-Way, Mod., 3.8 Cv (60 psig)
X = Field-supplied, NO
Y = Field-supplied, NC
Z = Field-supplied 3-Wire Modulating
1 = Field supplied analog valve

Digit 28 — Auxiliary Control Valve

0 = None
A = 2-Way, 2-Position, NO (30 psig)
B = 3-Way, 2-Position, NC (28 psig)
C = 2-Way, 2-Position, NC (30 psig)
D = 3-Way, 2-Position, NC (20 psig)
E = 2-Way, 2-Position, NO (50 psig)
F = 3-Way, 2-Position, NO (28 psig)
G = 2-Way, 2-Position, NC (50 psig)
H = 3-Way, 2-Position, NC (28 psig)
J = 2-Way, Mod., 0.6 Cv (60 psig)
K = 3-Way, Mod., 0.6 Cv (60 psig)
L = 2-Way, Mod., 1.1 Cv (60 psig)
M = 3-Way, Mod., 1.1 Cv (60 psig)
N = 2-Way, Mod., 2.3 Cv (60 psig)
P = 3-Way, Mod., 2.7 Cv (60 psig)
Q = 2-Way, Mod., 3.3Cv (60 psig)
R = 3-Way, Mod., 3.8 Cv (60 psig)
X = Field-supplied, NO
Y = Field-supplied, NC
Z = Field-supplied 3-Wire Modulating
1 = Field supplied analog valve

Digit 29 — Piping Packages

0 = None
A = Basic Ball Valve Supply and Return
B = Basic Ball Valve Supply/Manual Circuit Setter
C = Basic Ball Valve Supply and Return with Auto Circuit Setter
D = Deluxe Ball Valve Supply and Return
E = Deluxe Ball Valve Supply/Manual Circuit Setter
F = Deluxe Ball Valve Supply and Return with Auto Circuit Setter

Digit 30 — Control Type

A = Fan Mode Switch
E = Tracer ZN010
F = Tracer ZN510
G = Tracer ZN520
H = Customer Supplied Terminal Interface (CSTI)
J = Tracer UC400, Single Zone VAV

Digit 31 — Control Option

D = Unit-Mounted Fan Mode Switch
K = Wall-Mounted Fan Mode Switch
V = Unit-Mounted Fan Speed Switch w/Setpoint Dial Zone Sensor
W = Wall-Mounted Fan Speed Switch w/Setpoint Dial Zone Sensor
X = Unit-Mounted Fan Speed Switch w/Wall-Mounted Setpoint Dial Zone Sensor
Y = Unit-Mounted Fan Speed Switch & Wall-Mounted Setpoint Dial w/Comm.
Z = Unit-Mounted Fan Speed Switch, On/Cancel, Setpoint Dial w/ Comm.
1 = Wall-Mounted On/Cancel w/ Comm.
2 = Wall-Mounted Fan Speed Switch, Setpoint Dial, On/Cancel w/ Comm.
0 = Without Control Option
3 = Unit-Mounted Low Voltage Fan Speed Switch (Off /Hi /Med /Low)
4 = Wall-Mounted Digital Zone Sensor (OALMH, Setpoint, On/Cancel, Comm Jack)
5 = Wall-Mounted Digital Zone Sensor (On/Cancel, Comm Jack)
6 = Wireless Zone Sensor
7 = Wireless Display Sensor, Unit-Mounted Receiver

Digit 32 — IAQ Options

0 = Without IAQ Options
1 = Dehumidification
4 = Dehumidification w/ Sensor

Digit 33 —FLA Motor Option

0 = Standard FLA ECM Mode
A = Reduced FLA ECM Mode

Digit 34

0 = None

Digit 35 — Control Function #3

0 = None
2 = Condensate Overflow Detection

Digit 36 — Control Function #4

0 = None
2 = Low Temperature Detection

Digits 37, 38 — Future Control Functions

Digit 39 — Projection Panels and Falsebacks

0 = None
A = 5/8″ Standard Recessed Panel (Vertical Recessed Units Only)
B = 2″ Projection Panel
C = 2.5″ Projection Panel
D = 3″ Projection Panel
E = 3.5″ Projection Panel
F = 4″ Projection Panel
G = 4.5″ Projection Panel
H = 5″ Projection Panel
J = 5.5″ Projection Panel
K = 6″ Projection Panel
L = 2″Falseback
M = 3″ Falseback
N = 4″ Falseback
P = 5″ Falseback
Q = 6″ Falseback
R = 7″ Falseback
T = 8″ Falseback

Digit 40 — Main Autoflow Gpm

0	=	None	H	=	3.5
A	=	0.5	J	=	4.0
B	=	0.75	K	=	4.5
C	=	1.0	L	=	5.0
D	=	1.5	M	=	6.0
E	=	2.0	N	=	7.0
F	=	2.5	P	=	8.0
G	=	3.0			

Digit 41 — Auxiliary Autoflow Gpm

0	=	None	H	=	3.5
A	=	0.5	J	=	4.0
B	=	0.75	K	=	4.5
C	=	1.0	L	=	5.0
D	=	1.5	M	=	6.0
E	=	2.0	N	=	7.0
F	=	2.5	P	=	8.0
G	=	3.0			

Digit 42 — Subbases

0 = None
A = 2″ Subbase
B = 3″ Subbase
C = 4″ Subbase
D = 5″ Subbase
E = 6″ Subbase
F = 7″ Subbase

Digit 43 — Recessed Flange

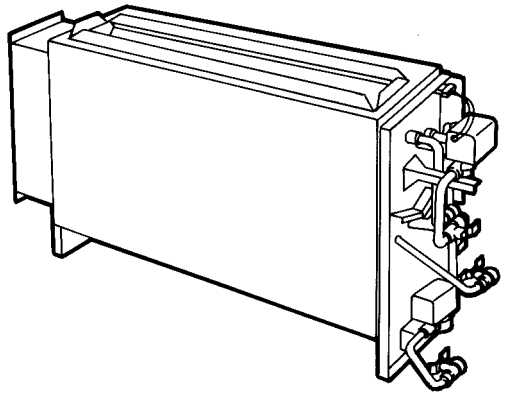
0 = None
A = Recessed Flange

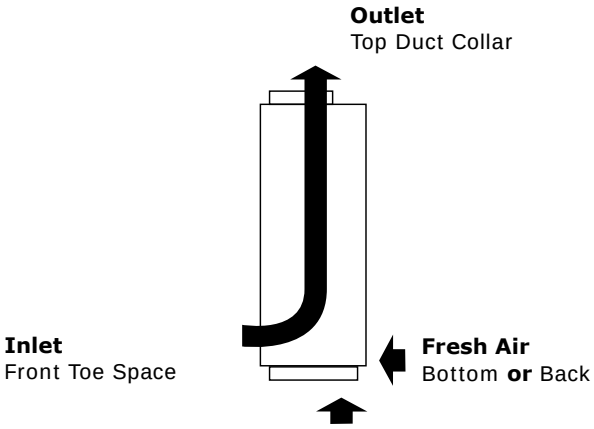
Digit 44 — Wall Boxes

0 = None
A = Anodized Wall Box

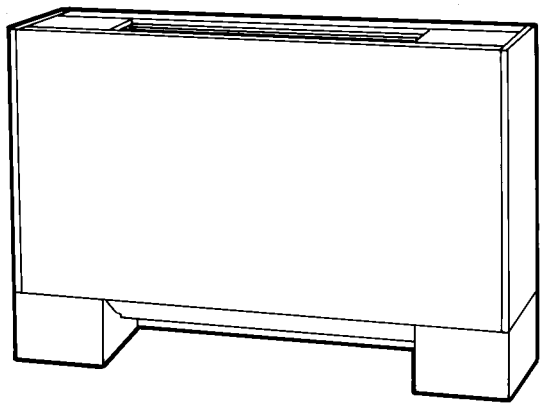
General Data

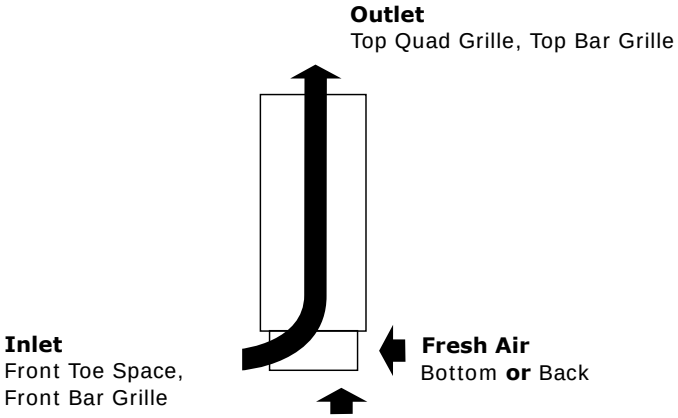
Model A, Vertical Concealed



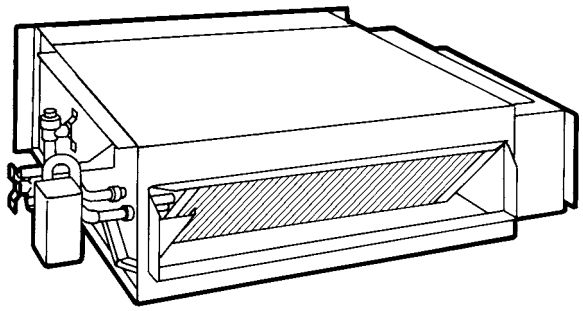


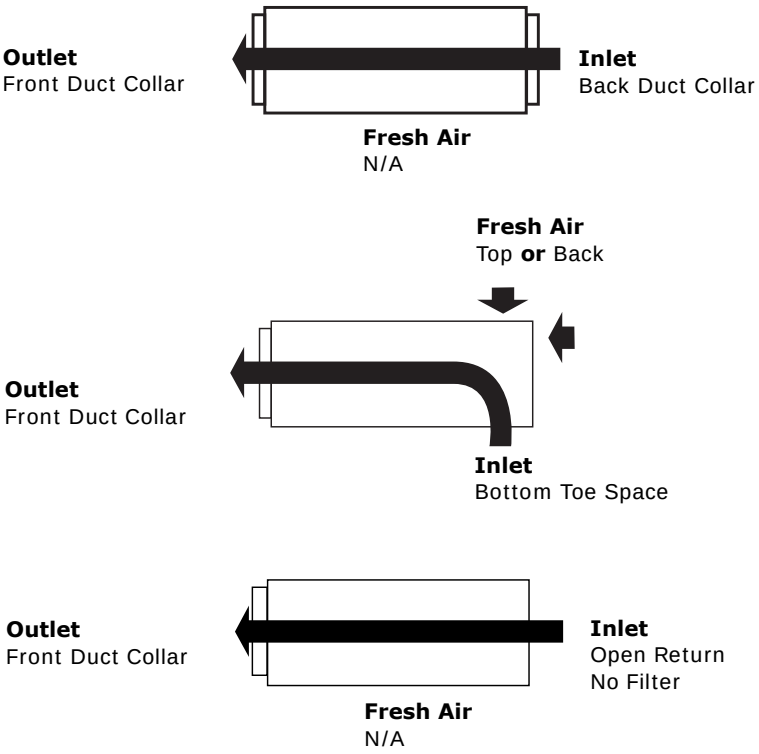
Model B, Vertical Cabinet



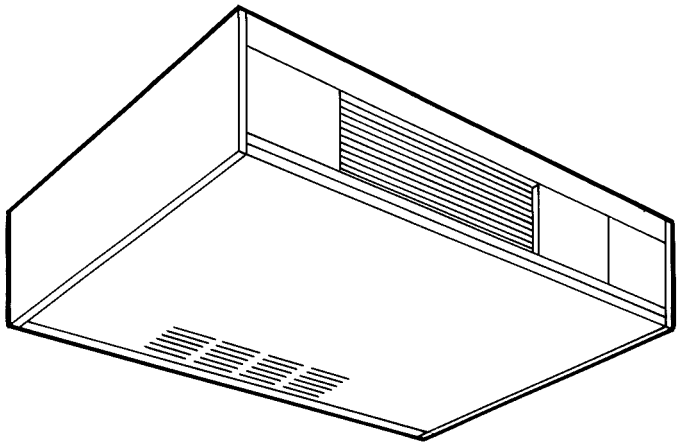


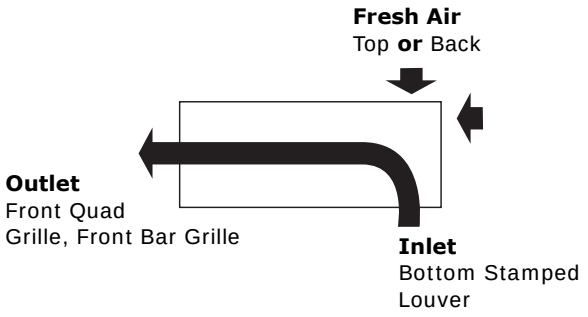
Model C, Horizontal Concealed

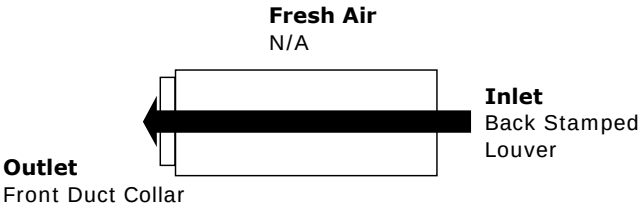


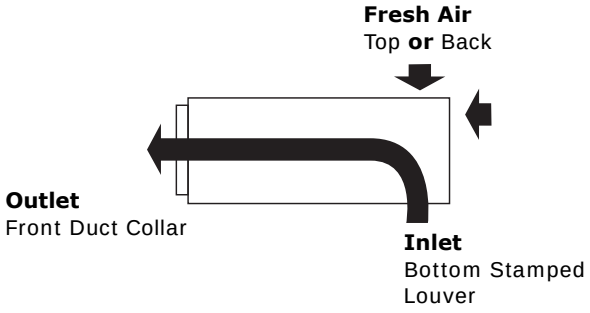


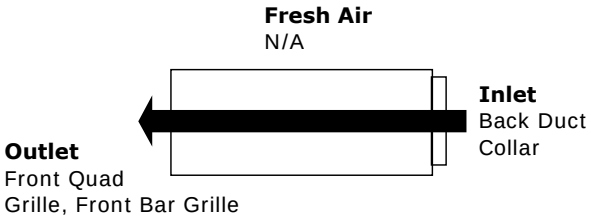
Model D, Horizontal Cabinet

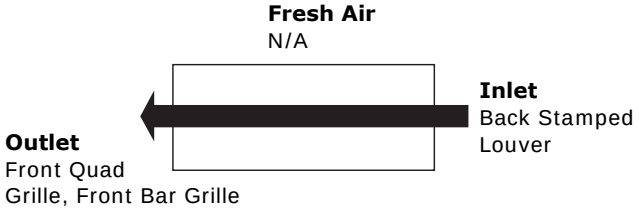


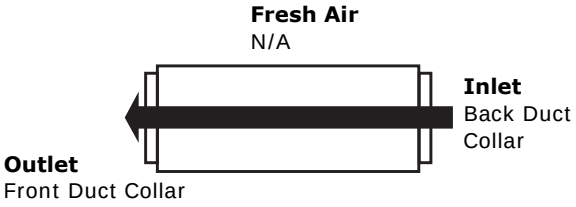




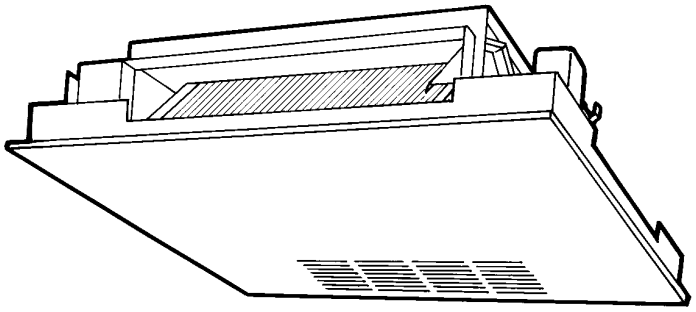


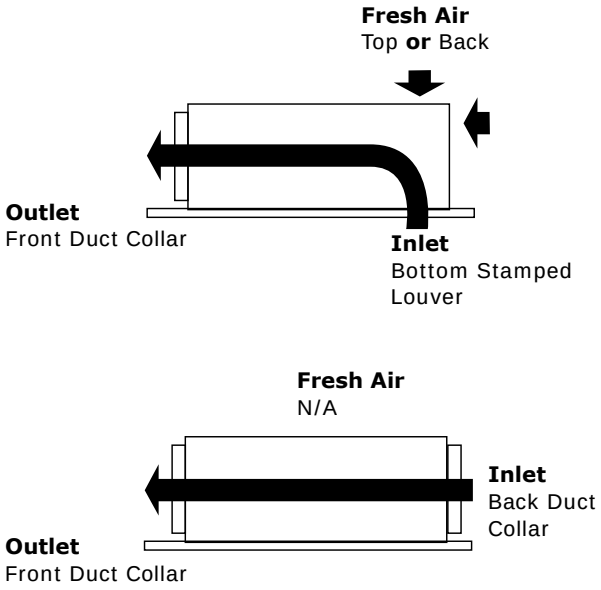




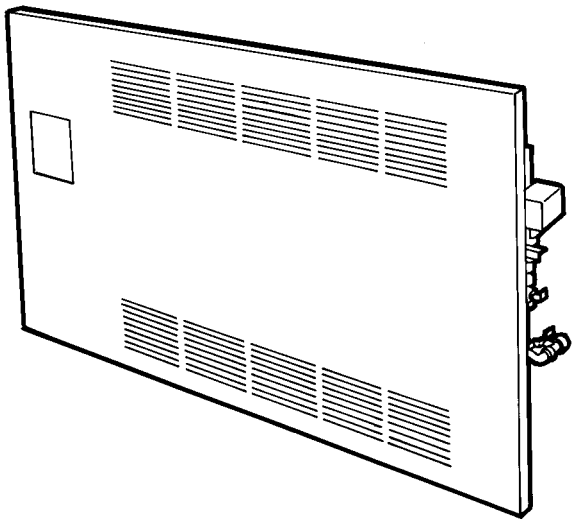


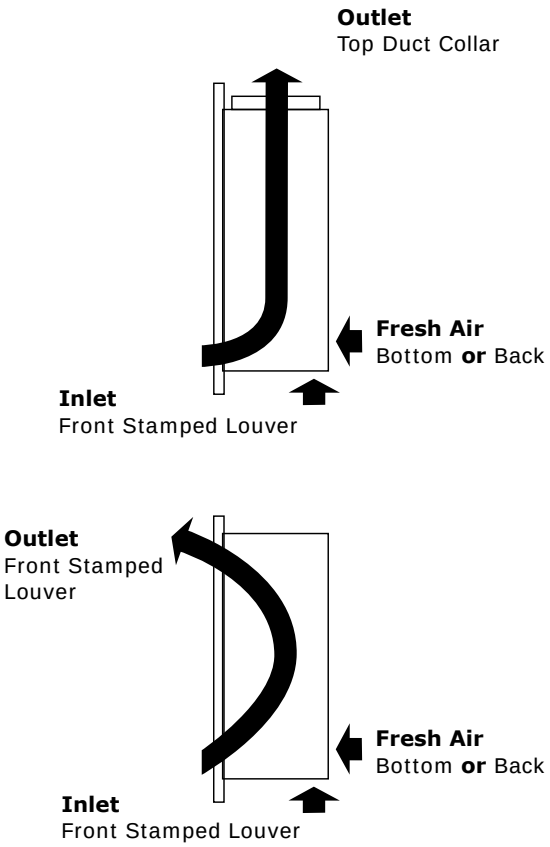
Model E, Horizontal Recessed



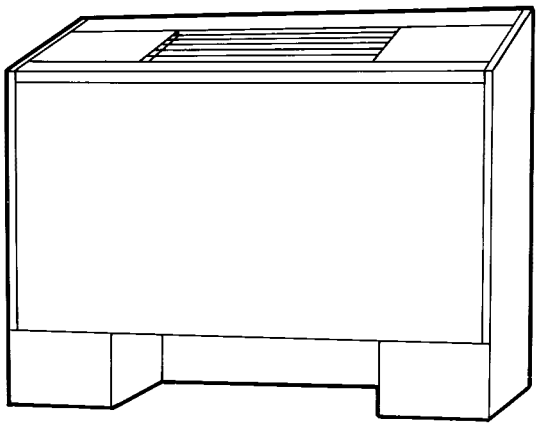


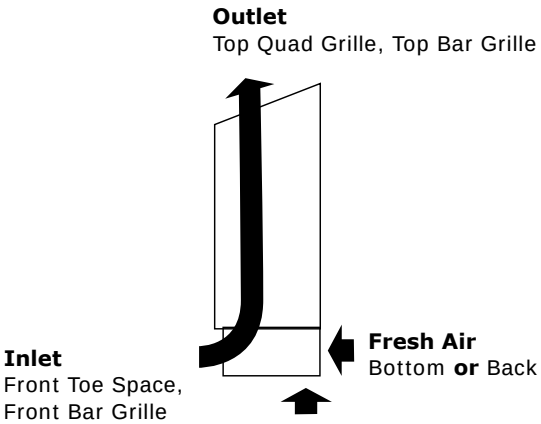
Model H, Vertical Recessed



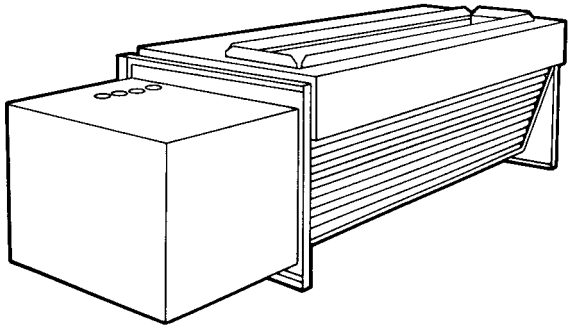


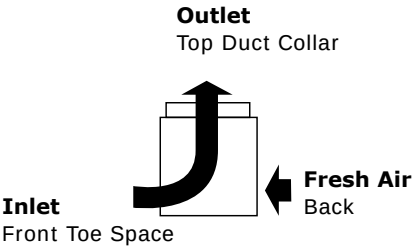
Model J, Vertical Cabinet Slope Top



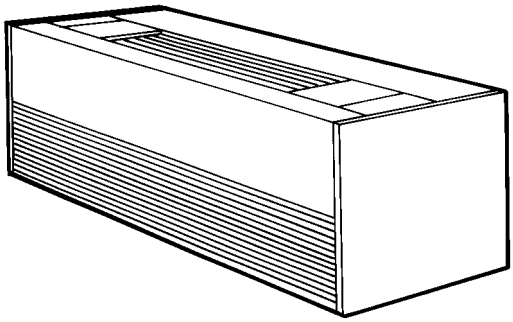


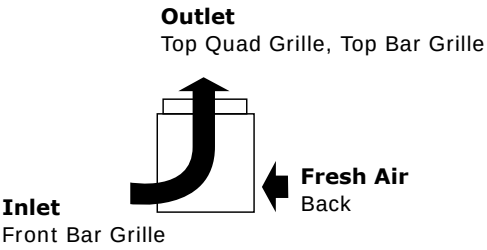
Model K, Low Vertical Concealed



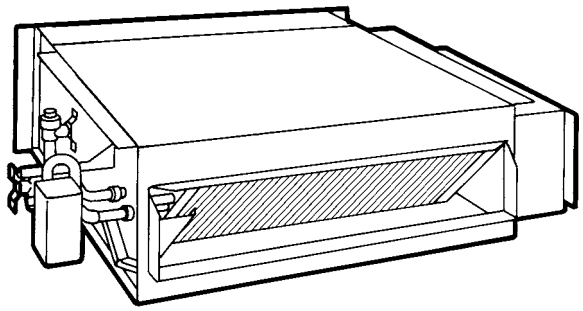


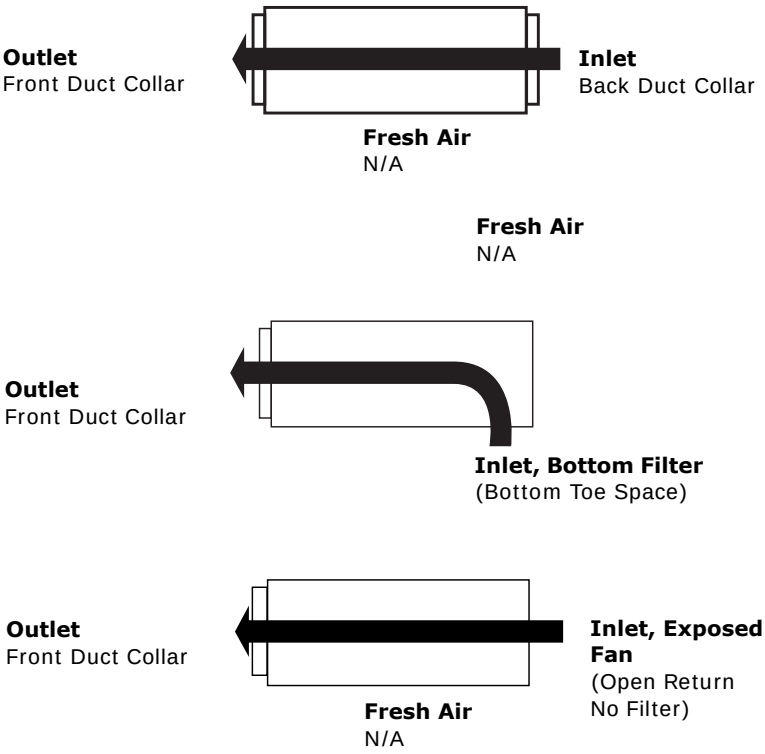
Model L, Low Vertical Cabinet



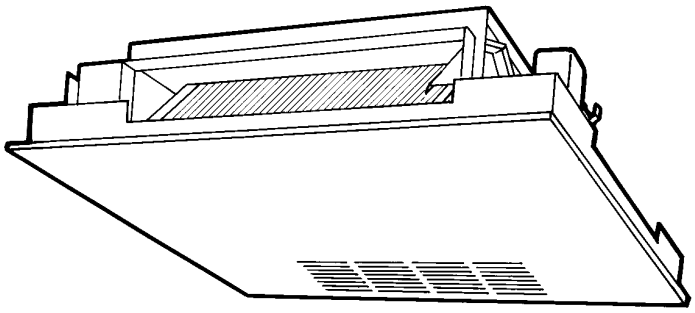


Model P, Compact Concealed





Model P, Compact Concealed (with Recessed Panel Option)



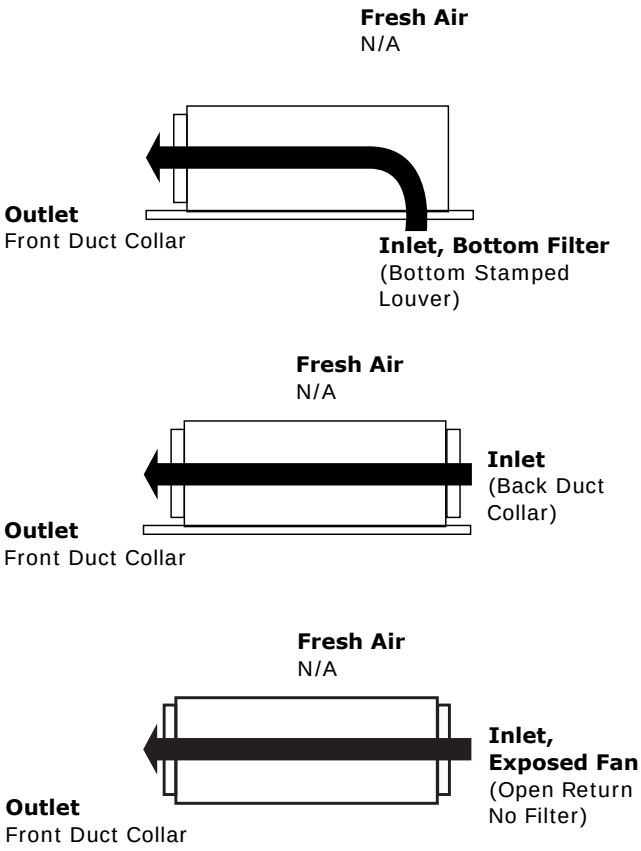


Table 1. UniTrane Fan-Coil general data

Unit Size	02	03	04	06	08	10	12
Coil Data							
Face Area — ft^2	0.8	0.8	1.1	1.6	2.1	3.2	3.2
LxDxH — in.							
2-Row	15 x 1.7 x 8	15 x 1.7 x 8	20 x 1.7 x 8	29.5 x 1.7 x 8	38 x 1.7 x 8	57 x 1.7 x 8	57 x 1.7 x 8
3-Row	15 x 2.6 x 8	15 x 2.6 x 8	20 x 2.6 x 8	29.5 x 2.6 x 8	38 x 2.6 x 8	57 x 2.6 x 8	57 x 2.6 x 8
4-Row	15 x 3.5 x 8	15 x 3.5 x 8	20 x 3.5 x 8	29.5 x 3.5 x 8	38 x 3.5 x 8	57 x 3.5 x 8	57 x 3.5 x 8
Volume — gal							
1-Row (Heat)	0.06	0.06	0.08	0.11	0.14	0.21	0.21
2-Row	0.12	0.12	0.15	0.22	0.28	0.42	0.42
3-Row	0.18	0.18	0.23	0.33	0.42	0.62	0.62
4-Row	0.24	0.24	0.30	0.44	0.56	0.83	0.83
Fins/ft							
2-Row	144	144	144	144	144	144	144
3-Row	144	144	144	144	144	144	144
4-Row	144	144	144	144	144	144	144
Reheat Coil Data (1-Row), Standard or High-Capacity[a]							
Hot Water or Steam							
Face Area — ft^2	0.6	0.6	0.8	1.2	1.6	2.4	2.4
L x D x H — in.	15 x 1.5 x 6	15 x 1.5 x 6	20 x 1.5 x 6	29.5 x 1.5 x 6	38 x 1.5 x 6	57 x 1.5 x 6	57 x 1.5 x 6
Volume — gal	0.12	0.12	0.15	0.22	0.28	0.42	0.42
Standard Capacity[a] Fins/ft	48	48	48	48	48	48	48
High-Capacity[a] Fins/ft	144	144	144	144	144	144	144
Fan/Motor Data							
Fan Quantity	1	1	1	2	2	3	3
Size — Dia" x Width"	6.31 x 4	6.31 x 6.5	6.31 x 7.5	6.31 x 6.5	6.31 x 7.5	(1) 6.31 x 7.5	6.31 x 7.5
Size — Dia" x Width"						(2) 6.31 x 6.5	
Motor Quantity	1	1	1	1	1	2	2
Filter Data							
1" (cm) TA and Pl. Media							
Quantity	1	1	1	1	1	1	1
Size — in.	8-7/8 x 19-1/8	8-7/8 x 19-1/8	8-7/8 x 24-1/8	8-7/8 x 33-5/8	8-7/8 x 42-1/8	8-7/8 x 61-1/8	8-7/8 x 61-1/8
1" Fresh Air Filter (only on cabinet styles D, E, and H with bottom return and fresh air opening)							
Quantity	1	1	1	1	1	1	1
Size — in.	5-1/2 x 19-1/8	5-1/2 x 19-1/8	5-1/2 x 24-1/8	5-1/2 x 33-5/8	5-/2 x 42-1/8	5-1/2 x 61-1/8	5-1/2 x 61-1/8

(a) Standard and high-capacity reheat coils share the same component data except that standard capacity reheat coils have 48 fins/ft while high-capacity reheat coils have 144 fins/ft.

Table 2. Low vertical fan-coil general data

Unit Size	03	04	06
Coil Data			
Face Area—ft^2	1.1	1.6	2.1
L x D x H—in.			
2-Row	20 x 1.7 x 8	29.5 x 1.7 x 8	38 x 1.7 x 8
3-Row	20 x 2.6 x 8	29.5 x 2.6 x 8	38 x 2.6 x 8
Volume—gal			
1-Row (Heat)	0.08	0.11	0.14
2-Row	0.15	0.22	0.28
3-Row	0.23	0.33	0.42
Fins/ft			
2-Row	144	144	144
3-Row	144	144	144
Fan/Motor Data			
Fan Quantity	1	1	1
Size—Dia" x Width"	5 x 23	5 x 32	5 x 41
Motor Quantity	1	1	1
Filter Data			
1" TA			
Quantity	1	1	1
Size—in.	8-7/8 x 24-1/8	8-7/8 x 33-5/8	8-7/8 x 42-1/8

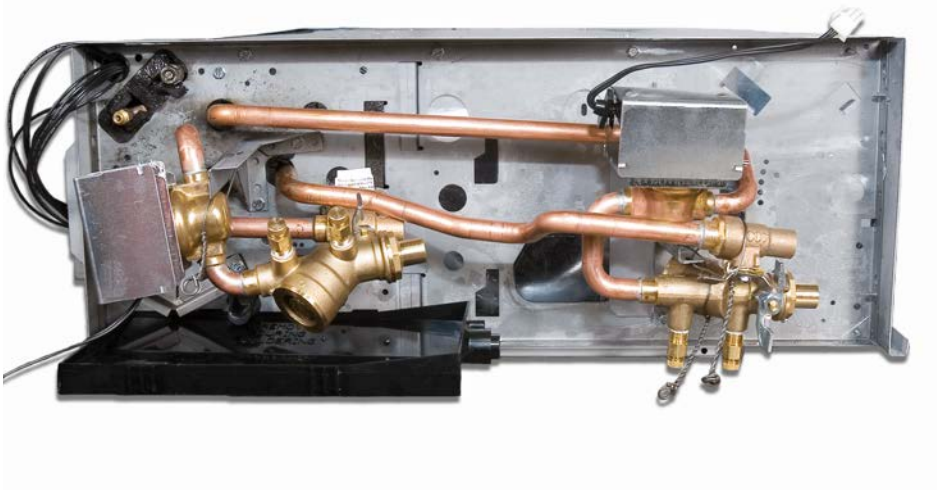
Table 3. Fan-coil air flow (cfm)

		External Static Pressure (ESP)				
		FD	High Static			
FC	Coil	0.05	0.1	0.2	0.3	0.4
02	2-row	246	344	314	283	251
	3-row	242	352	319	284	249
	4-row	222	326	295	263	230
03	2-row	313	410	380	350	319
	3-row	309	391	358	324	290
	4-row	276	360	330	299	267
04	2-row	381	446	410	373	336
	3-row	365	544	506	467	427
	4-row	340	506	470	434	397
06	2-row	609	757	700	642	582
	3-row	604	880	824	766	707
	4-row	557	812	760	706	652
08	2-row	790	1014	950	885	819
	3-row	724	992	927	861	794
	4-row	676	930	870	808	745
10	2-row	1015	1284	1199	1113	1024
	3-row	1052	1456	1360	1262	1162
	4-row	988	1366	1276	1183	1089
12	2-row	1105	1424	1330	1234	1134
	3-row	1074	1514	1419	1320	1219
	4-row	993	1421	1330	1238	1144

Factory-Installed Piping Packages

UniTrane fan-coils have standard piping packages available as a factory built and installed option. Piping package options are also available for the hot water reheat coil on two-pipe units equipped with either a fan speed switch or Tracer ZN520 and UC400 controller. Factory built assures all piping packages are fully tested under water for leaks and are built within strict tolerances. Factory-installed means that chilled and hot water pipes are the only field connections required. The installer doesn't have to sweat connect piping packages onto coil connections in a tight end pocket. Field connections are brought to a point near the exterior of the unit for easy access. All piping and components are located to allow condensate to drain into the auxiliary drain pan. Insulation of the factory piping package is not required. However, all field connections should be insulated to prevent condensation from missing the auxiliary drain pan.

Figure 1. Factory-installed and -tested piping package (two-pipe deluxe package with manual circuit setter, shown on a horizontal concealed unit)



Piping Package Components

UniTrane piping packages consist of a variety of components for each application. The following section provides a detailed description of each of the piping components. Following this section are additional illustrations and specifications.

Piping System/Placement

Factory piping systems are available for either two or four-pipe systems with right or left hand connections. Four-pipe systems have both the heating and cooling connections on the same side of the unit. A simple coil connection (a unit without a piping package) is also available in either a right or left hand configuration for those applications requiring field piping.

Interconnecting Piping

Interconnecting piping refers to the copper piping which is attached to the coil connections and to which all other components (control valves, end valves, etc.) are attached. Piping is 1/2" nominal OD copper. Two-pipe piping extends near the unit exterior to one inlet and one outlet connection. Four-pipe units have two sets of piping that extend near the unit exterior — one inlet and one outlet each for both chilled and hot water. A label clearly identifies chilled and hot water connection points on every unit.

Deluxe or Basic Piping Package

The basic piping package includes only the main components of the piping package: interconnecting piping, control valve option, and end valves.

The deluxe piping package also includes a strainer on the entering water pipe and unions at the coil connections along with the basic components. The strainer body is cast brass construction, with a stainless steel mesh strainer that is easily removed for cleaning. The unions are forged brass construction and close with a minimum amount of effort.

End Valves

Each piping package includes a ball valve for the entering water pipe and one of the following end valves on the leaving water pipe: ball valve, manual circuit setter, or an auto circuit setter. These valves serve as the field connection points on all UniTrane piping packages.

Ball Valves. Ball valves, also known as stop or end valves, allow the unit to be cut off for service purposes. These valves have a two-inch handle that rotates 90 percent to a fully open position. The valve body is cast brass, and the ball is polished brass with a Teflon® seat. Ball valves are available as end valves on both the entering and leaving water pipes.

Manual Circuit Setter

In lieu of a ball valve on the leaving water pipe, a manual circuit setter, also known as a manual flow control valve, acts as both a flow setting device and a stop valve. This valve allows water flow through the fan-coil unit to be set quickly and accurately.

The manual circuit setter includes Schrader ports in the valve body. These ports are used to measure the pressure drop across the valve. This pressure drop can be compared to factory supplied curves that relate the pressure drop to a specific flow rate. This valve also has a memory stop so the correct setting can be found quickly.

Auto Circuit Setter

An auto circuit setter is an automatic flow control device available on the leaving water pipe. The auto circuit setter includes a cartridge within the valve body that is sized to allow a specific flow rate through the coil. This valve sets flow 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. The auto circuit setter also includes two P/Ts plugs in the valve body to allow measurement of the pressure drop temperature through the valve.

Control Valves

Piping packages are available with or without control valves. All control valve options are factory mounted and wired to the UniTrane fan-coil controls.

Two-Way/Two-Position Valves

These valves will either fully open or close in response to a 24 Vac signal from the Trane controller. Main control valves are direct-acting valves, while the auxiliary valves are reverse-acting. All control valves are factory mounted in the leaving water pipe downstream of the coil. Some means of relieving pump head pressure should be accounted for when two-way valves are selected. Normally open or normally closed valves are available.

Three-Way/Two-Position Valves

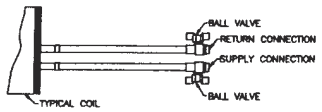
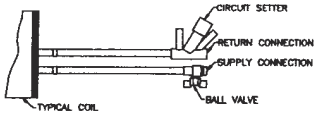
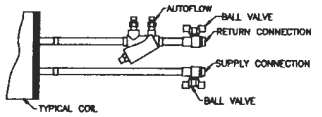
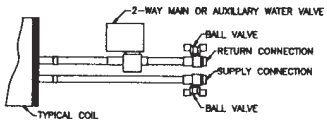
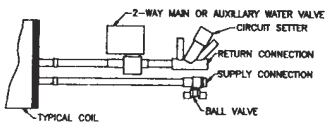
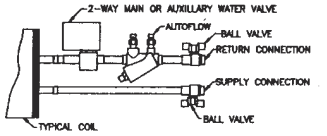
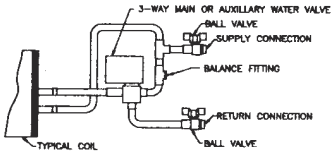
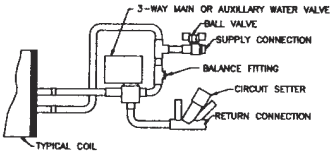
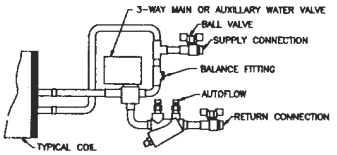
These valves will either allow full water flow through the coil or divert the flow through a bypass line. The valves respond to a 24 Vac signal from the Trane controller. Main control valves are direct acting valves, while the auxiliary valves are reverse-acting. All three-way valve packages include a balance fitting in the bypass line to allow flow balancing in the bypass position. Three-way valves are factory mounted in the leaving water pipe downstream of the coil. Normally open or normally closed valves are available.

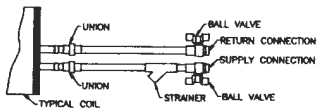
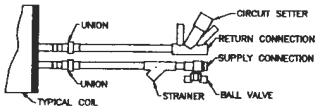
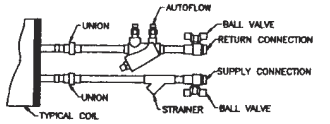
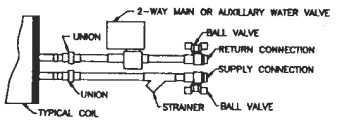
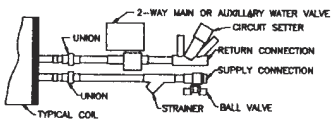
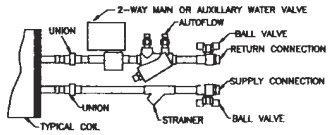
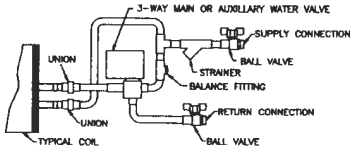
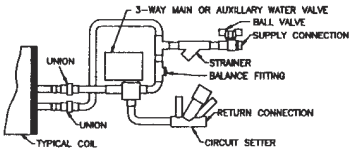
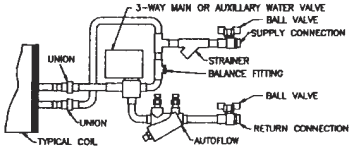
Two-Way Modulating Valves

These valves modulate the water flow through the coil in response to a signal from the Trane controller. All modulating valves are three-wire floating point equal percentage valves. The modulating valves are factory mounted in the leaving water pipe downstream of the coil.

Three-Way Modulating Valves

These valves modulate the water flow through the coil in response to a signal. Three-way valves allow water that is directed through the coil to mix with water that is directed through the bypass line. This mixture exits through the leaving water pipe. All modulating valves are three-wire floating point equal percentage valves. The modulating valves are factory mounted in the leaving water pipe downstream of the coil.

Digits 27,28	Digit 29		
Main/Aux. Control Valve	Basic (A)	Circuit Setter (B)	Auto Flow Valve (C)
BASIC			
None 0			
2-Way A, C, E, G, J, L, N, Q			
3-Way B, D, F, H, K, M, P, R			

DELUXE	(D)	(E)	(F)
None 0			
2-Way A, C, E, G, J, L, N, Q			
3-Way B, D, F, H, K, M, P, R			

Selecting the Correct Modulating Valve Size

Modulating valves are available in any of four port sizes. The port sizes relate to a Cv of 0.6, 1.1, 2.3, 2.7, 3.3, and 3.8, which is the coefficient of flow. The coefficient of flow is defined as the volume of water flow through a control valve in the fully open position with a 1 psig differential across the valve. It is calculated using the following formula:

Cv = Q/Square root ΔP where:

Cv = flow coefficient

Q = flow rate (Gpm)

ΔP = pressure drop across the valve or coil (psig).

For good control, the valve Cv should be approximately equal to the Cv of the water coil.

Modulating Valve Selection Example

Assume a size 06 fan-coil is selected to operate at the following conditions:

Vertical Cabinet Fan-Coil

Entering water temperature = 45°F

Leaving water temperature = 55°F

EAT conditions = 80/67.

The coil is selected as a four-row coil.

Select the best modulating valve size for this unit.

1. Find the ΔP across the water coil. Refer to the AHRI performance table to determine the ΔP across the water coil (or use TOPSS™ selection program). The water pressure drop is found to be 7.0′ of water at a flow rate of 3.74 gpm. This converts to a pressure drop of 3.03 psig (1.0 feet of water = 0.4328 psig.)
2. Calculate the Cv of the water coil.

   Cv = Gpm/Square root ΔP

   Cv = 3.74/Square root 3.03

   Cv = 2.15

   Therefore, the valve with the Cv of 2.7 should be selected since it has the Cv which is closest to the Cv of the water coil. The following tables illustrate possible valve selections at AHRI conditions for horizontal concealed units with a high static motor and vertical cabinet units with a free discharge motor.

Note: *Do not use these tables for any applications other than vertical cabinet or horizontal concealed units at AHRI conditions.*

Table 4. Modulating valve selections for horizontal concealed units

Horizontal Concealed (High Static Motor)					
			Coil	Coil	Valve
Unit Size	Coil	Gpm	WPD	Cv	Cv
02	2-Row	1.29	8.8	0.66	0.7
	3-Row	1.80	23.9	0.56	0.7
	4-Row	1.84	6.1	1.13	1.5
03	2-Row	1.58	14.1	0.64	0.7
	3-Row	1.86	5.4	1.22	1.5
	4-Row	2.26	9.7	1.10	1.5
04	2-Row	1.90	4.6	1.35	1.5
	3-Row	2.94	13.9	1.20	1.5
	4-Row	3.35	22.3	1.08	0.7
06	2-Row	3.32	15.3	1.29	1.5
	3-Row	4.24	7.5	2.35	2.5
	4-Row	4.99	11.9	2.20	2.5
08	2-Row	3.90	5.7	2.48	2.5
	3-Row	5.13	11.8	2.27	2.5
	4-Row	5.68	16.9	2.10	2.5
10	2-Row	5.23	10.8	2.42	2.5
	3-Row	7.14	24.2	2.21	2.5
	4-Row	7.63	32.8	2.03	2.5
12	2-Row	6.35	16.6	2.37	2.5
	3-Row	7.98	18.5	2.82	2.5
	4-Row	9.47	25.2	2.87	2.5

Table 5. Modulating valve selections for vertical cabinet units

Vertical Cabinet (Free Discharge Motor)					
			Coil	Coil	Valve
Unit Size	Coil	Gpm	WPD	Cv	Cv
02	2-Row	1.04	6.1	0.64	0.7
	3-Row	1.40	15.4	0.54	0.7
	4-Row	1.40	3.7	1.11	1.5
03	2-Row	1.32	10.3	0.63	0.7
	3-Row	1.57	4.0	1.19	1.5
	4-Row	1.88	7.0	1.08	0.7
04	2-Row	1.68	3.7	1.33	1.5
	3-Row	2.25	8.6	1.17	1.5
	4-Row	2.54	13.6	1.05	0.7
06	2-Row	2.86	11.7	1.27	1.5
	3-Row	3.19	4.4	2.31	2.5
	4-Row	3.74	7.0	2.15	2.5
08	2-Row	3.14	3.8	2.45	2.5
	3-Row	4.01	7.5	2.23	2.5
	4-Row	4.44	10.8	2.05	2.5
10	2-Row	4.39	7.8	2.39	2.5
	3-Row	5.60	15.4	2.17	2.5
	4-Row	5.88	20.4	1.98	1.5
12	2-Row	5.28	11.8	2.34	2.5
	3-Row	6.14	11.2	2.79	2.5
	4-Row	7.23	15.4	2.80	2.5

Performance Data

UniTrane fan-coil performance data is submitted to AHRI with units grouped based on performance. Unit performance is impacted by the unit model and the airflow inlet and outlet configuration. Below is a table which summarizes the performance groups.

Table 6. Fan-Coil performance groupings

UNIT TYPE	Motor Type	Filter	External Static	Performance Tables
Horizontal Concealed	Free Discharge	NO	0.05	Table 7, 8, 21 & 22
Compact Concealed	Free Discharge	NO	0.05	
Horizontal Recessed	Free Discharge	NO	0.05	
Vertical Recessed	Free Discharge	NO	0.05	
Vertical Concealed	Free Discharge	NO	0.05	Table 9, 10, 23 & 24
Horizontal Cabinet	Free Discharge	YES	0.00	Table 11, 12, 25 & 26
Vertical Cabinet	Free Discharge	YES	0.00	
Vertical Slope Top	Free Discharge	YES	0.00	Table 13, 14, 27 & 28
Low Vertical Cabinet	Free Discharge	YES	0.00	Table 15 & 16
Low Vertical Concealed	Free Discharge	NO	0.05	
Horizontal Concealed	High Static	NO	0.20	Table 17, 18, 29, & 30
Compact Concealed	High Static	NO	0.20	
Horizontal Recessed	High Static	NO	0.20	
Vertical Recessed	High Static	NO	0.20	
Horizontal Cabinet	High Static	NO	0.20	
Vertical Concealed	High Static	NO	0.20	Table 19, 20, 31, & 32

Horizontal Concealed, Compact Concealed, Horizontal Recessed, and Vertical Recessed

AHRI cooling performance is based on 80/67°F entering air temperature, 45°F entering chilled water temperature with a 10°F ΔT.

Heating performance is based on 70°F entering air temperature, 180°F entering hot water temperature with a 30°F ΔT.

All performance measured on high speed tap, 115 V, 0.05 ESP, without filter. Free discharge EC motor. See Table 6, p. 25 for performance groupings.

Table 7. 2-pipe performance—free discharge EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2HC	246	5.93	4.38	1.2	8.01	16.67	0.152	1.1	5.36	37
	3HC	242	6.79	5.01	1.4	2.87	20.14	0.183	1.3	2.26	37
	4HC	222	8.15	5.55	1.7	5.03	21.47	0.195	1.4	3.18	37
030	2HC	313	6.71	5.07	1.4	9.90	16.62	0.178	1.3	7.15	39
	3HC	309	7.96	5.98	1.6	3.81	24.16	0.220	1.6	3.15	39
	4HC	276	9.51	6.56	1.9	6.59	25.69	0.234	1.7	4.39	39
040	2HC	381	8.47	6.76	1.7	3.55	23.99	0.218	1.6	2.61	58
	3HC	365	11.36	8.03	2.3	8.21	30.03	0.273	2.0	5.29	58
	4HC	340	12.76	8.52	2.6	12.80	32.46	0.295	2.2	7.63	58
060	2HC	609	14.73	11.13	3.0	11.56	38.28	0.348	2.6	7.34	79
	3HC	604	16.49	12.37	3.3	4.43	47.33	0.430	3.2	3.60	79
	4HC	557	19.16	13.20	3.9	6.90	51.53	0.468	3.4	4.88	79
080	2HC	790	16.11	13.12	3.3	3.83	48.08	0.437	3.2	3.35	122
	3HC	724	20.50	14.61	4.2	7.41	58.69	0.534	3.9	5.89	122
	4HC	676	22.59	15.32	4.6	10.55	69.94	0.581	4.3	8.08	122
100	2HC	1015	25.90	19.29	5.3	10.84	66.92	0.608	4.5	7.22	145
	3HC	1052	31.14	22.21	6.3	11.09	85.99	0.782	5.7	8.81	145
	4HC	988	36.48	24.00	7.4	14.94	94.57	0.860	6.3	10.19	145
120	2HC	1105	26.94	20.19	5.5	11.69	70.87	0.644	4.7	8.05	160
	3HC	1074	31.39	22.40	6.4	11.29	87.33	0.794	5.8	9.08	160
	4HC	993	36.46	23.99	7.4	14.96	94.96	0.863	6.3	10.27	160

Table 8. 4-pipe performance—free discharge EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2C/1H	242	5.82	4.28	1.2	7.75	9.37	0.085	0.6	0.95	37
	2C/2H	222	5.54	4.05	1.1	7.13	15.47	0.141	1.0	4.70	37
	3C/1H	222	6.42	4.72	1.3	2.61	8.86	0.081	0.6	0.86	37
030	2C/1H	309	6.66	5.03	1.4	9.79	10.85	0.099	0.7	1.23	39
	2C/2H	276	6.33	4.72	1.3	8.97	18.06	0.164	1.2	6.18	39
	3C/1H	276	7.47	5.57	1.5	3.40	10.10	0.092	0.7	1.10	39
040	2C/1H	365	8.25	6.56	1.7	3.39	13.88	0.126	0.9	2.25	58
	2C/2H	340	7.89	6.24	1.6	3.13	22.20	0.202	1.5	2.26	58
	3C/1H	340	10.90	7.66	2.2	7.63	13.27	0.121	0.9	2.08	58
060	2C/1H	604	14.65	11.05	3.0	11.45	22.51	0.205	1.5	6.82	79
	2C/2H	557	14.03	10.51	2.9	10.62	36.12	0.328	2.4	6.60	79
	3C/1H	557	15.70	11.72	3.2	4.05	21.46	0.195	1.4	6.27	79
080	2C/1H	724	15.25	12.35	3.1	3.47	28.15	0.256	1.9	12.21	122
	2C/2H	676	14.65	11.82	3.0	3.22	43.37	0.394	2.9	2.76	122
	3C/1H	676	19.79	14.05	4.0	6.95	27.02	0.246	1.8	11.35	122
100	2C/1H	1052	26.31	19.64	5.3	11.15	42.10	0.383	2.8	36.37	145
	2C/2H	988	25.41	18.86	5.2	10.47	65.71	0.597	4.4	6.97	145
	3C/1H	988	30.02	21.33	6.1	10.35	40.52	0.368	2.7	32.11	145
120	2C/1H	1074	26.51	19.82	5.4	11.35	42.63	0.388	2.8	35.15	160
	2C/2H	993	25.42	18.88	5.2	10.52	65.94	0.599	4.4	7.02	160
	3C/1H	993	30.03	21.33	6.1	10.39	40.65	0.370	2.7	32.29	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Vertical Concealed

AHRI cooling performance is based on 80/67°F entering air temperature, 45°F entering chilled water temperature with a 10°F ΔT.

Heating performance is based on 70°F entering air temperature, 180°F entering hot water temperature with a 30°F ΔT.

All performance measured on high speed tap, 115 V, 0.05 ESP, without filter. Free discharge EC motor. See Table 6, p. 25 for performance groupings.

Table 9. 2-pipe performance—free discharge EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2HC	211	5.46	3.98	1.1	6.96	14.90	0.136	1.0	4.40	37
	3HC	205	6.13	4.48	1.3	2.40	17.62	0.160	1.2	1.78	37
	4HC	192	7.41	5.02	1.5	4.26	18.93	0.172	1.3	2.53	37
030	2HC	272	6.32	4.71	1.3	8.95	17.89	0.163	1.2	6.07	39
	3HC	270	7.42	5.53	1.5	3.36	21.91	0.199	1.5	2.64	39
	4HC	247	8.92	6.12	1.8	5.89	23.48	0.213	1.6	3.73	39
040	2HC	340	7.96	6.30	1.6	3.18	22.20	0.202	1.5	2.26	58
	3HC	328	10.73	7.53	2.2	7.42	27.64	0.251	1.8	4.55	58
	4HC	309	12.09	8.03	2.5	11.65	29.98	0.273	2.0	6.61	58
060	2HC	535	13.91	10.35	2.8	10.45	35.16	0.320	2.3	6.28	79
	3HC	531	15.32	11.41	3.1	3.87	43.06	0.391	2.9	3.01	79
	4HC	499	17.98	12.33	3.6	6.15	47.12	0.428	3.1	4.13	79
080	2HC	697	15.10	12.22	3.1	3.41	44.27	0.402	3.0	2.86	122
	3HC	646	19.42	13.76	4.0	6.72	53.89	0.490	3.6	5.02	122
	4HC	612	21.47	14.50	4.4	9.63	58.93	0.536	3.9	6.94	122
100	2HC	891	24.19	17.83	4.9	9.57	61.02	0.555	4.1	6.06	145
	3HC	913	28.89	20.45	5.9	9.63	77.21	0.702	5.1	7.16	145
	4HC	870	34.18	22.36	6.9	13.30	85.08	0.773	5.7	8.40	145
120	2HC	980	25.42	18.87	5.2	10.51	65.30	0.594	4.4	6.89	160
	3HC	958	29.60	21.00	6.0	10.11	80.10	0.728	5.3	7.68	160
	4HC	899	34.69	22.72	7.0	13.70	87.45	0.795	5.8	8.84	160

Table 10. 4-pipe performance—free discharge EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
200	2C/1H	205	5.31	3.86	1.1	6.65	8.37	0.076	0.6	0.78	37
	2C/2H	192	5.09	3.68	1.0	6.20	13.82	0.126	0.9	3.86	37
	3C/1H	192	5.84	4.26	1.2	2.21	7.99	0.073	0.5	0.72	37
300	2C/1H	270	6.29	4.69	1.3	8.87	10.03	0.091	0.7	1.07	39
	2C/2H	247	5.99	4.42	1.2	8.16	16.73	0.152	1.1	5.39	39
	3C/1H	247	7.02	5.20	1.4	3.05	9.50	0.086	0.6	0.98	39
400	2C/1H	328	7.75	6.12	1.6	3.04	12.97	0.118	0.9	2.00	58
	2C/2H	309	7.46	5.85	1.5	2.83	20.73	0.188	1.4	2.00	58
	3C/1H	309	10.33	7.22	2.1	6.94	12.48	0.113	0.8	1.86	58
600	2C/1H	531	13.82	10.28	2.8	10.34	20.85	0.190	1.4	6.28	79
	2C/2H	499	13.32	9.85	2.7	9.68	33.46	0.304	2.2	5.74	79
	3C/1H	499	14.68	10.89	3.0	3.58	20.05	0.182	1.3	5.56	79
800	2C/1H	646	14.33	11.55	3.10	2.95	26.26	0.239	1.8	10.79	122
	2C/2H	612	13.82	11.11	2.8	2.90	40.46	0.368	2.7	2.41	122
	3C/1H	612	18.82	13.30	3.8	6.35	25.37	0.231	1.7	10.15	122
1000	2C/1H	913	24.48	18.07	5.0	9.78	38.52	0.350	2.6	29.34	145
	2C/2H	870	23.74	17.45	4.8	9.24	59.96	0.545	4.0	5.87	145
	3C/1H	870	27.95	19.73	5.7	9.05	37.29	0.339	2.5	27.69	145
1200	2C/1H	958	25.06	18.59	5.1	10.24	39.72	0.361	2.7	30.98	160
	2C/2H	899	24.13	17.78	4.9	9.56	61.42	0.558	4.1	6.14	160
	3C/1H	899	28.43	20.10	5.8	9.38	38.12	0.347	2.5	28.79	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Horizontal Cabinet and Vertical Cabinet

AHRI cooling performance is based on 80/67°F entering air temperature, 45°F entering chilled water temperature with a 10°F ΔT.

Heating performance is based on 70°F entering air temperature, 180°F entering hot water temperature with a 30°F ΔT.

All performance measured on high speed tap, 115 V, zero ESP, with throwaway filter. Free discharge EC motor. See Table 6, p. 25 for performance groupings.

Table 11. 2-pipe performance—free discharge EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2HC	222	5.61	4.11	1.1	7.29	15.45	0.140	1.0	4.69	37
	3HC	217	6.35	4.66	1.3	2.56	18.45	0.168	1.2	1.93	37
	4HC	204	7.72	5.24	1.6	4.58	19.96	0.181	1.3	2.78	37
030	2HC	280	6.41	4.79	1.3	9.15	18.22	0.166	1.2	6.27	39
	3HC	277	7.53	5.62	1.5	3.45	22.36	0.203	1.5	2.74	39
	4HC	256	9.10	6.26	1.8	6.11	24.14	0.219	1.6	3.92	39
040	2HC	349	8.08	6.41	1.7	3.26	22.62	0.206	1.5	2.34	58
	3HC	338	10.91	7.67	2.2	7.64	28.29	0.257	1.9	4.74	58
	4HC	320	12.33	8.21	2.5	12.06	30.86	0.281	2.1	6.96	58
060	2HC	544	13.94	10.42	2.8	10.49	35.55	0.323	2.4	6.41	79
	3HC	541	15.48	11.54	3.1	3.95	43.63	0.397	2.9	3.08	79
	4HC	510	18.23	12.51	3.7	6.30	48.00	0.437	3.2	4.28	79
080	2HC	706	15.21	12.31	3.1	3.45	44.65	0.406	3.0	2.91	122
	3HC	659	19.62	13.92	4.0	6.84	54.73	0.498	3.7	5.17	122
	4HC	627	21.75	14.70	4.4	9.86	60.12	0.547	4.0	7.20	122
100	2HC	912	24.50	18.09	5.0	9.80	62.07	0.564	4.1	6.26	145
	3HC	933	29.25	20.73	5.9	9.86	78.53	0.714	5.2	7.39	145
	4HC	893	34.66	22.70	7.0	13.64	86.94	0.790	5.8	8.74	145
120	2HC	996	25.64	19.06	5.2	10.68	66.06	0.601	4.4	7.04	160
	3HC	976	29.90	21.23	6.1	10.31	81.27	0.739	5.4	7.90	160
	4HC	921	35.13	23.04	7.1	14.01	89.25	0.811	5.9	9.17	160

Table 12. 4-pipe performance—free discharge EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2C/1H	217	5.49	4.00	1.1	7.02	8.70	0.079	0.6	0.88	37
	2C/2H	204	5.28	3.83	1.1	6.58	14.50	0.132	1.0	4.20	37
	3C/1H	204	6.09	4.45	1.2	2.37	8.35	0.076	0.6	0.78	37
030	2C/1H	277	6.38	4.76	1.3	9.08	10.20	0.093	0.7	1.11	39
	2C/2H	256	6.09	4.52	1.2	8.40	17.13	0.156	1.1	5.62	39
	3C/1H	256	7.16	5.31	1.5	3.16	9.70	0.088	0.7	1.01	39
040	2C/1H	338	7.89	6.24	1.6	3.13	13.22	0.120	0.9	2.06	58
	2C/2H	320	7.61	5.99	1.6	2.94	21.26	0.193	1.4	2.09	58
	3C/1H	320	10.53	7.38	2.1	7.19	12.76	0.116	0.9	1.94	58
060	2C/1H	541	13.86	10.35	2.8	10.39	21.08	0.192	1.4	6.08	79
	2C/2H	510	13.48	9.99	2.7	9.90	34.00	0.309	2.3	6.91	79
	3C/1H	510	14.89	11.06	3.0	3.68	20.34	0.185	1.4	5.70	79
080	2C/1H	659	14.50	11.69	3.0	3.16	26.60	0.242	1.8	11.04	122
	2C/2H	627	14.02	11.29	2.9	2.98	41.17	0.374	2.7	2.50	122
	3C/1H	627	19.06	13.49	3.9	6.50	25.78	0.234	1.7	10.44	122
100	2C/1H	933	24.77	18.32	5.0	9.99	39.07	0.355	2.6	30.09	145
	2C/2H	893	24.08	17.74	4.9	9.49	61.10	0.555	4.1	6.08	145
	3C/1H	893	28.38	20.06	5.8	9.31	37.94	0.345	2.5	28.55	145
	2C/1H	976	25.30	18.77	5.2	10.42	40.19	0.365	2.7	31.65	160
120	2C/2H	921	24.45	18.05	5.0	9.80	62.51	0.568	4.2	6.35	160
	3C/1H	921	28.83	20.40	5.9	9.63	38.73	0.352	2.6	29.63	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Vertical Slope Top Cabinet

AHRI cooling performance is based on 80/67°F entering air temperature, 45°F entering chilled water temperature with a 10°F ΔT.

Heating performance is based on 70°F entering air temperature, 180°F entering hot water temperature with a 30°F ΔT.

All performance measured on high speed tap, 115 V, zero ESP, with throwaway filter. Free discharge EC motor. See Table 6, p. 25 for performance groupings.

Table 13. 2-pipe performance—free discharge EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2HC	206	5.38	3.91	1.1	6.79	14.62	0.133	1.0	4.25	37
	3HC	200	6.04	4.41	1.2	2.34	17.31	0.157	1.2	1.72	37
	4HC	190	7.36	4.98	1.5	4.21	18.75	0.170	1.3	2.49	37
030	2HC	262	6.20	4.61	1.2	8.65	17.41	0.158	1.2	5.79	39
	3HC	260	7.26	5.40	1.5	3.24	21.30	0.194	1.4	2.50	39
	4HC	242	8.80	6.03	1.8	5.75	23.05	0.210	1.5	3.61	39
040	2HC	330	7.82	6.17	1.6	3.08	21.74	0.198	1.5	2.18	58
	3HC	320	10.58	7.41	2.2	7.24	27.11	0.246	1.8	4.39	58
	4HC	304	11.98	7.95	2.4	11.46	29.58	0.269	2.0	6.45	58
060	2HC	512	13.57	10.06	2.8	10.01	34.08	0.310	2.3	5.94	79
	3HC	508	14.90	11.07	3.0	3.69	41.65	0.379	2.8	2.83	79
	4HC	483	17.63	12.07	3.6	5.93	45.88	0.417	3.1	3.93	79
080	2HC	665	14.70	11.87	3.0	3.24	42.86	0.390	2.9	2.69	122
	3HC	623	19.06	13.49	3.9	6.50	52.43	0.477	3.5	4.77	122
	4HC	596	21.16	14.28	4.3	9.38	57.64	0.524	3.8	6.66	122
100	2HC	856	23.65	17.37	4.8	9.18	59.27	0.539	4.0	5.74	145
	3HC	873	28.13	19.87	5.7	9.16	74.54	0.678	5.0	6.69	145
	4HC	839	33.51	21.88	6.8	12.84	82.50	0.750	5.5	7.95	145
120	2HC	940	24.88	18.41	5.1	10.11	63.44	0.577	4.2	6.52	160
	3HC	923	29.00	20.53	5.9	9.73	77.83	0.708	5.2	7.27	160
	4HC	876	34.22	22.38	6.9	13.36	85.55	0.778	5.7	8.49	160

Table 14. 4-pipe performance—free discharge EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2C/1H	200	5.24	3.80	1.1	6.51	8.24	0.075	0.6	0.76	37
	2C/2H	190	5.06	3.65	1.0	6.13	13.71	0.125	0.9	3.80	37
	3C/1H	190	5.80	4.22	1.2	2.18	7.93	0.072	0.5	0.71	37
030	2C/1H	260	6.17	4.58	1.3	8.59	9.81	0.089	0.7	1.03	39
	2C/2H	242	5.91	4.36	1.2	7.99	16.46	0.150	1.1	5.24	39
	3C/1H	242	6.92	5.12	1.4	2.98	9.36	0.085	0.6	0.95	39
040	2C/1H	320	7.64	6.02	1.6	2.96	12.77	0.116	0.9	1.94	58
	2C/2H	304	7.38	5.79	1.5	2.78	20.50	0.186	1.4	1.96	58
	3C/1H	304	10.23	7.14	2.1	6.83	12.35	0.112	0.8	1.83	58
060	2C/1H	508	13.49	9.99	2.7	9.90	20.29	0.184	1.4	5.68	79
	2C/2H	483	13.07	9.64	2.7	9.37	32.70	0.297	2.2	5.50	79
	3C/1H	483	14.37	10.65	2.9	3.45	19.64	0.179	1.3	5.36	79
080	2C/1H	623	14.02	11.29	2.9	2.98	25.67	0.233	1.7	10.36	122
	2C/2H	596	13.59	10.92	2.7	2.81	39.70	0.361	2.6	2.33	122
	3C/1H	596	18.55	13.09	3.8	6.18	24.94	0.227	1.7	9.85	122
100	2C/1H	873	23.87	17.56	4.9	9.34	37.39	0.340	2.5	27.83	145
	2C/2H	839	23.25	17.04	4.7	8.90	58.37	0.531	3.9	5.57	145
	3C/1H	839	27.33	19.26	5.6	8.68	36.38	0.331	2.4	26.50	145
120	2C/1H	923	24.57	18.15	5.0	9.88	38.78	0.353	2.6	26.69	160
	2C/2H	876	23.78	17.48	4.9	9.31	60.25	0.548	4.0	5.92	160
	3C/1H	876	28.00	19.77	5.7	9.11	37.46	0.341	2.5	27.91	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Low Vertical Cabinet and Low Vertical Concealed

AHRI cooling performance is based on 80/67°F entering air temperature, 45°F entering chilled water temperature with a 10°F ΔT.

Heating performance is based on 70°F entering air temperature, 180°F entering hot water temperature with a 30°F ΔT.

All performance measured on high speed tap, 115 V, zero ESP, with throwaway filter. Free discharge EC motor. See Table 6, p. 25 for performance groupings.

Table 15. 2-pipe performance—free discharge EC motor

				COOLING				HEATING				
SIZE	COIL	Unit Type	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
	2HC	Cabinet	285	6.58	5.24	1.31	2.16	19.51	0.18	1.30	1.79	28
030	2HC	Concealed	285	6.58	5.24	1.31	2.16	19.51	0.18	1.30	1.79	28
	3HC	Concealed	255	7.50	5.29	1.49	3.37	22.51	0.20	1.50	3.13	28
	2HC	Cabinet	380	10.70	7.70	2.13	6.31	27.28	0.25	1.82	3.95	50
040	2HC	Concealed	380	10.70	7.70	2.13	6.31	27.28	0.25	1.82	3.95	50
	3HC	Concealed	350	9.94	7.35	1.98	1.69	30.71	0.28	2.05	1.59	50
	2HC	Cabinet	551	12.04	9.87	2.40	2.12	37.45	0.34	2.49	2.08	66
060	2HC	Concealed	551	12.04	9.87	2.40	2.12	37.45	0.34	2.49	2.08	66
	3HC	Concealed	492	14.33	10.10	2.86	3.69	43.29	0.39	2.88	3.33	66

Table 16. 4-pipe performance—free discharge EC motor

				COOLING				HEATING				
SIZE	COIL	Unit Type	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
	2C/1H	Cabinet	255	6.02	4.76	1.20	1.84	10.89	0.10	0.73	1.47	28
030	2C/2H	Concealed	239	5.68	4.48	1.13	1.66	17.02	0.15	1.13	1.39	28
	3C/1H	Concealed	239	7.05	4.96	1.41	3.40	10.39	0.09	0.69	1.35	28
	2C/1H	Cabinet	350	9.95	7.10	1.98	5.53	15.60	0.14	1.04	3.58	50
040	2C/2H	Concealed	320	9.13	6.46	1.82	4.74	23.64	0.21	1.57	3.04	50
	3C/1H	Concealed	320	8.87	6.59	1.77	1.37	14.52	0.13	0.97	3.15	50
	2C/1H	Cabinet	492	10.99	8.99	2.19	1.79	21.80	0.20	1.45	7.76	66
060	2C/2H	Concealed	449	9.89	8.19	1.97	1.47	31.87	0.29	2.12	1.54	66
	3C/1H	Concealed	449	13.33	9.37	2.66	3.23	20.31	0.18	1.35	6.85	66

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Horizontal Concealed, Compact Concealed, Horizontal Cabinet, Horizontal Recessed and Vertical Recessed

AHRI cooling performance is based on 80/67°F entering air temperature, 45°F entering chilled water temperature with a 10°F ΔT.

Heating performance is based on 70°F entering air temperature, 180°F entering hot water temperature with a 30°F ΔT.

All performance measured on high speed tap, 115 V, 0.20 ESP, without filter. High static EC motor. See Table 6, p. 25 for performance groupings.

Table 17. 2-pipe performance—high static EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
	2HC	314	6.92	5.25	1.4	10.83	19.68	0.179	1.3	7.18	84
	3HC	319	8.40	6.35	1.7	4.32	24.71	0.225	1.7	3.28	84
200	4HC	295	10.27	7.14	2.1	7.75	27.07	0.246	1.8	4.83	84
	2HC	380	7.63	5.91	1.6	12.84	22.14	0.201	1.5	8.85	91
	3HC	358	9.00	6.88	1.9	4.89	26.79	0.244	1.8	3.80	91
300	4HC	330	11.05	7.75	2.3	8.83	29.53	0.268	2.0	5.65	91
	2HC	410	9.09	7.33	1.9	4.16	25.18	0.229	1.7	2.85	110
	3HC	506	14.30	10.45	2.9	12.60	37.81	0.344	2.5	8.05	110
400	4HC	470	16.38	11.23	3.3	20.25	41.90	0.381	2.8	12.12	110
	2HC	700	16.22	12.50	3.3	14.16	41.80	0.380	2.8	8.63	162
	3HC	824	20.72	16.04	4.2	6.91	58.43	0.531	3.9	5.36	162
600	4HC	760	24.46	17.32	5.0	10.99	65.21	0.593	4.3	7.59	162
	2HC	950	18.83	15.64	4.0	5.40	53.86	0.490	3.6	4.16	298
	3HC	927	25.08	18.35	5.2	11.17	69.93	0.636	4.7	8.20	298
800	4HC	870	27.85	19.29	5.8	16.00	77.84	0.708	5.2	11.67	298
	2HC	1199	29.39	22.38	6.0	13.98	74.76	0.680	5.0	8.90	252
	3HC	1360	38.20	27.95	7.8	16.58	103.27	0.939	6.9	12.55	252
1000	4HC	1276	45.19	30.40	9.2	22.30	115.47	1.050	7.7	14.73	252
	2HC	1330	30.90	23.78	6.4	15.50	79.76	0.725	5.3	10.07	314
	3HC	1419	39.09	28.71	8.0	17.49	106.28	0.966	7.1	13.27	314
1200	4HC	1330	46.31	31.24	9.4	23.50	119.18	1.083	7.9	15.62	314

Table 18. 4-pipe performance—high static EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
200	2C/1H	319	6.94	5.27	1.4	10.89	11.04	0.100	0.7	1.27	37
	2C/2H	295	6.67	5.03	1.4	10.18	18.88	0.172	1.3	6.68	37
	3C/1H	295	8.04	6.03	1.7	4.00	10.57	0.096	0.7	1.18	37
300	2C/1H	358	7.37	5.66	1.5	12.10	11.76	0.107	0.8	1.42	39
	2C/2H	330	7.08	5.40	1.5	11.32	20.30	0.185	1.4	7.59	39
	3C/1H	330	8.60	6.53	1.8	4.52	11.26	0.102	0.8	1.32	39
400	2C/1H	506	10.23	8.42	2.1	5.10	16.64	0.151	1.1	3.09	58
	2C/2H	470	9.83	8.04	2.0	4.77	27.44	0.249	1.8	3.34	58
	3C/1H	470	13.76	9.99	2.8	11.77	16.02	0.146	1.1	2.89	58
600	2C/1H	824	17.64	13.85	3.6	16.39	26.58	0.242	1.8	9.16	79
	2C/2H	760	16.95	13.19	3.5	15.28	43.91	0.399	2.9	9.45	79
	3C/1H	760	19.80	15.21	4.1	6.36	25.49	0.232	1.7	8.51	79
800	2C/1H	927	18.53	15.35	3.9	5.25	32.36	0.294	2.2	15.63	122
	2C/2H	870	17.89	14.74	3.8	4.93	51.06	0.464	3.4	3.76	122
	3C/1H	870	24.27	17.66	5.0	10.53	31.26	0.284	2.1	14.70	122
1000	2C/1H	1360	31.27	24.13	6.4	15.64	48.74	0.443	3.3	44.63	145
	2C/2H	1276	30.28	23.20	6.2	14.75	77.72	0.707	5.2	9.58	145
	3C/1H	1276	36.88	26.84	7.5	15.53	47.07	0.428	3.1	41.94	145
1200	2C/1H	1419	31.90	24.73	6.6	16.42	49.85	0.453	3.3	46.47	160
	2C/2H	1330	30.90	23.78	6.4	15.49	79.78	0.725	5.3	10.07	160
	3C/1H	1330	37.78	27.59	7.7	16.41	48.17	0.438	3.2	43.70	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Vertical Concealed

AHRI cooling performance is based on 80/67°F entering air temperature, 45°F entering chilled water temperature with a 10°F ΔT.

Heating performance is based on 70°F entering air temperature, 180°F entering hot water temperature with a 30°F ΔT.

All performance measured on high speed tap, 115 V, 0.20 ESP, without filter. High static EC motor. See Table 6, p. 25 for performance groupings.

Table 19. 2-pipe performance—high static EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2HC	274	6.45	4.83	1.3	9.63	17.95	0.163	1.2	6.11	84
	3HC	274	7.71	5.76	1.6	3.72	22.13	0.201	1.5	2.68	84
	4HC	258	9.45	6.51	1.9	6.71	24.31	0.221	1.6	3.97	84
030	2HC	341	7.26	5.56	1.5	11.80	20.70	0.188	1.4	7.86	91
	3HC	319	8.47	6.41	1.8	4.40	24.76	0.225	1.7	3.29	91
	4HC	299	10.43	7.27	2.1	8.0	27.36	0.249	1.8	4.92	91
040	2HC	377	8.67	6.94	1.8	3.83	23.84	0.217	1.6	2.58	110
	3HC	455	13.57	9.83	2.8	11.49	35.17	0.320	2.3	7.05	110
	4HC	429	15.58	10.61	3.2	18.55	39.04	0.355	2.6	10.66	110
060	2HC	632	15.42	11.76	3.2	12.96	39.23	0.357	2.6	7.68	162
	3HC	733	19.49	14.93	4.0	6.18	54.10	0.492	3.6	4.63	162
	4HC	687	23.15	16.27	4.7	9.95	60.53	0.550	4.0	6.60	162
080	2HC	865	17.96	14.80	3.8	4.96	50.88	0.463	3.4	3.73	298
	3HC	845	24.00	17.44	5.0	10.33	65.58	0.596	4.4	7.26	298
	4HC	800	26.69	18.39	5.5	14.85	73.06	0.664	4.9	10.36	298
100	2HC	1089	27.95	21.08	5.7	12.76	70.18	0.638	4.7	7.90	252
	3HC	1206	35.92	26.04	7.3	14.78	95.02	0.864	6.3	10.68	252
	4HC	1145	42.77	28.58	8.7	20.20	106.34	0.967	7.1	12.65	252
120	2HC	1218	29.62	22.60	6.1	14.36	75.51	0.686	5.0	9.07	314
	3HC	1291	37.31	27.20	7.7	16.04	99.64	0.906	6.6	11.71	314
	4HC	1223	44.42	29.81	9.1	21.81	111.87	1.017	7.5	13.89	314

Table 20. 4-pipe performance—high static EC motor

			COOLING				HEATING				
SIZE	COIL	Airflow (cfm)	Total Capacity (MBh)	Sensible Capacity (MBh)	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2C/1H	217	5.49	4.00	1.11	7.02	8.70	0.079	0.6	0.84	37
	2C/2H	204	5.28	3.83	1.1	6.58	14.50	0.132	1.0	43.20	37
	3C/1H	204	6.09	4.45	1.2	2.37	8.35	0.076	0.6	0.78	37
030	2C/1H	277	6.38	4.76	1.2	9.08	10.20	0.093	0.7	1.11	39
	2C/2H	256	6.09	4.52	1.2	8.40	17.13	0.156	1.1	5.93	39
	3C/1H	256	7.16	5.31	1.5	3.16	9.70	0.088	0.7	1.01	39
040	2C/1H	338	7.89	6.24	1.6	3.13	13.22	0.120	0.9	2.06	58
	2C/2H	320	7.61	5.99	1.6	2.94	21.26	0.193	1.4	2.09	58
	3C/1H	320	10.53	7.38	2.1	7.19	12.76	0.116	0.9	1.94	58
060	2C/1H	541	13.86	10.35	2.8	10.39	21.08	0.192	1.4	6.08	79
	2C/2H	510	13.48	9.99	2.7	9.90	34.00	0.309	2.3	5.91	79
	3C/1H	510	14.89	11.06	3.0	3.68	20.34	0.185	1.4	5.70	79
080	2C/1H	659	14.50	11.69	3.0	3.16	26.60	0.242	1.8	11.04	122
	2C/2H	627	14.02	11.29	2.9	2.98	41.17	0.374	2.7	2.50	122
	3C/1H	627	19.06	19.06	3.9	6.50	25.78	0.234	1.7	10.44	122
100	2C/1H	933	24.77	18.32	5.0	9.99	39.07	0.355	2.6	30.09	145
	2C/2H	893	24.08	17.74	4.9	9.49	61.10	0.555	4.1	6.08	145
	3C/1H	893	28.38	20.06	5.8	9.31	37.94	0.345	2.5	28.55	145
120	2C/1H	976	25.30	18.77	5.2	10.42	31.65	0.365	2.7	31.65	160
	2C/2H	921	24.45	18.05	5.0	9.80	62.51	0.568	4.2	6.35	160
	3C/1H	921	28.83	20.40	5.9	9.63	38.73	0.352	2.6	29.63	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Horizontal Concealed, Compact Concealed, Horizontal Recessed and Vertical Recessed

The following performance data represents the 1-row hot water and steam reheat coils that are available on fan-coil units in conjunction with a 2, 3, or 4-row cooling coil.

Heating performance is based on 55°F entering air temperature, 180°F entering hot water temperature (hot water coil) or 2 psig and 5 psig entering steam pressure (steam coil) and a 15°F ΔT.

All performance measured on high speed tap, 115 V, 0.05 ESP, without filter. Free discharge EC motor. See Table 6, p. 25 for performance groupings.

Table 21. Standard Capacity and High Capacity hot water reheat coil—free discharge EC motor

			Standard capacity hot water reheat coil				High capacity hot water reheat coil				
SIZE	Main Cooling Coil	Airflow (cfm)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2-row	246	3.96	0.032	0.5	0.07	8.67	0.069	1.2	0.28	37
	3-row	242	3.89	0.031	0.5	0.07	8.55	0.068	1.1	0.27	37
	4-row	222	3.73	0.030	0.5	0.06	8.27	0.066	1.1	0.26	37
030	2-row	313	4.45	0.036	0.6	0.09	9.49	0.076	1.3	0.33	39
	3-row	309	4.42	0.035	0.6	0.09	9.43	0.075	1.3	0.33	39
	4-row	276	4.18	0.033	0.6	0.08	9.04	0.072	1.2	0.30	39
040	2-row	381	5.95	0.048	0.8	0.17	12.81	0.102	1.7	0.66	58
	3-row	365	5.69	0.046	0.8	0.16	12.37	0.099	1.7	0.62	58
	4-row	340	5.46	0.044	0.7	0.15	11.98	0.096	1.6	0.59	58
060	2-row	609	9.51	0.076	1.3	0.51	20.34	0.163	2.7	1.93	79
	3-row	604	9.34	0.075	1.2	0.49	20.05	0.160	2.7	1.88	79
	4-row	557	8.83	0.071	1.2	0.44	19.19	0.154	2.6	1.74	79
080	2-row	790	12.02	0.096	1.6	0.92	25.94	0.208	3.5	3.58	122
	3-row	724	11.22	0.090	1.5	0.81	24.60	0.197	3.3	3.26	122
	4-row	676	10.92	0.087	1.5	0.78	24.08	0.193	3.2	3.14	122
100	2-row	1015	17.34	0.139	2.3	2.41	38.00	0.304	5.1	9.73	145
	3-row	1052	17.22	0.138	2.3	2.38	37.80	0.302	5.0	9.64	145
	4-row	1105	16.37	0.131	2.4	2.18	36.33	0.291	4.8	8.98	160
120	2-row	988	17.97	0.144	2.4	2.57	39.07	0.313	5.2	10.22	145
	3-row	1074	17.33	0.139	2.3	2.41	37.99	0.304	5.1	9.72	160
	4-row	993	16.36	0.131	2.2	2.18	36.33	0.291	4.8	8.97	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Table 22. Steam coil performance—free discharge EC motor

			2 PSIG			5 PSIG			
SIZE	Main Cooling Coil	Airflow (cfm)	Total Capacity (MBh)	Q/ITD	Heating LAT (F)	Total Capacity (MBh)	Q/ITD	Heating LAT (F)	Motor Power (W)
020	2-row	246	7.65	0.051	86.73	8.06	0.051	88.41	37
	3-row	242	7.53	0.051	87.14	7.93	0.051	88.84	37
	4-row	222	7.22	0.048	88.21	7.60	0.048	89.96	37
030	2-row	313	8.57	0.058	84.02	9.02	0.057	85.55	39
	3-row	309	8.50	0.057	84.21	8.95	0.057	85.75	39
	4-row	276	8.06	0.054	85.45	8.49	0.054	87.06	39
040	2-row	381	11.07	0.074	84.74	11.66	0.074	86.31	58
	3-row	365	10.61	0.071	85.77	11.17	0.071	87.39	58
	4-row	340	10.19	0.068	88.76	10.73	0.068	88.44	58
060	2-row	609	17.09	0.115	83.66	18.00	0.115	85.18	79
	3-row	604	16.79	0.113	84.07	17.68	0.113	85.61	79
	4-row	557	15.92	0.107	85.34	16.76	0.107	86.95	79
080	2-row	790	21.28	0.143	84.43	22.41	0.143	85.99	122
	3-row	724	19.93	0.134	86.00	20.99	0.134	87.64	122
	4-row	676	19.42	0.130	86.64	20.45	0.130	88.32	122
100	2-row	1015	30.15	0.202	85.69	31.77	0.202	87.33	145
	3-row	1052	29.97	0.201	85.84	31.57	0.201	87.49	145
	4-row	988	28.56	0.192	87.04	30.09	0.192	88.75	145
120	2-row	1105	31.19	0.209	84.86	32.86	0.209	86.46	160
	3-row	1074	30.14	0.202	85.69	31.76	0.202	87.34	160
	4-row	993	28.55	0.192	87.05	30.08	0.192	88.76	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Vertical Concealed

The following performance data represents the 1-row hot water and steam reheat coils that are available on fan-coil units in conjunction with a 2, 3, or 4-row cooling coil.

Heating performance is based on 55°F entering air temperature, 180°F entering hot water temperature (hot water coil) or 2 psig and 5 psig entering steam pressure (steam coil) and a 15°F ΔT.

All performance measured on high speed tap, 115 V, 0.05 ESP, without filter. Free discharge EC motor. See Table 6, p. 25 for performance groupings.

Table 23. Standard Capacity and High Capacity hot water reheat coil—free discharge EC motor

			Standard capacity hot water reheat coil				High capacity hot water reheat coil				
SIZE	Main Cooling Coil	Airflow (cfm)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2-row	211	3.69	0.030	0.5	0.06	8.20	0.066	1.1	0.25	37
	3-row	205	3.61	0.029	0.5	0.06	8.07	0.065	1.1	0.25	37
	4-row	192	3.48	0.028	0.5	0.06	7.85	0.063	1.1	0.24	37
030	2-row	272	4.20	0.034	0.6	0.08	9.06	0.072	1.2	0.30	39
	3-row	270	4.17	0.033	0.6	0.08	9.02	0.072	1.2	0.30	39
	4-row	247	3.98	0.032	0.5	0.07	8.71	0.070	1.2	0.28	39
040	2-row	340	5.65	0.045	0.8	0.16	12.30	0.098	1.6	0.61	58
	3-row	328	5.44	0.044	0.7	0.15	11.94	0.096	1.6	0.58	58
	4-row	309	5.24	0.042	0.7	0.14	11.61	0.093	1.6	0.55	58
060	2-row	535	8.96	0.072	1.2	0.46	19.41	0.155	2.6	1.78	79
	3-row	531	8.82	0.071	1.2	0.44	19.18	0.153	2.6	1.74	79
	4-row	499	8.43	0.067	1.1	0.41	18.51	0.148	2.5	1.64	79
080	2-row	697	11.43	0.091	1.5	0.84	24.95	0.200	3.3	3.34	122
	3-row	646	10.76	0.086	1.4	0.76	23.80	0.190	3.2	3.07	122
	4-row	612	10.51	0.084	1.4	0.72	23.37	0.187	3.1	2.97	122
100	2-row	891	16.33	0.131	2.2	2.17	36.27	0.290	4.8	8.95	145
	3-row	913	16.25	0.130	2.2	2.15	36.13	0.289	4.8	8.89	145
	4-row	870	15.57	0.125	2.1	1.99	34.95	0.280	4.7	8.38	145
120	2-row	980	17.06	0.136	2.3	2.34	37.52	0.300	5.0	9.51	160
	3-row	958	16.56	0.132	2.2	2.22	36.66	0.293	4.9	9.12	160
	4-row	899	15.75	0.126	2.1	2.04	35.26	0.282	4.7	8.51	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Table 24. Steam coil performance—free discharge EC motor

			2 PSIG			5 PSIG			
SIZE	Main Cooling Coil	Airflow (cfm)	Total Capacity (MBh)	Q/ITD	Heating LAT (F)	Total Capacity (MBh)	Q/ITD	Heating LAT (F)	Motor Power (W)
020	2-row	211	7.15	0.048	88.47	7.52	0.048	90.24	37
	3-row	205	7.00	0.047	89.02	7.37	0.047	90.82	37
	4-row	192	6.77	0.045	89.91	7.12	0.045	91.75	37
030	2-row	272	8.09	0.054	85.38	8.52	0.054	86.98	39
	3-row	270	8.04	0.054	85.51	8.47	0.054	87.12	39
	4-row	247	7.70	0.052	86.59	8.10	0.052	88.26	39
040	2-row	340	10.53	0.071	85.95	11.09	0.071	87.59	58
	3-row	328	10.15	0.068	86.86	10.69	0.068	88.54	58
	4-row	309	9.80	0.066	87.73	10.32	0.066	89.46	58
060	2-row	535	16.14	0.108	85.01	16.99	0.108	86.60	79
	3-row	531	15.91	0.107	85.35	16.75	0.107	86.96	79
	4-row	499	15.22	0.102	86.43	16.03	0.102	88.10	79
080	2-row	697	20.28	0.136	85.58	21.35	0.136	87.20	122
	3-row	646	19.15	0.129	87.00	20.16	0.128	88.69	122
	4-row	612	18.72	0.126	87.56	19.72	0.126	89.29	122
100	2-row	891	28.50	0.191	87.09	30.02	0.191	88.81	145
	3-row	913	28.37	0.190	87.21	29.88	0.190	88.93	145
	4-row	870	24.24	0.183	88.25	28.70	0.183	90.03	145
120	2-row	980	29.69	0.199	86.07	31.28	0.199	87.73	160
	3-row	958	28.87	0.194	86.77	30.41	0.194	88.46	160
	4-row	899	27.54	0.185	87.97	29.01	0.185	89.73	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Horizontal Cabinet and Vertical Cabinet

The following performance data represents the 1-row hot water and steam reheat coils that are available on fan-coil units in conjunction with a 2, 3, or 4-row cooling coil.

Heating performance is based on 55°F entering air temperature, 180°F entering hot water temperature (hot water coil) or 2 psig and 5 psig entering steam pressure (steam coil) and a 15°F ΔT.

All performance measured on high speed tap, 115 V, zero ESP, with throwaway filter. Free discharge EC motor. See Table 6, p. 25 for performance groupings.

Table 25. Standard Capacity and High Capacity hot water reheat coil—free discharge EC motor

SIZE	Main Cooling Coil	Airflow (cfm)	Standard capacity hot water reheat coil				High capacity hot water reheat coil				Motor Power (W)
			Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	
020	2-row	222	3.77	0.030	0.5	0.07	8.35	0.067	1.1	0.26	37
	3-row	217	3.70	0.030	0.5	0.06	8.23	0.066	1.1	0.26	37
	4-row	204	3.58	0.029	0.5	0.06	8.03	0.064	1.1	0.25	37
030	2-row	280	4.25	0.034	0.6	0.08	9.14	0.073	1.2	0.31	39
	3-row	277	4.22	0.034	0.6	0.08	9.11	0.073	1.2	0.31	39
	4-row	256	4.05	0.032	0.5	0.07	8.81	0.070	1.2	0.29	39
040	2-row	349	5.72	0.046	0.8	0.16	12.42	0.099	1.7	0.63	58
	3-row	338	5.51	0.044	0.7	0.15	12.06	0.096	1.6	0.59	58
	4-row	320	5.32	0.043	0.7	0.14	11.74	0.094	1.6	0.57	58
060	2-row	544	9.03	0.072	1.2	0.46	19.53	0.156	2.6	1.80	79
	3-row	541	8.90	0.071	1.2	0.45	19.30	0.154	2.6	1.76	79
	4-row	510	8.51	0.068	1.1	0.42	18.65	0.149	2.5	1.66	79
080	2-row	706	11.49	0.092	1.5	0.85	25.05	0.200	3.3	3.37	122
	3-row	659	10.84	0.087	1.4	0.77	23.95	0.192	3.2	3.11	122
	4-row	627	10.61	0.085	1.4	0.74	23.55	0.188	3.1	3.01	122
100	2-row	912	16.51	0.132	2.2	2.21	36.58	0.293	4.9	9.09	145
	3-row	933	16.41	0.131	2.2	2.19	36.39	0.291	4.8	9.01	145
	4-row	893	15.74	0.126	2.1	2.03	35.23	0.282	4.7	8.50	145
120	2-row	996	17.19	0.138	2.3	2.37	37.74	0.302	5.0	9.61	160
	3-row	976	16.69	0.134	2.2	2.25	36.88	0.295	4.9	9.22	160
	4-row	921	15.90	0.127	2.1	2.07	35.52	0.284	4.7	8.63	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Table 26. Steam reheat coil—free discharge EC motor

SIZE	Main Cooling Coil	Airflow (cfm)	2 PSIG			5 PSIG			Motor Power (W)
			Total Capacity (MBh)	Q/ITD	Heating LAT (F)	Total Capacity (MBh)	Q/ITD	Heating LAT (F)	
020	2-row	222	7.31	0.049	87.89	7.69	0.049	89.63	37
	3-row	217	7.18	0.048	88.35	7.56	0.048	90.12	37
	4-row	204	6.96	0.047	89.17	7.32	0.047	90.98	37
030	2-row	280	8.18	0.055	85.10	8.61	0.055	86.69	39
	3-row	277	8.14	0.055	85.23	8.57	0.055	86.83	39
	4-row	256	7.81	0.052	86.23	8.22	0.052	87.88	39
040	2-row	349	10.66	0.072	85.65	11.22	0.071	87.28	58
	3-row	338	10.28	0.069	86.54	10.82	0.069	88.21	58
	4-row	320	9.94	0.067	87.37	10.47	0.067	89.08	58
060	2-row	544	16.26	0.109	84.83	17.12	0.109	86.41	79
	3-row	541	16.03	0.108	85.17	16.88	0.108	86.77	79
	4-row	510	15.36	0.103	86.20	16.18	0.103	87.85	79
080	2-row	706	20.38	0.137	85.46	21.46	0.137	87.08	122
	3-row	659	19.29	0.129	86.81	20.31	0.129	88.50	122
	4-row	627	18.90	0.127	87.33	19.90	0.127	89.04	122
100	2-row	912	28.80	0.193	86.83	30.34	0.193	88.53	145
	3-row	933	28.62	0.192	86.98	30.15	0.192	88.69	145
	4-row	893	27.52	0.185	87.99	28.99	0.185	89.75	145
120	2-row	996	29.90	0.201	85.89	31.50	0.201	87.54	160
	3-row	976	29.09	0.195	86.58	30.64	0.195	88.27	160
	4-row	921	27.79	0.187	87.73	29.28	0.186	89.48	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Vertical Slope Top Cabinet

The following performance data represents the 1-row hot water and steam reheat coils that are available on fan-coil units in conjunction with a 2, 3, or 4-row cooling coil.

Heating performance is based on 55°F entering air temperature, 180°F entering hot water temperature (hot water coil) or 2 psig and 5 psig entering steam pressure (steam coil) and a 15°F ΔT.

All performance measured on high speed tap, 115 V, zero ESP, with throwaway filter. Free discharge EC motor. See Table 6, p. 25 for performance groupings.

Table 27. Standard Capacity and High capacity hot water reheat coil with high static motor—free discharge EC motor

			Standard capacity hot water reheat coil				High capacity hot water reheat coil				
SIZE	Main Cooling Coil	Airflow (cfm)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2-row	206	3.64	0.029	0.5	0.06	8.13	0.065	1.1	0.25	37
	3-row	200	3.57	0.029	0.5	0.06	8.00	0.064	1.1	0.24	37
	4-row	190	3.46	0.028	0.5	0.06	7.82	0.063	1.0	0.23	37
030	2-row	262	4.12	0.033	0.6	0.08	8.94	0.072	1.2	0.30	39
	3-row	260	4.10	0.033	0.6	0.08	8.90	0.071	1.2	0.29	39
	4-row	242	3.94	0.032	0.5	0.07	8.64	0.069	1.2	0.28	39
040	2-row	330	5.57	0.045	0.7	0.15	12.16	0.097	1.6	0.60	58
	3-row	320	5.38	0.043	0.7	0.14	11.84	0.095	1.6	0.57	58
	4-row	304	5.21	0.042	0.7	0.14	11.55	0.092	1.5	0.55	58
060	2-row	512	8.76	0.070	1.2	0.44	19.08	0.153	2.5	1.73	79
	3-row	508	8.65	0.069	1.2	0.43	18.88	0.151	2.5	1.69	79
	4-row	483	8.31	0.066	1.1	0.40	18.30	0.146	2.4	1.60	79
080	2-row	665	11.20	0.090	1.5	0.81	24.55	0.196	3.3	3.25	122
	3-row	623	10.61	0.085	1.4	0.74	23.54	0.188	3.1	3.01	122
	4-row	596	10.39	0.083	1.4	0.71	23.17	0.185	3.1	2.93	122
100	2-row	856	16.02	0.128	2.1	2.10	35.73	0.286	4.8	8.71	145
	3-row	873	15.93	0.127	2.1	2.08	35.57	0.285	4.7	8.65	145
	4-row	839	15.33	0.123	2.0	1.94	34.54	0.276	4.6	8.20	145
120	2-row	940	16.74	0.134	2.2	2.27	36.97	0.296	4.9	9.26	160
	3-row	923	16.30	0.130	2.2	2.16	36.21	0.290	4.8	8.92	160
	4-row	876	15.58	0.125	2.1	2.00	34.98	0.280	4.7	8.38	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Table 28. Steam reheat coil with high static motor—free discharge EC motor

			2 PSIG			5 PSIG			
SIZE	Main Cooling Coil	Airflow (cfm)	Total Capacity (MBh)	Q/ITD	Heating LAT (F)	Total Capacity (MBh)	Q/ITD	Heating LAT (F)	Motor Power (W)
020	2-row	206	7.06	0.047	88.78	7.44	0.047	90.56	37
	3-row	200	6.93	0.047	89.28	7.29	0.046	91.10	37
	4-row	190	6.73	0.045	90.04	7.09	0.045	91.89	37
030	2-row	262	7.95	0.053	85.79	8.37	0.053	87.42	39
	3-row	260	7.91	0.053	85.90	8.33	0.053	87.53	39
	4-row	242	7.62	0.051	86.84	8.02	0.051	88.52	39
040	2-row	330	10.39	0.070	86.29	10.94	0.070	87.94	58
	3-row	320	10.04	0.067	87.12	10.57	0.067	88.82	58
	4-row	304	9.74	0.065	87.90	10.25	0.065	89.64	58
060	2-row	512	15.80	0.106	85.51	16.64	0.106	87.13	79
	3-row	508	15.60	0.105	85.83	16.43	0.105	87.46	79
	4-row	483	15.01	0.101	86.77	15.81	0.101	88.46	79
080	2-row	665	19.89	0.133	86.05	20.94	0.133	87.70	122
	3-row	623	18.89	0.127	87.34	19.89	0.127	89.05	122
	4-row	596	18.53	0.124	87.82	19.51	0.124	89.46	122
100	2-row	856	27.99	0.188	87.55	29.48	0.188	89.29	145
	3-row	873	27.84	0.187	87.69	29.33	0.187	89.44	145
	4-row	839	26.85	0.180	88.63	28.29	0.180	90.42	145
120	2-row	940	29.17	0.196	86.51	30.73	0.196	88.19	160
	3-row	923	28.44	0.191	87.14	29.96	0.191	88.86	160
	4-row	876	27.26	0.183	88.23	28.72	0.183	90.00	160

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Horizontal Concealed, Compact Concealed, Horizontal Cabinet, Horizontal Recessed, and Vertical Recessed

The following performance data represents the 1-row hot water and steam reheat coils that are available on fan-coil units in conjunction with a 2-, 3-, or 4-row cooling coil.

Heating performance is based on 55°F entering air temperature, 180°F entering hot water temperature (hot water coil) or 2 psig and 5 psig entering steam pressure (steam coil) and a 15°F ΔT.

All performance measured on high speed tap, 115 V, 0.20 ESP, without filter. High static EC motor. See Table 6, p. 25 for performance groupings.

Table 29. High capacity hot water reheat coil with high static motor—high static EC motor

			Standard capacity hot water reheat coil				High capacity hot water reheat coil				
SIZE	Main Cooling Coil	Airflow (cfm)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2-row	314	4.62	0.037	0.6	0.09	9.76	0.078	1.3	0.35	84
	3-row	319	4.63	0.037	0.6	0.09	9.77	0.078	1.3	0.35	84
	4-row	295	4.44	0.036	0.6	0.09	9.47	0.076	1.3	0.33	84
030	2-row	380	5.10	0.041	0.7	0.11	10.52	0.084	1.4	0.39	91
	3-row	358	4.91	0.039	0.7	0.10	10.23	0.082	1.4	0.38	91
	4-row	330	4.71	0.038	0.6	0.10	9.90	0.079	1.3	0.35	91
040	2-row	410	6.35	0.051	0.9	0.19	13.47	0.108	1.8	0.72	110
	3-row	506	6.93	0.055	0.9	0.22	14.41	0.115	1.9	0.81	110
	4-row	470	6.64	0.053	0.9	0.21	13.95	0.112	1.9	0.77	110
060	2-row	700	10.50	0.084	1.4	0.60	21.95	0.176	2.9	2.21	162
	3-row	824	11.31	0.090	1.5	0.69	23.22	0.186	3.1	2.45	162
	4-row	760	10.70	0.086	1.4	0.62	22.27	0.178	3.0	2.27	162
080	2-row	950	13.79	0.110	1.8	1.17	28.87	0.231	3.8	4.33	298
	3-row	927	13.32	0.107	1.8	1.10	28.10	0.225	3.7	4.13	298
	4-row	870	12.93	0.103	1.7	1.04	27.46	0.220	3.7	3.96	298
100	2-row	1199	19.54	0.156	2.6	2.98	41.72	0.334	5.6	11.49	252
	3-row	1360	20.42	0.163	2.7	3.22	43.15	0.345	5.7	12.21	252
	4-row	1276	19.44	0.156	2.6	2.95	41.55	0.332	5.5	11.41	252
120	2-row	1330	20.57	0.165	2.7	3.26	43.40	0.347	5.8	12.34	314
	3-row	1419	20.85	0.167	2.8	3.34	43.86	0.351	5.8	12.57	314
	4-row	1330	19.85	0.159	2.6	3.06	42.22	0.338	5.6	11.75	314

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Table 30. High capacity hot water reheat coil with high static motor—high static EC motor

			2 PSIG			5 PSIG			
SIZE	Main Cooling Coil	Airflow (cfm)	Total Capacity (MBh)	Q/ITD	Heating LAT (F)	Total Capacity (MBh)	Q/ITD	Heating LAT (F)	Motor Power (W)
020	2-row	314	8.88	0.060	83.20	9.35	0.060	84.69	84
	3-row	319	8.89	0.060	83.17	9.36	0.060	84.66	84
	4-row	295	8.55	0.057	84.07	9.00	0.057	85.61	84
030	2-row	380	9.78	0.066	81.08	10.29	0.066	82.46	91
	3-row	358	9.42	0.063	81.88	9.92	0.063	83.29	91
	4-row	330	9.04	0.061	82.78	9.52	0.061	84.25	91
040	2-row	410	11.79	0.079	83.28	12.41	0.079	84.78	110
	3-row	506	12.84	0.086	81.40	13.52	0.086	82.80	110
	4-row	470	12.32	0.083	82.30	12.97	0.083	83.75	110
060	2-row	700	18.81	0.126	81.52	19.81	0.126	82.93	162
	3-row	824	20.22	0.136	80.01	21.28	0.136	81.33	162
	4-row	760	19.16	0.129	81.13	20.17	0.128	82.52	162
080	2-row	950	24.29	0.163	81.44	25.59	0.163	82.84	298
	3-row	927	23.49	0.158	82.17	24.74	0.158	83.62	298
	4-row	870	22.82	0.153	82.81	24.04	0.153	84.29	298
100	2-row	1199	33.79	0.227	82.99	35.60	0.227	84.49	252
	3-row	1360	35.23	0.236	82.05	37.13	0.236	83.50	252
	4-row	1276	33.63	0.226	83.11	35.43	0.226	84.61	252
120	2-row	1330	35.48	0.238	81.89	37.39	0.238	83.34	314
	3-row	1419	35.95	0.241	81.60	37.89	0.241	83.03	314
	4-row	1330	34.30	0.230	82.65	36.13	0.230	84.14	314

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Vertical Concealed

The following performance data represents the 1-row hot water and steam reheat coils that are available on fan-coil units in conjunction with a 2-, 3-, or 4-row cooling coil.

Heating performance is based on 55°F entering air temperature, 180°F entering hot water temperature (hot water coil) or 2 psig and 5 psig entering steam pressure (steam coil) and a 15°F ΔT.

All performance measured on high speed tap, 115 V, 0.20 ESP, without filter. High static EC motor. See Table 6, p. 25 for performance groupings.

Table 31. High Static EC motor—high static EC motor

			Standard capacity hot water reheat coil				High capacity hot water reheat coil				
SIZE	Main Cooling Coil	Airflow (cfm)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Total Capacity (MBh)	Q/ITD	Flow Rate (gpm)	WPD (ft H20)	Motor Power (W)
020	2-row	274	4.32	0.035	0.6	0.08	9.26	0.074	1.2	0.32	84
	3-row	274	4.30	0.034	0.6	0.08	9.24	0.074	1.2	0.31	84
	4-row	258	4.17	0.033	0.6	0.08	9.01	0.072	1.2	0.30	84
030	2-row	341	4.85	0.039	0.7	0.10	10.12	0.081	1.4	0.37	91
	3-row	319	4.66	0.037	0.6	0.10	9.83	0.079	1.3	0.35	91
	4-row	299	4.50	0.036	0.6	0.09	9.56	0.076	1.3	0.33	91
040	2-row	377	6.09	0.049	0.8	0.18	13.04	0.104	1.7	0.68	110
	3-row	455	6.62	0.053	0.9	0.21	13.90	0.111	1.9	0.76	110
	4-row	429	6.38	0.051	0.9	0.19	13.52	0.108	1.8	0.73	110
060	2-row	632	9.99	0.080	1.3	0.55	21.12	0.169	2.8	2.07	162
	3-row	733	10.72	0.086	1.4	0.62	22.29	0.178	3.0	2.28	162
	4-row	687	10.23	0.082	1.4	0.57	21.51	0.172	2.9	2.14	162
080	2-row	865	13.22	0.106	1.8	1.09	27.95	0.224	3.7	4.09	298
	3-row	845	12.82	0.103	1.7	1.03	27.28	0.218	3.6	3.92	298
	4-row	800	12.48	0.100	1.7	0.98	26.73	0.214	3.6	3.78	298
100	2-row	1089	18.64	0.149	2.5	2.74	40.20	0.322	5.4	10.76	252
	3-row	1206	19.36	0.155	2.6	2.93	41.42	0.331	5.5	11.35	252
	4-row	1145	18.58	0.149	2.5	2.73	40.11	0.321	5.3	10.72	252
120	2-row	1218	19.73	0.158	2.6	3.03	42.03	0.336	5.6	11.65	314
	3-row	1291	20.02	0.160	2.7	3.11	42.50	0.340	5.7	11.88	314
	4-row	1223	19.18	0.153	2.6	2.88	41.10	0.329	5.5	11.19	314

Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Table 32. Steam coil performance—high static EC motor

			2 PSIG			5 PSIG			
SIZE	Main Cooling Coil	Airflow (cfm)	Total Capacity (MBh)	Q/ITD	Heating LAT (F)	Total Capacity (MBh)	Q/ITD	Heating LAT (F)	Motor Power (W)
020	2-row	274	8.32	0.056	84.71	8.76	0.056	86.28	84
	3-row	274	8.29	0.056	84.80	8.72	0.056	86.37	84
	4-row	258	8.03	0.054	85.55	8.45	0.054	87.17	84
030	2-row	341	9.30	0.062	82.16	9.79	0.062	83.60	91
	3-row	319	8.96	0.060	83.00	9.43	0.060	84.48	91
	4-row	299	8.65	0.058	83.79	9.11	0.058	85.31	91
040	2-row	377	11.32	0.076	84.21	11.92	0.076	85.76	110
	3-row	455	12.27	0.082	82.39	12.92	0.082	83.84	110
	4-row	429	11.84	0.079	83.18	12.47	0.079	84.67	110
060	2-row	632	17.92	0.120	82.59	18.87	0.120	84.05	162
	3-row	733	19.18	0.129	81.10	20.20	0.129	82.49	162
	4-row	687	18.34	0.123	82.08	19.31	0.123	83.52	162
080	2-row	865	23.32	0.157	82.33	24.56	0.156	83.78	298
	3-row	845	22.64	0.152	83.00	23.84	0.152	84.49	298
	4-row	800	22.07	0.148	83.58	23.24	0.148	85.10	298
100	2-row	1089	32.29	0.217	84.04	34.02	0.217	85.60	252
	3-row	1206	33.49	0.225	83.19	35.29	0.225	84.71	252
	4-row	1145	32.21	0.216	84.10	33.93	0.216	85.66	252
120	2-row	1218	34.10	0.229	82.78	35.93	0.229	84.28	314
	3-row	1291	34.57	0.232	82.47	36.43	0.232	83.95	314
	4-row	1223	33.18	0.223	83.41	34.96	0.223	84.93	314

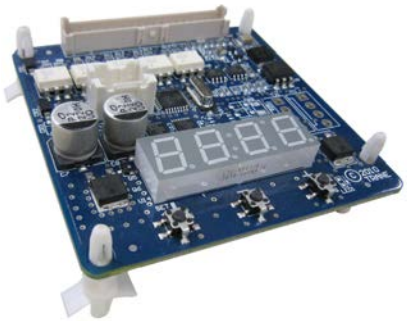
Note: Q/ITD = MBh (kW)/(Entering water temperature - Entering air temperature) when ΔT and gpm (L/s) remain constant. To determine heating capacities at a different entering water temperature or entering air temp, compute the new ITD and multiply it by the Q/ITD shown.

Controls

ECM Engine Controller

The Electronically Commutated Motor (ECM) engine controls and reports the performance of up to two Trane Brushless DC (BLDC) motors.

Figure 2. ECM engine controller



- The engine also coordinates the operation of the fan in response to electric heat behavior and electric behavior in response to hydronic heat behavior.
- The engine incorporates a user interface that allows adjustment of certain unit parameters and provides constant feedback on motor operation.
- The engine integrates service and troubleshooting tools.
- The engine integrates a versatile configurable auxiliary temperature sensor.
- The engine incorporates various safety and lockout features, such as maintaining proper fan speeds if electric heat is called for.

Status Display

Figure 3. Status display

The ECM engine board contains a four-digit, seven-segment display that is used to present information in a format close to real-world language, while having a small-form factor. Most characters are immediately recognizable; however, please consult Table 33 and Table 34 for the graphical representation of each alphanumeric character.

Table 33. Screen representation of alphabetical characters

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	b	C	d	E	F	g	H	I	J	H	L	m	n	O	P	q	r	S	t	U	u	v	H	y	2

Table 34. Screen representation of numeric characters

1	2	3	4	5	6	7	8	9	0
1	2	3	4	5	6	7	8	9	0

Control Options

UniTrane fan-coils are available with four different control options:

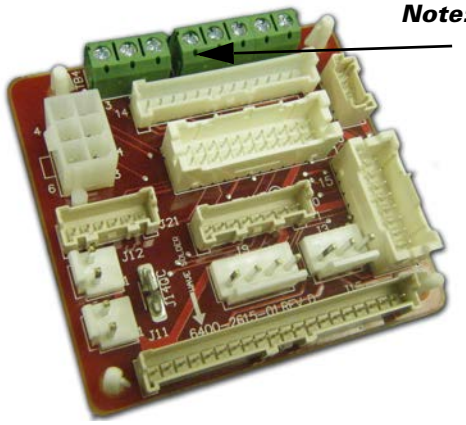
- Manual three-speed fan switch
- Tracer ZN010
- Tracer ZN510
- Tracer ZN520
- Tracer UC400

Manual Fan Mode Switch

Model Number Digit 30 = A and Digit 31 = D or K

Figure 4. Fan speed switch

Figure 5. Adapter board



Note: *Customer Low-Voltage Interface for Fan Speeds, Variable Fan Speed, and 24 Vac Supply*

The adapter allows direct customer interfacing through the use of terminal strips. Standard interfacing includes:

- Fan Speeds (H, M, L) (for wall mounted fan speed switches)
- Variable speed (0–10V) inputs

The standard adapter board eliminates many separate wiring harnesses in the panel and allows simple, mistake-proofed single-plug interfacing of:

- The ECM engine controller
- Transformers
- Motors
- Valves
- Dampers
- Electric heat control
- Fan speed switches
- Main power (except electric heat)

The manual fan mode switch is available for fan-coil units that do not have Trane factory-mounted control packages. This four-position switch (off, high, medium, low) allows manual fan mode selection and is available unit or wall mounted. The unit-mounted option (Digit 31 = D) operates on line voltage. The wall-mounted option (Digit 31 = K) is low-voltage and has three 24-volt relays using a factory-wired transformer and relays to control the fan motor.

Customer Supplied Terminal Interface (CSTI)

Figure 6. CSTI adapter board

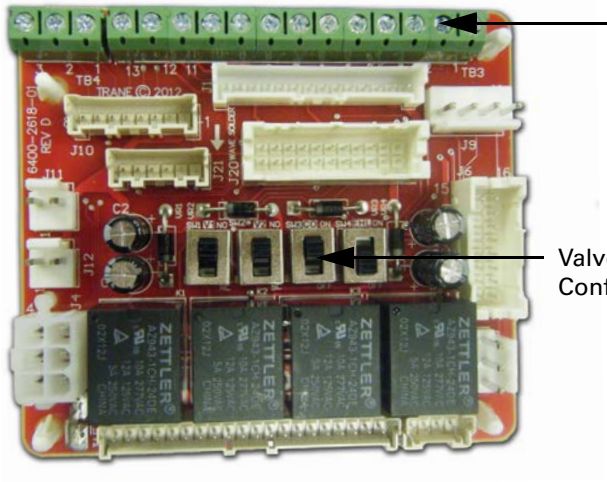
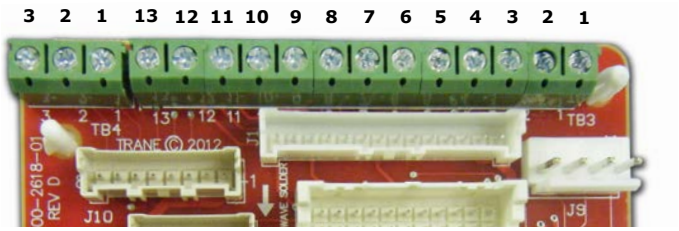


Figure 7. CSTI adapter board field connections



1. VSP 10V
2. VSP 0–10V
3. VSP DC COM

1. 24 Vac Y (hot)
2. 24 Vac Y (gnd)
3. High
4. Medium
5. Low
6. V1Op/Cooling
7. V1C1 (not std)
8. Not used
9. Not used
10. V2Op/EH1St/Heating
11. V2C1/EH2St (not std)
12. Damper Open
13. Dmp Cl (not std)

The control interface is intended to be used with a field-supplied, low-voltage thermostat or controller. The control box contains a relay board which includes a line voltage to 24-volt transformer, quiet contactors (for electric heat units), and an optional disconnect switch. All end devices are wired to a low-voltage terminal block and are run-tested, so the only a power connection and thermostat connection is needed to commission the unit. Changeover sensors and controls are provided whenever a change-over coil is selected. When N.O. valves are selected, inverting relays are provided for use with standard thermostats.

The CSTI adapter board provides all the hookups of the standard adapter board, but in addition, provides hookups for valve control (main and auxiliary coils), electric heat control, and damper control. Screw terminal blocks provide convenient access to fan controls and to end device control. In addition, a courtesy 10-Vdc supply is provided for use with an external potentiometer or rheostat. The 10-Vdc supply supports up to 10 mA draw.

Tracer Controls

The Tracer family of controllers, ZN010, ZN510, ZN520, and UC400 offer the combined advantages of simple and dependable operation with the latest Trane-designed controller. Standard control features include options normally available on more elaborate control systems. All control options are available factory-configured or can be field-configured using Rover service software, the UC400 is services via Tracer TU. For more detailed information, refer to CNT-IOP-1 (for Tracer ZN010 or ZN510) or CNT-SVX04A-EN (for Tracer ZN520), or the most recent version of the publication.

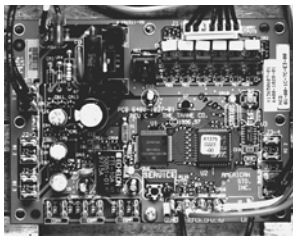
Tracer ZN010, Model Number Digit 30 = E

Figure 8. Tracer ZN010 control board

Tracer ZN010 is a stand-alone microprocessor controller.

Tracer ZN510, Model Number Digit 30 = F

Figure 9. Tracer ZN510 control board



ZN510 can be used as either a stand-alone or communicating microprocessor controller.

Tracer ZN520, Model Number Digit 30 = G

The ZN520 controller can be used in a stand-alone application or as part of a Trane Integrated Comfort™ System (ICS).

In the stand-alone configuration, ZN520 receives operation commands from the zone sensor and/or the auto changeover sensor (on auto changeover units). The entering water temperature is read from the auto changeover sensor and determines if the unit is capable of cooling or heating. The zone sensor module is capable of transmitting the following information to the controller:

- Timed override on/cancel request
- Zone setpoint
- Current zone temperature
- Fan mode selection (off-auto-high-med-low)

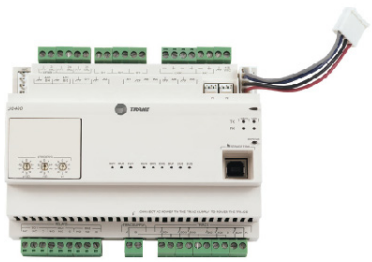
For optimal system performance, fan-coil units can operate as part of an Integrated Comfort System (ICS) building automation system controlled by Tracer Summit. The controller is linked directly to the Summit control panel via a twisted pair communication wire, requiring no additional interface device (i.e., a command unit). The Trane ICS system can monitor or override ZN520 control points. This includes such points as temperature and output positions.

Rover Service Software

This windows-based software package option allows field service personnel to easily monitor, save, download, and configure Tracer controllers through a communication link from a portable computer. When connected to the communication link, Rover can view any Tracer controller that is on the same communication link.

Tracer UC400, Model Number Digit 30 = J

Figure 10.



The UC400 single zone VAV controller can be used in a stand-alone application or as part of a Trane Integrated Comfort™ System (ICS).

In the stand-alone configuration, UC400 receives operation commands from the zone sensor and/or the auto changeover sensor (on auto changeover units). The entering water temperature is read from the auto changeover sensor and determines if the unit is capable of cooling or heating. The zone sensor module is capable of transmitting the following information to the controller:

- Timed override on/cancel request
- Zone setpoint
- Current zone temperature
- Fan mode selection (off-auto-high-med-low)

For optimal system performance, fan-coil units can operate as part of an Integrated Comfort System (ICS) building automation system controlled by Tracer Summit. The controller is linked directly to the Summit control panel via a twisted pair communication wire, requiring no additional interface device (i.e., a command unit). The Trane ICS system can monitor or override UC400 control points. This includes such points as temperature and output positions.

Sequence of Operation

Fan Speed Switch

Off: Fan is turned off, two-position damper option spring-returns closed.

High, Medium, Low: Fan runs continuously at the selected speed. The two-position damper option opens to an adjustable mechanical stop-position.

Tracer ZN010 and ZN510

Off: Fan is off; control valves and fresh air damper option close. Low air temperature detection option is still active.

Auto (Fan Cycling): Fan and fresh air damper cycle with control valve option to maintain setpoint temperature. In cooling mode, the fan cycles from off to medium and in heating mode it cycles from off to low (factory default that can be field-adjusted using Rover service software). When no heating or cooling is required, the fan is off and the fresh air damper option closes. The fan can also be field-configured (using Rover) to run at a defined speed when the fan speed switch is in the auto position.

Low, Medium, High (Continuous Fan): Fan operates continuously while control valve option cycles to maintain setpoint temperature. Fresh air damper option is open.

Tracer ZN520

Off: Fan is off; control valve options and fresh air damper options close. The low air temperature detection option is still active.

Auto: Fan speed control in the auto setting allows the modulating (three-wire floating point) control valve option and three-speed fan to work cooperatively to meet precise capacity requirements, while minimizing fan speed (motor/energy/acoustics/dehumidification) and valve position (pump energy/chilled water reset). As the capacity requirement increases at low fan speed, the water valve opens. When the low fan speed capacity switch point is reached, the fan switches to medium speed and the water valve repositions to maintain an equivalent capacity. The reverse sequence takes place with a decrease in required capacity.

Low, Medium, High: The fan will run continuously at the selected speed and the valve option will cycle to meet setpoint.

Tracer UC400

Occupied Mode

In Occupied Mode, the UC400 controller maintains the space temperature based on the occupied space temperature setpoint ± occupied offset. The controller uses the occupied mode as a default mode when other forms of occupancy request are not present and the fan runs continuously. The outdoor air damper, if present, will close when the fan is OFF. The temperature setpoints can be

local (hard wired), communicated, or stored default values (configurable using the Tracer TU service tool).

Unoccupied Mode

In unoccupied mode, the UC400 controller attempts to maintain the space temperature based on the unoccupied heating or cooling setpoint. The fan will cycle between high speed and **OFF**. In addition, the outdoor air damper remains closed, unless economizing. The controller always uses the stored default setpoint values (configurable using the Tracer TU service tool), regardless of the presence of a hard wired or communicated setpoint value.

Timed Override Control

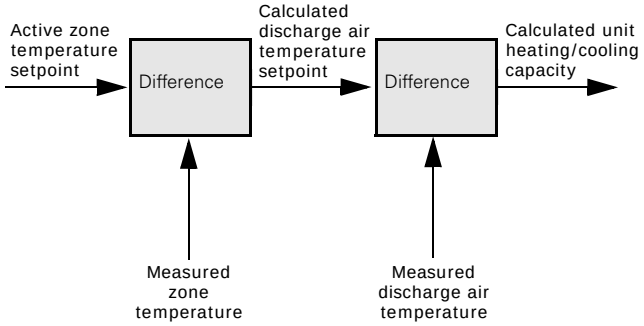
If the UC400 controller has a timed override option (**ON/CANCEL** buttons), pushing the **ON** button initiates a timed override on request. A timed override on request changes the occupancy mode from unoccupied mode to occupied bypass mode. In occupied bypass mode, the controller controls the space temperature based on the occupied heating or cooling setpoints. The occupied bypass time, which resides in the UC400 controller and defines the duration of the override, is configurable from 0 to 240 minutes (default value of 120 minutes). When the occupied bypass time expires, the unit transitions from occupied bypass mode to unoccupied mode. Pushing the **CANCEL** button cancels the timed override request. In addition, it will end the timed override before the occupied bypass time has expired and transition the unit from occupied bypass mode to unoccupied mode.

If the controller is in any mode other than unoccupied mode when the **ON** button is pressed, the controller still starts the occupied bypass timer without changing to occupied bypass mode. If the controller is placed in unoccupied mode before the occupied bypass timer expires, the controller is placed into occupied bypass mode and remains in this mode until either the **CANCEL** button is pressed on the Trane zone sensor or the occupied bypass time expires.

Zone Temperature Control

The UC400 controller has three methods of zone temperature control:

- **Cascade zone control**—used in the occupied, occupied bypass, and occupied standby modes. It maintains zone temperature by controlling the discharge air temperature to control the zone temperature. The controller uses the difference between the measured zone temperature and the active zone temperature setpoint to produce a discharge air temperature setpoint. The controller compares the discharge air temperature setpoint with the discharge air temperature and calculates a unit heating/cooling capacity accordingly (refer to the illustration below). The end devices (outdoor air damper, valves, and so on) operate in sequence based on the unit heating/cooling capacity (0–100 percent).



  If the discharge air temperature falls below the discharge air temperature low limit setpoint, (configurable using the Tracer TU service tool), and the cooling capacity is at a minimum, the available heating capacity is used to raise the discharge air temperature to the low limit.

- **Simplified zone control**— if discharge air temperature failure occurs, then simplified zone controls runs. In the unoccupied mode, the controller maintains the zone temperature by

calculating the required heating or cooling capacity (0–100%) according to the measured zone temperature and the active zone temperature setpoint. The active zone temperature setpoint is determined by the current operating modes, which include occupancy and heat/cool modes.

- **Discharge air temperature control**— is the backup mode that runs *only* if there is not valid zone temperature. In this mode, the active space temperature setpoint is used as the discharge air temperature setpoint.

  Important: *This is not a normal operating mode. The source of the invalid zone temperature needs to be corrected to restore normal operation.*

Table 35. Controller input/output summary

	ZN010	ZN510	ZN520	UC400
Binary Outputs				X
3-Speed Fan	X	X	X	X
2-Position Hydronic Valve	X	X	X	X
2-Position Fresh Air Damper	X	X		X
1-Stage Electric Heat	X	X	X	X
3-Wire Economizer Damper			X	X
3-Wire Hydronic Valve			X	X
2-Stage Electric Heat			X	X
Reheat (hydronic or electric)			X	X
Generic	X	X	X	**
Binary Inputs				
Condensate Overflow Detection	X	X	X	X
Low Temperature Detection	X	X	X	X
Occupancy	X	X	X	X
Generic Input	X	X	X	**
Analog Inputs				
Zone Temperature	X	X	X	X
Setpoint	X	X	X	X
Fan Mode: Auto, High, Medium, Low	X	X	X	X
Entering Water	X	X	X	X
Discharge Air	X	X	X	X
Outside Air			X	X
Generic			X	**
Analog Outputs				
Variable speed fan				X
Field supplied analog valves				X

Note: The generic input and output are for use with a Tracer Summit system only.

Table 36. Controller function summary

	ZN010	ZN510	ZN520	UC400
Control Functions				
Entering Water Temp. Sampling (Purge)	X	X	X	X
Auto Changeover	X	X	X	X
Fan Cycling	X	X		
Warm-Up	X	X	X	
Pre-Cool	X	X	X	
Data Sharing (Master/Slave)		X	X	
Random Start	X	X	X	X
Dehumidification			X	X
Single Zone VAV				X
Staged Capacity (2-Stage Electric Supplementary)			X	X
Other Functions				
Manual Test	X	X	X	in TU
Maintenance Timer	X	X	X	X
Setpoint Limits	X	X	X	X

** 'Generic' i/o - if there is unused i/o the user may create a new point to reference the i/o. But there is no dedicated 'generic' i/o like on ZN
Binary inputs -- there is also a defrost and fan status (for 1,2,3 speed fans) for UC400 and ZN520.
The ECM fan does not use the Binary input for fan status but gets the info over IMC from the ECM.
ZN520 also had a binary input for fan status. ZN520 also had defrost but it was wired directly to the compressor (IOP explains this).

Zone Sensor Options

Zone sensors are available as either unit, wall, or split-mounted options for design flexibility. Fan-coils with the unit-mounted zone sensor option include a thermistor in the unit's return air path. Wall-mounted zone sensor options have an internal thermistor. Zone sensors operate on 24 Vac.

Tracer ZN010 Options

Figure 11. Unit-mounted zone sensor: Digit 30 = E and Digit 31 = V

X13790843-01

Figure 13. Wall-mounted zone sensor: Digit 30 = E and Digit 31 = W

X13790841-01

Figure 15. Split-mounted zone sensor, unit-mounted fan mode and wall-mounted setpoint dial: Digit 30 = E and Digit 31 = X

X13511529-01 (wall)
X13790849-01 (unit)

Tracer ZN510, ZN520, and UC400 Options

Figure 12. Wall-mounted zone sensor: Digit 30 = F, G, or J and Digit 31 = 1

X13511530-01 (wall)
X13651467-02 (comm)

Figure 14. Wall-mounted zone sensor: Digit 30 = F, G, or J and Digit 31 = 2

X13790842-01 (wall)
X13651467-02 (comm)

Figure 16. Split-mounted zone sensor, unit-mounted fan mode and wall-mounted setpoint dial: Digit 30 = F, G, or J and Digit 31 = Y

X13511527-01 (wall)
X13790849-01 (unit)
X13651467-02 (comm)

Figure 17. Unit-mounted zone sensor: Digit 30 = F, G, or J and Digit 31 = Z

X13790844-01

Tracer ZN510, ZN520, and UC400 Options (continued)

Figure 18. Wall-mounted digital zone sensor with setpoint adjustment: Digit 30 = F, G, or J and Digit 31 = 4

X13790886-04 (wall)

Figure 19. Wireless zone sensor (setpoint adjustment, no fan speed adjustment): Digit 30 = F, G, or J and Digit 31 = 6

X13790821-01 (wall)
X13790860-02 (unit)

Figure 20. Wireless zone sensor: Digit 30 = F, G, or J and Digit 31 = 7

X13790822-04 (wall)
X13790860-02 (unit)

Control Features

The following control functions are standard features on units with Tracer ZN010, ZN510, ZN520, or UC400.

Entering Water Temperature Sampling Function

A system that uses a two-way control valve option might not sense the correct entering water temperature during long periods when the control valve is closed. If the demand for heating or cooling does not exist for a long period, the entering water will eventually approach ambient temperature.

Using the entering water temperature sampling function, the controller provides accurate two-pipe system changeover—without sacrificing the benefits of two-way control valves. Also, it eliminates inefficient bleed or bypass lines that can allow unnecessary waterflow through the system.

This function periodically samples the entering water temperature by opening the hydronic valve. The valve opens for 20 seconds to allow the water temperature to stabilize. Then the controller reads the entering water temperature for up to three minutes to see if the correct water temperature is available for the selected operating mode.

The entering water temperature must be five degrees or more above the space temperature to allow hydronic heating and five degrees or more below the space temperature to allow hydronic cooling. If the correct water temperature for the operating mode is available, the unit begins normal heating or cooling operation. If the correct water temperature is not available, the controller closes the control valve and waits 60 minutes before attempting to sample the entering water temperature again.

A factory-mounted thermistor senses the entering water temperature on changeover cooling/heating coil units. If the fan-coil has a factory-mounted piping package, the sensor is strapped to the entering water pipe. If the fan-coil does not have a piping package, the sensor is coiled in the end pocket for mounting on customer-supplied piping. This sensor must detect accurate water temperature for proper changeover.

Automatic Heat/Cool Mode Determination

The controller automatically determines whether heating or cooling is needed—based on space and system conditions. Utilizing a proportional/integral (PI) control algorithm to maintain the space temperature at the active heating or cooling setpoint. The controller measures the space temperature and active setpoint temperature to determine the unit's heating or cooling capacity (zero to 100 percent).

Occupied/Unoccupied Operation

The occupancy input utilizes a binary switch (i.e. motion sensor, timeclock, etc.) that allows the zone sensor to utilize its unoccupied internal setpoints.

Random Start

This feature randomly staggers multiple unit start-up to reduce electrical demand spikes.

Warm-up

The two-position fresh air damper option closes during the occupied mode when the space temperature is three degrees or more below the heating setpoint temperature. The damper remains closed during warm-up until the space temperature is within two degrees of the heating setpoint temperature.

Cool-down

The two-position fresh air damper option closes during the occupied mode when the space temperature is three degrees or more above the cooling setpoint temperature. The damper remains closed during cool-down until the space temperature is within two degrees of the cooling setpoint temperature.

Manual Output Test Function

NA on UC400. But will have ability through TU. This feature is an invaluable tool for troubleshooting a unit. By simply pressing the controller's test button, service personnel can manually exercise outputs in a pre-defined sequence.

Peer to Peer Communication (Tracer ZN510, ZN520, and UC400)

Peer to peer communication allows multiple units in one space to share the same zone sensor and provide simultaneous heating and cooling. The Tracer ZN510 or ZN520 controller can share information between units on the same communication link using a twisted pair wire in the field. Unit configuration must be modified with Rover service tool. On the UC400, zone sensor data sharing can be accomplished by use of the BAS system controller.

Economizing Control (Tracer ZN520)

With the controller configured for economizing control, it will calculate the required cooling capacity every ten seconds and modulate the damper option open to the calculated position. If the setpoint is not satisfied, the damper will continue to open until the setpoint condition has been met or the damper is 100 percent open. If this still does not satisfy the setpoint, the cooling valve option will begin to open and try to satisfy the load requirements. Once capacity exceeds the load requirements, the valve will begin to close until the setpoint has been reached or the damper reaches its minimum position, which is field-adjustable. This option uses a three-wire, floating point damper actuator.

A thermistor to sense discharge air is factory mounted near the discharge surface of the last coil for use in economizing and cascade temperature control. Tracer Summit can also utilize this temperature value as a read-only point. Cascade temperature control uses both the zone and discharge air temperatures to more accurately calculate the required unit capacity.

A thermistor to sense fresh air is factory mounted at the unit's fresh air opening for use in economizer applications or as a read-only point for Tracer Summit. If the fresh air temperature is a read-only value, it will not impact the control algorithm. In an economizer application, a fresh air temperature signal must be provided either by this thermistor or Tracer Summit.

Tracer ZN520 and UC400 Additional Features

Automatic Fan Speed Adjustment

When configured in the AUTO mode, the fan operates at the lowest speed possible (high, medium, or low) to maintain space temperature. As the cooling load decreases, the controller switches the fan to operate at the next lower speed, and the control valve modulates the unit's cooling capacity as required. This results in less fan energy use, improved dehumidification performance, and lower sound levels.

Automatic Ventilation Reset

To ensure proper ventilation rates, the controller is configured with two fresh air damper minimum position setpoints for occupied operation. As the fan speed changes to low or high, the damper adjusts to maintain the correct ventilation rate for the space. The damper position does not adjust when the fan speed changes to medium.

Fan Status

Tracer ZN520 and UC400 monitors the fan output status to determine if the fan is operating.

Filter Maintenance Status

The controller has an adjustable timer that indicates through Summit, Rover (ZN520) or TU (UC400) when filter maintenance is necessary. Filter maintenance status is based on cumulative fan run hours.

Dehumidification

When the fan-coil unit is equipped with a reheat coil and humidity sensor, the controller will independently control both space temperature and humidity. If the space humidity level rises above the upper limit, the capacity of the cooling coil is increased, overcooling the air to maintain the space humidity below the upper limit. Then, the capacity of the heating coil modulates, adding a small amount of heat to temper (reheat) the air and avoid overcooling the space.

Water Valve Override

The water valve override function drives all water valves in every unit fully open simultaneously. This helps reduce the time required for waterside balancing.

Cascade Control

The controller maintains discharge air temperature using a cascade control algorithm. The discharge air temperature is based on the difference between the space temperature and setpoint. Unit capacity modulates to achieve the discharge air temperature.

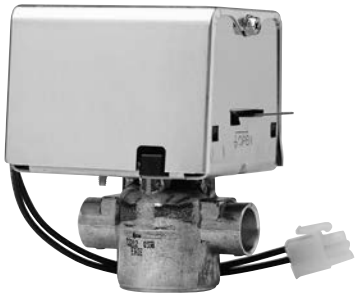
Interoperability

Tracer ZN520 can be used with a Tracer Summit system or on other control systems that support LonTalk and the SCC profile. For more information on specific inputs and outputs, see the *Installation, Owner, and Maintenance Manual, UNT-IOM-6*. UC400 can be used with a Tracer Summit system or other control systems that support BACnet. For more information on specific inputs and outputs, see the *Installation, Owner, and Maintenance Manual, UNT-SVX07D-EN*.

End Device Options

All end device options are factory-installed and -tested.

Figure 21. Control valve



Two-Position Control Valves, Model Number Digits 27 and 28 = A - H

Two-position valve options are available with either Tracer ZN010, ZN510, ZN520 or UC400. Valves are spring-return type, sweat connections, and available as normally open or closed. The valves respond to a 24 V signal and have 1/2-inch sweat connections. The two-way valve option will either fully open or close. The three-way valve option allows either full water flow through the coil or diverts waterflow through the bypass. If the control valve loses power, the valve returns to its de-energized position. All control valve options are factory installed in the leaving water piping downstream of the hydronic coil. The valve actuator is easily removable for service without removing the valve body from piping.

Modulating Control Valves (Tracer ZN520 and UC400), Model Number Digits 27 and 28 = J - R

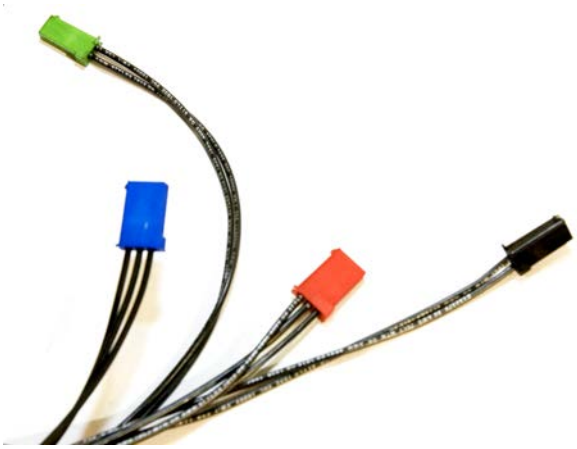
These 1/2-inch sweat connect valves are three-wire floating point valves, equal percentage type. Modulating valves are available in four Cv sizes: 0.7, 1.5, 2.5, and 4.0. The valve responds to a 24 V triac signal from the controller, which determines the valve position by a control algorithm. If the valve loses power, it remains in the position that it was in when the power loss occurred. All control valves are factory installed in the leaving water piping downstream of the hydronic coil.

Field-Supplied Valves, Model Number Digits 27 and 28 = X, Y, or 1

This option allows the controller to be factory-configured for the normal position of the field-supplied valve, as well as running a wiring harness from the control box to the piping side of the unit. When the field supplied valve option is chosen, the control box is provided with low voltage components and wired back to a terminal strip (CSTI) or controller.

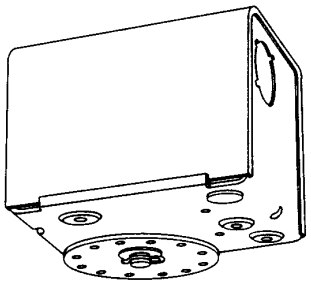
Note: *The Trane Company does not recommend wild coil applications.*

Figure 22. Wiring harness



Two-Position Fresh Air Damper Actuator, Model Number Digit 13 = D, E, or F (Available with all control options except ZN520)

Figure 23. Two-position fresh air damper actuator

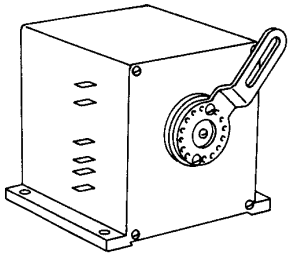


This damper actuator uses a 24 V signal and is factory-wired and mounted to the damper assembly. It allows zero to 50 percent fresh air. The damper will drive open to an adjustable mechanical stop-position whenever the fan is running during occupied mode and will spring-return closed when the fan turns off.

Note: *Trane recommends using the low temperature detection option with fresh air dampers to detect possible freeze conditions.*

Economizer Fresh Air Damper Actuator (Tracer ZN520 and UC400), Model Number Digit 13 = G, H, or J

Figure 24. Economizer fresh air damper actuator



This option is a three-wire floating point, spring-return damper actuator and is factory-wired and mounted to the damper assembly. When the controller enables the economizer and the unit is in occupied mode, the fresh air damper modulates between its minimum position (editable) and the full open position to maintain setpoint temperature. If economizer operation stops or if the unit is in the heating mode, the fresh air damper adjusts to its minimum position.

Note: *Trane highly recommends using the low temperature detection option with a fresh air damper to detect possible freeze conditions.*

Low Temperature Detection, Model Number Digit 36 = 2

Figure 25. Low temperature detection device

When the low temperature detection device senses an entering air temperature of 36°F to the hydronic coil, the normally-closed switch opens a corresponding set of binary input terminals. The fan disables, control valves open, and the fresh air damper closes.

Thirty minutes after the diagnostic, Tracer ZN010, ZN510, or ZN520 uses an automatic reset function to attempt to reset the unit. If the diagnostic occurs again within 24 hours after an automatic diagnostic reset, the unit will require a manual reset. This function attempts to resolve the infrequent nuisance alarm.

The low temperature detection device is an averaging type capillary tube and will reset when it detects an entering air temperature of at least 44°F.

Condensate Overflow Detection, Model Number Digit 35 = 2

Figure 26. Condensate overflow detection device

A float switch is factory-supplied for field installation in the auxiliary drain pan to detect a high condensate water level. When the float switch rises, the normally closed input opens a corresponding set of binary input terminals. This also causes the fan to disable, and the control valve and fresh air damper options to close. Although the float switch will close when the high condensate level recedes, the controller must be manually reset before normal unit operation can occur. If using a Tracer ZN510, ZN520 or UC400 controller you can reset using Tracer Summit. Use Rover service software to reset units with Tracer ZN010, ZN510, or ZN520 and Tracer TU for units with a UC400.

Electrical Data

Table 37. Electric heat (kW)

Unit Size	Unit Voltage	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
02	115	1.0	1.5	2.0								
	230	1.0	1.5	2.0								
	277	1.0	1.5	2.0								
	208	0.8	1.1	1.5	1.9							
03	115	1.0	1.5	2.0	2.5							
	230	1.0	1.5	2.0	2.5							
	277	1.0	1.5	2.0	2.5							
	208	0.8	1.1	1.5	1.9	2.3						
04	115			2.0	2.5	3.0						
	230			2.0	2.5	3.0						
	277			2.0	2.5	3.0						
	208			1.5	1.9	2.3	3.0					
06	115			2.0		3.0						
	230			2.0		3.0	4.0	5.0	6.0			
	277			2.0		3.0	4.0	5.0	6.0			
	208			1.5		2.3	3.0	3.8	4.5	5.3		
08	115			2.0		3.0						
	230			2.0		3.0	4.0	5.0	6.0	7.0		
	277			2.0		3.0	4.0	5.0	6.0	7.0		
	208			1.5		2.3	3.0	3.8	4.5	5.3	6.0	
10	115					3.0						
	230					3.0	4.0	5.0	6.0	7.0	8.0	
	277					3.0	4.0	5.0	6.0	7.0	8.0	
	208					2.3	3.0	3.8	4.5	5.3	6.0	
12	115					3.0						
	230					3.0	4.0	5.0	6.0	7.0	8.0	10.0
	277					3.0	4.0	5.0	6.0	7.0	8.0	10.0
	208					2.3	3.0	3.8	4.5	5.3	6.0	

Table 38. Electric heat (kW), low vertical units

Unit Size	Unit Voltage	kW	kW	kW	kW
03	115	1.0	1.5	2.0	
04	115	1.0	1.5	2.0	2.5
06	115	1.0	1.5	2.0	2.5

Note: Low vertical units are only available with electric heat in combination with the two-row cooling coil.

Minimum Circuit Ampacity (MCA) and Maximum Fuse Size (MFS) Calculations for Fan-Coils with Electric Heat (Single Phase)

Heater Amps = (Heater kW x 1000)/Heater Voltage

Note: *Use 120 V heater voltage for 115 V units. Use 240 V heater voltage for 230 V units.*

MCA = 1.25 x (heater amps + all motor FLAs)

MFS or HACR Type Circuit Breaker = (2.25 x Largest Motor FLA) + Second Motor FLA + Heater Amps (If Applicable)

HACR (Heating, Air-Conditioning and Refrigeration) type circuit breakers are required in the branch circuit wiring for all fan-coils with electric heat.

See Table 39, p. 56 through Table 41, p. 56 for motor FLAs.

Select a standard fuse size or HACR type circuit breaker equal to the MCA.

Use the next larger standard size if the MCA does not equal a standard size.

Standard Fuse Sizes are: 15, 20, 25, 30, 35, 40, 45, 50, 60 amps

Fan-coil electric heat MBh = (Heater kW) (3.413)

Table 39. Free discharge and High static electrically commutated motors (ECMs) programmed to standard ECM mode

	115 Volt				208–230 Volt				277 Volt			
	FLA		HP		FLA		HP		FLA		HP	
Unit Size	1	2	1	2	1	2	1	2	1	2	1	2
2	3.1		0.22		1.8		0.22		1.6		0.24)	
3	3.1		0.22		1.8		0.22		1.6		0.24	
4	3.1		0.22		1.8		0.22		1.6		0.24	
6	3.1		0.22		1.8		0.22		1.6		0.24	
8	3.1		0.22		1.8		0.22		1.6		0.24	
10	3.1	3.1	0.22	0.22	1.8	1.8	0.22	0.22	1.6	1.6	0.24	0.24
12	3.1	3.1	0.22	0.22	1.8	1.8	0.22	0.22	1.6	1.6	0.24	0.24

Table 40. Free discharge electrically commutated motors (ECMs) programmed to reduced FLA mode

	115 Volt				208–230 Volt				277 Volt			
	FLA		HP		FLA		HP		FLA		HP	
Unit Size	1	2	1	2	1	2	1	2	1	2	1	2
2	0.6		0.22		0.4		0.22		0.3		0.24	
3	0.6		0.22		0.4		0.22		0.3		0.24	
4	0.8		0.22		0.6		0.22		0.4		0.24	
6	1.1		0.22		0.8		0.22		0.6		0.24	
8	1.6		0.22		1.1		0.22		0.8		0.24	
10	0.7	1.2	0.22	0.22	0.5	0.8	0.22	0.22	0.4	0.6	0.24	0.24
12	0.7	1.3	0.22	0.22	0.5	0.9	0.22	0.22	0.4	0.7	0.24	0.24

Table 41. High static electrically commutated motors (ECMs) programmed to reduced FLA mode

	115 Volt				208–230 Volt				277 Volt			
	FLA		HP		FLA		HP		FLA		HP	
Unit Size	1	2	1	2	1	2	1	2	1	2	1	2
2	1.3		0.22		0.9		0.22		0.7		0.24	
3	1.3		0.22		0.9		0.22		0.7		0.24	
4	1.7		0.22		1.2		0.22		0.9		0.24	
6	2.3		0.22		1.6		0.22		1.2		0.24	
8	3.1		0.22		1.8		0.22		1.5		0.24	
10	1.4	2	0.22	0.22	1	1.4	0.22	0.22	0.7	1.1	0.24	0.24
12	1.5	2.8	0.22	0.22	1.1	1.8	0.22	0.22	0.8	1.4	0.24	0.24

Table 42. Low vertical free discharge electrically commutated motors (ECMs)

	115 Volt		RPM		
Unit Size	FLA	HP	H	M	L
3	3.1	0.22	1090	770	560
4	3.1	0.22	1090	750	560
6	3.1	0.22	1115	760	560

Note: Actual rpm will vary with application and configuration.

Table 43. Lowboy vertical free discharge electrically commutated motors (ECMs) programmed with reduced FLA mode

Unit Size	115 Volt		RPM		
	FLA	HP	H	M	L
3	0.5	0.22	1090	770	560
4	0.8	0.22	1090	750	560
6	1	0.22	1115	760	560

Note: Actual rpm will vary with application and configuration.

Table 44. Unit RPM

Unit Size	Free Discharge—Units with 2-Row Coils			Free Discharge—Units with 3- and 4-Row Coils		
	H	M	L	H	M	L
2	980	840	655	980	840	655
3	980	780	580	1080	800	600
4	1050	780	580	1080	800	600
6	1030	780	580	1080	800	600
8	1080	800	600	1080	800	600
10	1050	780	580	1080	800	600
	1030	780	580	1080	800	600
12	1050	780	580	1080	800	600
	1080	800	600	1080	800	600

Unit Size	High Static—Units with 2-Row Coils			High Static—Units with 3- and 4-Row Coils		
	H	M	L	H	M	L
2	1480	1110	865	1480	1110	865
3	1400	1175	860	1500	1355	1110
4	1475	1315	1070	1580	1375	1240
6	1400	1070	855	1475	1285	975
8	1475	1285	975	1475	1285	975
10	1475	1315	1070	1580	1375	1240
	1400	1070	855	1475	1285	975
12	1475	1315	1070	1580	1375	1240
	1475	1285	975	1475	1285	975

Note: Actual rpm will vary with application and configuration.

Minimum Circuit Ampacity (MCA) and Maximum Fuse Size (MFS) Calculations for Fan-Coils: (Motors only, No Electric Heat)

MCA = (1.25) x [Largest Motor Amperes (FLA)] + Second Motor Amperes (FLA) (Size 10 and 12 only)

MFS or HACR[1] Type Circuit Breaker = 15 Amps for all Fan-Coils without Electric Heat (see previous Electrical Data for units with Electric Heat.)

[1] HACR (Heating, Air-Conditioning and Refrigeration) type circuit breakers are required in the branch circuit wiring for all size 10 and 12 fan-coils.

Dimensions and Weights

Unit Weights

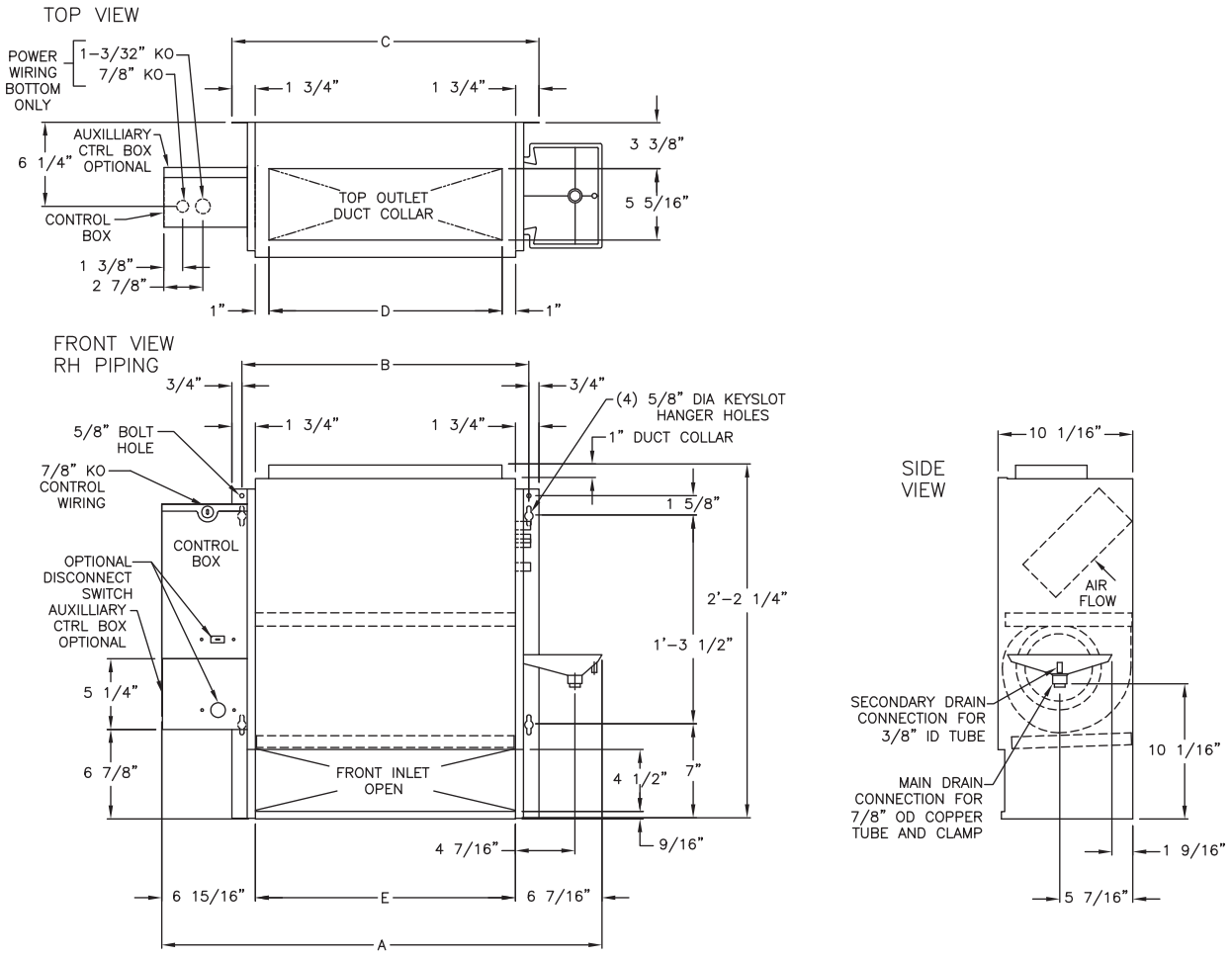
Table 45. Operating weights, lb

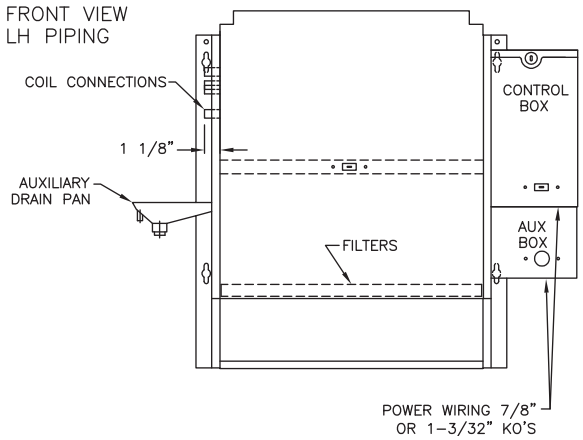
Unit Size	Cabinet Models	Concealed Models	Recessed Models	Low Vertical Cabinet Models	Low Vertical Concealed Models
02	97	81	78	NA	NA
03	97	81	78	125	109
04	125	109	88	155	139
06	155	139	128	164	147
08	164	147	139	NA	NA
10	218	200	253	NA	NA
12	218	200	253	NA	NA

Table 46. Shipping weights, lb

Unit Size	Cabinet Models	Concealed Models	Recessed Models	Low Vertical Cabinet Models	Low Vertical Concealed Models
02	84	68	68	NA	NA
03	84	68	68	112	96
04	112	96	78	139	123
06	139	123	118	148	131
08	148	131	129	NA	NA
10	200	182	243	NA	NA
12	200	182	243	NA	NA

Vertical Concealed, Model A



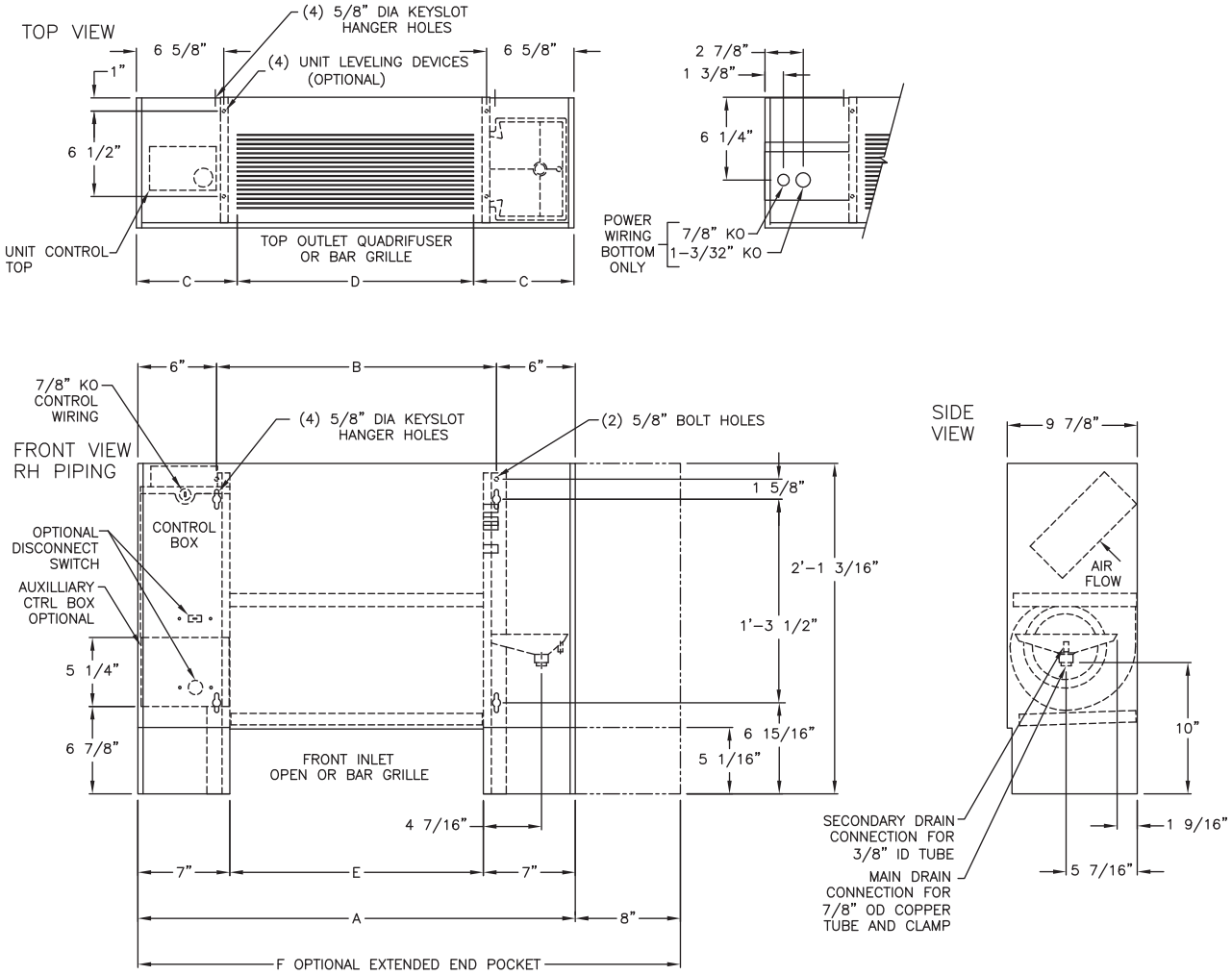


Vertical Concealed Unit Dimensions

Unit Size	200-300	400	600	800	1000-1200
No. of Fans	1	1	2	2	3
No. of Motors	1	1	1	1	2
A	2'-8 11/16"	3'-1 11/16"	3'-11 3/16"	4'-7 11/16"	6'-2 11/16"
B	1'-9 5/16"	2'-2 5/16"	2'-11 13/16"	3'-8 5/16"	5'-3 5/16"
C	1'-10 13/16"	2'-3 13/16"	3'-1 5/16"	3'-9 13/16"	5'-4 13/16"
D	1'-5 5/16"	1'-10 5/16"	2'-7 13/16"	3'-4 5/16"	4'-11 5/16"
E	1'-7 5/16"	2'-0 5/16"	2'-9 13/16"	3'-6 5/16"	5'-1 5/16"

Notes:
1. Coil connections are always on the drain pan side and opposite the control box.
2. Coil connections are 5/8" O.D. sweat. See p. 69 for locations.
3. All duct collar dimensions are to the outside of the collar.
4. See p. 71 for dimensions for outside air openings.

Vertical Cabinet, Model B

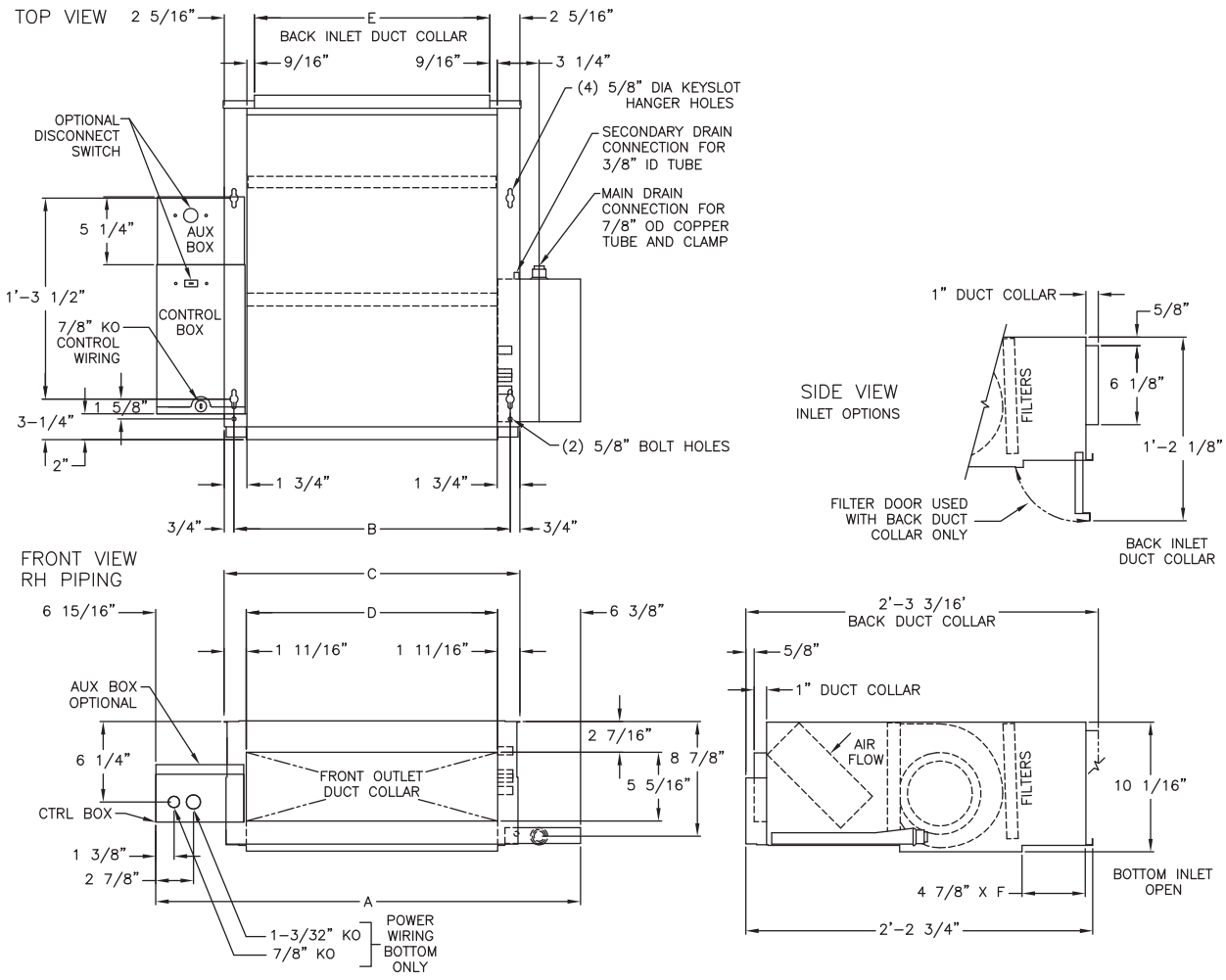


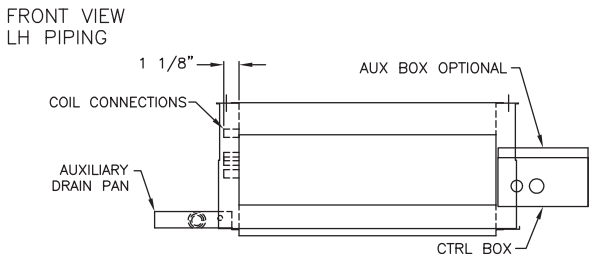
Vertical Cabinet Unit Dimensions

Unit Size	200-300	400	600	800	1000-1200
No. of Fans	1	1	2	2	3
No. of Motors	1	1	1	1	2
A	2'-9 5/16"	3'-2 5/16"	3'-11 13/16"	4'-8 5/16"	6'-3 5/16"
B	1'-9 5/16"	2'-2 5/16"	2'-11 13/16"	3'-8 5/16"	5'-3 5/16"
C	7 5/8"	7 1/8"	8 7/8"	7 1/8"	7 5/8"
D	1'-16"	2'-0"	2'-6"	3'-6"	5'-0"
E	1'-7 5/16"	2'-0 5/16"	2'-9 13/16"	3'-6 5/16"	5'-1 5/16"
F	3'-5 5/16"	3'-10 5/16"	4'-7 13/16"	5'-4 5/16"	6'-11 5/16"

Notes:
1. Coil connections are always on the drain pan side and opposite the control box and unit control.
2. Coil connections are 5/8" O.D. sweat. See p. 69 for locations.
3. See p. 71 for dimensions for outside air openings.

Horizontal Concealed, Model C



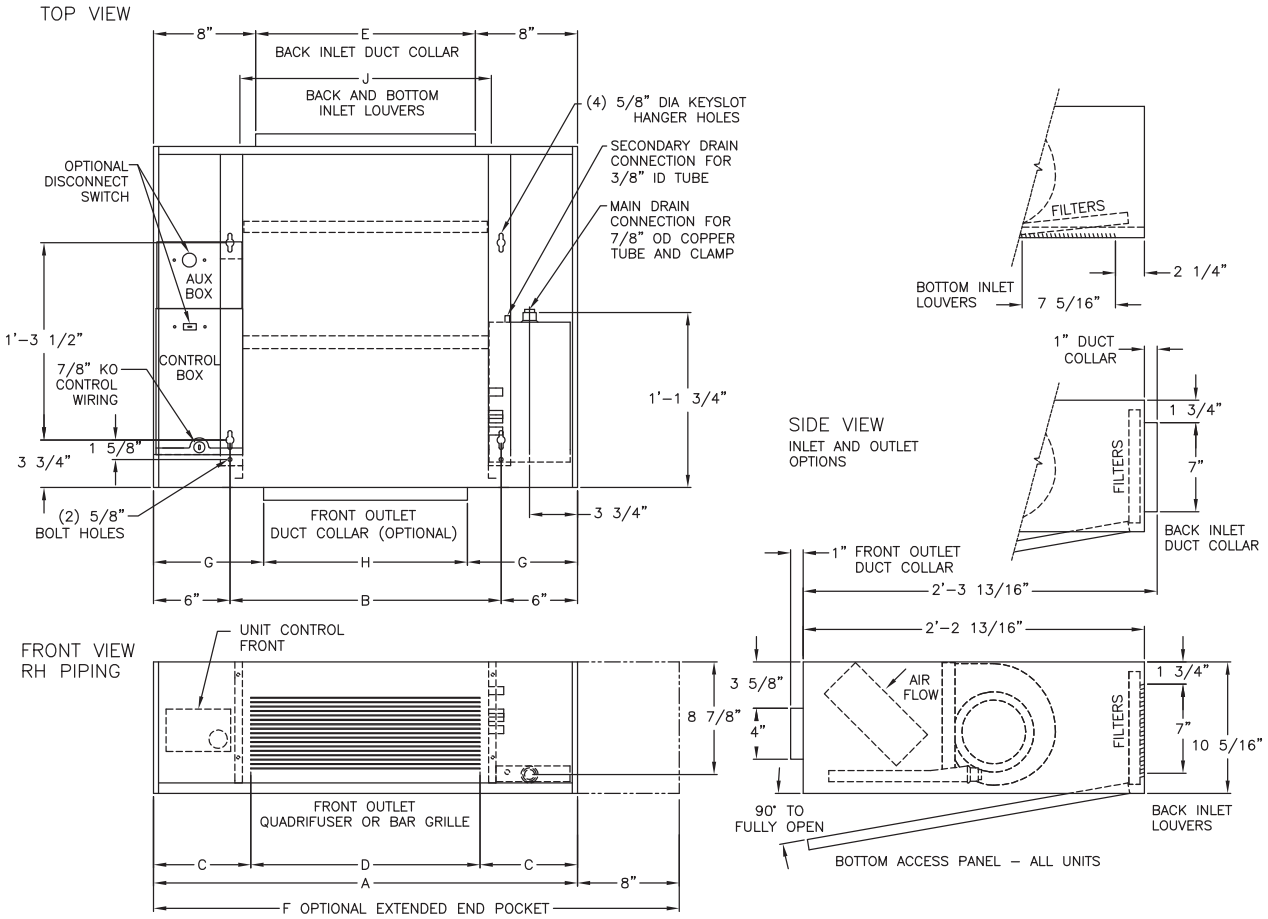


Horizontal Concealed Unit Dimensions

Unit Size	200-300	400	600	800	1000-1200
No. of Fans	1	1	2	2	3
No. of Motors	1	1	1	1	2
A	2'-8 11/16"	3'-1 11/16"	3'-11 3/16"	4'-7 11/16"	6'-2 11/16"
B	1'-9 5/16"	2'-2 5/16"	2'-11 13/16"	3'-8 5/16"	5'-3 5/16"
C	1'-10 13/16"	2'-3 13/16"	3'-1 5/16"	3'-9 13/16"	5'-4 13/16"
D	1'-7 3/8"	2'-0 3/8"	2'-9 7/8"	3'-6 3/8"	5'-1 3/8"
E	1'-6 1/8"	1'-11 1/8"	2'-8 5/8"	3'-5 1/8"	5'-0 1/8"
F	1'-7 5/16"	2'-0 5/16"	2'-9 13/16"	3'-6 5/16"	5'-1 5/16"

Notes:
1. Coil connections are always on the drain pan side and opposite the control box.
2. Coil connections are 5/8" O.D. sweat. See p. 69 for locations.
3. All duct collar dimensions are to the outside of the collar.
4. See p. 70 for dimensions for outside air openings.

Horizontal Cabinet, Model D

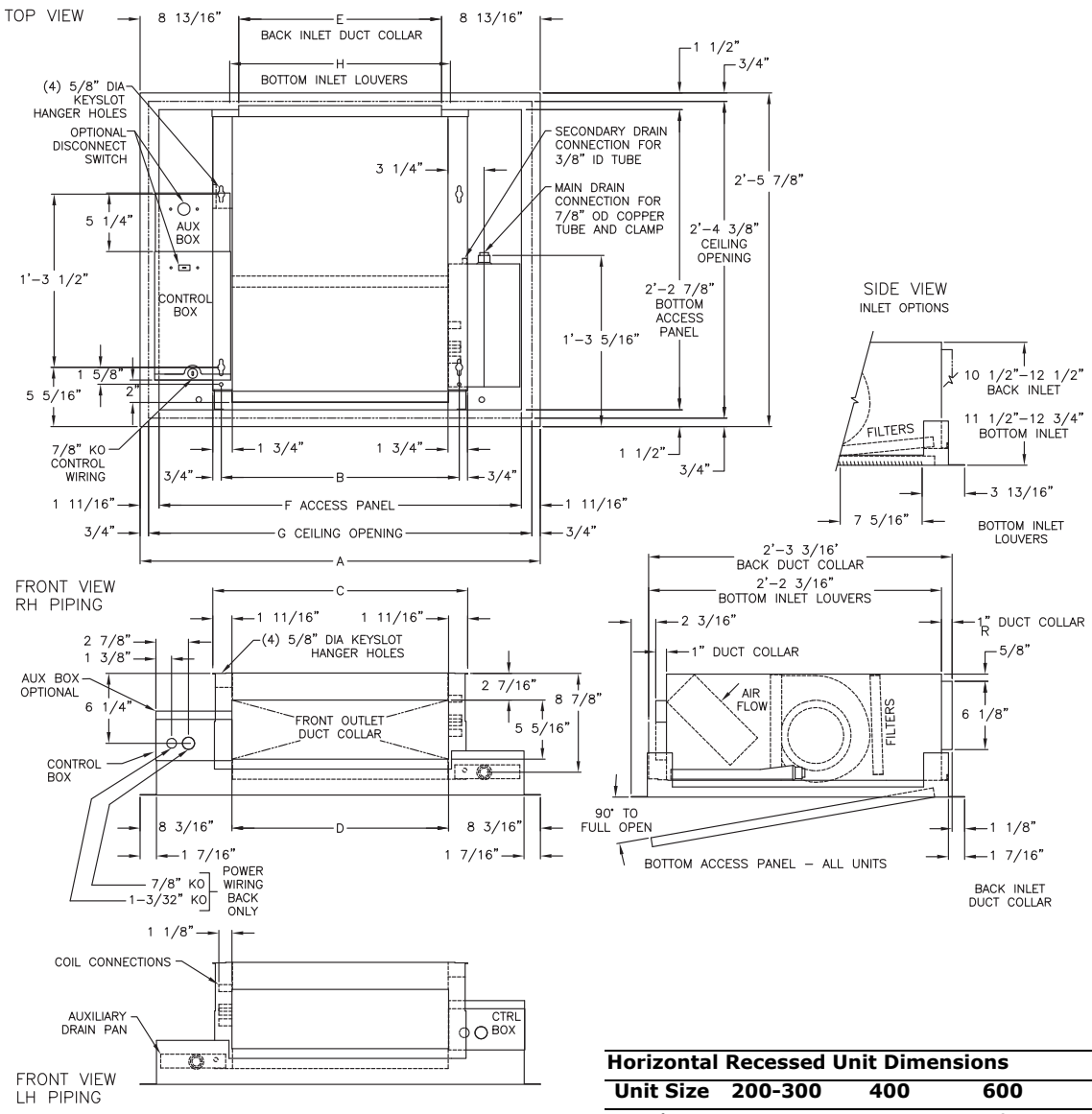


Horizontal Cabinet Unit Dimensions

Unit Size	200-300	400	600	800	1000-1200
No. of Fans	1	1	2	2	3
No. of Motors	1	1	1	1	2
A	2'-9 5/16"	3'-2 5/16"	3'-11 3/16"	4'-8 5/16"	6'-3 5/16"
B	1'-9 5/16"	2'-2 5/16"	2'-11 13/16"	3'-8 5/16"	5'-3 5/16"
C	7 5/8"	7 1/8"	8 7/8"	7 1/8"	7 5/8"
D	1'-6"	2'-0"	2'-6"	3'-6"	5'-0"
E	1'-5 1/4"	1'-10 1/4"	2'-7 3/4"	3'-4 1/4"	3'-4 1/4"
F	3'-5 1/4"	3'-10 5/16"	4'-7 3/16"	5'-4 5/16"	6'-11 5/16"
G	8-5/8"	8-1/8"	9-7/8"	8-1/8"	8-5/8"
H	1'-4"	1'-10"	2'-4"	3'-4"	4'-10"
J	1'-7 3/4"	1'-11 3/4"	2'-7 3/4"	3'-3 3/4"	4'-11 3/4"

Notes:
1. Coil connections are always on the drain pan side and opposite the control box.
2. Coil connections are 5/8" O.D. sweat. See p. 69 for locations.
3. All duct collar dimensions are to the outside of the collar.
4. See p. 70 for dimensions for outside air openings.

Horizontal Recessed, Model E



NOTE:

1. COIL CONNECTIONS ARE ALWAYS ON THE DRAIN PAN SIDE AND OPPOSITE THE CONTROL BOX.
2. COIL CONNECTIONS ARE 5/8" O.D. SWEAT. SEE PAGES XXXXX FOR LOCATIONS.
3. ALL DUCT COLLAR DIMENSIONS ARE TO THE OUTSIDE OF THE COLLAR.
4. SEE PAGES XXXXXX FOR DIMENSIONS FOR OUTSIDE AIR OPENINGS.

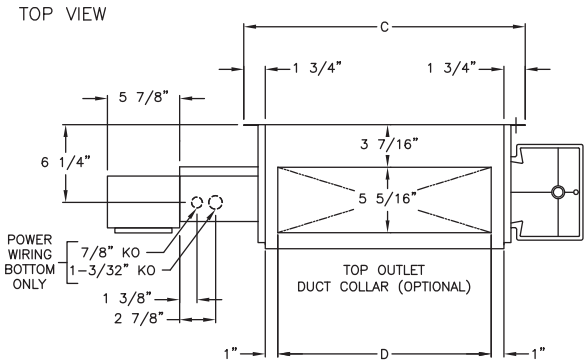
Horizontal Recessed Unit Dimensions

Unit Size	200-300	400	600	800	1000-1200
No. of Fans	1	1	2	2	3
No. of Motors	1	1	1	1	2
A	2'-11 13/16"	3'-4 13/16"	4'-2 5/16"	4'-10 13/16"	6'-5 13/16"
B	1'-9 5/16"	2'-2 5/16"	2'-11 13/16"	3'-8 5/16"	5'-3 5/16"
C	1'-10 13/16"	2'-3 13/16"	3'-1 5/16"	3'-9 13/16"	5'-4 13/16"
D	1'-7 3/8"	2'-0 3/8"	2'-9 7/8"	3'-6 3/8"	5'-1 3/8"
E	1'-6 1/8"	1'-11 1/8"	2'-8 5/8"	3'-5 1/8"	5'-0 1/8"
F	2'-8 7/16"	3'-1 7/16"	3'-10 15/16"	4'-7 7/16"	6'-2 7/16"
G	2'-10 5/16"	3'-3 5/16"	4'-0 13/16"	4'-9 5/16"	6'-4 5/16"
H	1'-7 3/4"	1'-11 3/4"	2'-7 3/4"	3'-3 3/4"	4'-11 3/4"

Notes:

1. Coil connections are always on the drain pan side.
2. Coil connections are 5/8" O.D. sweat. See p. 69 for locations.
3. All duct collar dimensions are to the outside of the collar.
4. See p. 70 for dimensions for outside air openings.

Vertical Recessed, Model H

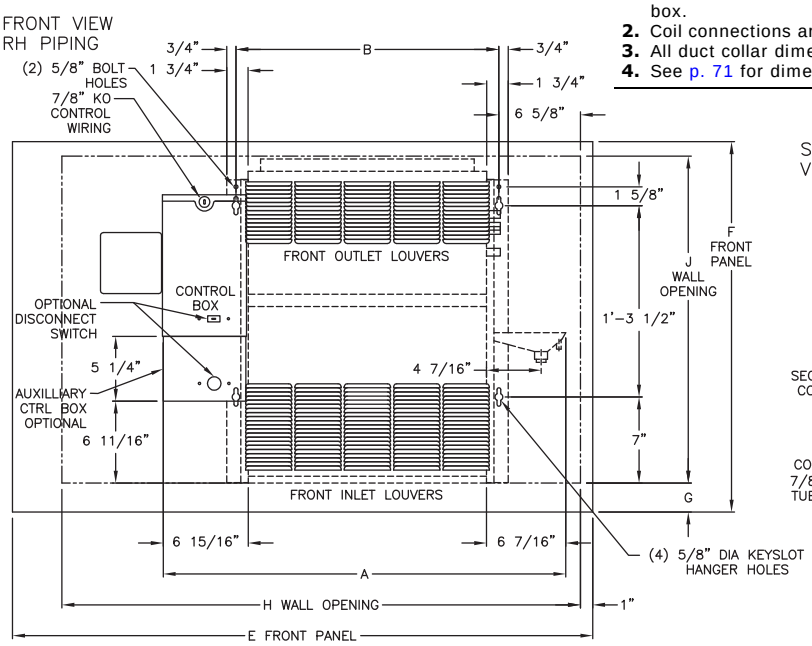


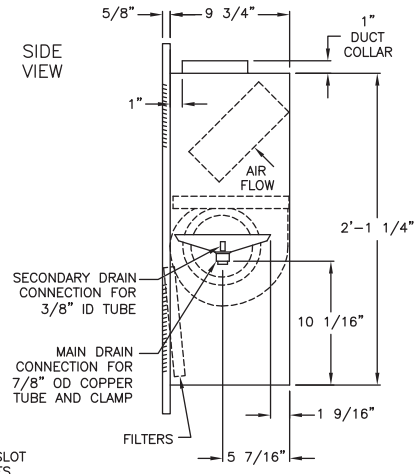
Vertical Recessed Unit Dimensions

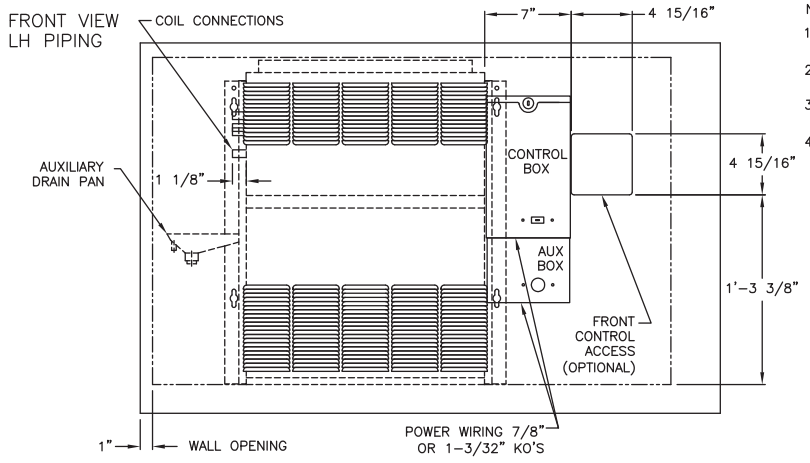
Unit Size	200-300	400	600	800	1000-1200
No. of Fans	1	1	2	2	3
No. of Motors	1	1	1	1	2
A	2'-8 11/16"	3'-1 11/16"	3'-11 3/16"	4'-7 11/16"	6'-2 11/16"
B	1'-9 5/16"	2'-2 5/16"	2'-11 13/16"	3'-8 5/16"	5'-3 5/16"
C	1'-10 13/16"	2'-3 13/16"	3'-1 5/16"	3'-9 13/16"	5'-4 13/16"
D	1'-5 5/16"	1'-10 5/16"	2'-7 13/16"	3'-4 5/16"	4'-11 5/16"
E	3'-11"	4'-3"	5'-3"	5'-5 1/2"	7'-5 1/2"
F	2'-6"	2'-6"	2'-6"	2'-9 1/2"	2'-9 1/2"
G	2 3/8"	2 3/8"	2 3/8"	4 1/8"	4 1/8"
H	3'-6"	4'-0"	4'-9"	5'-3"	7'-3"
J	2'-2 1/2"	2'-2 1/2"	2'-2 1/2"	2'-3 1/2"	2'-3 1/2"

Notes:

1. Coil connections are always on the drain pan side and opposite the control box.
2. Coil connections are 5/8" O.D. sweat. See p. 69 for locations.
3. All duct collar dimensions are to the outside of the collar.
4. See p. 71 for dimensions for outside air openings.



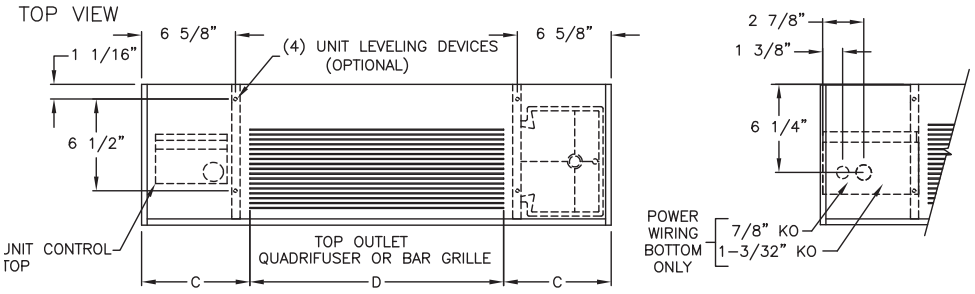


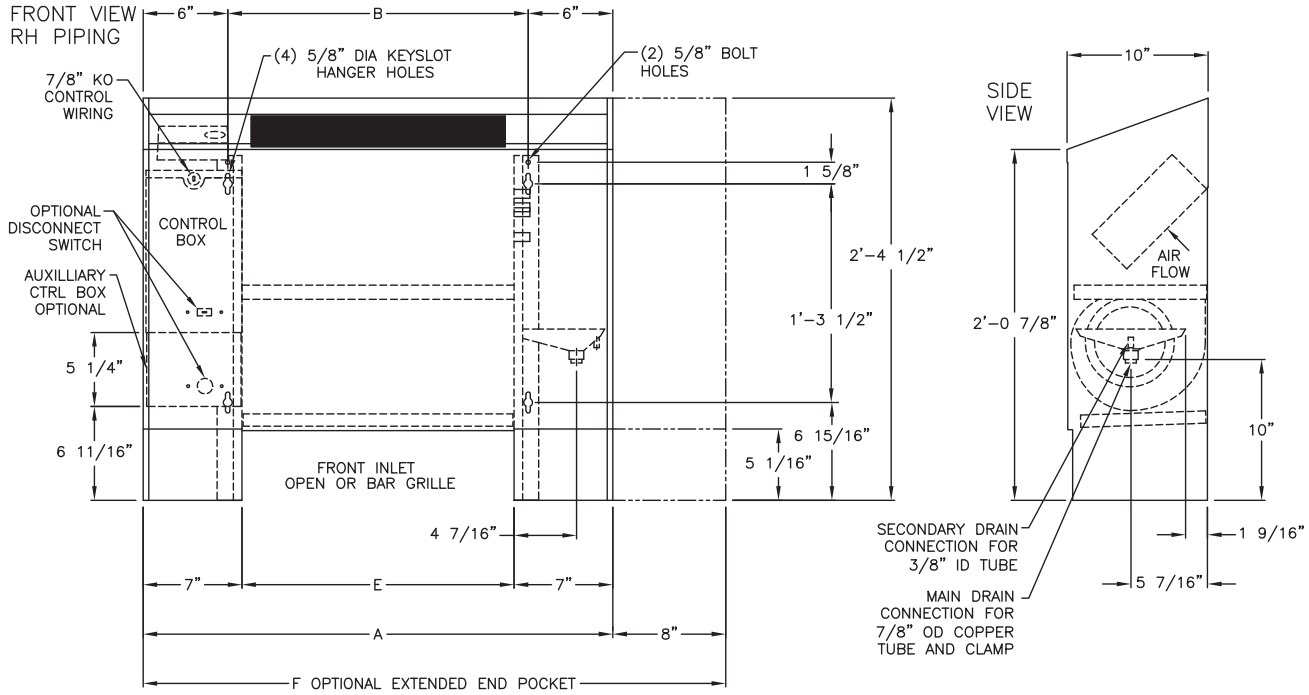


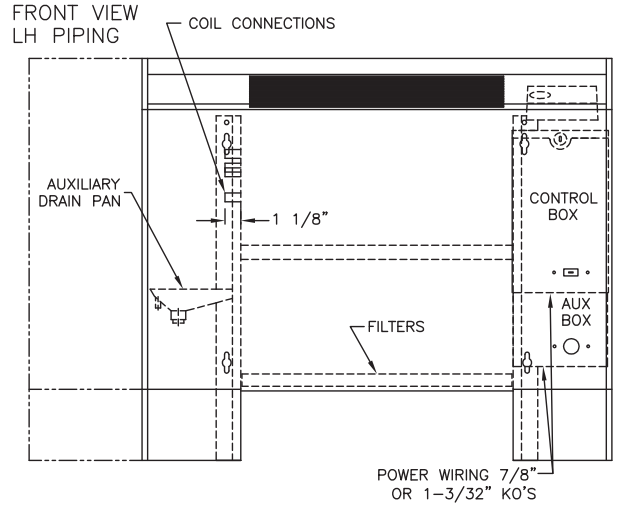
NOTE:

1. COIL CONNECTIONS ARE ALWAYS ON THE DRAIN PAN SIDE AND OPPOSITE THE CONTROL BOX.
2. COIL CONNECTIONS ARE 5/8" O.D. SWEAT. SEE PAGES XXXXX FOR LOCATIONS.
3. ALL DUCT COLLAR DIMENSIONS ARE TO THE OUTSIDE OF THE COLLAR.
4. SEE PAGES XXXXXX FOR DIMENSIONS FOR OUTSIDE AIR OPENINGS.

Vertical Slope Top, Model J





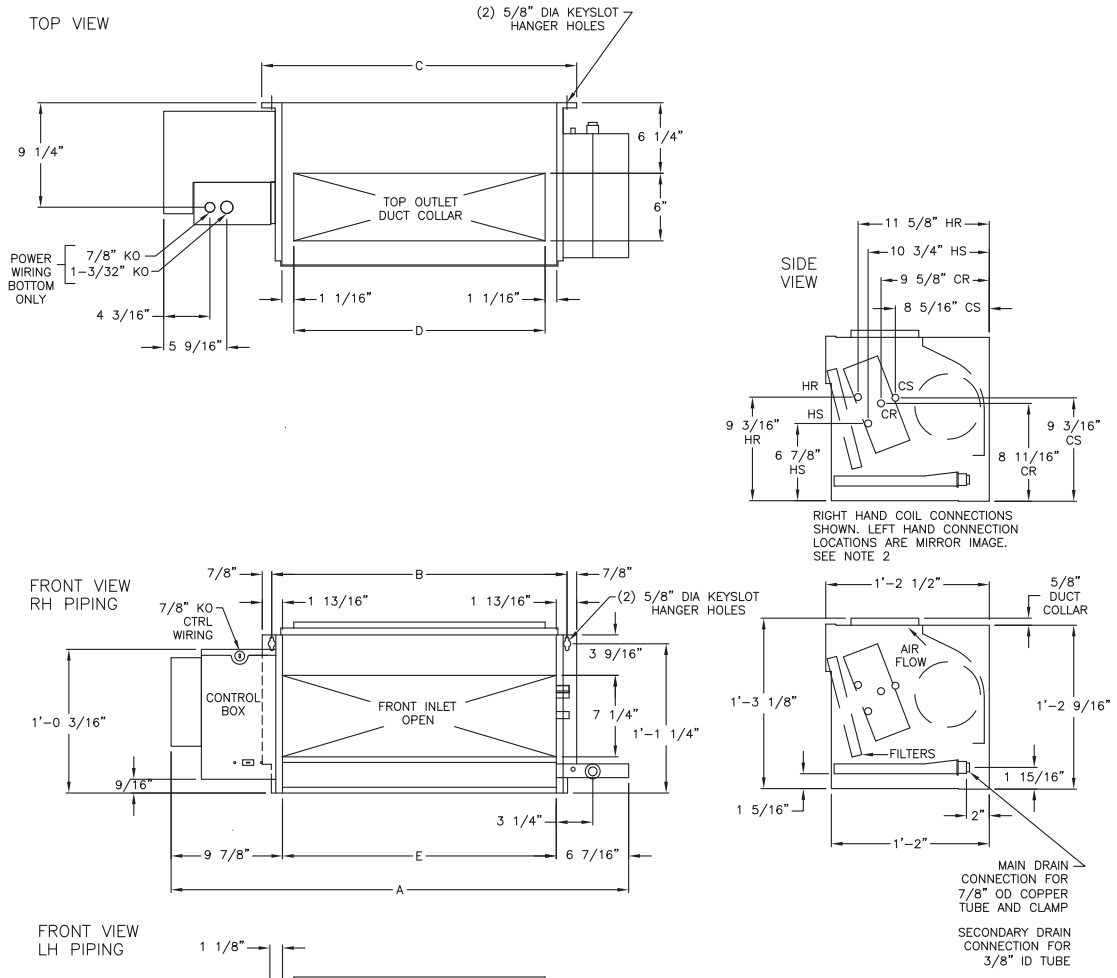


Vertical Slope Top Unit Dimensions

Unit Size	200-300	400	600	800	1000-1200
No. of Fans	1	1	2	2	3
No. of Motors	1	1	1	1	2
A	2'-9 5/16"	3'-2 5/16"	3'-11 13/16"	4'-8 5/16"	6'-3 5/16"
B	1'-9 5/16"	2'-2 5/16"	2'-11 13/16"	3'-8 5/16"	5'-3 5/16"
C	7 5/8"	7 1/8"	8 7/8"	7 1/8"	7 5/8"
D	1'-6"	2'-0"	2'-6"	3'-6"	5'-0"
E	1'-7 5/16"	2'-0 5/16"	2'-9 13/16"	3'-6 5/16"	5'-1 5/16"
F	3'-5 5/16"	3'-10 5/16"	4'-7 13/16"	5'-4 5/16"	6'-11 5/16"

Notes:
1. Coil connections are always on the drain pan side and opposite the control box and unit control.
2. Coil connections are 5/8" O.D. sweat. See p. 69 for locations.
3. See p. 71 for dimensions for outside air openings.

Low Vertical Concealed, Model K



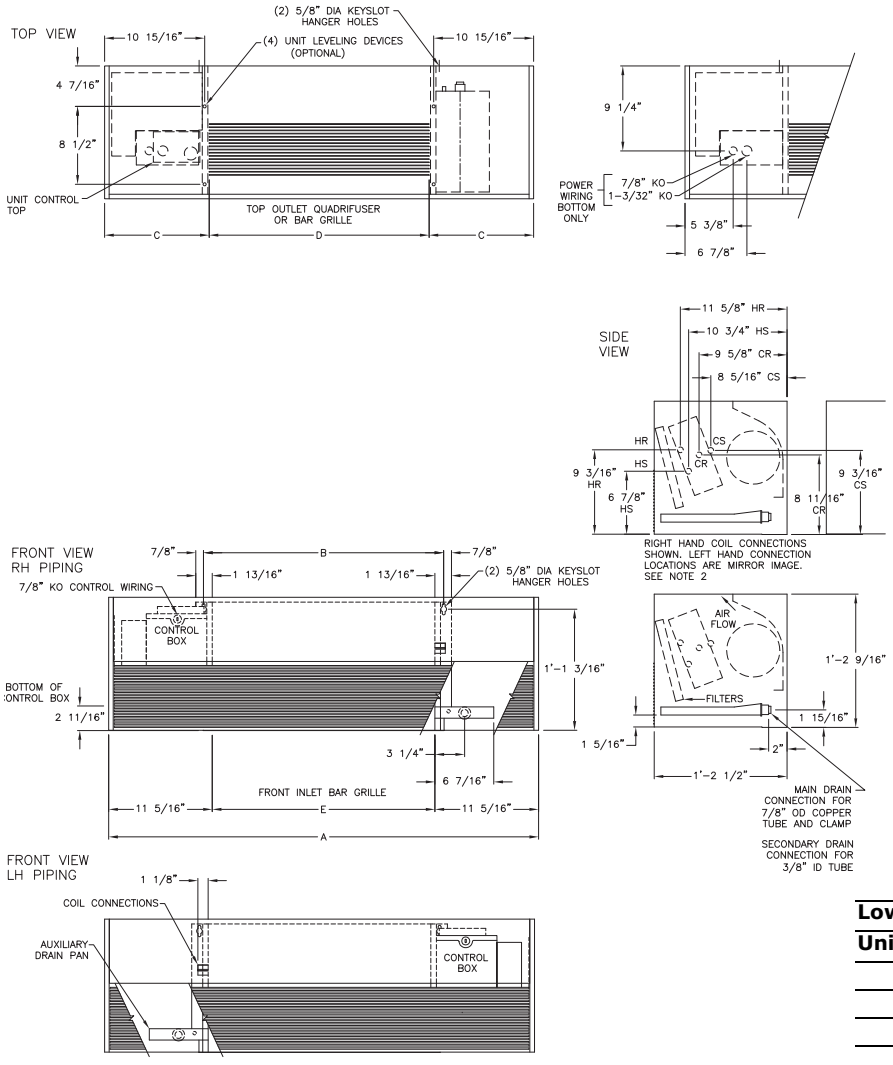
Low Vertical Concealed Unit Dimensions

Unit Size	300	400	600
A	3'-4 5/8"	4'-2 1/8"	4'-10 7/8"
B	2'-2 1/4"	2'-11 3/4"	3'-8 1/4"
C	2'-3 15/16"	3'-0 13/16"	3'-9 15/16"
D	1'-10 5/16"	2'-7 13/16"	3'-4 5/16"
E	2'-0 1/4"	2'-9 3/4"	3'-6 1/4"

Notes:

1. Coil connections are always on the drain pan side and opposite the control box.
2. Coil connections are 5/8" O.D. sweat.
   CS Cooling Coil Supply
   CR Cooling Coil Return
   HS Heating Coil Supply
   HR Heating Coil Return
3. All duct collar dimensions are to the outside of the collar.
4. See p. 72 for dimensions for outside air openings.

Low Vertical Cabinet, Model L

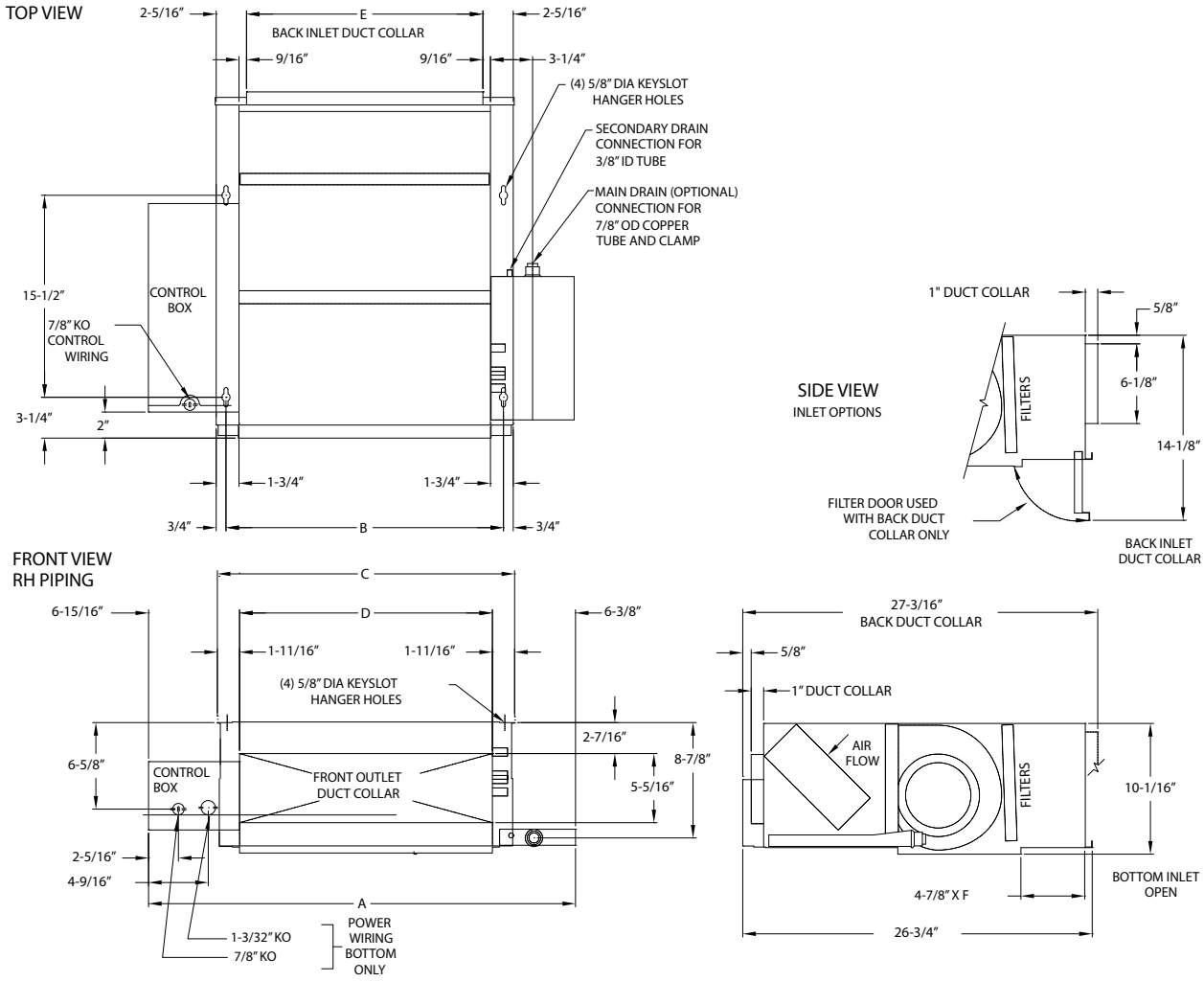


Low Vertical Cabinet Unit Dimensions			
Unit Size	**300**	**400**	**600**
A	3'-10 15/16"	4'-8 7/16"	5'-4 15/16"
B	2'-2 1/4"	2'-11 3/4"	3'-8 1/4"
C	11 7/16"	1'-1 5/16"	11 7/16"
D	2'-0"	2'-6"	3'-6"
E	2'-0 1/4"	2'-9 3/4"	3'-6 1/4"

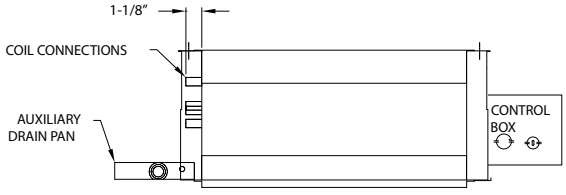
Notes:

1. Coil connections are always on the drain pan side and opposite the control box.
2. Coil connections are 5/8" O.D. sweat.
   CS Cooling Coil Supply
   CR Cooling Coil Return
   HS Heating Coil Supply
   HR Heating Coil Return
3. See p. 72 for dimensions for outside air openings.

Compact Concealed, Model P



FRONT VIEW
LH PIPING

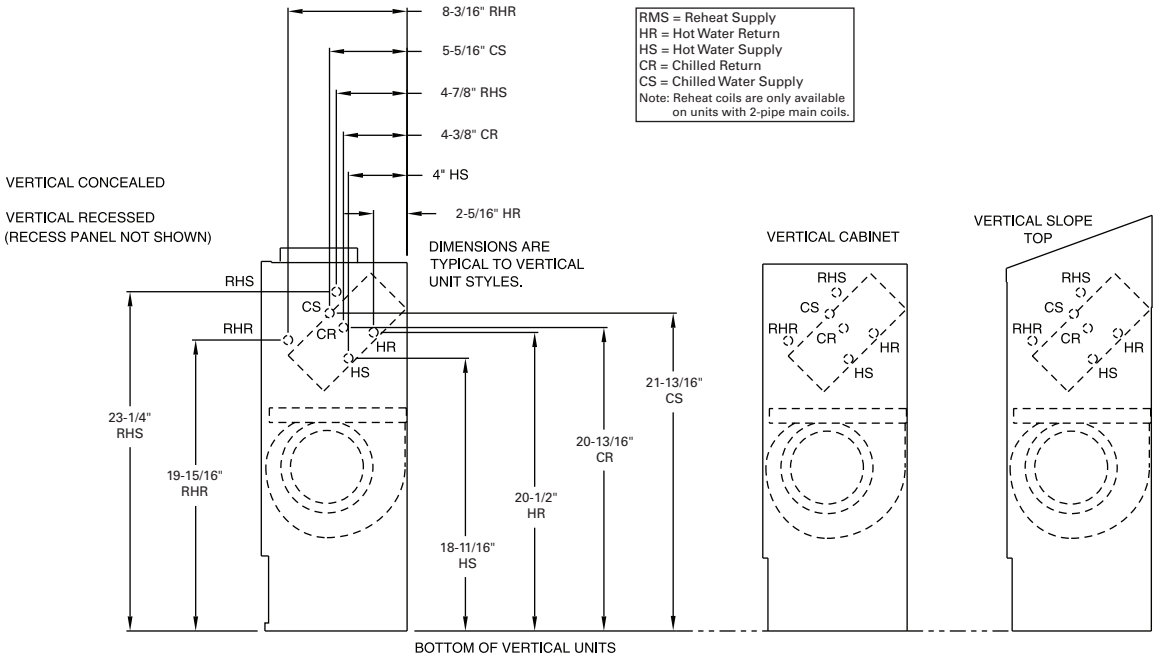


Compact Concealed Unit Dimensions

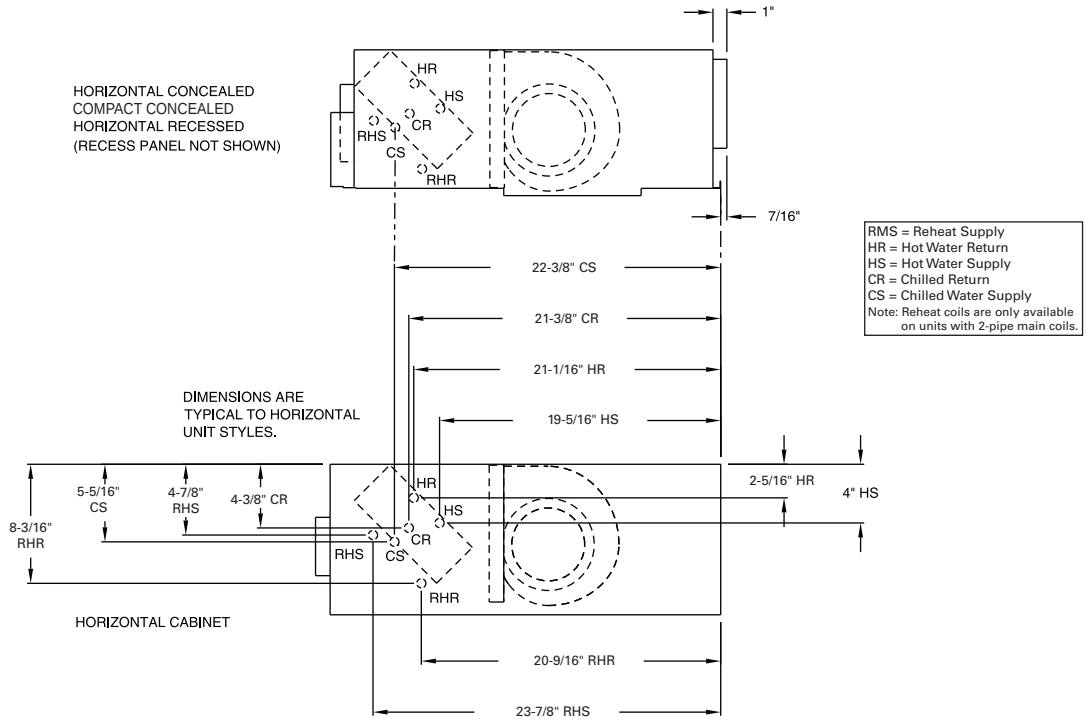
Unit Size	200-300	400	600	800	1000-1200
A	32-11/16"	37-11/16"	47-3/16"	55-11/16"	74-11/16"
B	21-5/16"	26-5/16"	35-13/16"	44-5/16"	63-5/16"
C	22-13/16"	27-13/16"	37-5/16"	45-13/16"	64-13/16"
D	19-3/8"	24-3/8"	33-7/8"	42-3/8"	61-3/8"
E	18-1/8"	23-1/8"	32-5/8"	41-1/8"	60-1/8"
F	19-5/16"	24-5/16"	33-13/16"	42-5/16"	61-5/16"

Notes:
1. Coil connections are always on the drain pan side and opposite the control box and unit control.
2. Coil connections are 5/8" O.D. sweat. See p. 69 for locations.
3. All duct collar dimensions are to the outside of the collar.
4. See p. 71 for dimensions for outside air openings.

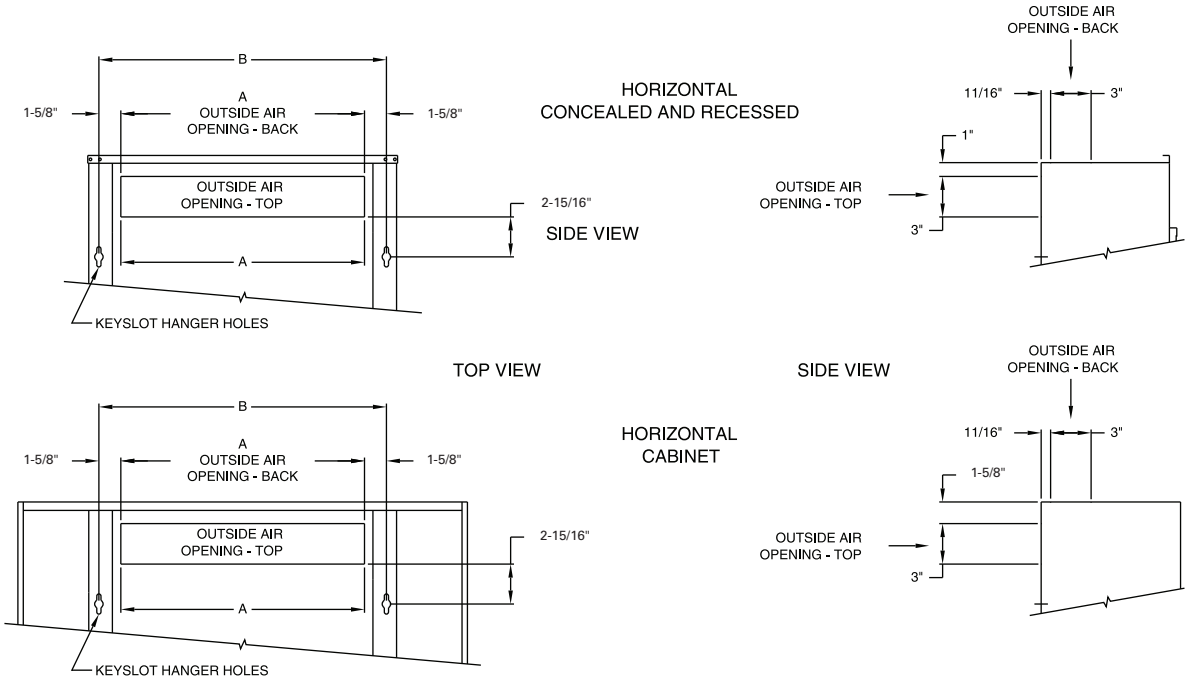
Coil Connections, Vertical Units



Coil Connections, Horizontal Units

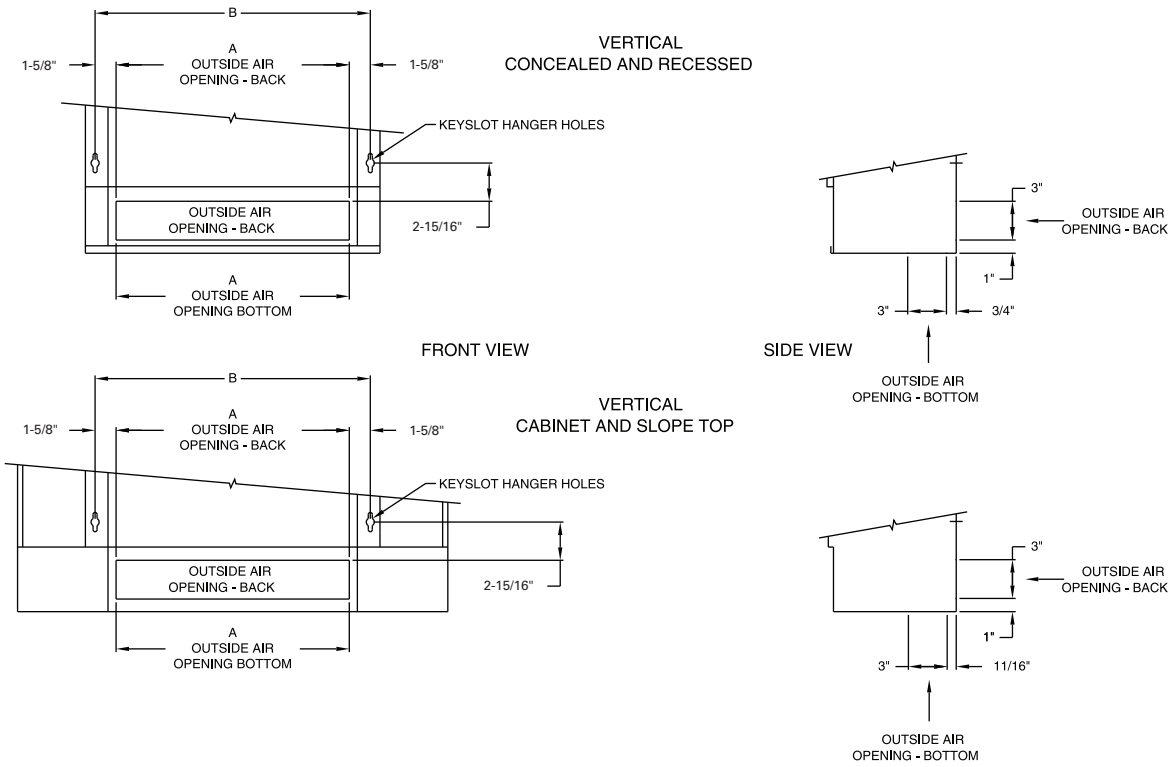


Fresh Air Opening Locations, Horizontal Units Models C, D, and E



Fresh Air Opening Dimensions, Horizontal Units					
Unit Size	**02–03**	**04**	**06**	**08**	**10–12**
A	18”	23”	32-1/2”	41”	60”
B	21-5/16”	26-5/16”	35-13/16”	44-5/16”	63-5/16”

Fresh Air Opening Locations, Vertical Units Models A, B, and J

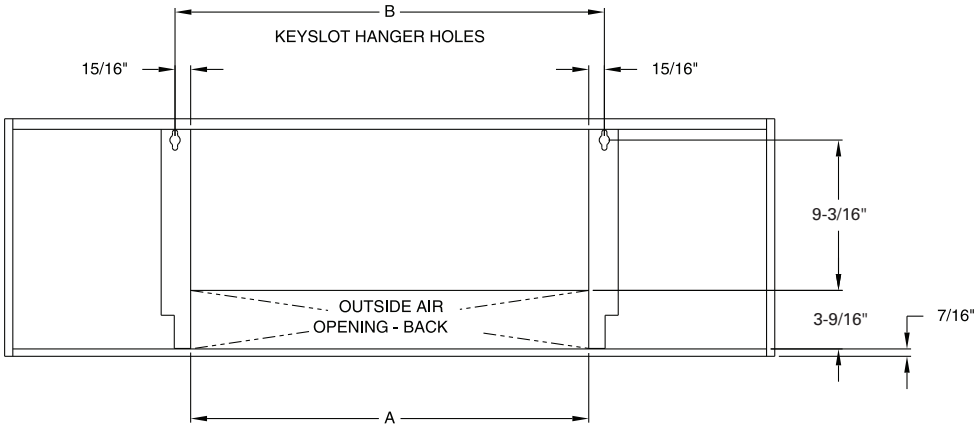


Fresh Air Opening Dimensions, Vertical Units					
Unit Size	**02–03**	**04**	**06**	**08**	**10–12**
A	18”	23”	32-1/2”	41”	60”
B	21-5/16”	26-5/16”	35-13/16”	44-5/16”	63-5/16”

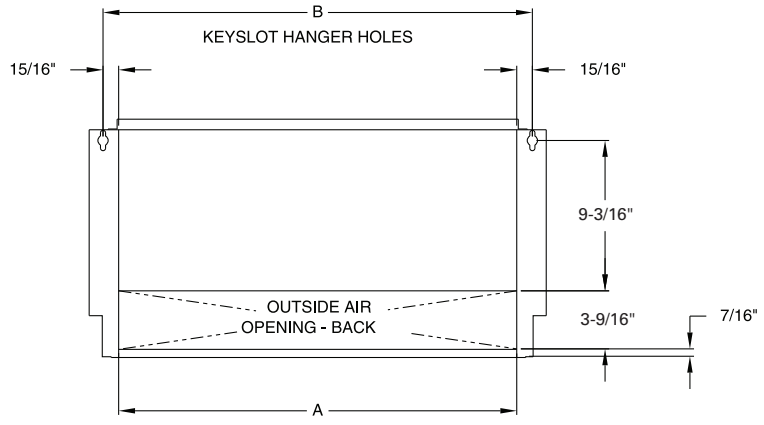
Fresh Air Opening Locations, Low Vertical Units Models K and L

Fresh Air Opening Dimensions, Low Vertical Units			
Unit Size	**03**	**04**	**06**
A	24-1/4”	33-3/4”	42-1/4”
B	26-1/4”	35-3/4”	44-1/4”

LOW VERTICAL CABINET
REAR VIEW

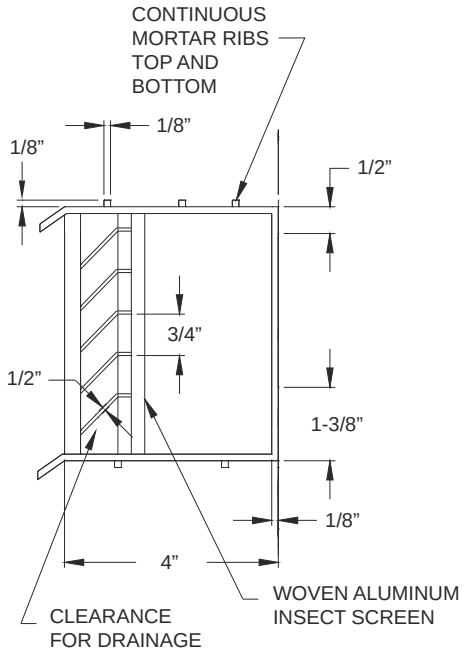


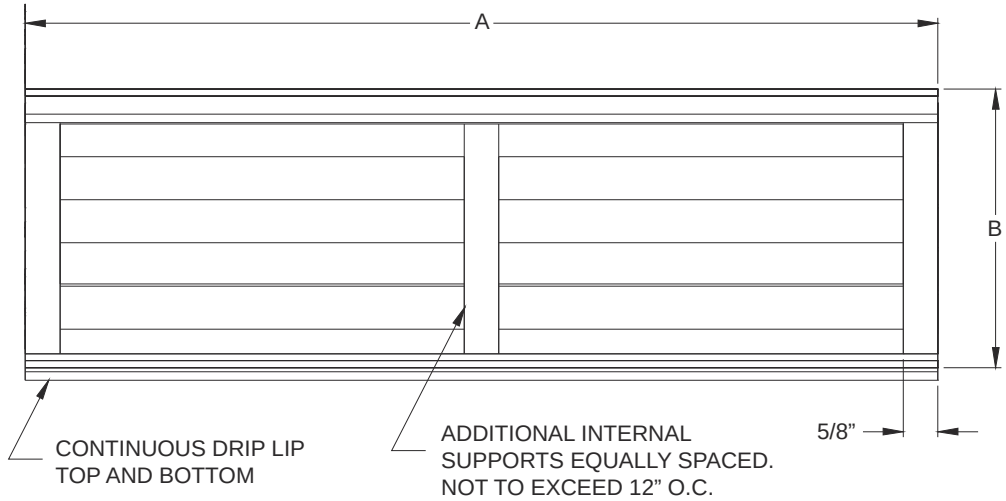
LOW VERTICAL CONCEALED
REAR VIEW



Wall Box

Wall Box Dimensions		
Unit Size	**Dimensions A x B**	**Internal Support**
02–03	24-3/8 x 4-3/4	1
04	24-3/8 x 7-1/2	1
06	33-1/8 x 7-1/2	2
08	37-1/2 x 7-1/2	3
10–12	58-1/4 x 7-1/2	4



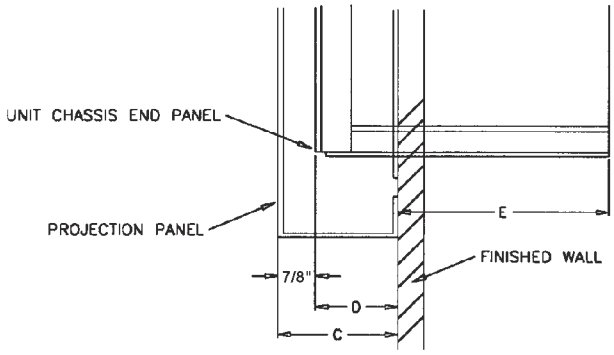


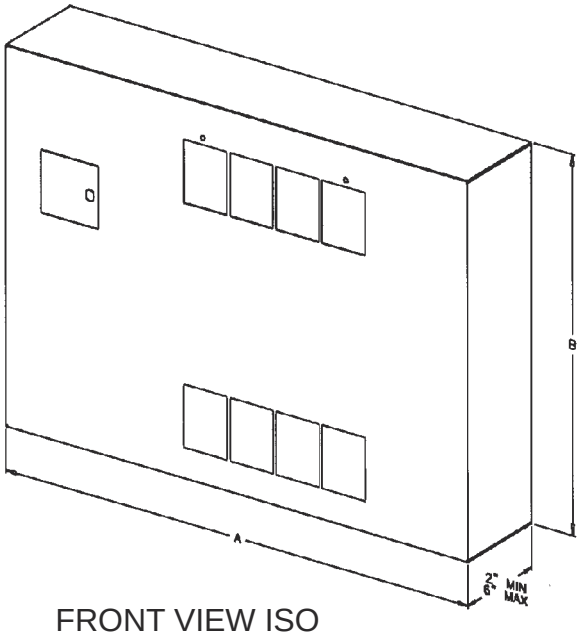
Projection Panel

Projection Panel Dimensions					
Unit Size	**02–03**	**04**	**06**	**08**	**10–12**
A	47”	51”	63”	65-1/2”	89-1/2”
B	30”	30”	30”	33-1/2”	33-1/2”

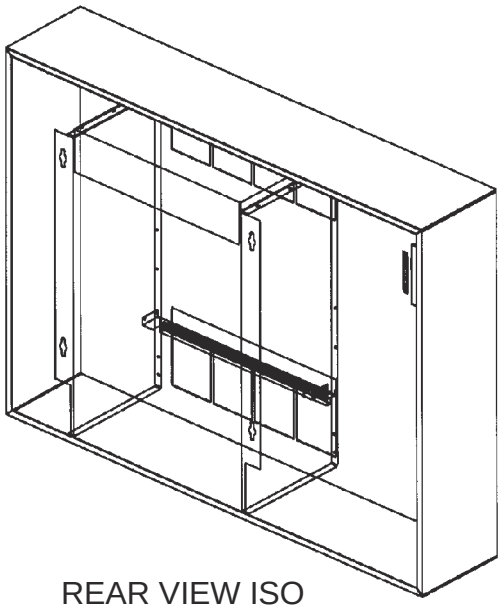
Projection Panel, All Unit Sizes									
C	2”	2-1/2”	3”	3-1/2”	4”	4-1/2”	5”	5-1/2”	6”
D	1-1/8”	1-5/8”	2-1/8”	2-5/8”	3-1/8”	3-5/8”	4-1/8”	4-5/8”	5-1/8”
E	8-5/8”	8-1/8”	7-5/8”	7-1/8”	6-5/8”	6-1/8”	5-5/8”	5-1/8”	4-5/8”

UNIT TO WALL - TOP VIEW





FRONT VIEW ISO



REAR VIEW ISO

Mechanical Specifications

UniTrane Fan-Coil Mechanical Specifications

Performance Data

Capacity: Unit capacities are certified under Industry Room Fan-Coil Air Conditioner Certification Program in accordance with AHRI Standard 440-97.

Safety: All standard units are UL listed in the United States and Canada and comply with NFPA 90A requirements.

Construction

All Units

The unit includes a chassis, coil(s), fan wheel(s), fan casing(s), fan board and motor(s). Units also include a noncorrosive, ABS main drain pan, positively sloped in every plane and insulated with closed-cell insulation. Horizontal units and all units with standard piping packages also include a thermoplastic auxiliary drain pan. Steel parts exposed to moisture are galvanized. The fan board assembly and both drain pans are easily removable. The fan board assembly includes a quick-disconnect motor plug. The chassis construction is 18-gage galvanized steel, and continuous throughout the unit. The unit is acoustically and thermally insulated with closed-cell insulation. All panels are made rigid by channel forming.

Vertical Cabinet and Slope Top Units

Front panel fabrication is 16-gage galvanized steel. All other panels are 18-gage galvanized steel. The discharge grille is recessed to resist condensate formation. Hinged access door construction is 20-gage steel and is flush with top panel.

Horizontal Cabinet Units

All panels are 18-gage galvanized steel, including the bottom panel. Discharge grille is recessed to resist condensate formation. The hinged access door is flush with front panel. Bottom panels ship with tamperproof screw fasteners and a safety chain.

Concealed/Recessed Units

Exposed panels on recessed units are 18-gage steel construction and ship separate from the unit. Bottom panels on horizontal recessed models ship standard with tamperproof screw fasteners and a safety chain. Horizontal recessed units feature a telescoping panel to allow the panel to be adjusted to line up flush with the ceiling. The telescoping panel extends 1.25” to 2” depending on the configuration of airflow.

Low Vertical Unit

Front panels are of 16-gage galvanized steel. All cabinet parts are made rigid by channel forming. End panel is removable for piping access. Hinged access door construction is 20-gage steel and flush with top panel.

Unit Finish

All cabinet parts and exposed recessed panels are cleaned, bonderized, phosphatized, and painted with a baked powder finish available in six decorator colors. Standard finish meets ASTM B117 specifications (salt spray test).

Fans

The galvanized metal fan wheels are centrifugal forward-curved and double-width. Fan wheels and housings are corrosion resistant. Fan housing construction is formed sheet metal. Low vertical units utilize an aluminum tangential wheel design.

Motors

All motors are brushless DC (BLDC)/electronically commutated motors (ECM) factory-programmed and run-tested in assembled units. The motor controller is mounted in a touch-safe control box with a built-in integrated user interface and LED tachometer. If adjustments are needed, motor parameters can be adjusted through momentary contact switches accessible without factory service personnel on the motor control board.

Motors will soft-ramp between speeds to lessen the acoustics due to sudden speed changes. Motors can be operated at three speeds or with a field-supplied variable speed controller. The motor will choose the highest speed if there are simultaneous/conflicting speed requests.

All motors have integral thermal overload protection with a maximum ambient operating temperature of 104°F and are permanently lubricated. Motors are capable of starting at 50 percent of rated voltage and operating at 90 percent of rated voltage on all speed settings. Motors can operate up to 10 percent over voltage.

Controls

Controls options are: fan speed switch, control interface, and Tracer ZN010, ZN510, ZN520, and UC400. A variety of inputs and outputs are available for the control interface and Tracer controller options. A disconnect switch (for non-electric heat units), fused transformer, contactor(s), and terminal strip are provided with the control interface and Tracer controller options. For specifics on Tracer ZN010, ZN510, ZN520, and UC400, please refer to "Controls," p. 39.

Control Interface

The control interface is intended to be used with a field-supplied, low-voltage thermostat or controller. The control box contains a relay board which includes a line voltage to 24-volt transformer, quiet contactors (for electric heat units), and an optional disconnect switch. All end devices are wired to a low-voltage terminal block and are run-tested, so the only a power connection and thermostat connection is needed to commission the unit. Changeover sensors and controls are provided whenever a change-over coil is selected. When N.O. valves are selected, inverting relays are provided for use with standard thermostats.

Fan Speed Switch

The fan speed switch is available with or without the control interface option and is available as wall-mount or unit-mount. Both the wall-mount and unit-mount FSS will employ low-voltage fan switches. However, the low-voltage fan speed option will provide an interface to factory wiring, including variable speed/high-medium-low (HML) control. The control box contains a line voltage to 24-volt transformer, ECM motor controller, and an optional disconnect switch.

Coils

All water coils are proof-tested at 300 psig (air) and leak-tested at 100 psig (air under water). Maximum main coil working pressure is 300 psig. Maximum entering water temperature is 200°F. Tubes and u-bends are 3/8"OD copper. Fins are aluminum and are mechanically bonded to the copper tubes. Coil stubouts are 5/8" OD copper tubing.

Reheat Coils

Reheat coils are available for use with both hot water and steam. Hot water maximum working pressure is 300 psig, and the maximum entering water temperature is 200°F. The steam coil maximum working pressure is 15 psig. The reheat coils are constructed of single circuit 5/8" copper tubes with aluminum fins. Piping connections are expanded to accept standard copper tubing 5/8"OD.

Piping Packages

All piping packages are proof-tested at 300 psig (air) and leak tested at 100 psig (air under water). The maximum working pressure of the interconnecting piping is 300 psig.

Piping packages are available in either basic or deluxe configurations. The deluxe package includes unions at the coil connections and a 20-mesh strainer on the supply side with a pressure rating on the strainer of up to 400 psig. The basic package does not include either unions or the strainer. A choice of end valves are available on both the basic and deluxe piping packages.

The piping package is designed so that any condensation is directed into the UniTrane auxiliary drain pan. Insulation of piping package is not required.

Ball Valve Supply and Return

A ball-type stop valve is available on both the supply and return of the piping package. The ball valve is a shutoff valve only with a maximum working pressure of 400 psig.

Ball Valve Supply, Manual Circuit Setter Return

A ball valve is provided on the supply with a manual circuit setter on the return. The manual circuit setter is a combination flow-setting device and shutoff valve that includes two Schrader ports. The maximum working pressure of the valve is 300 psig.

Ball Valve S & R, Auto Circuit Setter Return

Ball type end valves are mounted on the supply and return, with an additional auto circuit setter mounted on the return. The auto circuit setter is an automatic flow control valve that is sized to allow a specific flowrate through the coil. Auto circuit setters also include two P/T plugs and have a maximum working pressure of 400 psig.

Control Valves

Two-Way, Two-Position Control Valves

Two-way, two-position valves are rated for a maximum pressure differential across the valves of 30 psig. The valves are also available with a close-off pressure of 50 psig. The valve actuator is easily removable for service without removing the valve body from piping. Use some means, such as a pump and chiller bypass, to ensure the maximum closed off ΔP rating of the two-way valves is not exceeded.

Three-Way, Two-Position Control Valves

Normally open three-way, two-position valves are rated for a maximum 28 psig pressure differential across the valves. Normally closed three-way two-position valves are rated for a maximum pressure differential across the valves of 20 psig. A bypass line is piped on all three-way piping packages with a balance fitting to set flow through the bypass line. The balance fitting has a maximum working pressure of 150 psig. The valves are also available with a maximum close-off pressure of 50 psig. The valve actuator is easily removable for service without removing the valve body from piping.

Modulating Control Valves

Two-way and three-way modulating valves are rated for a maximum pressure differential across the valves of 50 psig (345 kPa). The modulating valves are available in Cv values of 0.7, 1.5, 2.5 and 4.0.

All two-position and modulating control valves have a maximum working pressure of 300 psig. The maximum entering water temperature of the valve is 200°F.

Electric Heat Coil

The auxiliary electric heating coil is provided as either the total source of heat or auxiliary intermediate season heating. The electric heat coils are located in the preheat position, and are the open-wire type. The coils are a nickel chromium element design. The electric heat operates at the same voltage as the unit, and only a single power connection is necessary.

All units with factory-mounted electric heat are UL-listed and interlocked with the fan motor switch. A call for electric heat operation will turn the fan on. Motors controls are synchronized with

fan/valve operation to ensure safe operation and to ensure that two modes of heat are not operating simultaneously. A transformer is supplied on any voltage unit, eliminating the need for field installation of a step-down transformer. Unit-mounted quiet magnetic relays are supplied on all voltages. A high temperature cutout with automatic reset is provided as an integral part of the elements to de-energize the electric heat in the event of a malfunction.

Filters

Filters are concealed from sight and easily removable. Filters are located behind an integral access door on horizontal type units. Filters are either 1″ throwaway or 1″ MERV 8.

Units equipped with 1″ MERV 8 filters have a rating based on ASHRAE Standard 52.2. The average dust spot efficiency is no less than 35 to 40 percent when tested in accordance with ASHRAE 52.1 atmospheric dust spot method.

Units equipped with 1″ MERV 13 filters have a rating based on ASHRAE Standard 52.2. The average dust spot efficiency is no less than 90 percent efficiency on 1–3 micron particles and greater than 90 percent efficiency on 3–10 micron particles when tested in accordance with ASHRAE Test Standard 52.2.

Fresh Air Damper

A fresh air opening with a damper is a factory-installed option. Dampers are constructed of 18-gage steel. Fresh air is sealed off with gasket material when the damper is set in the closed position. Return and fresh air mixes when the damper is open.

Manual Damper

The manual damper is field-adjustable to allow a zero to 100 percent fresh air position.

Auto Two-Position Damper

The auto two-position damper is factory set at 25 percent when open. The damper can be set in the field to allow a zero to 50 percent fresh air position.

Economizer Damper

The economizer damper is accompanied by a factory-installed and wired modulating actuator. The damper is factory set at 25 percent default minimum and 100 percent maximum opening. The damper is field adjustable using Tracer Summit or Rover to allow a zero to 100 percent fresh air.

Disconnect Switch

A unit mounted disconnect switch is available as a standard option on all units.

Colors

Six decorator colors are available in a baked powder finish. For a color chart, contact your local Trane office for a copy of UNT-SLB017-EN (*Color Selector: Cabinet Heaters, Fan-Coils, Unit Ventilators, & Water-Source Heat Pump Consoles*).

Extended End Pockets

On vertical or horizontal cabinet units, an 8″ extended end pocket is available on the piping end.

Tamperproof Locks

Key-operated locking access doors and/or panels will help prevent nuisance tampering with unit and/or controls. Tamper proof locks are available on vertical cabinet, horizontal cabinet, vertical recessed, vertical slope top, and low vertical units.

Leveling Feet

Refrigerator type screw-in bolts to level the unit are available on vertical and low vertical cabinet units.

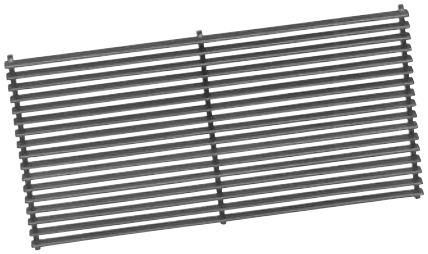
Quad Grille Outlet

Figure 27. Quad grille outlet

Quad grilles are square multi-directional grilles that allow four different discharge directions by rotating the grilles 90°. The quad grille construction is a black plastic material (NORYL-SE 1-731) with a 15° angle on the discharge louvers. Quad grilles are recessed into the discharge panel to prevent condensation from forming on the grille exterior. Quad grilles are available on all cabinet style units.

Bar Grille Inlet/Outlet

Figure 28. Bar grille inlet and outlet



Bar grilles are formed steel grille options available on the discharge of all cabinet units, the return of vertical cabinet, vertical slope tops and low vertical cabinet units. The grilles have a black paint finish with 18-gage steel construction. The louvers are formed at a 15° angle, and the discharge grilles are recessed to prevent condensate formation on the surface of the grille. The bar grilles are fixed in one discharge direction.

Sub-bases

Figure 29. Sub-base (shown turned on its side)

Sub-bases elevate vertical cabinet or slope top cabinet units to a specified height; for example, to reach the bottom of a window sill. The sub-base also provides a cavity through which to run piping underneath the fan-coil unit. Sub-bases are 16-gage steel construction and have the same black paint finish as the unit's base. The sub-base is available in heights between 2"–7" in 1/2" increments. The sub-base depth and width is identical to the unit's dimensions.

False Backs

Figure 30. False back

False backs increase the depth of a vertical cabinet unit and provide a cavity through which to run piping behind the fan-coil unit. False backs are also an excellent application when installing a unit beneath a window sill that extends out past the front of the unit.

False backs are 18-gage steel construction and have the same paint finish as the unit. The false back is available in depths between 2″–8″ in 1″ increments, with height and width identical to the unit's dimensions.

Recessing Flanges

Figure 31. Recessing flange

Recessing flanges have 18-gage steel construction and are painted the same finish as the unit. Recessing flanges provide an aesthetic architectural border or frame around vertical and horizontal cabinet fan-coil units.

Aluminum Wall Boxes

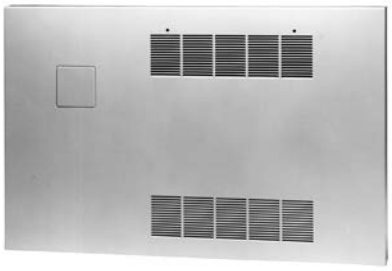
Figure 32. Wall box

Wall boxes have a clear anodized finish and include a single core wire mesh insect screen. The frame is 10-gage extruded aluminum alloy 6063-T5 construction. Horizontal louvers have 16-gage extruded aluminum alloy 6063-T5 construction.

Wall boxes ship separate for field installation. A field supplied duct or sleeve from the wall box to the unit fresh air opening is required to provide fresh air. Wall boxes are sized to handle up to 100 percent of nominal air flow.

Projection Panels

Figure 33. Projection panel



Projection panels allow semi-recessing of vertical recessed units.

Panels are 16-gage steel construction, painted with a baked powder finish. They are available in projection depths ranging from 2″–6″ in 1/2″ increments. There is a distance of 7/8″ between the projection panel and the front of the unit.

Piping Components

Ball Valve

Figure 34. Ball valve

Part	Material	Spec ASTM
Lever	Steel, zinc plated	
Seat	Teflon	VTFE
Packing	Teflon	RTFE
Stem	Rod Brass	B16
G-Nut	Hex Brass	B16
Ball	Brass, chrome plated	B16
Retainer	Brass	B16
Body	Cast Brass	B584-C84400

Working Pressure
400 psi

Manual Circuit Setter

Figure 35. Manual circuit setter

Material

Body—Forged Brass Alloy
Trim—Forged Brass Alloy
All Wetted Parts Brass

Temperature

250°F MAX

Working Pressure

300 psi

Auto Circuit Setter

Figure 36. Auto circuit setter

Material

Body—Forged Brass
Flow Cartridge—Electroless Nickel and Stainless Steel

Temperature

250°F MAX

Working Pressure

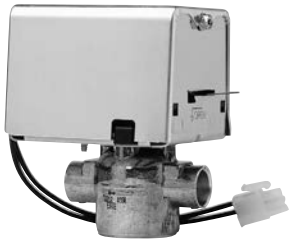
400 psi

Pressure Drop

0.5–9.0 gpm = 2 psi ΔP
10.0–12.0 gpm = 5 psi ΔP

Control Valve

Figure 37. Control valve



Material

Body—Forged Brass
Drive Shaft Stem—Chrome-Plated Brass (Modulating) Brass (2-Position)
Seat—Stainless Steel (Modulating)
Ball Plug—Buna N Rubber(2-Position)
Plug—High Temperature Thermoplastic (Modulating)
O-Ring Seals—EPDM Rubber (2-Position)
Actuator—Stainless Steel Base Plate, Aluminum Cover

Temperature

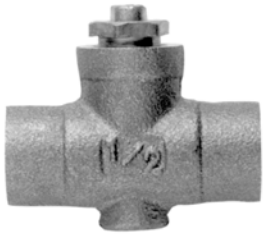
200°F Max.
34°F Min.

Working Pressure

300 psi
Pressure Drop (Close-Off ΔP)[1]
2-Way, Two-Position, N.O. = 30 psig
2-Way, Two-Position, N.C. = 30 psig
3-Way, Two-Position, N.O. = 28 psig
3-Way, Two-Position, N.C. = 20 psig
2-Way Modulating = 50 psig
3-Way Modulating = 50 psig

Balance Fitting

Figure 38. Balance fitting



Material

Packing Washer—11 Ga. Brass
O-Ring—EPDM Rubber
Stem—Rod Brass

[1] All valves are available with optional 50 psig (345 kPa).

Gland Screw—Hex Brass
Valve Body—Cast Brass

Union

Material

Nut—Forged Brass
Body—Copper
Tail—Copper

Strainer

Figure 39. Strainer

Material

Body—Cast Bronze (85-5-5-5)
Cover—Cast Bronze (85-5-5-5)
Screen—Stainless Steel (20 Mesh)
Gasket—Teflon

Pressure and Temperature

400 psi at 150°F

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UNT-PRC001-EN 08 May 2012
Supersedes UNT-PRC001-EN (05 Dec 2011)

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