



# Catalog

## Vertical Stack Fan Coil Units Model RSG 3/4 through 4 ton capacity



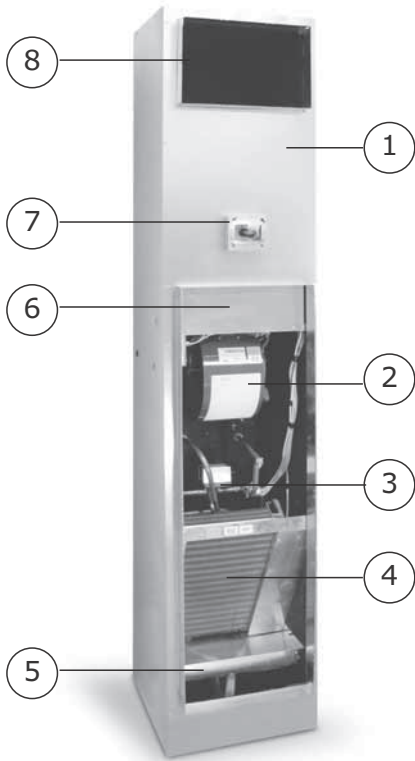


# Vertical Stack Fan Coil Units

Trane vertical stack fan coil units are used in high-rise hotels, condominiums, dormitories, military barracks, and residential buildings. Trane specializes in flexible response to customers' needs.

We work closely with engineers at the design stage to ensure optimum use of the units within the HVAC system.

Figure 1. Fan coil - Model RSG



- ① 18 ga. galvanized cabinet with acoustical liner
- ② Direct-drive centrifugal fan - PSC fan motor with sealed bearings standard
- ③ Piping package factory installed (HW pre-heat)
- ④ CW/HW coils - 2-pipe or 4-pipe
- ⑤ Drain pan - galvanized, positively sloped to outlet - standard
- ⑥ Optional electric heater (behind panel)
- ⑦ Optional electrical box for unit-mounted thermostat
- ⑧ Supply air opening (multiple openings available)

Also available but not shown:

- Risers
- Double deflection supply air grille/ registers
- Return air panel
- Filter
- Fan shield/motor cover

Figure 2. Furred-in fan coil



Grille and return air panel standard color is white.

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# Model Number Description

The following is a complete description of the vertical stack fan coil model number. Each digit in the model number has a corresponding code that identifies specific unit options. Example of model number:  
RS-GF05-86MKX-WWX-R1PDABCDEFGA

Digits 1, 2 – Finished Goods Identifier

Must always be “RS”

Digit 3 – Spacer

Digits 4, 5 – Unique Part Identifier - Reserved

Must always be “GF”

Digits 6, 7 – Cabinet Footprint

05 = 17-in. x 17-in. Cabinet footprint (350 and 450 CFM models)

08 = 20-in. x 20-in. Cabinet footprint (600 and 800 CFM models)

12 = 20-in. x 24-in. Cabinet footprint (1000 and 1200 CFM models)

Digit 8 – Spacer

Digits 9, 10 – Unique Part Identifier - Reserved

Must always be digits “86”

Digits 11, 12, 13 – Unique Part Identifier – Reserved

Must always be entered as “MKX”

Digit 14 – Spacer

Digit 15 – Primary Cooling Means

C = Chilled Water (Single Purpose Coil)

W = Chilled Water (2-pipe Changeover Coil - requires a change-over sensor)

X = No Cooling Coil

Digit 16 – Primary Heating Means

H = Hot Water (Single Purpose Coil)

W = Hot Water (2-pipe Changeover Coil)

E = Electric Resistance

X = No Heating Coil

Digit 17 – Auxiliary Heating Means

E = Electric Resistance (requires additional change-over sensor)

X = No Heating Coil

Digit 18 – Spacer

Digit 19 – Cabinet Nominal CFM

E = 350

G = 450

K = 600

M = 800

P = 1000

R = 1200

Digit 20 – Unit Connection Voltage

1 = 120/1/60

2 = 208/1/60

3 = 240/1/60

4 = 277/1/60

Digit 21 – Motor Type

P = PSC

D = ECM (Discrete speed)

V = ECM (Variable Speed)

Digit 22 – Water Coil and Fins Per Inch (FPI)

*Note: X/Y format, where X = Number of Cooling rows and Y = Number of Heating rows. Function (cooling only, changeover, etc) is handled in positions 15 and 16 of the model number.*

3 row coils

K = 3/0 (2-pipe), 12 FPI

L = 3/1 (4-pipe), 12 FPI

M = 3/2 (4-pipe), 12 FPI

N = 3/0 (2-pipe), 14 FPI

P = 3/1 (4-pipe), 14 FPI

Q = 3/2 (4-pipe), 14 FPI

4-row coils

U = 4/0 (2-pipe), 12 FPI

V = 4/1 (4-pipe), 12 FPI

W = 4/2 (2-pipe), 12 FPI

X = 4/0 (2-pipe), 14 FPI

Y = 4/1 (4-pipe), 14 FPI

Z = 4/2 (4-pipe), 14 FPI

Digit 23 – Chilled Water Piping Packages

*Note: Manual air vent, drain cock, flexible braided hoses and unions on supply and return are standard features. Control valves are mounted on coil return.*

A = 2-way control valve, shutoff valves on supply and return

B = 3-way control valve, shutoff valves on supply and return

C = 2-way control valve, shutoff valve on supply, manual balancing valve with shutoff on return.

D = 3-way control valve, shutoff valve on supply, manual balancing valve with shutoff on return.

E = 2-way control valve, combo strainer/shutoff valve on supply, manual balancing valve with shutoff on return

F = 3-way control valve, combo strainer/shutoff valve on supply, manual balancing valve with shutoff on return

G = 2-way control valve, combo strainer/shutoff valve on supply, automatic balancing valve with shutoff on return

H = 3-way control valve, combo strainer/shutoff valve on supply, automatic balancing valve with shutoff on return

Digit 24 – Hot Water Piping Packages

*Note: Manual air vent, drain cock, flexible braided hoses and unions on supply and return are standard features. Control valves are mounted on coil return.*

A = 2-way control valve, shutoff valves on supply and return

B = 3-way control valve, shutoff valves on supply and return

C = 2-way control valve, shutoff valve on supply, manual balancing valve with shutoff on return.

D = 3-way control valve, shutoff valve on supply, manual balancing valve with shutoff on return.

E = 2-way control valve, combo strainer/shutoff valve on supply, manual balancing valve with shutoff on return

F = 3-way control valve, combo strainer/shutoff valve on supply, manual balancing valve with shutoff on return

G = 2-way control valve, combo strainer/shutoff valve on supply, automatic balancing valve with shutoff on return

H = 3-way control valve, combo strainer/shutoff valve on supply, automatic balancing valve with shutoff on return

Digit 25 – Electric Heat

*Note: Must operate at supply voltage, subject to cabinet size and airflow.*

0 = No Electric Heating Coil

A = 0.75 kW

B = 1.0 kW

C = 1.5 kW

D = 2.0 kW

E = 2.5 kW

F = 3.0 kW

G = 3.5 kW

H = 4.0 kW

J = 4.5 kW

K = 5.0 kW

M = 6.0 kW

P = 7.0 kW

R = 8.0 kW

Digit 26 – Control Type

(Provided and installed by factory unless otherwise noted)

0 = Low-voltage control by Others, Installed by Others, Terminal Strip provided.

A = Auto Changeover, Non-Programmable, Fan Speed Switch

B = Auto Changeover, Programmable, Fan Speed Switch

C = Auto Changeover, Non-Programmable, No Fan Speed Switch

D = Auto Changeover, Programmable, No Fan Speed Switch

E = Manual Changeover, Non-Programmable, Fan Speed Switch

F = Manual Changeover, Programmable, Fan Speed Switch



## Model Number Description

G = Manual Changeover, Non-Programmable, No Fan Speed Switch  
H = Manual Changeover, Programmable, No Fan Speed Switch  
1 = Tracer™ ZN521 (zone sensor ordered separately)  
2 = Tracer™ UC400 (zone sensor ordered separately)  
Digit 27 – Actuator Operation  
(Provided and installed by factory unless otherwise noted)  
0 = None, Low Voltage, installed by others, outside of unit  
C = Control Contractor Supplied, Low Voltage, installed by factory  
L = Line Voltage, 2-position  
B = 24 V 2-position (normally closed spring return)  
F = 3-Wire Floating Point  
M = 0-10 or 2-10 V Modulating

### Digit 28 – Cabinet Type/ Thermostat Location/Insulation

1 = Flush Mounted RA panel, remote mounted thermostat (Fiberglass insulation)  
2 = Flush Mounted RA panel unit mounted thermostat (Fiberglass insulation)  
3 = Hinge Mounted RA panel, remote mounted thermostat (Fiberglass insulation)  
4 = Hinge Mounted RA panel unit mounted thermostat (Fiberglass insulation)  
5 = Flush Mounted RA panel, remote mounted thermostat (Closed Cell Insulation)  
6 = Flush Mounted RA panel unit mounted thermostat (Closed Cell Insulation)  
7 = Hinge Mounted RA panel, remote mounted thermostat (Closed Cell Insulation)  
8 = Hinge Mounted RA panel unit mounted thermostat (Closed Cell Insulation)

### Digit 29 – Drain Pan

0 = None (Heating Only Unit)  
1 = Acrylic coated galvanized steel double sloped drain pan  
2 = Acrylic coated galvanized steel double sloped drain pan CW float switch  
3 = Stainless Steel double sloped drain pan  
4 = Stainless Steel double sloped drain pan CW float switch

### Digit 30 – Design Sequence

Current design sequence is "A"

## Riser Package

### Digit 1, 2, 3 – Riser Package

Must always be "YRP"

### Digit 4 – Configuration

A = 2-pipe system  
S = 4-pipe system

### Digit 5 – Spacer

### Digit 6 – Riser Type

1 = Single  
2 = Master

### Digit 7 – Copper Pipe Type

1 = All risers - type "M"  
2 = All risers - type "L"  
3 = Supply, Return - type "L"; Condensate - type "M"  
4 = Supply, Return - type "M"; No Condensate

### Digit 8, 9, 10 – Riser Insulation Type\*

0 = None  
1 = Closed cell polyolefin  
2 = Closed cell elastomeric  
4 = Fiberglass  
X = n/a

### Digit 11 – Spacer

### Digit 12, 13, 14 – Riser Insulation Thickness\*

0 = None  
2 = 1/2 inch  
4 = 1 inch  
X = n/a

*Note: \*For a 2-pipe system:  
First character: Use to describe the cooling supply and return (or heating supply and return)  
Second character: Enter "X"  
Third character: use to describe condensate*

*Note: \*For a 4-pipe system:  
First character: Use to describe cooling supply and return.  
Second character: Use to describe heating supply and return.  
Third character: Use to describe condensate.*

## Raised Base Package

### Digit 1, 2, 3, 4 – Raised Base Package

Must always be "YRBP"

### Digit 5 – Spacer

### Digit 6 – Unit Foot Print

1 = 350/450 (17 in. x 17 in.)  
2 = 600/800 (20 in. x 20 in.)  
3 = 1000/1200 (24 in. x 20 in.)

### Digit 7, 8 – Raised Base Height

04 = 4 inches  
08 = 8 inches  
12 = 12 inches

### Digit 9 – Access Panel\*\*

0 = None  
1 = Yes, front

### Digit 10 – Condensate Pump\* (Voltages are connection voltages)

0 = No pump  
1 = 120V  
2 = 208V  
3 = 240V  
4 = 277V (c/w Transformer)

*Note: Raised base is not insulated.  
Optional access panel only available on the front side.*

*Note: \*If condensate pump is required, raised base with condensate pump must be factory installed. Electrical connections to the pump are by Trane.*

*Note: \*\*Access panel is only available with a 12-inch raised base.*

## Supply Air Grille/ Registers

Digit 1, 2, 3 – Grille Supply  
 GSS = Grille Supply Steel  
 GSR = Grille Supply Steel with Register  
 GSA = Grille Supply Aluminum  
 GSB = Grille Supply Aluminum with Register

Digit 4 – Spacer

Digit 5, 6 – Width\*\*

XX = Round inches

Digit 7 – Type

0 = Double deflection, horizontal front blades with mounting clips

1 = Double deflection, horizontal front blades with mounting holes

Digit 8, 9 – Height\*\*

XX = round inches

Digit 10 – Color/Finish

W = Nailorhart White

C = Custom color

*Note:* \* Mounting holes are on front flange of supply grille.

*Note:* \*\* Dimensions given for nominal frame size. These correspond to the nominal unit opening.

Table 1. Return Air Grille Part Numbers

Return Air Panel Type	Standard White	
	Size 350/450/600/800	Size 1000/1200
Flush Mounted	FSM 0145XA	FSM 0145XB
Hinge Mounted	GRS 14152W	GRS 16154W
Custom Color		
Flush Mounted	FSM 0145XAC	FSM 0145XBC
Hinge Mounted	GRS 14152C	GRS 16154C

Table 2. Register/Grille Quick Reference

Nominal Size	Clips		Screw Holes	
	Grilles	Registers	Grilles	Registers
14 x 5	GSS 14005W	GSR 14005W	GSS 14105W	GSR 14105W
14 x 8	GSS 14008W	GSR 14008W	GSS 14108W	GSR 14108W
14 x 10	GSS 14010W	GSR 14010W	GSS 14110W	GSR 14110W
14 x 12	GSS 14012W	GSR 14012W	GSS 14112W	GSR 14112W
14 x 14	GSS 14014W	GSR 14014W	GSS 14114W	GSR 14114W
16 x 12	GSS 16012W	GSR 16012W	GSS 16112W	GSR 16112W
16 x 14	GSS 16014W	GSR 16014W	GSS 16114W	GSR 16114W

**Note:** For custom color grille, replace "W" with "C" at the end of the part number. Registers and grilles are only available in the sizes listed in this table.

## Filters

Table 3. Filter Part Numbers

Filter Type	Filter Part Numbers	
	Size 350/450/600/800 14 x 25 nominal size	Size 1000/1200 16 x 25 nominal size
Pleated - MERV 13	FPH 14125	FPH 16125
Pleated - MERV 10	FPY 14125	FPY 16125
Throwaway Wire Frame - for Units with Hinged Access Panel	FWX 14125A	FWX 16125
Throwaway Cardboard Frame - for Units with Flush Mounted Access Panel	FRX 14125	FRX 16125

**Note:** All filters are 1-inch thick.



# Performance Data

## Cooling Capacities

AHRI-certified cooling performance is based on ANSI/AHRI Standard 440-2008: Performance Rating of Room Fan-Coils: 80/67°F entering air temperature, 45°F entering chilled water temperature with a 10°F delta T. All performance measured on high speed tap using a 120 V AC motor, 0.05 inches ESP without filters or grilles.

Table 4. AHRI-certified ratings for cooling capacities

Size	Coil	Airflow (cfm)	Cooling			Power Input (W)	
			Total Capacity (MBh)	Sensible Capacity (MBh)	Water Flow (GPM)	WPD (ft H <sub>2</sub> O)	PSC
350	3HC	300	8.5	5.3	2.3	5.2	132
	4HC	300	9.2	5.6	2.4	5.3	132
450	3HC	470	11.8	7.7	3.1	10.0	175
	4HC	470	12.9	8.3	3.4	7.5	175
600	3HC	620	19.8	12.6	4.7	18.6	259
	4HC	620	22.4	13.7	5.3	19.1	259
800	3HC	700	21.6	13.8	5.1	19.7	290
	4HC	700	24.6	15.1	5.8	17.9	290
1000	3HC	1010	31.6	20.0	7.4	18.9	446
	4HC	1010	36.3	22.1	8.5	16.5	446
1200	3HC	1140	34.3	22.1	8.0	20.4	621
	4HC	1140	39.7	24.4	9.3	18.9	621

Note: EC motor also available.



## Heating Capacities

Heating performance is based on 70°F entering air temperature, and listed entering water temperatures. All performance data measured on high speed tap using a 120 V AC motor, 0.05 inches ESP without filters and grilles. 1-row and 2-row coils are in the preheat configuration as part of a 4-pipe system. 3-row and 4-row coils are only available as part of a 2-pipe system.

Table 5. Heating capacities

Rows Size Heating		Entering Water Temp. 160°F																	
		Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)
		0.5 GPM			1.0 GPM			2.0 GPM			3.0 GPM			4.0 GPM			5.0 GPM		
350	1-row Preheat	10.2	0.5	118	13.1	1.8	133	15.3	6.7	144	16.2	14.5	149	-	-	-	-	-	-
	2-row Preheat	12.5	0.2	109	17.2	0.7	125	20.8	2.6	139	22.3	5.7	145	-	-	-	-	-	-
450	1-row Preheat	11.5	0.5	113	15.6	1.8	128	19.0	6.7	141	20.4	14.5	146	-	-	-	-	-	-
	2-row Preheat	14.1	0.2	102	20.6	0.7	118	26.6	2.6	133	29.3	5.7	140	-	-	-	-	-	-
600	1-row Preheat	-	-	-	19.5	0.6	120	25.2	2.3	134	27.9	5.1	141	29.5	8.8	145	-	-	-
	2-row Preheat	-	-	-	26.6	0.9	106	35.9	3.3	123	40.3	7.1	133	42.8	12.2	138	-	-	-
800	1-row Preheat	-	-	-	20.2	0.6	119	26.4	2.3	133	29.4	5.1	140	31.2	8.8	144	32.4	13.6	147
	2-row Preheat	-	-	-	27.5	0.9	104	38.0	3.3	121	43.0	7.1	131	45.9	12.2	137	-	-	-
1000	1-row Preheat	-	-	-	24.5	0.4	110	33.6	1.6	126	38.3	3.4	134	41.1	5.8	139	43.0	8.8	142
	2-row Preheat	-	-	-	32.0	0.8	95	47.2	2.7	112	55.3	5.7	122	60.2	9.7	129	63.5	14.7	134
1200	1-row Preheat	-	-	-	25.3	0.4	108	35.3	1.6	124	40.5	3.4	132	43.7	5.8	138	45.8	8.8	141
	2-row Preheat	-	-	-	33.0	0.8	93	49.6	2.7	109	58.9	5.7	120	64.6	9.7	127	68.5	14.7	132
Rows Size Heating		Entering Water Temp. 140°F																	
		Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H <sub>2</sub> O)	LWT (°F)
		0.5 GPM			1.0 GPM			2.0 GPM			3.0 GPM			4.0 GPM			5.0 GPM		
350	3-row Heating	10.5	0.2	97	14.7	0.9	110	18.0	3.3	122	19.3	7.2	127	-	-	-	-	-	-
	4-row Heating	11.9	0.1	92	16.1	0.5	107	19.7	2.0	120	20.9	4.5	126	-	-	-	-	-	-
450	3-row Heating	11.7	0.2	93	17.6	0.9	104	23.3	3.3	116	25.9	7.2	122	-	-	-	-	-	-
	4-row Heating	13.2	0.1	86	19.2	0.5	101	25.7	2.0	114	28.6	4.5	121	-	-	-	-	-	-
600	3-row Heating	-	-	-	22.9	0.6	93	31.8	2.2	108	36.0	4.7	116	38.2	8.2	121	-	-	-
	4-row Heating	-	-	-	24.5	0.4	90	34.7	1.7	105	39.3	3.8	113	41.6	6.6	119	-	-	-
800	3-row Heating	-	-	-	23.7	0.6	92	33.7	2.2	106	38.5	4.7	114	41.3	8.2	119	43.0	12.6	123
	4-row Heating	-	-	-	25.3	0.4	89	36.7	1.7	103	42.2	3.8	111	45.1	6.6	117	46.9	10.2	121
1000	3-row Heating	-	-	-	27.0	0.4	85	41.5	1.4	98	49.4	3.0	107	54.3	5.1	112	57.4	7.7	117
	4-row Heating	-	-	-	28.4	0.2	82	44.9	0.9	94	54.2	1.9	103	59.7	3.3	110	63.1	5.1	114
1200	3-row Heating	-	-	-	27.7	0.4	84	43.6	1.4	96	52.7	3.0	104	58.4	5.1	110	62.3	7.8	115
	4-row Heating	-	-	-	29.0	0.2	81	47.2	0.9	92	57.7	2.0	101	64.4	3.3	107	68.7	5.1	112



## Sound Data

Table 6. Sound data for vertical stack fan coils

Unit Size	CFM	Fan Speed	Sound Pressure Level - dBA
350	325	High	31
	275	Medium	29
	225	Low	28
450	500	High	37
	425	Medium	34
	325	Low	31
600	650	High	39
	500	Medium	37
	425	Low	35
800	725	High	41
	600	Medium	39
	500	Low	37
1000	1050	High	45
	950	Medium	43
	800	Low	41
1200	1175	High	50
	1100	Medium	47
	1000	Low	44

**Note:** Sound level is measured at a distance of 8 ft. from the return air grille. Measurements are for a typical furnished and carpeted hotel suite. CFM in the above chart is approximate. Airflow is dependent on the number of coil rows, coil fins per inch, the amount of condensate on the fins, supply voltage, motor manufacturer, supply air configuration, filter cleanliness and altitude.

# Components and Options

## Electric Heat

Table 7. Kilowatts (kW) per model

Model	kW	0.75	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	7.0	8.0	
	Volts/ph/Hz	Heater Amps													
350/450	120V/1/60	6.3	8.3	12.5	16.7										
	208V/1/60		4.8	7.2	9.6	12.0	14.4	16.8							
	240V/1/60		4.2	6.3	8.3	10.4	12.5	14.6							
	277V/1/60		3.6	5.4	7.2	9.0	10.8	12.6							
600/800	120V/1/60	6.3	8.3	12.5	16.7										
	208V/1/60		4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0	28.8			
	240V/1/60		4.2	6.3	8.3	10.4	12.5	14.6	16.7	18.8	20.8	25.0			
	277V/1/60		3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.2	18.1	21.7			
1000/1200	120V/1/60	6.3	8.3	12.5	16.7										
	208V/1/60		4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0	28.8	33.7	38.5	
	240V/1/60		4.2	6.3	8.3	10.4	12.5	14.6	16.7	18.8	20.8	25.0	29.2	33.3	
	277V/1/60		3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.2	18.1	21.7	25.3	28.9	

- Heaters are wired for single stage operation.
- An auto-reset high limit device is included.
- Power connection is single point.
- The heater is located in the reheat position relative to the cooling coil.
- The fan coil unit does not include a fuse or fusible type disconnect. Motor sub-fusing as per electrical code.

$$\text{Amps} = \frac{\text{Watts}}{\text{Volts}}$$

$$\text{Air temp. rise (Delta T)} = \frac{\text{kW} \times 3160}{\text{CFM}} = \frac{\text{MBH} \times 925}{\text{CFM}}$$

S.A. = Supply Air

FLA = Full Load Amps

$$= \text{S.A. fan motor Amps} + \text{Electric Heater Amps}$$

MCA = Minimum Circuit Ampacity

$$= \text{FLA} \times 1.25$$

MOP = Rating of maximum overcurrent protection device

$$= (2.25 \times \text{S.A. fan motor Amps}) + \text{Electric Heater Amps}$$

### **Requirements of Standards: UL 1995 and CSA C22.2 No.236**

- If the value of the calculated rating does not equal a standard current rating of overcurrent protective device, the marked maximum rating shall be the next lower standard rating.
- Exception No. 1: The marked maximum rating of the overcurrent protective device shall be the standard rating next higher than the computed value if the next lower standard ratings is less than 125 percent of the current rating of an electric heater load, when the unit includes an electric heater.
- Exception No. 2: if the computed value of the overcurrent protective device is less than the minimum ampacity of the supply circuit, the marked rating of the device shall be increased to the largest standard overcurrent protective device rating appropriate for the marked minimum circuit ampacity.
- Exception No. 3: If the marked minimum circuit ampacity does not correspond to a standard protective device rating, the next higher standard rating of the protective device may be marked.

## Fans Curves

Figure 3. Unit size 350

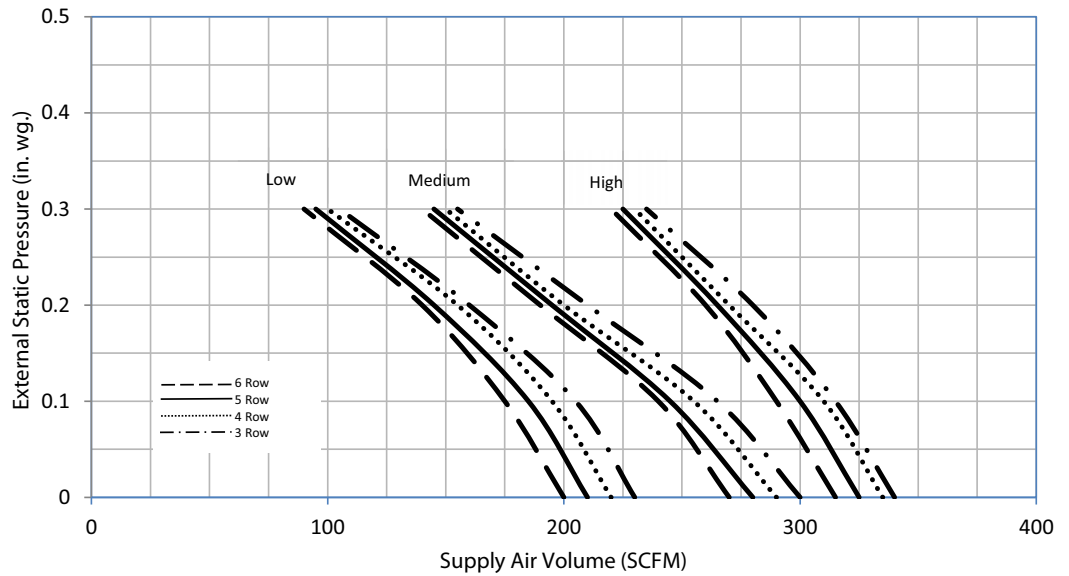
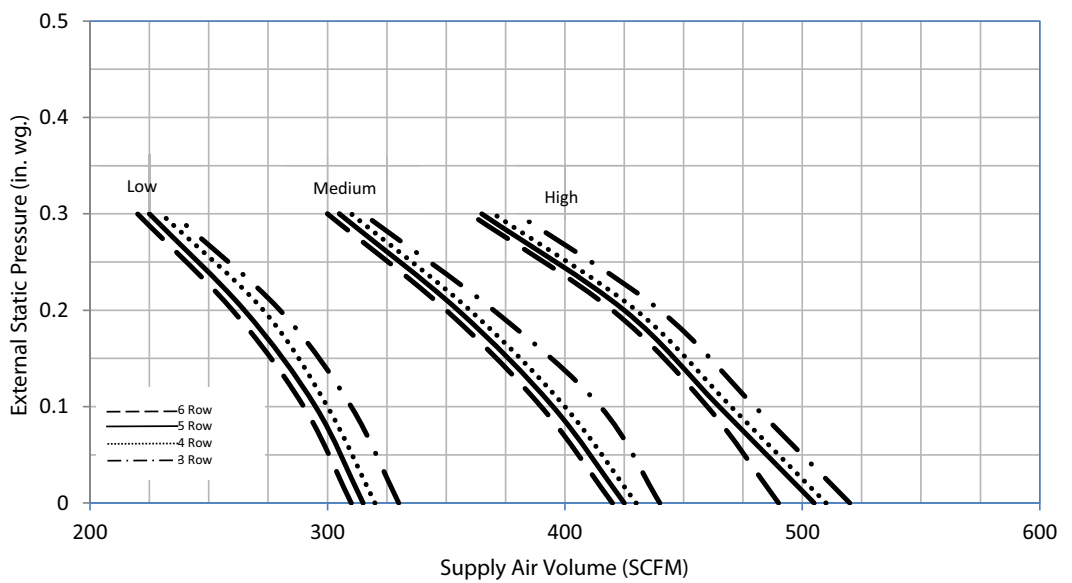


Figure 4. Unit size 450



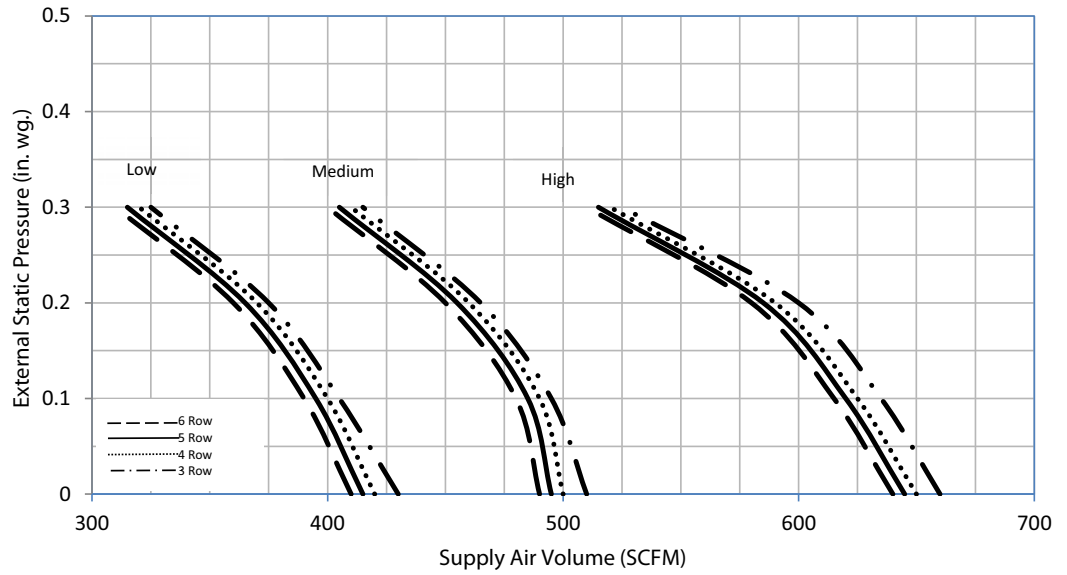
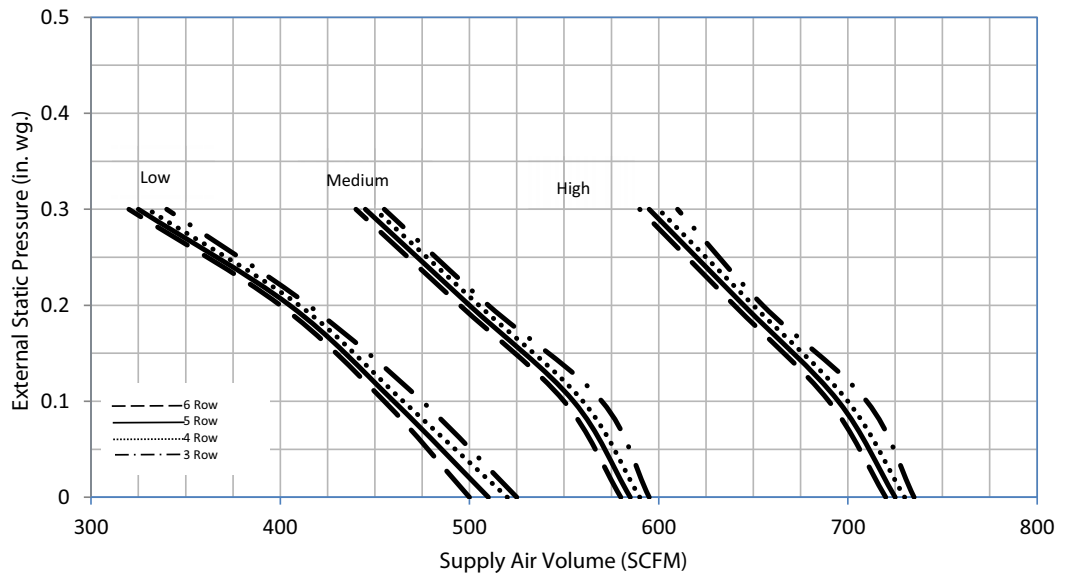
**Figure 5. Unit size 600**

**Figure 6. Unit size 800**


Figure 7. Unit size 1000

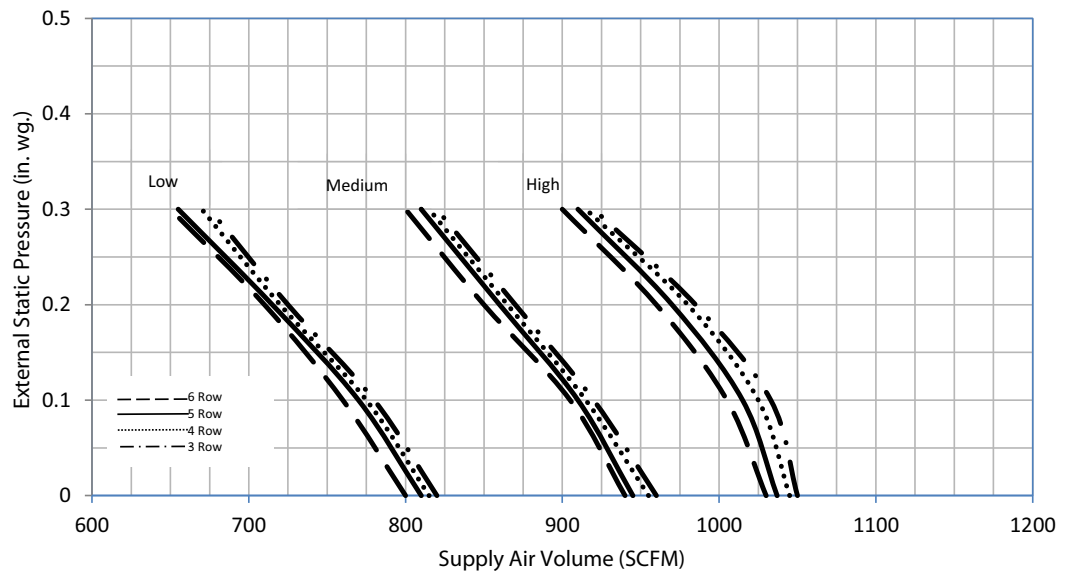
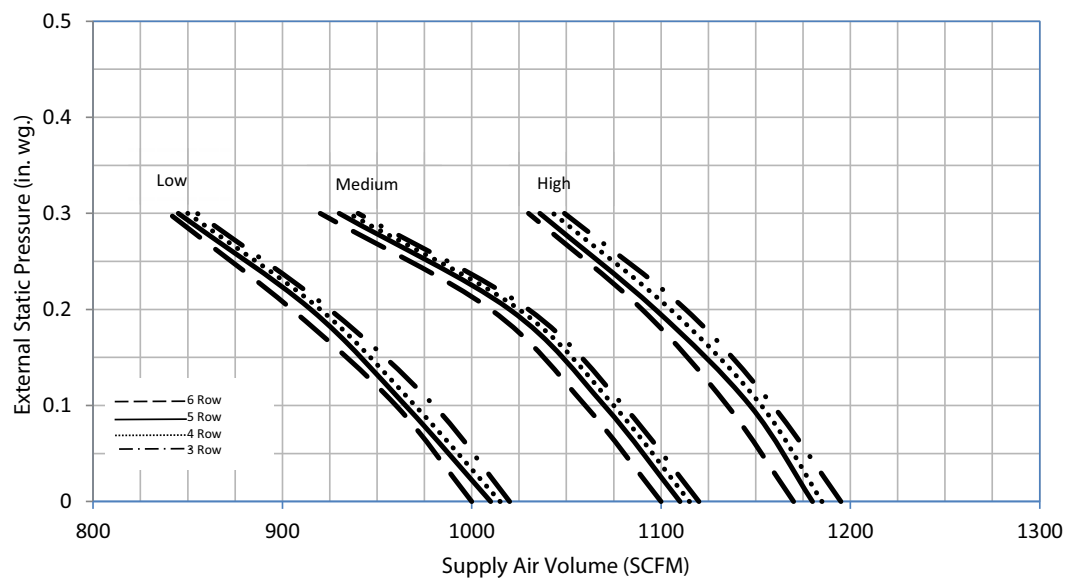


Figure 8. Unit size 1200



Fan curves are based on 120V AC PSC motor at high, medium and low fan speed settings. The following test conditions apply:

- Centrifugal direct drive fan with double inlet and forward curved impeller.
- Cooling coil is dry.
- One-inch throwaway filter is clean.



## Components and Options

### Motor Data

Table 8. Motor data

Size	Connection Voltage Volts/ph/Hz	PSC Max. Plate Ratings		ECM Max. Plate Ratings	
		HP	Amps	HP	Amps
350	120V/1/60	1/20	1.2	1/3	4.8
	208-240V/1/60	1/14	0.6	1/3	2.8
	277V/1/60	1/12	0.6	1/3	2.6
450	120V/1/60	1/6	1.7	1/3	4.8
	208-240V/1/60	1/12	0.8	1/3	2.8
	277V/1/60	1/12	0.6	1/3	2.6
600	120V/1/60	1/6	2.6	1/3	4.8
	208-240V/1/60	1/12	0.8	1/3	2.8
	277V/1/60	1/12	0.6	1/3	2.6
800	120V/1/60	1/6	2.6	1/3	4.8
	208-240V/1/60	1/6	1.4	1/3	2.8
	277V/1/60	1/6	0.9	1/3	2.6
1000	120V/1/60	1/4	4.6	1/3	4.8
	208-240V/1/60	1/4	2.2	1/3	2.8
	277V/1/60	1/4	1.6	1/3	2.6
1200	120V/1/60	1/3	6.4	1/2	6.8
	208-240V/1/60	1/3	3.1	1/2	4.1
	277V/1/60	1/3	2.1	1/2	3.6

**Note:** EC motors have been programmed for three (3) discrete speed operation. Variable speed also available (not shown.) Motor nameplate data is shown in table. Fan motors are single phase and have a minimum of three speeds. Trane has several fan motor suppliers in order to ensure availability. Amp draws may differ between motors from different manufacturers. Trane reserves the right to change motor HP and therefore amp draws without notice.

### Control Packages

Trane offers a range of standard thermostats and controllers for the vertical stack fan coil units. For applications where a larger BAS is to be installed, Trane can provide factory mounting of the ZN521 or UC400 controllers.

### Thermostats

Table 9. Thermostat information

Thermostat Voltage	Manufacturer	Model	Heat/Cool Changeover	Fan Operation	Available Fan Speeds	Application
24	Honeywell	TB8575A1000	Automatic or Manual	User Selectable	3	Residential or Hospitality
24	Honeywell	TB7100A1000 <sup>1</sup>	Automatic or Manual	User Selectable	3	Residential
120/208/240	Honeywell	TB6575A1000	Automatic or Manual	User Selectable	3	Residential or Hospitality
24	HotelTech	LT24A	Automatic	see Note 2	2	Hotel
24	HotelTech	LT24A3	Automatic	see Note 2	3	Hotel
120	HotelTech	LT120A	Automatic	see Note 2	2	Hotel
208-230	HotelTech	LT220A	Automatic	see Note 2	2	Hotel
277	HotelTech	LT277A	Automatic	see Note 2	2	Hotel

<sup>1</sup> The Honeywell TB7100A1000 is a 7-day programmable thermostat.

<sup>2</sup> The HotelTech thermostats feature automatic fan speed switching between the available speeds and off. The thermostat selects speed based on deviation of the room temperature from set point. The occupant can also manually select between the available speeds.



Residential applications include: Condominiums, apartments, student residences/dormitories, assisted living/retirement facilities, and military barracks.

Trane recommends the remote mounting of low voltage (24V) thermostats to achieve optimal zone control. When thermostats are remote mounted, a terminal strip is provided inside the unit for field connection to the remote thermostat. Unit mounting of thermostat is also available, however all thermostats are shipped loose for field installation after the unit is installed, drywall is applied and the walls are painted.

The standard standalone thermostats listed above cycle a two position (on/off) valve and feature discrete speed fan speed operation. If modulating (0-10V DC or 3-wire floating point) valve actuators or modulating or 0-10V DC EC motors are a requirement, a thermostat or controller with the necessary analog outputs must be used.

### Tracer ZN521 Zone Controller

The Tracer ZN521 is a factory-installed LonTalk® control board designed to provide control of the fan-coil products (see [Figure 9](#)).

Figure 9. Tracer ZN521 controller



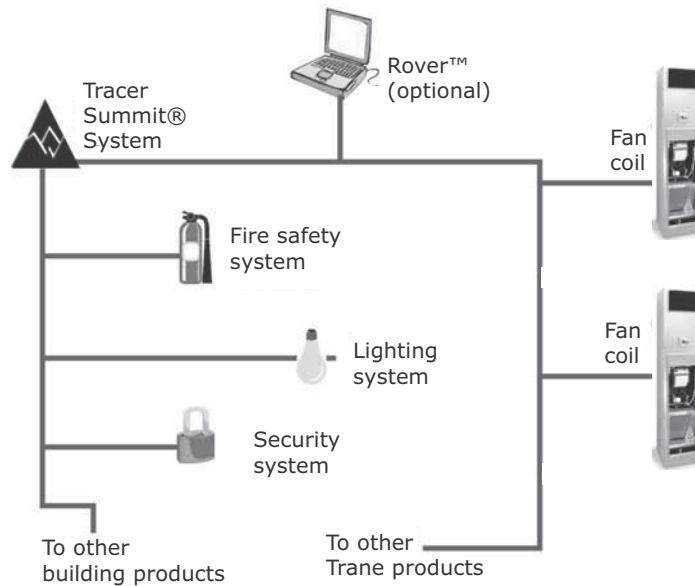
Features include:

- Automatic fan-speed reset
- Automatic ventilation reset
- Manual output test
- Filter maintenance
- Master slave
- Water valve override
- Freeze avoidance
- Interoperability
- Three generic I/O ports

The Tracer ZN521 controller is designed to be used in the following applications:

- As part of the Trane Tracer Summit building automation system, the Tracer ZN521 becomes an important part of the Trane Integrated Comfort system (ICS).
- The Tracer ZN521 can function as a completely standalone controller in situations where a building automation system (BAS) is not present.
- For situations when a non-Trane BAS is present, the Tracer ZN521 can be where ever a LonTalk front-end system is present.

Through building management of the HVAC system, optimizing energy consumption becomes possible at a zone level. Each unit is capable of functioning independently of one another during occupied and unoccupied hours of the day. This allows the temperature setpoint and ventilation setting to be changed automatically based on zone usage (see [Figure 10](#)).

**Figure 10. Tracer ZN521 System**


### Two Systems in One

In an ICS environment, the Tracer ZN521 is pre-designed to install quickly and easily into the system. Since the controller is mounted on the unit, the start-up time for the entire system is minimized. Trane becomes the single source of responsibility for the equipment, unit controls, and building automation system.

Once power is applied to the controller, it will automatically start up and run based upon the setpoint on the local zone sensor. The Tracer ZN521 is certified to the interoperable LONMARK® Space Comfort Controller profile. This allows the controller to be used with another vendor's BAS and thereby still provide the high quality of factory installation. In addition, the Tracer ZN521 provides one of the most extensive interoperable data lists of any controller of its type in the industry.

### Automatic Fan and Ventilation Reset

With the Tracer ZN521 controller, a multi-speed fan control for the fan coil delivers the airflow output customized to support the cfm space needs. When less cfm is necessary to meet the load of the zone (typically 75 to 80 percent of the time), the equipment operates on low speed. However, if the room temperature rises, the controller will switch to high speed.

### Manual Output Test

The Tracer ZN521 controller includes a manual output test function. This function may be initiated from the blue test push button on the controller or through the Rover™ service tool. This feature is used to manually exercise the outputs in a defined sequence.

The purpose of this test sequence is to verify output and end device operation. The manual output test function may also be used in the following situations:

- Reset latching diagnostics
- Verify output wiring and operation
- Force the water valve(s) open to balance the hydronic system during installation set-up or service.

### **Filter Maintenance**

Filter status for the controller is based on the cumulative run hours of the unit fan. The controller compares the amount of fan run time against an adjustable fan run hour (stored in the controller) to determine when maintenance is recommended for the unit. The run-hours value may be user edited as required (through Rover). The valid range for the fan run hours limit is 0 to 5000 hours with a default of 600 hours. Once the run hours limit has been exceeded, the controller generates a *maintenance required diagnostic* (unit will not shut-down). The user will be notified of this diagnostic through the building automation system or when a Trane Service Tool is communicating with the controller.

### **Master Slave (Data Sharing)**

Because the Tracer ZN521 controller utilizes LONWORKS<sup>®</sup> technology, the controller can send or receive data (setpoint, heat/cool mode, fan request, space temperature, etc.) to and from other controllers on the communication link with or without the existence of a building automation system. This applies to applications where multiple units might share one zone sensor for both stand-alone (with communication wiring between units) and a building automation system.

### **Water Valve Override**

The Tracer ZN521 can be commanded via the Rover service tool to open all hydronic valves 100 percent. This allows for the faster water balancing of each unit and the entire system when the command is sent globally to all controllers. A properly balanced system is essential for proper and efficient operation.

### **Hydronic Coil Freeze Protection (Freeze Avoidance)**

Fan coil systems in cold climates need to take precautions to avoid hydronic coil freeze-up. The Tracer ZN521 does this from three different aspects. Any of these methods of protections will result in the unit fan being disabled, the outside air damper being shut, and the hydronic valves being opened 100 percent.

The three methods of freeze avoidance include:

1. A binary freeze protection thermostat is mounted on the coil and will cause a latching diagnostic if the coil temperature falls below 35°F.
2. An analog discharge air sensor monitors the temperature of the air coming off of the coil and if the temperature falls below 40°F the outside air damper is closed, the fan is turned off and the valves are fully opened.
3. When in the unoccupied mode the Tracer ZN521 has an adjustable freeze avoidance setpoint. If the outside air temperature is below the setpoint the unit will open the valves to allow water to flow through the coils.

### **Interoperability**

Interoperability allows the owner freedom to select multiple vendors, and multiple products. With this advantage, the owner can choose the best products, the best application, and the best service from a variety of suppliers to meet their evolving building control needs in a cost effective manner.

### **Generic Binary Input/Output**

The three generic binary inputs/outputs are not part of the normal control, but are actually controlled through the Tracer Summit system (when present) to issue commands to the Tracer ZN521 control to turn the generic inputs/outputs of add-on equipment (such as baseboard heating, exhaust fans, occupancy sensor, lighting, etc.) on and off. This binary port is not affected when other binary diagnostics interrupt unit operation.

### Tracer UC400 Controller

The Tracer UC400 is a factory-installed BACnet® MS/TP control designed to provide control of the fan coil (see [Figure 11](#)). The Tracer UC400 controller is designed to be used in the following applications: as stand-alone operation, part of the Trane Tracer SC building automation system, or part of another BACnet MS/TP Building Automation System. The Tracer UC400 can function as a completely standalone controller in situations where a building automation system (BAS) is not present.

**Figure 11. Tracer UC400 Controller**



Features include:

- Single Zone VAV
- Automatic ventilation reset
- Filter maintenance
- Water valve override
- Freeze avoidance
- Interoperability
- Unused I/O can be used as generic I/O

The Tracer UC400 is designed to install quickly and easily into the system. Trane becomes the single source of responsibility for the equipment, unit controls, and building automation system. As a standalone controller, the Tracer UC400 is ideally suited for fix-on-fail replacement of units with old pneumatic controllers, or in situations where a BAS will be added at a later date. Once power is applied to the controller, it will automatically start up and run based upon the setpoint on the local zone sensor. An individual time clock can be added to the unit for local scheduling. The Tracer UC400 is BTL listed as B-ASC profile. This ensures the controller to be used with other BACnet® building automation systems.

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

In the stand-alone configuration, Tracer 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:

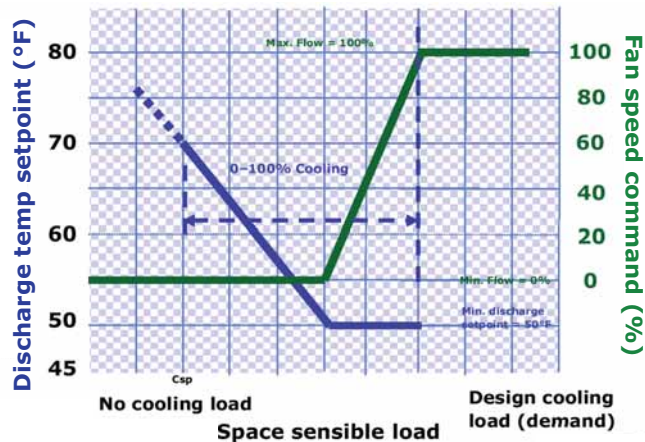
- Timed override on/cancel request
- Zone setpoint
- Current zone temperature
- Fan mode selection (off-auto-high-med-low)

For optimal system performance, fan coils can operate as part of an 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 Tracer UC400 control points. This includes such points as temperature and output positions.

## Single Zone VAV with Fully Modulating Fan Speed

With a single zone VAV with fully modulating fan speed, and EDM with modulating signal is required. The Tracer UC400 will minimize fan speed, and in turn energy usage, by only delivering the air flow needed. See Figure 12.

Figure 12. Cool mode nominal hydronic cooling control



## Filter Maintenance

Filter status for the controller is based on the cumulative run hours of the unit fan. The controller compares the amount of fan run time against an adjustable fan run hour (stored in the controller) to determine when maintenance is recommended for the unit. The run-hours value may be user edited as required. The valid range for the fan run hours limit is 0 to 5000 hours with a default of 600 hours. Once the run hours limit has been exceeded, the controller generates a maintenance required diagnostic (unit will not shut-down). The user will be notified of this diagnostic through the building automation system or when a Trane® service tool is communicating with the controller.

## Hydronic Coil Freeze Protection (Freeze Avoidance)

Fan coil systems in cold climates need to take precautions to avoid hydronic coil freeze-up. The controller does this from three different aspects. Any of these methods of protections will result in the unit fan being disabled, the outside air damper being shut, and the hydronic valves being opened 100 percent.

The three methods of freeze avoidance include:

1. A binary freeze protection thermostat is mounted on the coil and will cause a latching diagnostic if the coil temperature falls below 35°F.
2. An analog discharge air sensor monitors the temperature of the air coming off of the coil and if the temperature falls below 40°F the outside air damper is closed, the fan is turned off and the valves are fully opened.
3. When in the unoccupied mode, the controller has an adjustable freeze avoidance setpoint. If the outside air temperature is below the setpoint, the unit will open the valves to allow water to flow through the coils.

## Interoperability

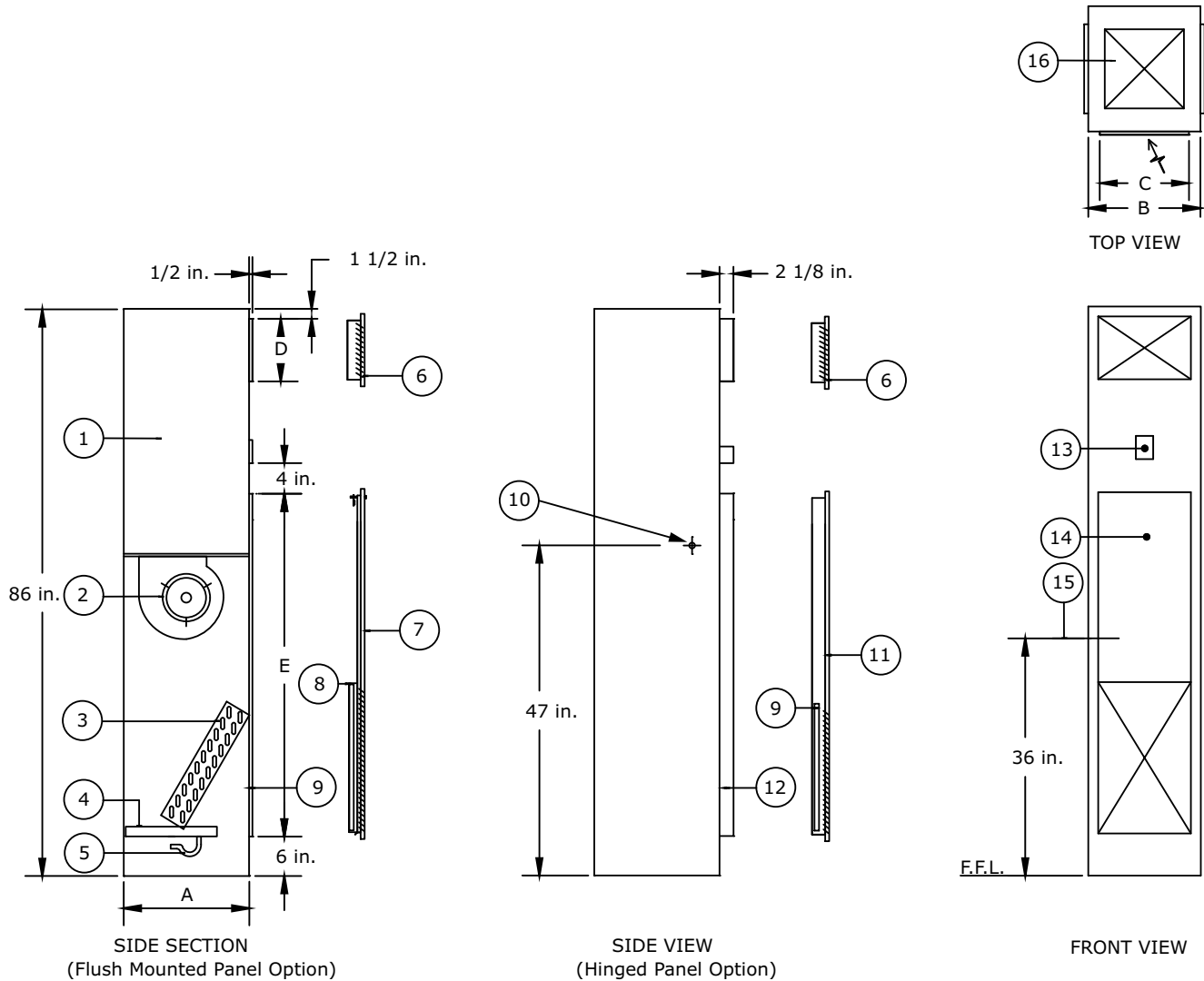
Interoperability allows the owner freedom to select multiple vendors, and multiple products. With this advantage, the owner can choose the best products, the best application, and the best service from a variety of suppliers to meet their evolving building control needs in a cost effective manner.

# Dimensions and Weights

## Vertical Fan Coil Units

### 2-Pipe Chilled Water Cooling Unit

Figure 13. 2-pipe chilled water cooling unit - hot water changeover coil optional



**Table 10. 2-pipe chilled water cooling unit callouts**

<p>① 18 ga. steel cabinet, lined with 1/2-inch fiberglass insulation coated on air side; 3/8-inch closed-cell foam optional.</p>	<p>⑨ 1/2-inch flange on front of unit. Allows direct application of drywall to the unit.</p>
<p>② Direct-drive centrifugal fan and PSC motor; EC motor optional.</p>	<p>⑩ 7/8-inch hole on each side of cabinet for power and control cable entry points on all units. See CLCH-SVX021A-EN installation manual for details.</p>
<p>③ Chilled water coil; hot water changeover optional.</p>	<p>⑪ Hinged return air grille/access panel (optional).</p>
<p>④ Acrylic coated galvanized steel drain pan, pitched in two directions, insulated on the underside; stainless steel optional.</p>	<p>⑫ 2 1/8-inch flange on front of unit. Drywall to be framed out in front of unit.</p>
<p>⑤ Drain hose from drain pan to condensate riser. The flexible hose forms a running trap.</p>	<p>⑬ Unit mounting location for thermostat/controller.</p>
<p>⑥ Double deflection steel supply air grille at front, left, right or back or any combination when there are multiple openings. Dimension "D" varies with CFM: 5, 8, 10, 12, or 14 inches.</p>	<p>⑭ Fan shield, acoustically lined. Identification and safety caution labels are affixed to this panel.</p>
<p>⑦ Flush mounted return air grille/access panel attached by quarter turn fasteners.</p>	<p>⑮ Vertical centerline of coil connection run outs. Connections are at the back, left or right sides of the unit.</p>
<p>⑧ One inch disposable filter.</p>	<p>⑯ Top supply air opening (knock out) for attachment of ductwork.</p>

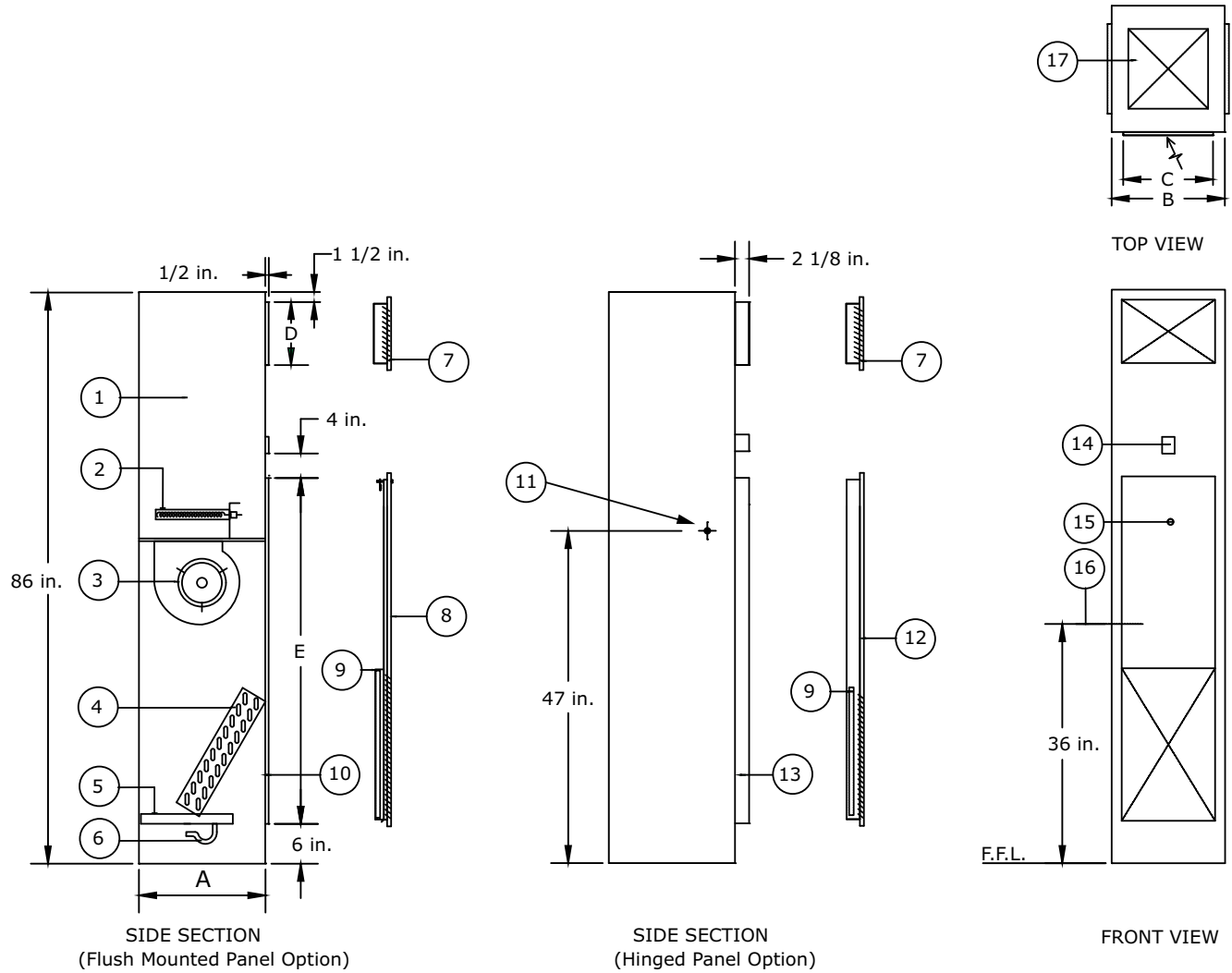
**Table 11. 2-pipe chilled water cooling unit dimensions (inches)**

Size	A	B	C	E
350	17	17	14	52
450	17	17	14	52
600	20	20	14	52
800	20	20	14	52
1000	20	24	16	54
1200	20	24	16	54

## Dimensions and Weights

### 2-Pipe Chilled Water Cooling Unit with Electric Heat

Figure 14. 2-pipe chilled water cooling unit with electric heat





**Table 12. 2-pipe chilled water cooling unit with electric heat callouts**

<p>① 18 ga. steel cabinet, lined with 1/2-inch fiberglass insulation coated on air side; 3/8-inch closed-cell foam optional.</p>	<p>⑩ 1/2-inch flange on front of unit. Allows direct application of drywall to the unit.</p>
<p>② Electric heater (primary or auxiliary).</p>	<p>⑪ 7/8-inch hole on each side of cabinet for power and control cable entry points on all units. See CLCH-SVX021A-EN installation manual for details.</p>
<p>③ Direct-drive centrifugal fan and PSC motor; EC motor optional.</p>	<p>⑫ Hinged return air grille/access panel (optional).</p>
<p>④ Chilled water coil; hot water changeover optional.</p>	<p>⑬ 2 1/8-inch flange on front of unit. Drywall to be framed out in front of unit.</p>
<p>⑤ Acrylic coated galvanized steel drain pan, pitched in two directions, insulated on the underside; stainless steel optional.</p>	<p>⑭ Unit mounting location for thermostat/controller.</p>
<p>⑥ Drain hose from drain pan to condensate riser. The flexible hose forms a running trap.</p>	<p>⑮ Fan shield, acoustically lined. Identification and safety caution labels are affixed to this panel.</p>
<p>⑦ Double deflection steel supply air grille at front, left, right or back or any combination when there are multiple openings. Dimension "D" varies with CFM: 5, 8, 10, 12, or 14 inches.</p>	<p>⑯ Vertical centerline of coil connection run outs. Connections are at the back, left or right sides of the unit.</p>
<p>⑧ Flush mounted return air grille/access panel attached by quarter turn fasteners.</p>	<p>⑰ Top supply air opening (knock out) for attachment of ductwork.</p>
<p>⑨ One inch disposable filter.</p>	

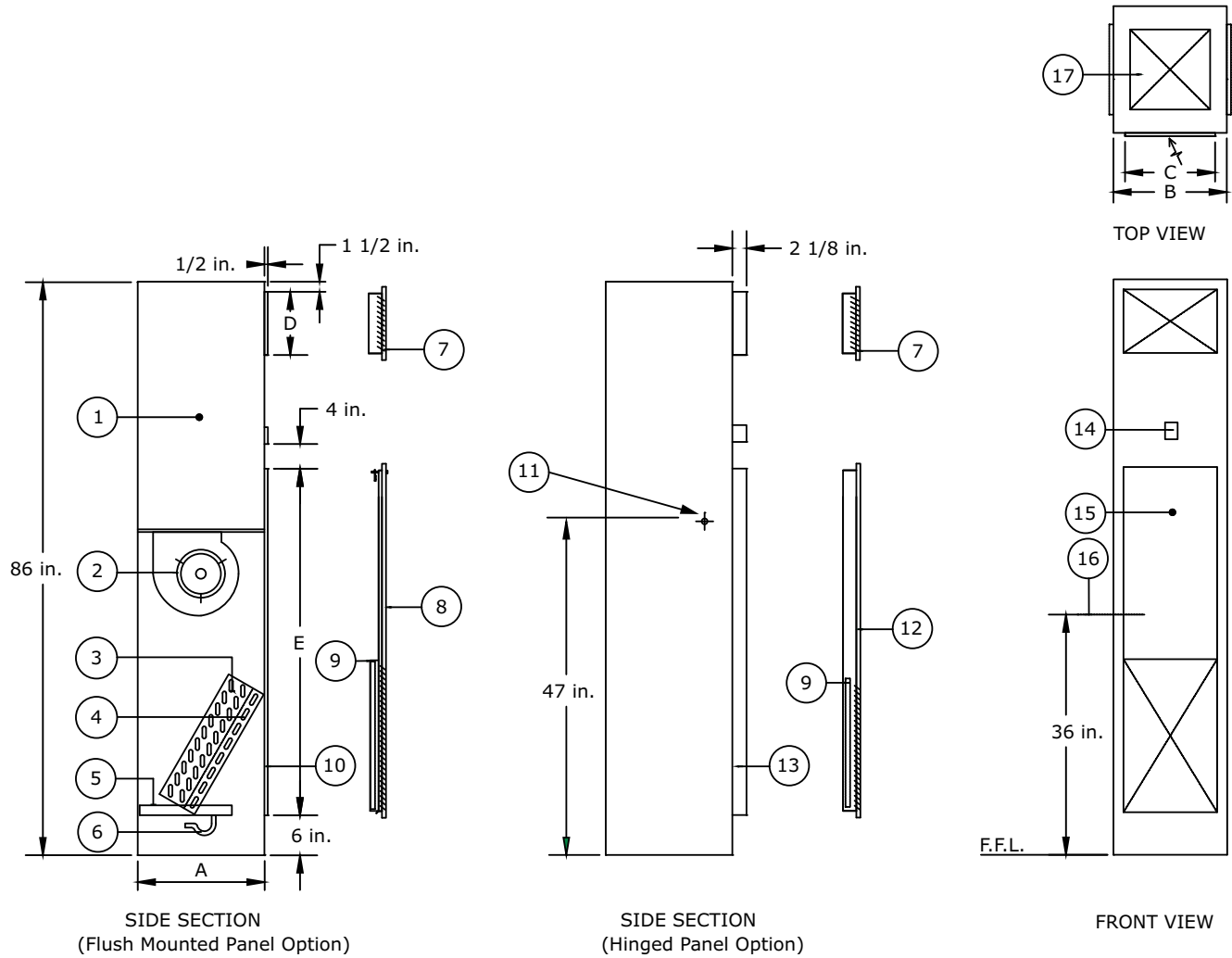
**Table 13. 2-pipe chilled water cooling unit with electric heat dimensions (inches)**

Size	A	B	C	E
350	17	17	14	52
450	17	17	14	52
600	20	20	14	52
800	20	20	14	52
1000	20	24	16	54
1200	20	24	16	54

## Dimensions and Weights

### 4-Pipe Chilled Water Cooling and Hot Water Heating Unit

Figure 15. 4-pipe chilled water cooling and hot water heating unit



**Table 14. 4-pipe chilled water cooling hot water heating unit callouts**

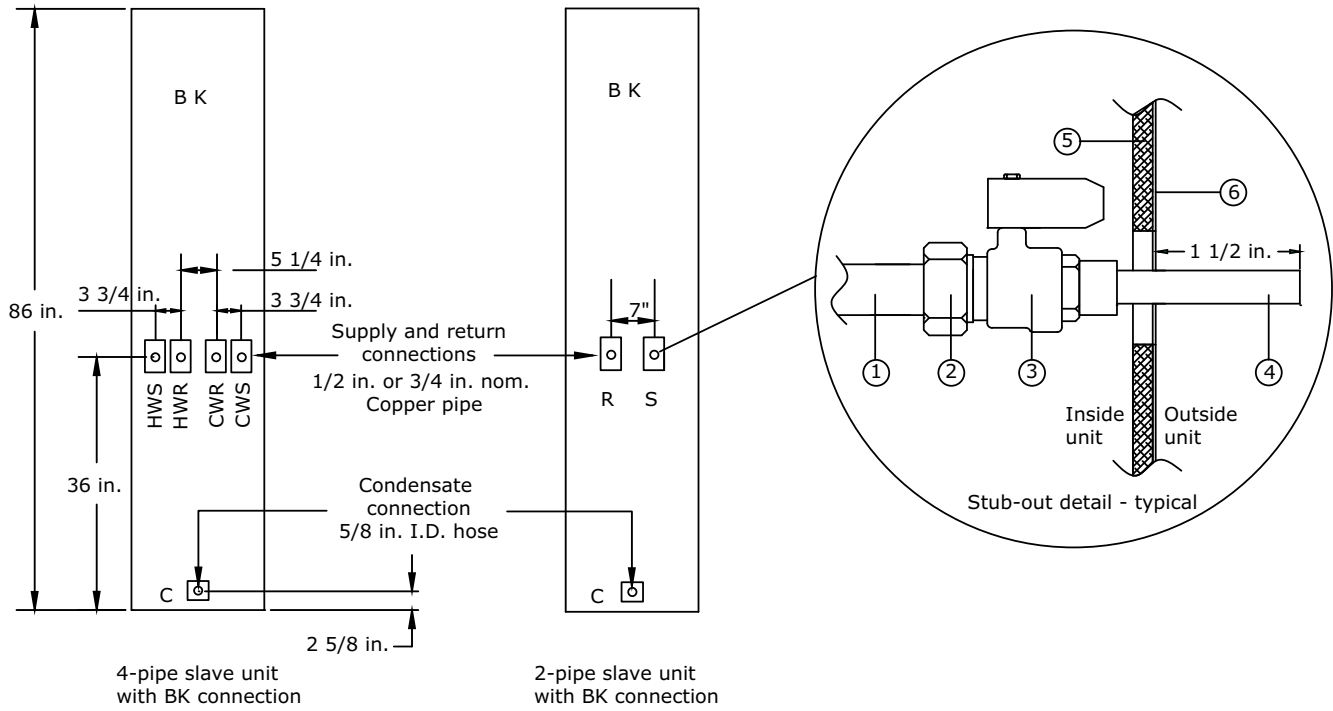
①	18 ga. steel cabinet, lined with 1/2-inch fiberglass insulation coated on air side; 3/8-inch closed-cell foam optional.	⑩	1/2-inch flange on front of unit. Allows direct application of drywall to the unit.
②	Direct-drive centrifugal fan and PSC motor; EC motor optional.	⑪	7/8-inch hole on each side of cabinet for power and control cable entry points on all units. See CLCH-SVX021A-EN installation manual for details.
③	Chilled water coil.	⑫	Hinged return air grille/access panel (optional).
④	Hot water coil.	⑬	2 1/8-inch flange on front of unit. Drywall to be framed out in front of unit.
⑤	Acrylic coated galvanized steel drain pan, pitched in two directions, insulated on the underside; stainless steel optional.	⑭	Unit mounting location for thermostat/controller.
⑥	Drain hose from drain pan to condensate riser. The flexible hose forms a running trap.	⑮	Fan shield, acoustically lined. Identification and safety caution labels are affixed to this panel.
⑦	Double deflection steel supply air grille at front, left, right or back or any combination when there are multiple openings. Dimension "D" varies with CFM: 5, 8, 10, 12, or 14 inches.	⑯	Vertical centerline of coil connection run outs. Connections are at the back, left or right sides of the unit.
⑧	Flush mounted return air grille/access panel attached by quarter turn fasteners.	⑰	Top supply air opening (knock out) for attachment of ductwork.
⑨	One inch disposable filter.		

**Table 15. 4-pipe chilled water cooling and hot water heating unit dimensions (inches)**

Size	A	B	C	E
350	17	17	14	52
450	17	17	14	52
600	20	20	14	52
800	20	20	14	52
1000	20	24	16	54
1200	20	24	16	54

## Fan Coil Units Without Risers

Figure 16. Fan Coil Units Without Risers



**Table 16. Fan coil units without risers - 2-pipe and 4-pipe slave units callouts**

①	1/2-inch or 3/4-inch supply and return coil branch copper pipe
②	Union fitting
③	Ball valve (shut-off valve)
④	1/2-inch or 3/4-inch copper tail piece soldered into valve body at factory
⑤	Insulation lining on interior surface of fan coil cabinet
⑥	Fan coil cabinet

## Riser Packages

Figure 17. Riser 2-Pipe Package

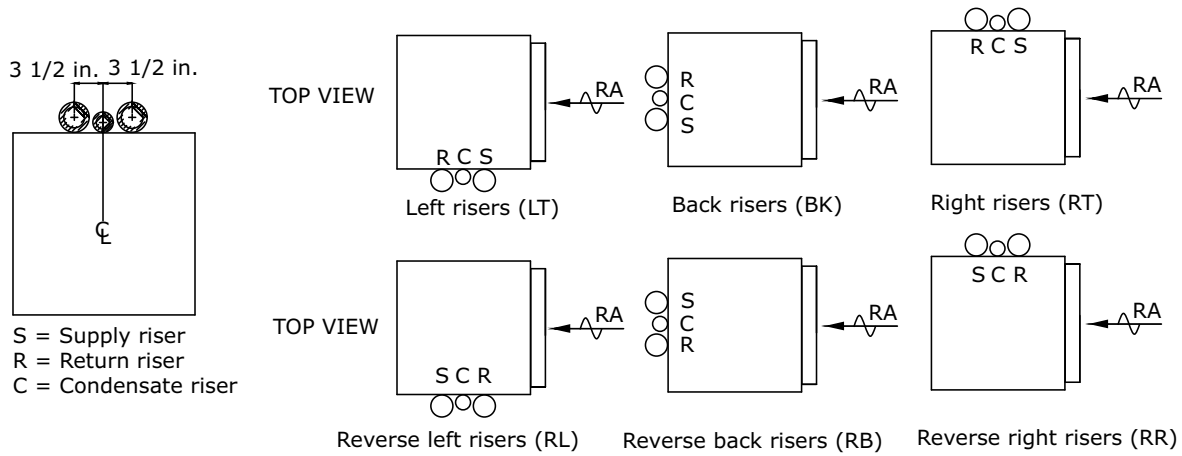
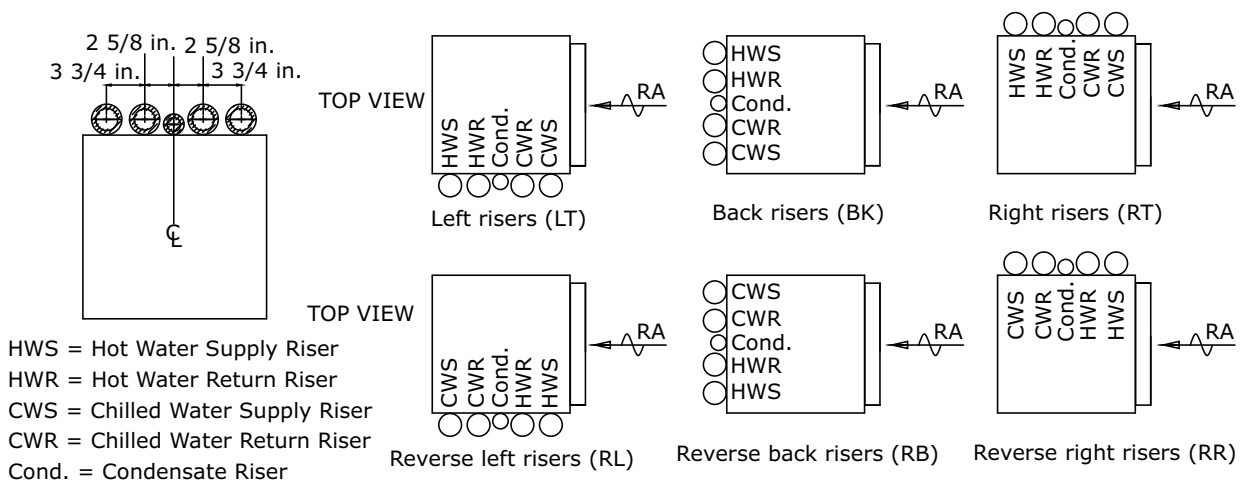
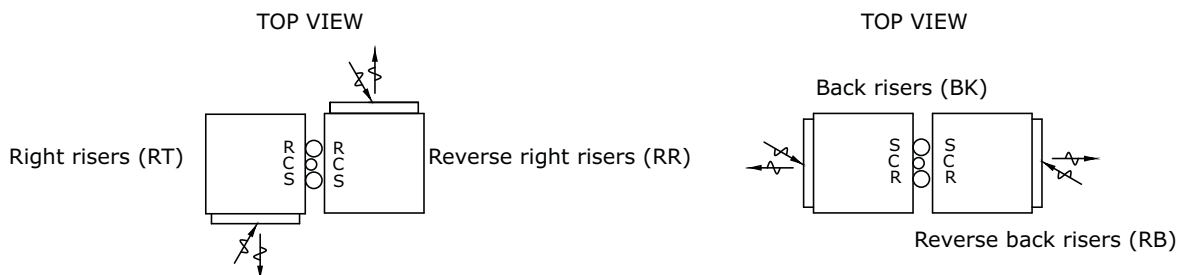


Figure 18. Riser 4-Pipe Package

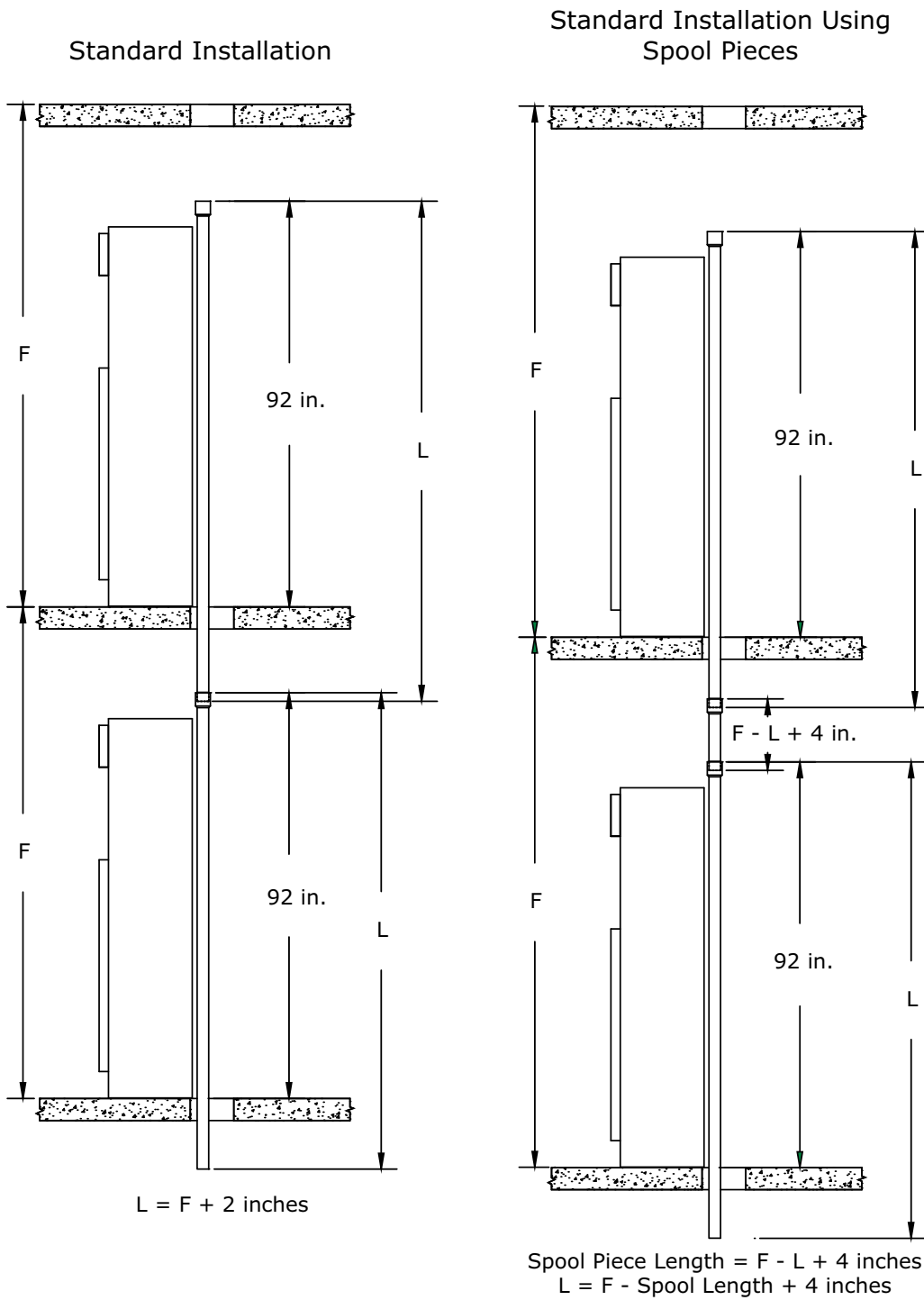


Reverse Riser orientations are used to aid in eliminating cross over piping when units on a riser stack change position from floor to floor or when two units share a common riser (Master/Slave).



## Dimensions and Weights

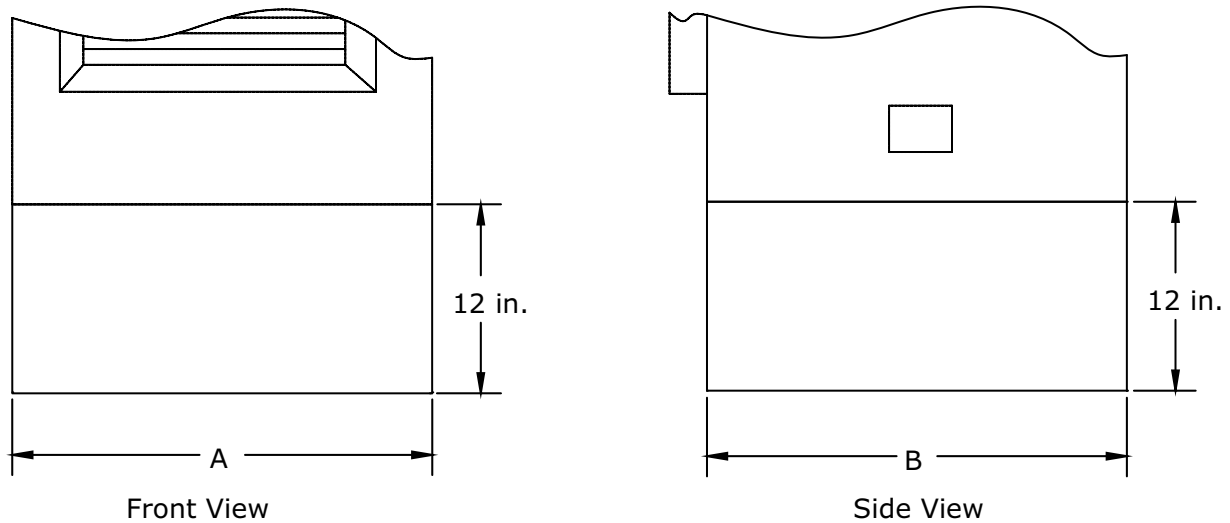
Figure 19. Riser Installation Dimensions (inches)



## Raised Base Options

### Raised Base

Figure 20. Raised base - no access panel



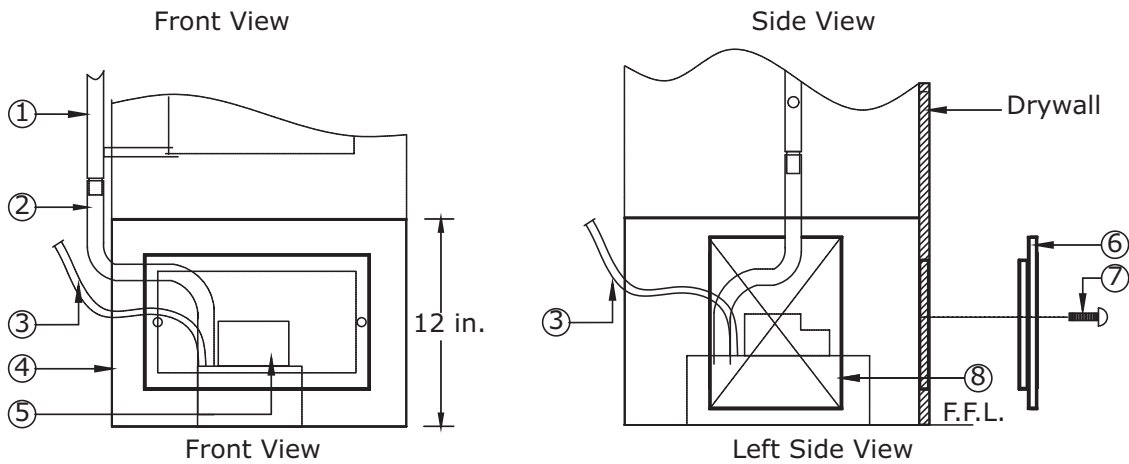
Available in 4-inch, 8-inch and 12-inch heights (shown)

Table 17. Raised base dimensions (inches)

Size	A	B
350	17	17
450	17	17
600	20	20
800	20	20
1000	24	20
1200	24	20

## Raised Base with Condensate Pump and Front Access Panel

Figure 21. Raised base with condensate pump and front access panel



Available only with 12 inch raised base.

Table 18. Raised base with condensate pump and front access panel callouts

①	Condensate riser (if applicable)	⑤	120V - 208V condensate pump
②	Drain tube factory installed	⑥	Front access panel (350 - 800 - 16 in. x 10 in., 1000, 1200 - 18 in. x 10 in.)
③	3/8-inch I.D. outlet tube by contractor	⑦	Screws for front access panel
④	12 inch raised base	⑧	Opening for condensate hose running in and out

**Note:** If the supply is 277V, an appropriately sized step-down transformer is included for condensate pump.



## Return Air Panels

### Return Air Panel with Flush Mount

Figure 22. Return air panel - flush mount with quarter turn fasteners

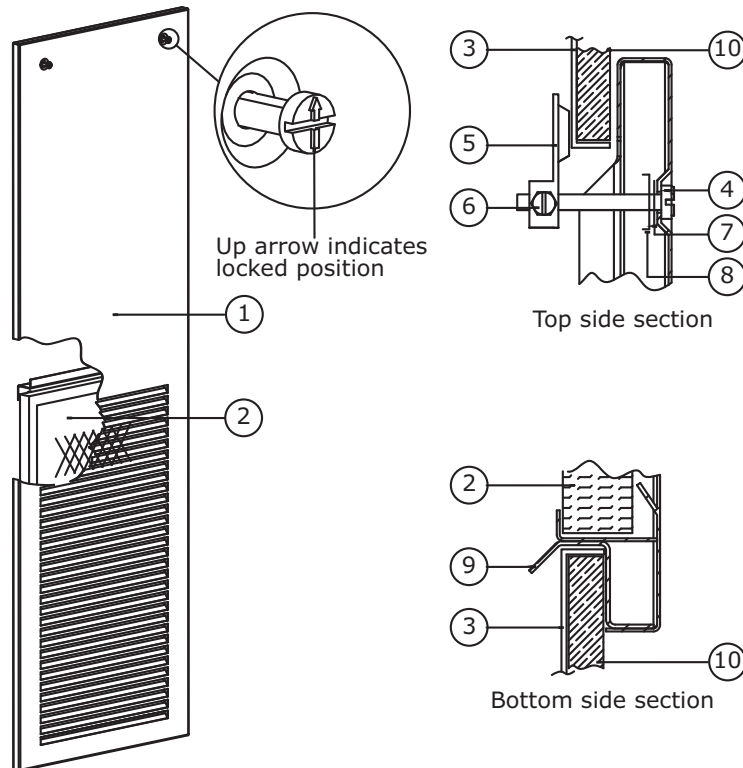


Table 19. Return air panel - flush mount with quarter turn fasteners callouts

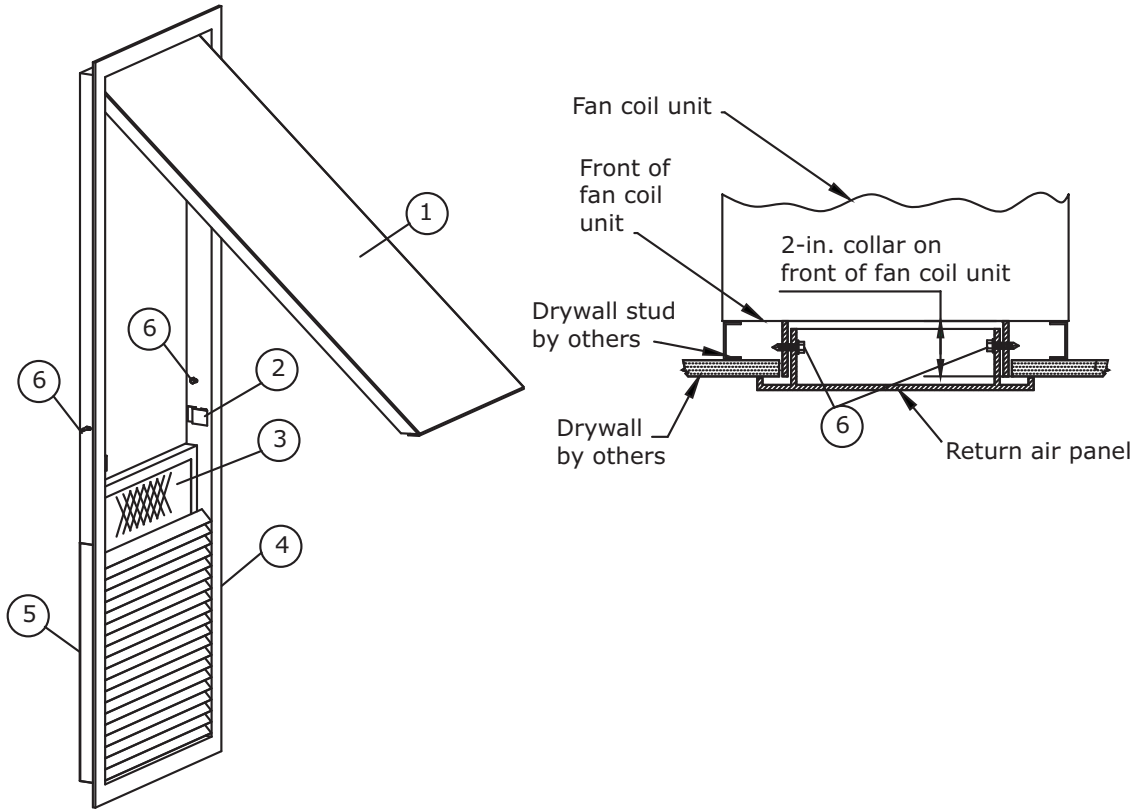
1	Return air grille/access panel with quarter turn fasteners	6	Pawl lock screw
2	Throwaway 1-inch filter.	7	Plastic washer
3	1/2-inch deep collar around return air opening on fan coil unit	8	Spring retainer
4	1/4 turn fastener with slotted head and square shaft	9	Bottom hook of access panel
5	Pawl of the 1/4 turn fastener	10	1/2-inch drywall

#### Features

- Drywall attached directly to front of the unit
- Industry standard
- Fast access with quarter turn fasteners
- Easily removable for filter changing

### Return Air Panel with Framed Out Drywall with Hinged Filter Access

Figure 23. Return air panel - framed out drywall with hinged filter access



**Table 20. Return air panel with framed out drywall with hinged access filter access callouts**

1	Hinged filter access door
2	Access panel retaining clip
3	Throwaway 1-inch filter
4	Grille frame
5	Filter channel
6	Sheet metal screw by contractor

#### Features

- No exposed fasteners
- Improved aesthetics
- Easy filter changing - no tools required
- Drywall is framed out around two-inch collar/flange

## Fan Coil Weights

Table 21. Weights for fan coil units

Size	Weight
350	140 lbs (63 kg)
450	150 lbs (68 kg)
600	170 lbs (77 kg)
800	180 lbs (82 kg)
1000	210 lbs (95 kg)
1200	220 lbs (100 kg)

The weights are approximate. Risers, external sheet metal accessories and supply air grilles are not included in the weight.



# Mechanical Specifications

## Certifications

Performance: Unit performance is certified by AHRI in accordance with ANSI/AHRI 440-2008: Performance Rating of Room Fan-Coils.

Safety: All standard units are agency listed in the United States and Canada and comply with the requirements of the current editions of UL 1995/CSA C22.2 No. 236.

## Construction

The cabinets shall be fabricated from 18 gage steel lined with ½-inch fiberglass insulation bonded with a thermosetting resin and coated on the airstream side with an acrylic facing. In addition, there is an option available for 3/8-inch closed cell cabinet insulation.

The drain pan shall be an acrylic (black polyester powder) coated 20 gauge galvanized steel positively sloped in two directions towards the outlet. The drain pan shall be insulated on the underside with ½-inch fiberglass insulation (same as cabinet). The drain hose from the outlet to the condensate riser shall form a running trap. An optional Stainless Steel drain pan is also available. A drain pan float switch is also available. The float switch will close CW control valve upon detection of high water level in condensate drain pan.

## Fan

The galvanized metal fan wheels are centrifugal forward-curved and double-width. Fan wheels and housings are corrosion resistant.

## Motors

The fan motor shall be a three speed P.S.C. type with internal thermal protection and sealed bearings. All motors have a maximum ambient operating temperature of 104°F and are permanently lubricated.

An optional ECM type brushless fan motor is available. The motor is available, programmed at the factory for three (3) discrete speed operation. A variable speed EC motor is also available for use with a 2-10V DC signal.

An unfused service disconnect switch shall be included, mounted inside the unit behind the motor cover.

## Coils

The coil shall have aluminum fins mechanically bonded to ½-inch copper tube. The coil shall be factory pressure tested at not less than 300 psig. A manual air vent shall be incorporated at the high point, and a drain cock at the low point of the connecting pipework to the coil.

## Piping Packages

The piping package shall include: Ball type shut-off valves on the coil supply and returns (combined with balancing valves or strainers when used), and a two- or three-way control valve with two-position actuator. Chilled water and hot water valves are normally closed.

Control valves are also available in 3 wire floating point or 2-10V DC modulating valves. Additionally balancing valves (manual or automatic) and strainers supplied as riser system dictates. These devices are provided as combo-valves with the shut-off on supply and return and can be equipped with PT ports.

## Electric Heat

Units with electric heat shall be wired for single-stage operation with an open wire nickel-chrome element. An auto-reset high limit device shall be included.

## Filters

A one-inch disposable filter shall be shipped loose with the return air access panel.

Units equipped with one inch MERV 10 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 one inch 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.

## Controls

### **Thermostat (option)**

The fan coil manufacturer shall supply a low voltage (24V) thermostat for remote mounting, or optionally unit mounted. Remote mounted thermostats are connected to a terminal strip that is mounted inside the unit. The thermostat is shipped loose for installation after the unit is installed, dry-wall is applied and the walls are painted.

Line voltage controls for unit mounting is also available. Thermostat quick-connect plug provided; thermostat ships loose for installation after drywall is applied and walls are painted.

### **Tracer ZN521 (option)**

The Tracer ZN521 discrete speed controller can be used in a stand-alone application or used as part of a Trane Integrated Comfort System (ICS) with LonTalk® communication. The Tracer ZN521 offers the combined advantages of simple and dependable operation. Standard control features include options normally available on more elaborate control systems. All control options are available factory-mounted and can be field-configured using a service tool.

### **Tracer UC400 (option)**

The Tracer UC400 controller delivers single zone VAV control in a stand-alone application or as part of a Trane Integrated Comfort system with BACnet® communication. Standard control features include options normally available on more elaborate control systems.

## Riser Package

Risers are available in both type “L” and type “M” copper for supply, return and condensate pipes. Riser insulation is available in ½-inch and one-inch wall thickness for closed cell foam (polyolefin), closed cell elastomeric (similar to Armaflex®) and fiberglass (wrapped with vapor barrier).

Riser diameter and insulation thickness are subject to physical limitations. Contact Trane when risers are larger than 2 1/2 inches in diameter. The risers shall have an approximately 2 1/2 inch swaged expansion at the top end to allow a 2 inch insertion of the riser from above without the use of couplings. Risers may be provided plain ended in lieu of swaged for field supplied/installed fittings (similar to Pro-Press®).

The riser insulation shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less in compliance with ASTM E 84. The insulation shall be continuous over the riser length within the height of the cabinet. Provision for insulation beyond the ends of the cabinet shall be the responsibility of the installing contractor.

The specification of riser anchoring, expansion loops and fire stopping requirements are not detailed in this specification and are not part of the Trane fan coils scope. Trane can provide expansion loops installed on the risers at the factory as per the engineers specification.

Hot water risers which are continuous over twelve or more floors may incorporate expansion compensation loops within the fan coil cabinet, location and spacing of expansion joints are the responsibility of the design engineer.



## Mechanical Specifications

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### Return Air Access Panel

The return air access panel shall have a fixed blade return air grille in the lower portion with filter access achieved by removal of the panel. The panel installs flush on to the drywall which has been applied directly to the front of the unit. The panel is of stamped steel construction and shall be finished in standard white baked enamel. The panel secures to the unit by a hook on the bottom edge and two quarter-turn fasteners in the upper corners. The panel is shipped loose for installation after the unit is installed, dry-wall is applied and the walls are painted.

There is also a return air access panel with hinged filter access as an option. Stamped steel construction with return air grille in lower portion of grille and hinged filter access in the top portion. Secured to the two-inch flange on the front of the unit with sheet metal screws. Drywall is framed out in front of the unit and is not applied directly to the unit face.

### Supply Air Grilles and Registers

Supply air grilles and registers shall be provided for unit mounting locations. The grilles shall be steel, have double deflection airfoil blades and shall be finished in standard white baked enamel. The grilles shall attach to the collar of the fan coil unit by spring clips. When a unit has more than one supply air opening a balancing damper (horizontal in the front) is included with the grille (register) to balance the air flow (screw holes optional). Any supply air grilles which are part of supply air ductwork shall be provided by the sheet metal contractor. Grilles are shipped loose for installation after the unit is installed, dry-wall applied and the walls are painted.

A line of sight baffle with acoustical wrap shall be included in units which have left and right or front and back supply air openings.

There is also an option to upgrade the supply air grille material to aluminum as well as the option to provide custom colors for return air panels and supply air grilles/registers.

### Raised Bases

Raised bases are available in heights of 4 inches, 8 inches or 12 inches. An access panel is available only in the 12-inch height option. If a condensate pump is required, 12-inch high raised base with access panel is required.

# Notes



ETL LISTED  
CONFORMS TO  
UL STD 1995

CERTIFIED TO  
CSA STD C22.2 NO. 236

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Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice.