



Product Catalog

Vertical High Rise Fan Coil Units — FCV

0.75 to 3 tons





Introduction

Vertical High Rise Fan Coil Units

Trane vertical high rise fan coils are intended for single zone applications. These units are used in high rise hotels, and condominiums.

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

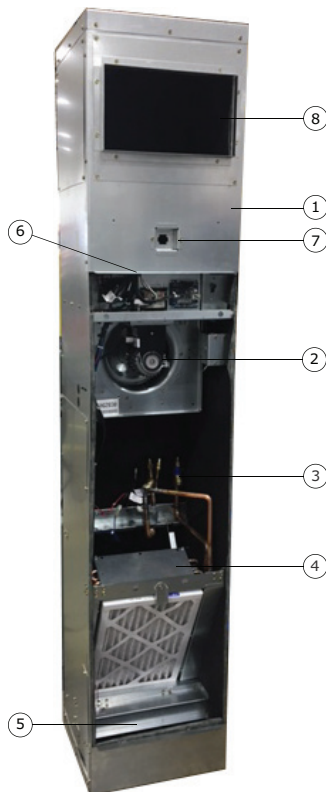
These units have load capabilities of 300 to 1200 cfm. Fan coils provide cooling and heating, and are available as two-pipe, with or without electric heat (one hydronic circuit) or four-pipe (two hydronic circuits). These units feature a variety of factory mounted piping packages.

The UC400-B controller is included inside the unit's control box assembly. These controllers utilize analog signals from a control device mounted in the occupied space.

The Customer Supplied Terminal Interface (CSTI) option, includes a 24volt AC transformer, and an interface terminal board. Controls provided by an external source can be tied into the interface terminal board utilizing the integrated terminal block with 3mm screw connections.

The Customer Supplied Terminal Interface (CSTI) option is also available with a Telkonet thermostat. A thermostat with wire harness will ship with the unit and can be connected to the unit via a connector in the field after the unit is installed.

Figure 1. Fan coil - Model FCV



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

Also available but not shown:

- Risers
- Double deflection supply air grille
- Return air panel
- Filter

Figure 2. Furred-in fan coil



Grille and return air panel standard color is white.

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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 UniTrane fan coil is the leader in these key areas:

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

Today the HVAC market is concerned with issues such as indoor air quality (IAQ) and CFCs that demand a change in HVAC products. Trane is concerned with these issues, too. That is 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).

IAQ Design

- The main pans are constructed of a noncorrosive engineered plastic (ABS and CyColac T).
- The 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.

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-B.
- 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.



Features and Benefits

- Warm-up and cool-down energy features are standard with Trane controls.
- Monitor unit operation using Tracer® TU building management system with UC400-B.
- To customize unit control, Tracer® TU software will allow field modification of UC400-B default settings.
- Maximize fan coil system efficiency with modulating valves on units with UC400-B.

Flexibility

- Three, four and five-row coils allow greater design flexibility in two and four-pipe systems.
- Fan motors are available for either high static (0.5-in. external static pressure) or free discharge applications.
- Piping is factory assembled, mounted and tested.
- Polymer or stainless steel, insulated drain pan with pre-formed rubber p-trap is provided.

Unit Configuration

- Single unit can be selected that incorporates risers attached to the unit for easy installation. A riser ship loose option is available for those that want to install risers early.
- Master unit can be selected that incorporates risers attached to the unit for easy installation. The risers contain an extra stub out to connect a slave unit. A riser ship loose option is available for those that want to install risers early.
- Slave unit can be selected that does not include risers and can be attached to a Master unit in the field.

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.
- All units, components and end devices are tested as a final step of production to be sure the unit performs upon start-up.

Serviceability

- Touch-safe control box.
- Integrated user interface with real language LED display.
- Built-in tachometer.
- Filters are easily removable and changed.
- Motors are easy to disconnect from the fan allowing easy service.
- Coils can be removed from the front of the unit for cleaning and maintenance.
- The drain pans are easily removable and wipe clean with a wet cloth.
- Easy access through option perimeter return air door.



Components and Options

Motor and Control Board

- Trane Electronically Commutated Motor (ECM)
- VelociTach™ motor control board

The motor and control board are combined as a system, and cannot work without each other. This new series delivers outstanding comfort, safety, and performance with greatly reduced energy consumption compared to traditional units.

Electronically Commutated Motor (ECM)



- The ECM has integrated electronics, overload protection and short circuit protection. The motor contains no user-serviceable components inside.
- The motor mates to the unit electrically via a single plug that contains both the operating voltage and the control signals that are needed for correct operation.

VelociTach™ Motor Control Board

The VelociTach motor control board controls and reports the performance of up to two Trane brushless DC (BLDC) motors.



The motor control board also:

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

Status Display



The motor control 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 refer the following screen representation of alphabetical characters and numeric characters tables below.



Components and Options

Table 1. 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	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Table 2. 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

Factory-Installed Piping Packages

Standard piping packages are available as a factory-built and installed option. Piping package options are also available for the hot water reheat coil on four-pipe units equipped with a UC400-B controller. Factory built assures all piping packages are fully tested for leaks and are built within strict tolerances. The installer doesn't have to sweat connect piping packages onto coil connections. All piping and components are located to allow condensate to drain into the drain pan. Insulation of the factory piping package is not required. However, all field connections should be insulated to prevent condensation.

Piping Package Components

Control valves are mounted in all factory piping packages. All piping packages are factory installed and come in a variety of options:

- **Basic with manual circuit setter:** Shut-off ball valve on the supply line. Control valve, manual circuit setter and shut-off ball valve on the return line.
- **Deluxe with manual circuit setter:** Strainer and shut-off ball valve on the supply line. Control valve, manual circuit setter and shut-off ball valve on the return line.
- **Deluxe with auto flow circuit setter:** Union, Strainer and shut-off ball valve on the supply line. Control valve, auto flow valve and shut-off ball valve on the return line.

Piping System/Placement

Factory piping systems are available for either two or four-pipe systems. The piping packages are connected to the risers with a stainless steel braided hose. The risers can be installed on the left hand, right hand, or back of the unit.

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.

Note: Reference UNT-PRC015*-EN to select risers.



Model Number Description

Vertical High Rise Fan Coil

Digits 1, 2, 3 - Unit Type

FCV = Vertical High Rise Fan Coil

Digit 4 - Development Sequence

A = Development Sequence

Digits 5,6,7 - Unit Size

030 = 300 CFM
040 = 400 CFM
060 = 600 CFM
080 = 800 CFM
100 = 1000 CFM
120 = 1200 CFM

Digit 8 - Unit Voltage (Volts/Hz/Phase)

1 = 115/60/1
2 = 208/60/1
3 = 277/60/1
4 = 230/60/1

Digit 9 - Cabinet Options

A = Single Unit
B = Master Unit
C = Slave Unit

Digits 10, 11 - Design Sequence

** = Design Sequence

Digit 12 - Discharge

1 = Front Only
2 = Right Only
3 = Left Only
4 = Top Only
A = Front / Right
B = Front / Left
C = Right / Left

Digit 13 - Outside Air Type

0 = Plug Panel Only

Digit 14 - Discharge Grille

0 = None
1 = Single Deflection Grille
Aluminum
2 = Double Deflection Grille
Aluminum
3 = Single Deflection Grille White
4 = Double Deflection Grille White

Digit 15 - Return Air Panel Color

0 = No Front Panel
7 = White

Digit 16 - Return Air Panel

0 = None
A = Louvered Panel
B = Return Air Door

Digit 17 - Motor Type

A = ECM Free Discharge
B = ECM High Static

Digit 18 - Main Coil/Aux Coil

A = 3 Row Cooling only
B = 4 Row Cooling only
C = 3 Row Changeover
D = 4 Row Changeover
E = 3 Row Cooling / 1 Row Reheat
F = 4 Row Cooling / 1 Row Reheat
G = 3 Row Cooling / 2 Row Reheat

Digit 19 - Drain Pan

1 = Stainless Steel
2 = PVC

Digits 20, 21, 22 - Electric Heat kW

000 = No Electric Heat
005 = 0.5 kW (208V 0.4 kW)
010 = 1 kW (208V 0.8 kW)
015 = 1.5 kW (208V 1.1 kW)
020 = 2 kW (208V 1.5 kW)
025 = 2.5 kW (208V 1.9 kW)
030 = 3 kW (208V 2.3 kW)
040 = 4 kW (208V 3 kW)
050 = 5 kW (208V 3.8 kW)
060 = 6 kW (208V 4.5 kW)
070 = 7 kW (208V 5.3 kW)
080 = 8 kW (208V 6 kW)
100 = 10 kW

Digit 23 - Disconnect Switch

0 = None
D = Disconnect Switch

Digit 24 - Filter Type

0 = No Filter
1 = 1-in. Throw Away or MERV 2 Filter
2 = 1-in. MERV 8 Filter
3 = 1-in. Throw Away Filter Plus 1 Extra
4 = 1-in. MERV 8 Filter Plus 1 Extra

Digit 25 - Main Control Valve Type

A = 2-Way 2-Position N.C. Valve
B = 2-Way 2-Position N.O. Valve
C = 3-Way 2-Position N.C. Valve
D = 3-Way 2-Position N.O. Valve
E = 2-Way Modulating
F = 3-Way Modulating
G = 2-Way Analog (2-10 VDC)
H = 3-Way Analog (2-10 VDC)

Digit 26 - Main Control Valve Cv

A = 2-Way 1.4 Cv
B = 2-Way 2.4 Cv
C = 2-Way 3.4 Cv
D = 3-Way 1.0 Cv
E = 3-Way 2.7 Cv
F = 3-Way 4.6 Cv

Digit 27 - Auxiliary Control Valve Type

0 = None
A = 2-Way 2-Position N.C. Valve
B = 2-Way 2-Position N.O. Valve
C = 3-Way 2-Position N.C. Valve
D = 3-Way 2-Position N.O. Valve
E = 2-Way Modulating

F = 3-Way Modulating
G = 2-Way Analog (2-10 VDC)
H = 3-Way Analog (2-10 VDC)

Digit 28 - Auxiliary Control Valve Cv

0 = None
A = 2-Way 1.4 Cv
B = 2-Way 2.4 Cv
C = 2-Way 3.4 Cv
D = 3-Way 1.0 Cv
E = 3-Way 2.7 Cv
F = 3-Way 4.6 Cv

Digit 29 - Piping Package

1 = Basic with Circuit Setter
3 = Deluxe with Circuit Setter
4 = Deluxe with Auto Flow

Digit 30 - Main Autoflow GPM

0 = None
A = 0.50 GPM
B = 0.75 GPM
C = 1.0 GPM
D = 1.5 GPM
E = 2.0 GPM
F = 2.5 GPM
G = 3.0 GPM
H = 3.5 GPM
J = 4.0 GPM
K = 4.5 GPM
L = 5.0 GPM
M = 6.0 GPM
N = 7.0 GPM
P = 8.0 GPM

Digit 31 - Auxiliary Autoflow GPM

0 = None
A = 0.50 GPM
B = 0.75 GPM
C = 1.0 GPM
D = 1.5 GPM
E = 2.0 GPM
F = 2.5 GPM
G = 3.0 GPM
H = 3.5 GPM
J = 4.0 GPM
K = 4.5 GPM
L = 5.0 GPM
M = 6.0 GPM
N = 7.0 GPM
P = 8.0 GPM

Digit 32 - Control Type

1 = CSTI
2 = CSTI with Fan Status
3 = UC400-B
4 = UC400-B with Air-Fi® WCI



Model Number Description

Digit 33 - Control Options

- 0 = None
- A = Setpoint Dial Zone Sensor (3-in. pigtail)
- B = Set Point Dial Zone Sensor with Comm (3-in. pigtail)
- C = Setpoint Dial, On/Cancel with Comm (3-in. pigtail)
- D = Digital Zone Sensor (3-in. pigtail)
- E = Telkonet® (3-in. pigtail)
- H = Setpoint Dial Zone Sensor (12-in. pigtail)
- J = Set Point Dial Zone Sensor with Comm (12-in. pigtail)
- K = Setpoint Dial, On/Cancel with Comm (12-in. pigtail)
- L = Digital Zone Sensor (12-in. pigtail)
- M = Telkonet® (12-in. pigtail)
- Q = Air-Fi® Wireless Digital Display Sensor

Digit 34 - IAQ Options

- 0 = None
- 1 = Dehumidification
- 3 = Dehumidification with Sensor
- 5 = Air-Fi® Dehumidification

Digit 35 - Control Function 1

- 0 = None
- 1 = Condensate Overflow Detection

Digit 36 - Copper Riser Type

- 0 = No Risers / Ship Separate Riser
- M = Type M Copper
- L = Type L Copper

Digit 37 - Main Riser Insulation

- 0 = No Insulation / Ship Separate Riser
- 2 = 3/4-in. Closed Cell

Digit 38 - DIA, Main Supply Riser

- 0 = No Main Risers / Ship Separate Riser
- A = 0.75-in. Main Risers
- B = 1.00-in. Main Risers
- C = 1.25-in. Main Risers
- D = 1.50-in. Main Risers
- E = 2.00-in. Main Risers
- F = 2.50-in. Main Risers

Digit 39 - DIA, Main Return Riser

- 0 = No Main Risers / Ship Separate Riser
- A = 0.75-in. Main Risers
- B = 1.00-in. Main Risers
- C = 1.25-in. Main Risers
- D = 1.50-in. Main Risers
- E = 2.00-in. Main Risers
- F = 2.50-in. Main Risers

Digit 40 - Auxiliary Riser Insulation

- 0 = No Insulation / Ship Separate Riser
- 2 = 3/4-in. Closed Cell

Digit 41 - DIA, Auxiliary Supply Riser

- 0 = No Auxiliary Risers / Ship Separate Riser
- A = 0.75-in. Auxiliary Risers
- B = 1.00-in. Auxiliary Risers
- C = 1.25-in. Auxiliary Risers
- D = 1.50-in. Auxiliary Risers
- E = 2.00-in. Auxiliary Risers
- F = 2.50-in. Auxiliary Risers

Digit 42 - DIA, Auxiliary Return Riser

- 0 = No Auxiliary Risers / Ship Separate Riser
- A = 0.75-in. Auxiliary Risers
- B = 1.00-in. Auxiliary Risers
- C = 1.25-in. Auxiliary Risers
- D = 1.50-in. Auxiliary Risers
- E = 2.00-in. Auxiliary Risers
- F = 2.50-in. Auxiliary Risers

Digit 43 - DIA, Drain/Condensate Riser

- 0 = No Drain Riser / Ship Separate Riser
- 1 = 0.75-in. Type M Copper with 3/8-in. Insulation
- 2 = 1.25-in. Type M Copper with 3/8-in. Insulation

Digit 44 - Riser Location

- 0 = No Risers / Ship Separate Riser
- 1 = Left Riser Location
- 2 = Right Riser Location
- 3 = Back Riser Location

Digit 45 - Length of All Risers

- 0 = 0-in. (No Risers) / Ship Separate Riser
- A = 100-in.
- B = 101-in.
- C = 102-in.
- D = 103-in.
- E = 104-in.
- F = 105-in.
- G = 106-in.
- H = 107-in.
- J = 108-in.
- K = 109-in.
- L = 110-in.
- M = 111-in.
- N = 112-in.
- P = 113-in.
- Q = 114-in.
- R = 115-in.
- S = 116-in.
- T = 117-in.
- U = 118-in.
- V = 119-in.
- W = 120-in.

Digit 46 - Unit Insulation Type

- 1 = 1/2-in. Matte-faced Insulation
- 2 = 1/2-in. Foil-faced Insulation

Model Number Description

High Rise Fan Coil Accessories

Digit 1 - Cabinet Options

- A = Single Unit
- B = Master Unit

Digit 2 - Copper Riser Type

- M = Type M Copper
- L = Type L Copper

Digit 3 - Main Riser Insulation

- 0 = No Insulation
- 2 = 3/4-in. Closed Cell

Digit 4 - Development Sequence

- A = Development Sequence

Digit 5 - DIA, Main Supply Riser

- 0 = No Main Riser
- A = 0.75-in. Main Risers
- B = 1.00-in. Main Risers
- C = 1.25-in. Main Risers
- D = 1.50-in. Main Risers
- E = 2.00-in. Main Risers
- F = 2.50-in. Main Risers

Digit 6 - DIA, Main Return Riser

- 0 = No Main Riser
- A = 0.75-in. Main Risers
- B = 1.00-in. Main Risers
- C = 1.25-in. Main Risers
- D = 1.50-in. Main Risers
- E = 2.00-in. Main Risers
- F = 2.50-in. Main Risers

Digit 7 - Auxiliary Riser Insulation

- 0 = No Insulation
- 2 = 3/4-in. Closed Cell

Digit 8 - DIA, Auxiliary Supply Riser

- 0 = No Auxiliary Riser
- A = 0.75-in. Auxiliary Risers
- B = 1.00-in. Auxiliary Risers
- C = 1.25-in. Auxiliary Risers
- D = 1.50-in. Auxiliary Risers
- E = 2.00-in. Auxiliary Risers
- F = 2.50-in. Auxiliary Risers

Digit 9 - DIA, Auxiliary Return Riser

- 0 = No Auxiliary Riser
- A = 0.75-in. Auxiliary Risers
- B = 1.00-in. Auxiliary Risers
- C = 1.25-in. Auxiliary Risers
- D = 1.50-in. Auxiliary Risers
- E = 2.00-in. Auxiliary Risers
- F = 2.50-in. Auxiliary Risers

Digits 10, 11 - Design Sequence

- ** = Design Sequence

Digit 12 - DIA, Drain/

Condensate Riser

- 0 = No Drain Riser
- 1 = 0.75-in. Type M Copper with 3/8-in. Insulation
- 2 = 1.25-in. Type M Copper with 3/8-in. Insulation

Digit 13 - Length of All Risers

- A = 100-in.
- B = 101-in.
- C = 102-in.
- D = 103-in.
- E = 104-in.
- F = 105-in.
- G = 106-in.
- H = 107-in.
- J = 108-in.
- K = 109-in.
- L = 110-in.
- M = 111-in.
- N = 112-in.
- P = 113-in.
- Q = 114-in.
- R = 115-in.
- S = 116-in.
- T = 117-in.
- U = 118-in.
- V = 119-in.
- W = 120-in.



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, and 45°F entering chilled water temperature with a 10°F delta T. All performance measured on high speed tap using a 120V AC motor, 0.05-in. ESP without filters or grilles.

Table 3. AHRI-certified ratings for cooling capacities

Size	Coil	Airflow (CFM)	Cooling		Water Flow (GPM)	WPD (ft H ₂ O)	Power Input
			Total Capacity (MBh)	Sensible Capacity (MBh)			W
3	3HC	300	9.4	7.3	1.9	1.0	68
	4HC	300	11.4	8.1	2.3	1.7	68
	3C/1H	300	8.8	6.9	1.8	0.9	68
	3C/2H	300	8.8	6.9	1.8	0.9	78
	4C/1H	300	11.0	7.9	2.2	1.6	78
4	3HC	400	12.2	9.5	2.4	1.6	117
	4HC	400	14.6	10.5	2.9	2.7	129
	3C/1H	400	11.4	9.1	2.3	1.4	129
	3C/2H	400	11.4	9.1	2.3	1.4	141
	4C/1H	400	14.1	10.3	2.8	2.5	141
6	3HC	600	19.1	14.3	3.8	2.4	110
	4HC	600	24.3	16.9	4.8	4.5	110
	3C/1H	600	19.1	14.3	8.8	2.4	110
	3C/2H	600	19.1	14.3	3.8	2.4	116
	4C/1H	600	24.3	16.9	4.8	4.5	116
8	3HC	800	24.1	18.4	4.8	3.7	176
	4HC	800	30.6	21.7	6.1	6.9	186
	3C/1H	800	24.1	18.4	4.8	3.7	186
	3C/2H	800	24.1	18.4	4.8	3.7	196
	4C/1H	800	30.6	21.7	6.1	6.9	196
10	3HC	1000	32.3	23.6	6.4	5.7	270
	4HC	1000	40.1	27.7	8.0	10.0	284
	3C/1H	1000	32.3	23.6	6.4	5.7	284
	3C/2H	1000	32.3	23.6	6.4	5.7	303
	4C/1H	1000	40.1	27.7	8.0	10.0	303
12	3HC	1200	36.9	27.4	7.4	7.2	428
	4HC	1200	46.1	32.2	9.2	13.0	461
	3C/1H	1200	36.9	27.4	7.4	7.2	461
	3C/2H	1200	36.9	27.4	7.4	7.2	479
	4C/1H	1200	46.1	32.2	9.2	13.0	479

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 120V AC motor, 0.05-in. ESP without filters and grilles. 1-row and 2-row coils are in the reheat 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 4. Heating capacities

Size	Rows Heating	Entering Water Temp. 160°F																	
		Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)
		0.5 GPM			1.0 GPM			2.0 GPM			3.0 GPM			4.0 GPM			5.0 GPM		
3	1-row Reheat	9.7	0.3	100	12.3	1.0	108	14.1	3.5	113	14.8	7.5	116	-	-	-	-	-	-
	2-row Reheat	13.6	0.5	112	17.4	1.7	124	19.7	6.0	131	20.5	12.4	133	-	-	-	-	-	-
4	1-row Reheat	10.6	0.3	95	13.8	1.0	102	16.2	3.6	107	17.2	7.5	110	-	-	-	-	-	-
	2-row Reheat	15.2	0.5	105	20.8	1.7	118	24.4	6.0	126	25.7	12.4	129	-	-	-	-	-	-
6	1-row Reheat	-	-	-	20.3	1.4	101	24.4	5.0	108	26.3	10.3	110	27.4	17.5	112	-	-	-
	2-row Reheat	-	-	-	26.2	0.4	110	33.7	1.5	122	36.7	3.0	126	38.2	5.1	129	-	-	-
8	1-row Reheat	-	-	-	22.4	1.4	96	27.6	5.0	102	30.1	10.4	105	31.5	17.5	106	32.4	26.4	107
	2-row Reheat	-	-	-	29.1	0.4	104	39.8	1.5	116	44.2	3.0	121	46.7	5.1	124	-	-	-
10	1-row Reheat	-	-	-	26.5	1.8	94	33.5	6.2	101	36.8	12.8	104	38.7	21.5	106	40.0	32.2	107
	2-row Reheat	-	-	-	33.0	0.5	100	46.8	1.8	113	52.7	3.8	119	56.1	6.3	122	58.1	9.4	124
12	1-row Reheat	-	-	-	27.9	1.8	91	36.2	6.2	98	39.9	12.8	101	42.2	21.5	102	43.7	32.2	104
	2-row Reheat	-	-	-	34.5	0.5	97	50.9	1.8	109	58.4	3.8	115	62.7	6.3	118	65.5	9.4	120
Size	Rows Heating	Entering Water Temp. 140°F																	
		Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)	Total Capacity (MBh)	WPD (ft H ₂ O)	LWT (°F)
		0.5 GPM			1.0 GPM			2.0 GPM			3.0 GPM			4.0 GPM			5.0 GPM		
3	3-row Heating	11.1	0.1	104	15.2	0.3	117	18.2	0.9	126	19.1	1.9	129	-	-	-	-	-	-
	4-row Heating	12.0	0.1	107	16.2	0.3	120	19.0	1.1	128	19.8	2.3	131	-	-	-	-	-	-
4	3-row Heating	12.2	0.1	98	17.7	0.3	111	22.4	0.9	122	24.1	1.9	126	-	-	-	-	-	-
	4-row Heating	13.2	0.1	100	19.0	0.3	114	23.6	1.1	124	25.1	2.3	128	-	-	-	-	-	-
6	3-row Heating	-	-	-	21.2	0.2	103	29.7	0.6	116	33.0	1.3	121	34.6	2.3	123	-	-	-
	4-row Heating	-	-	-	23.7	0.2	106	33.3	0.8	121	36.7	1.6	126	38.3	2.7	129	-	-	-
8	3-row Heating	-	-	-	23.1	0.2	97	34.7	0.6	110	39.8	1.3	116	42.5	2.3	119	44.1	3.4	121
	4-row Heating	-	-	-	25.8	0.2	100	39.1	0.8	115	44.8	1.6	122	47.6	2.7	125	49.3	4.0	127
10	3-row Heating	-	-	-	25.9	0.2	94	39.9	0.6	107	47.0	1.2	113	50.8	2.0	117	53.1	3.0	119
	4-row Heating	-	-	-	28.6	0.2	96	44.8	0.7	111	52.9	1.4	119	57.1	2.4	123	59.6	3.6	125
12	3-row Heating	-	-	-	26.9	0.2	91	43.0	0.6	103	51.9	1.2	110	56.9	2.0	114	60.0	3.0	116
	4-row Heating	-	-	-	29.5	0.2	93	48.1	0.7	107	58.5	1.4	115	64.2	2.4	119	67.7	3.6	122

	LAT>104 F
	WPD>10 ft
	Water velocity in Pipe<1.5 ft/s

Fans Curves

Figure 3. Unit size 300-400 FCVA

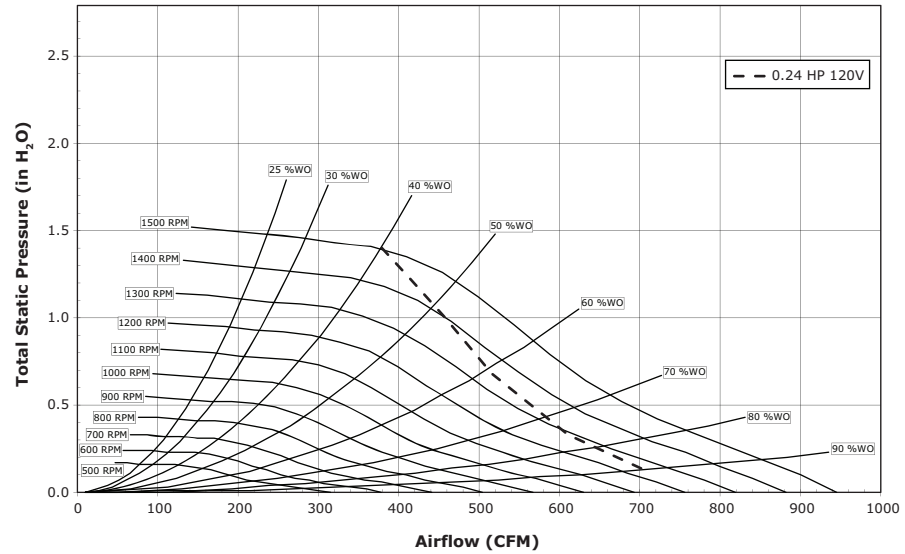


Figure 4. Unit size 600-800 FCVA

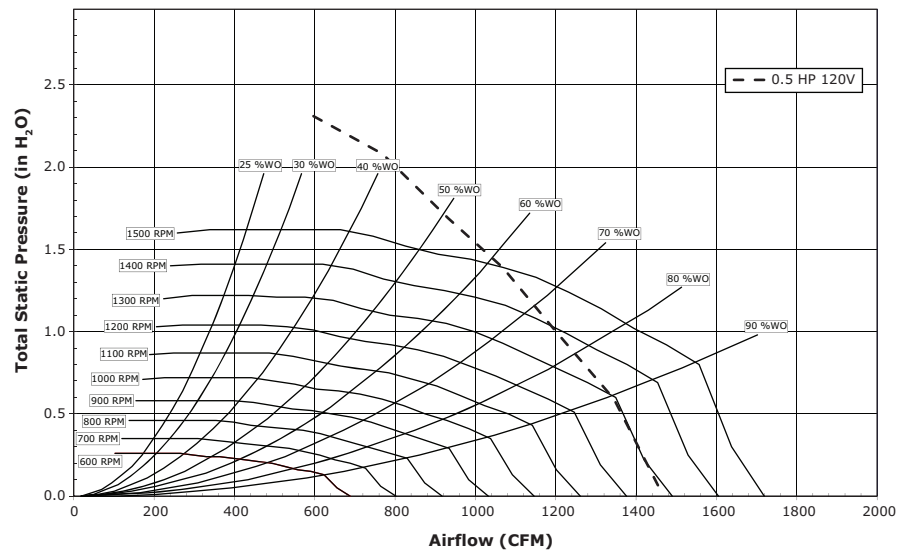
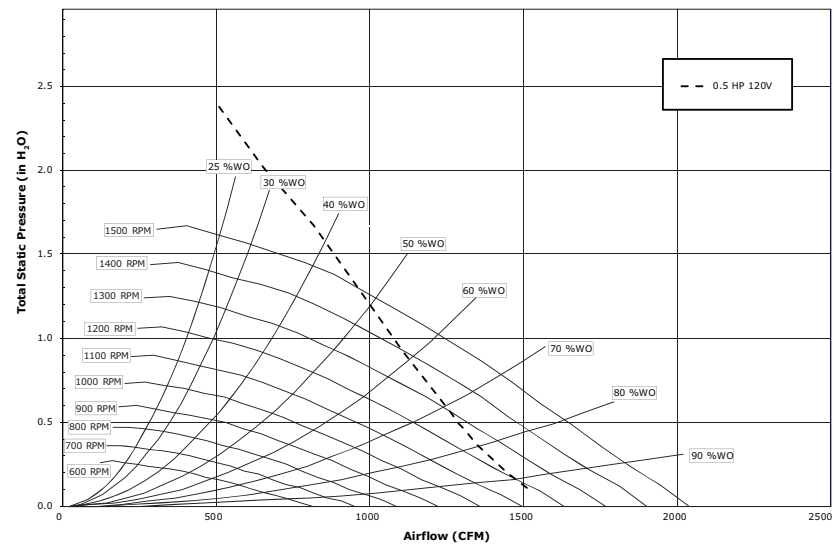


Figure 5. Unit size 1000-1200 FCVA





Electrical Data

Table 5. Electric heat - kilowatts (kW) and current draw (amps) per model for 300 unit size

Unit Size	Connection Voltage	EH Ratings (kW/Amps)									
	Volts/ph/Hz	kW	Amps	kW	Amps	kW	Amps	kW	Amps	kW	Amps
300(a)	120/1/60	0.5	4.2	1.0	8.3	1.5	12.5	2.0	16.7	2.5	20.8
	208V/1/60	0.4	1.9	0.8	3.8	1.1	5.3	1.5	7.2		
	240V/1/60	0.5	2.1	1.0	4.2	1.5	6.3	2.0	8.3	2.5	10.4
	277V/1/60	0.5	1.8	1.0	3.6	1.5	5.4	2.0	7.2	2.5	9.0

(a) Size 300 units are wired for single stage operation.

Table 6. Electric heat - kilowatts (kW) and current draw (amps) per model for 400 to1200 unit size

Unit Size	Connection Voltage	EH Ratings (kW/Amps)																		Amps
	Volts/ph/Hz	kW	Amps	kW	Amps	kW	Amps	kW	Amps	kW	Amps	kW	Amps	kW	Amps	kW	Amps	kW	Amps	
400(a)	120/1/60	2.0	16.7	2.5	20.8															
	208V/1/60	1.5	7.2	1.9	9.1	2.3	11.1													
	240V/1/60	2.0	8.3	2.5	10.4	3.0	12.5													
	277V/1/60	2.0	7.2	2.5	9.0	2.3	10.8													
600(b)	120/1/60	2.0	16.7			3.0	25.0													
	208V/1/60	1.5	7.2			2.3	11.1	3.0	14.4	3.8	18.3									
	240V/1/60	2.0	8.3			3.0	12.5	4.0	16.7	5.0	20.8	6.0	25.0							
	277V/1/60	2.0	7.2			2.3	10.8	4.0	14.4	5.0	18.1	6.0	21.7							
800(b)	120/1/60	2.0	16.7			3.0	25.0													
	208V/1/60	1.5	7.2			2.3	11.1	3.0	14.4	3.8	18.3	4.5	21.6							
	240V/1/60	2.0	8.3			3.0	12.5	4.0	16.7	5.0	20.8	6.0	25.0	7.0	29.2					
	277V/1/60	2.0	7.2			2.3	10.8	4.0	14.4	5.0	18.1	6.0	21.7	7.0	25.3	8.0	28.9			
1000(b)	120/1/60					3.0	25.0													
	208V/1/60	1.5	7.2			2.3	11.1	3.0	14.4	3.8	18.3	4.5	21.6							
	240V/1/60					3.0	12.5	4.0	16.7	5.0	20.8	6.0	25.0	7.0	29.2	8.0	33.3			
	277V/1/60					2.3	10.8	4.0	14.4	5.0	18.1	6.0	21.7	7.0	25.3	8.0	28.9			
1200(b)	120/1/60					3.0	25.0													
	208V/1/60					2.3	11.1	3.0	14.4	3.8	18.3	4.5	21.6	5.3	25.5	6.0	28.8			
	240V/1/60					3.0	12.5	4.0	16.7	5.0	20.8	6.0	25.0	7.0	29.2	8.0	33.3	10.0	41.7	
	277V/1/60					2.3	10.8	4.0	14.4	5.0	18.1	6.0	21.7	7.0	25.3	8.0	28.9	10.0	36.1	

(a) Size 400 units are wired for single stage operation.

(b) Sizes 600, 800, 1000, and 1200 are wired for 2 stage operation.

- An auto-reset high limit device is included. Back up protection is also provided.
- 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.

$$\text{Amps} = \frac{\text{kW} \times 1000}{\text{Volts}}$$

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

FLA = Motor Full Load Amps

MCA = Minimum Circuit Ampacity

$$= 1.25 \times (\text{heater amps} + \text{motor FLA})$$

MOP = Rating of maximum overcurrent protection device

$$= (2.25 \times \text{motor FLA}) + \text{Electric Heater Amps}$$

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.

Motor Data

Table 7. Motor data

Unit Size	Motor	FLA		
		120V	208-240V	277V
300	0.24 HP	3.6	2.1	1.6
400	0.24 HP	3.6	2.1	1.6
600	0.5 HP	7.5	4.3	3.8
800	0.5 HP	7.5	4.3	3.8
1000	0.5 HP	7.5	4.3	3.8
1200	0.5 HP	7.5	4.3	3.8



Controls

Control Packages

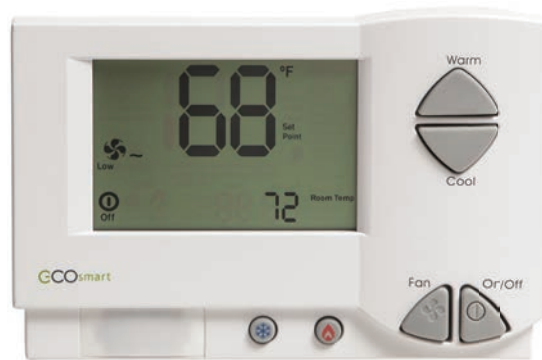
Trane offers a range of standard thermostats and controllers for the vertical high rise fan coil units. For applications where a larger BAS is to be installed, Trane can provide factory mounting of the UC400-B BACnet® controllers.

Thermostats

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

The Telkonet® EcoSmart™ thermostat is available as an option. This uses 2 fan speeds and can be used with Electric Heat and the different valve actuator options. 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.

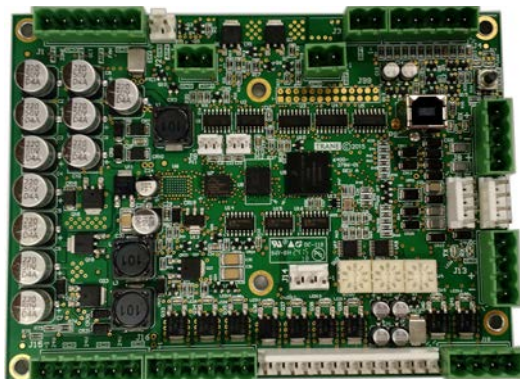
Figure 6. Eco Air-Insight



Tracer® UC400-B Controller

The Tracer® UC400-B is a factory-installed BACnet® MS/TP control designed to provide control of the fan coil (see [Figure 7](#)). The Tracer® UC400-B 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-B can function as a completely standalone controller in situations where a building automation system (BAS) is not present.

Figure 7. Tracer® UC400-B 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-B 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-B 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-B is BTL listed as B-ASC profile. This ensures the controller to be used with other BACnet® building automation systems.

The Tracer® UC400-B 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-B 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)

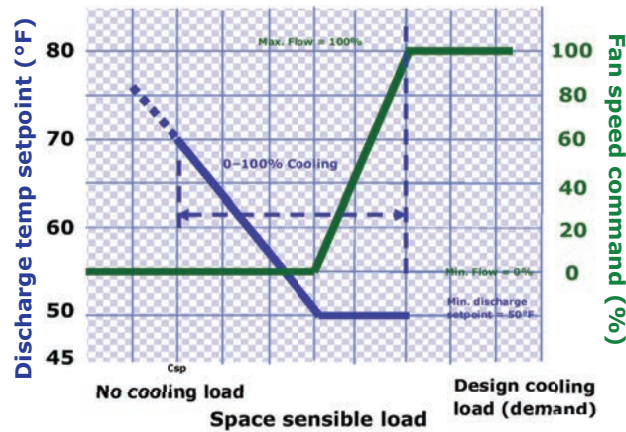
For optimal system performance, fan coils can operate as part of a Tracer® Building Operating System. The controller communicates to the Tracer® system via BACnet® communications using EIA-485 wiring or Air-Fi® Wireless.

The Tracer® system can monitor or override Tracer® UC400-B 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-B will minimize fan speed, and in turn energy usage, by only delivering the air flow needed.

Figure 8. 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.

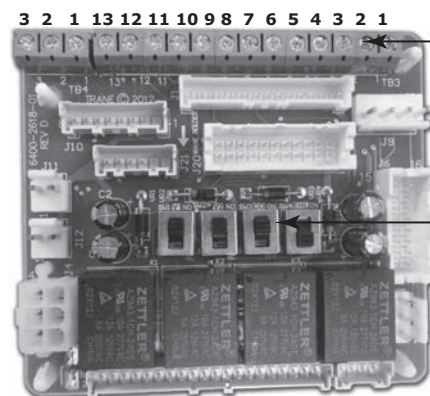
Interoperability

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.

Customer Supplied Terminal Interface (CSTI)

The CSTI 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 and disconnect switch (for non-electric heat units). 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.

Figure 9. CSTI adapter board and field connections



1. VSP 10V
2. VSP 0-10V
3. VSP DC COM
4. 24 Vac B (not)
5. 24 Vac Y (gnd)
6. High
7. Medium
8. Low
9. V1Op/Cooling
10. V1CI (not std)
11. Not used
12. Not used
13. V2Op/EH1St/Heating
14. V2CI/EH2St (not std)
15. Damper Open
16. Dmp CI (not std)

The CSTI adapter board provides all the hookups as the standard adapter board, but in addition, provides hookups for valve control (main and auxiliary coils), electric heat 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.

Air-Fi® Wireless Systems

For more detailed information on Air-Fi® Wireless systems and devices, see:

- BAS-SVX40*: *Air-Fi® Wireless Installation, Operation, and Maintenance*
- BAS-PRD021*-EN: *Air-Fi® Wireless Product Data Sheet*
- BAS-SVX55*: *Air-Fi® Wireless Network Design*

Air-Fi® Wireless Communications Interface (WCI)



A factory-installed Air-Fi® Wireless Communications Interface (WCI) provides wireless communication between the Tracer® SC and Tracer® unit controllers. The Air-Fi® WCI is the perfect alternative to a Trane BACnet® wired communication link. Eliminating the communication wire between terminal products, space sensors, and system controllers has substantial benefits:

- Reduced installation time and associated risks.
- Completion of projects with fewer disruptions.
- Easier and more cost-effective re-configurations, expansions, and upgrades

Air-Fi® Wireless Communications Sensor (WCS)







Communicates wirelessly to a Tracer® unit controller. A WCS is an alternative to a wired sensor when access and routing of communication cable are issues. A WCS allows flexible mounting and relocation.

Zone Sensor Options

Zone sensor options are available as wall mounted. Wall-mounted zone sensor options have an internal thermistor. Zone sensors operate on 24 Vac. Options with setpoint knobs are available in Fahrenheit or Celsius.

UC400-B Controller Options

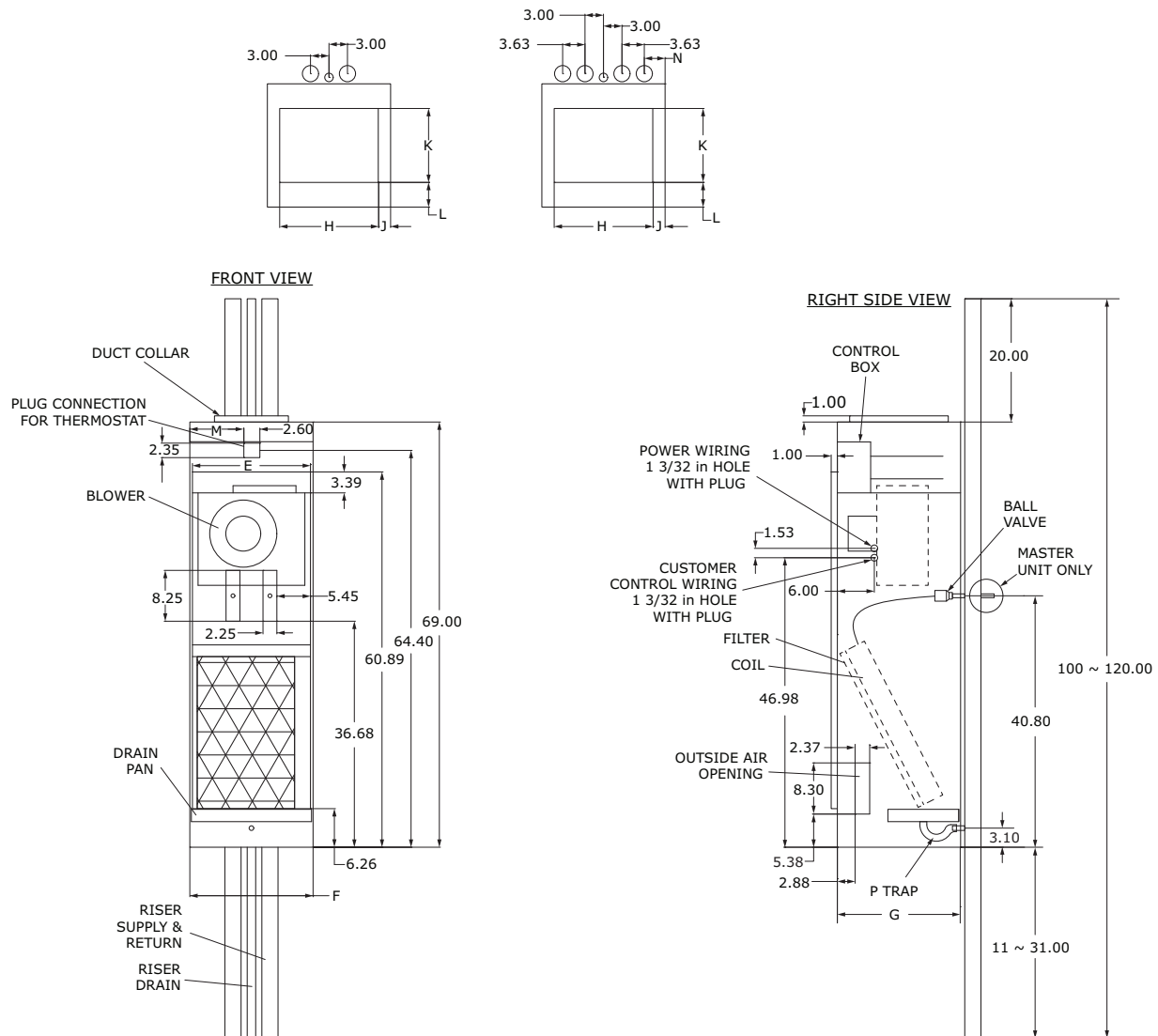
Figure 10. Wall-mounted temperature sensor (SP, OALMH, OCC/UNOCC)	Figure 11. Wall-mounted display temperature sensor (SP, OCC/UNOCC, OALMH, COMM)
	
Figure 12. Wall-mounted temperature (OCC/UNOCC, COMM)	Figure 13. Wall-mounted temperature sensor (SP, OCC/UNOCC, OALMH, COMM)
	

Dimensions and Weights

Vertical High Rise Fan Coil Units

Top Discharge Units

Figure 14. Top discharge (short) unit



Dimensions and Weights

Figure 15. Front and side discharge unit

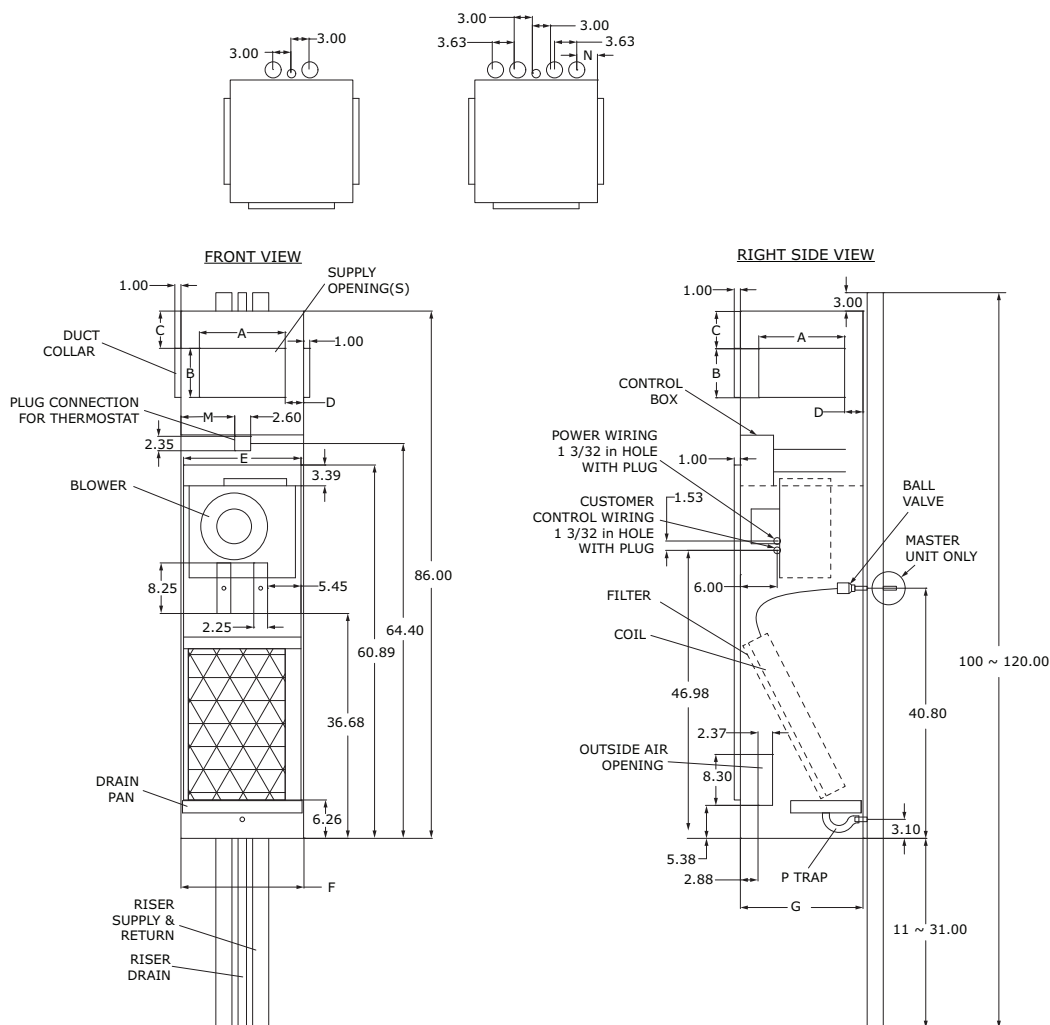


Table 8. Basic dimensions

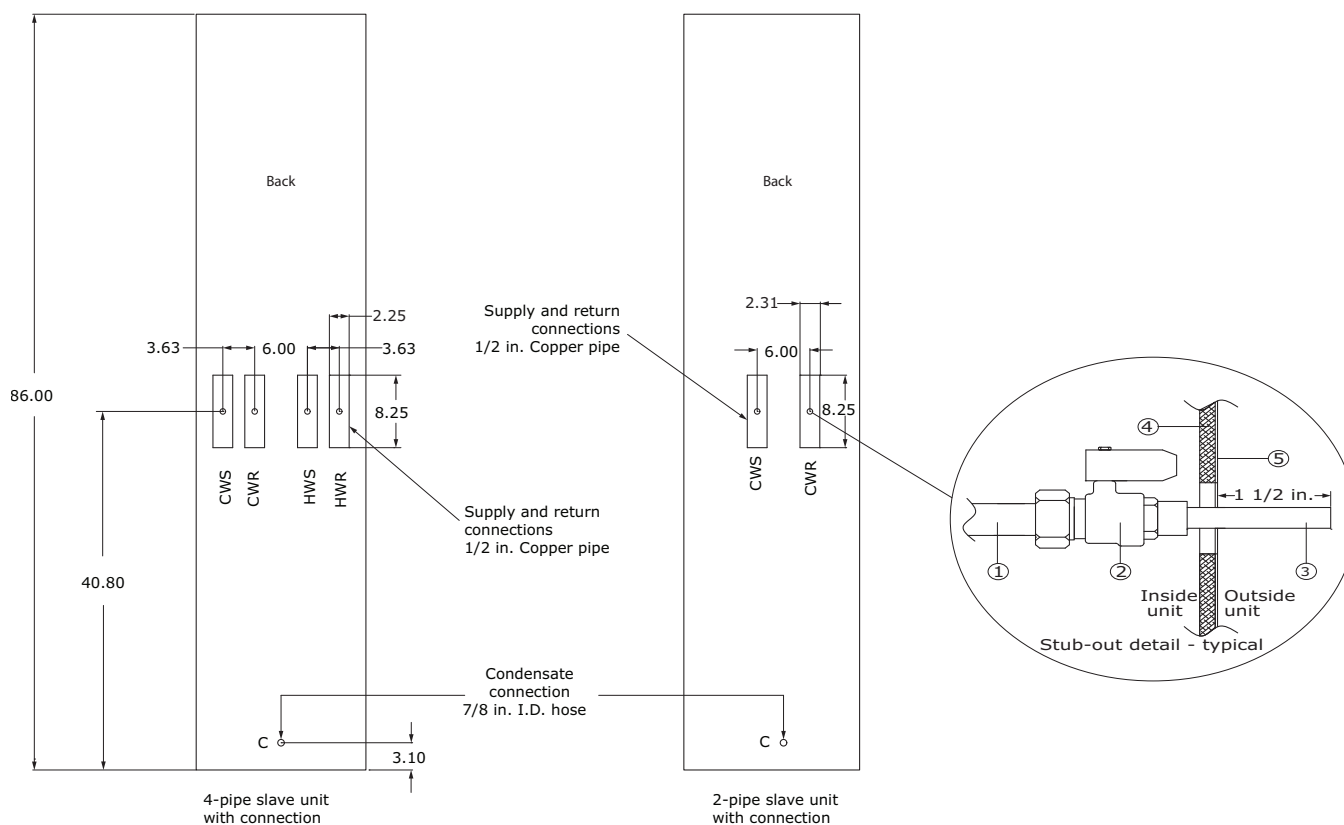
Unit Size	Width (F) (in)	Depth (G) (in)	Height (in)	Top Discharge Height (in)
300	17	17	86	69
400	17	17	86	69
600	20	20	86	69
800	20	20	86	69
1000	24	24	86	69
1200	24	24	86	69

Table 9. Full dimensions

Size	Single Supply				Double Supply				Top Supply				E	F	G	M	N
	A	B	C	D	A	B	C	D	A	B	C	D					
300	14	8	5	1.5	14	6	6	1.5	14	10	3.5	1.5	16.15	17	17	7	1.88
400	14	12	3	1.5	14	6	6	1.5	14	10	3.5	1.5	16.15	17	17	7	1.88
600	17	13	3	1.5	17	7	6	1.5	16	12	4	2	19.15	20	20	8.5	3.38
800	17	13	3	1.5	17	7	6	1.5	16	12	4	2	19.15	20	20	8.5	3.38
1000	--	--	--	--	20	11	4	2	18	18	3	3	23.15	24	24	10.5	5.38
1200	--	--	--	--	20	11	4	2	18	18	3	3	23.15	24	24	10.5	5.38

Units Without Risers

Figure 16. Units without risers



Dimensions and Weights

Table 10. Units without risers - 2-pipe and 4-pipe slave units callouts

①	1/2-in. supply and return coil branch stainless steel braided hose
②	Ball valve (shut-off valve) with threaded connection
③	1/2-in. or 3/4-in. copper tail piece soldered into valve body at factory
④	Insulation lining on interior surface of fan coil cabinet
⑤	Fan coil cabinet

Riser Packages

Figure 17. Riser 2-pipe package

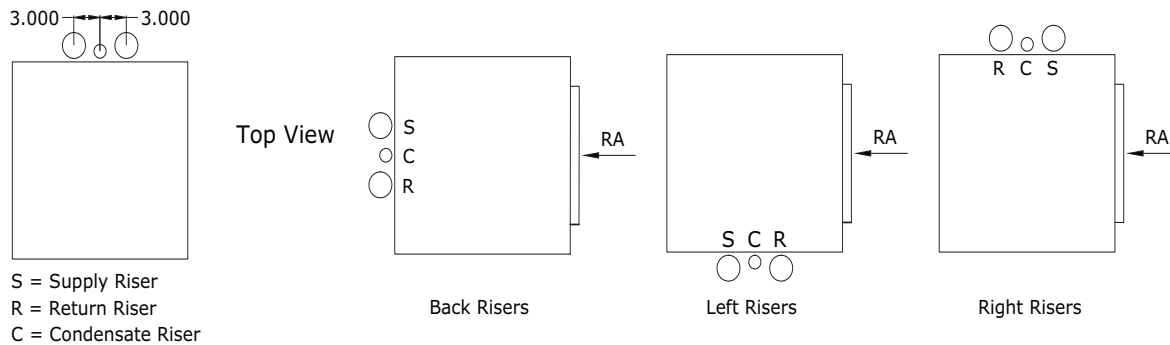


Figure 18. Riser 4-pipe package

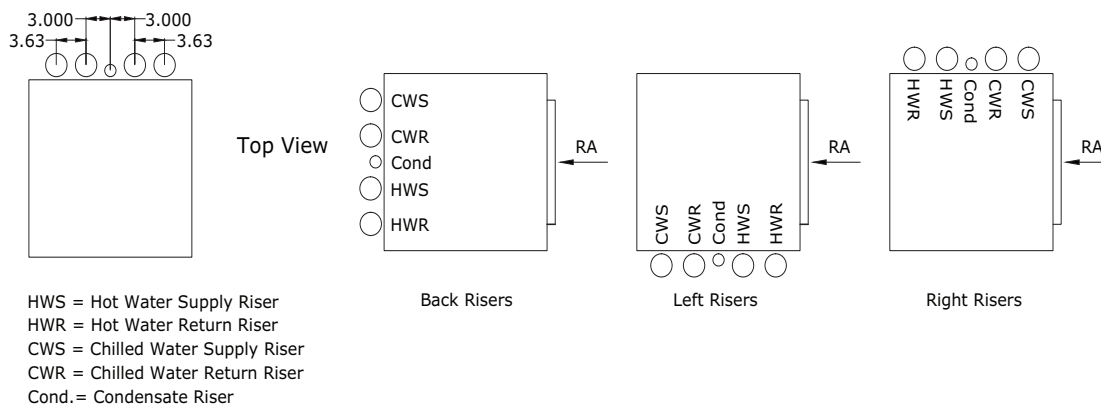
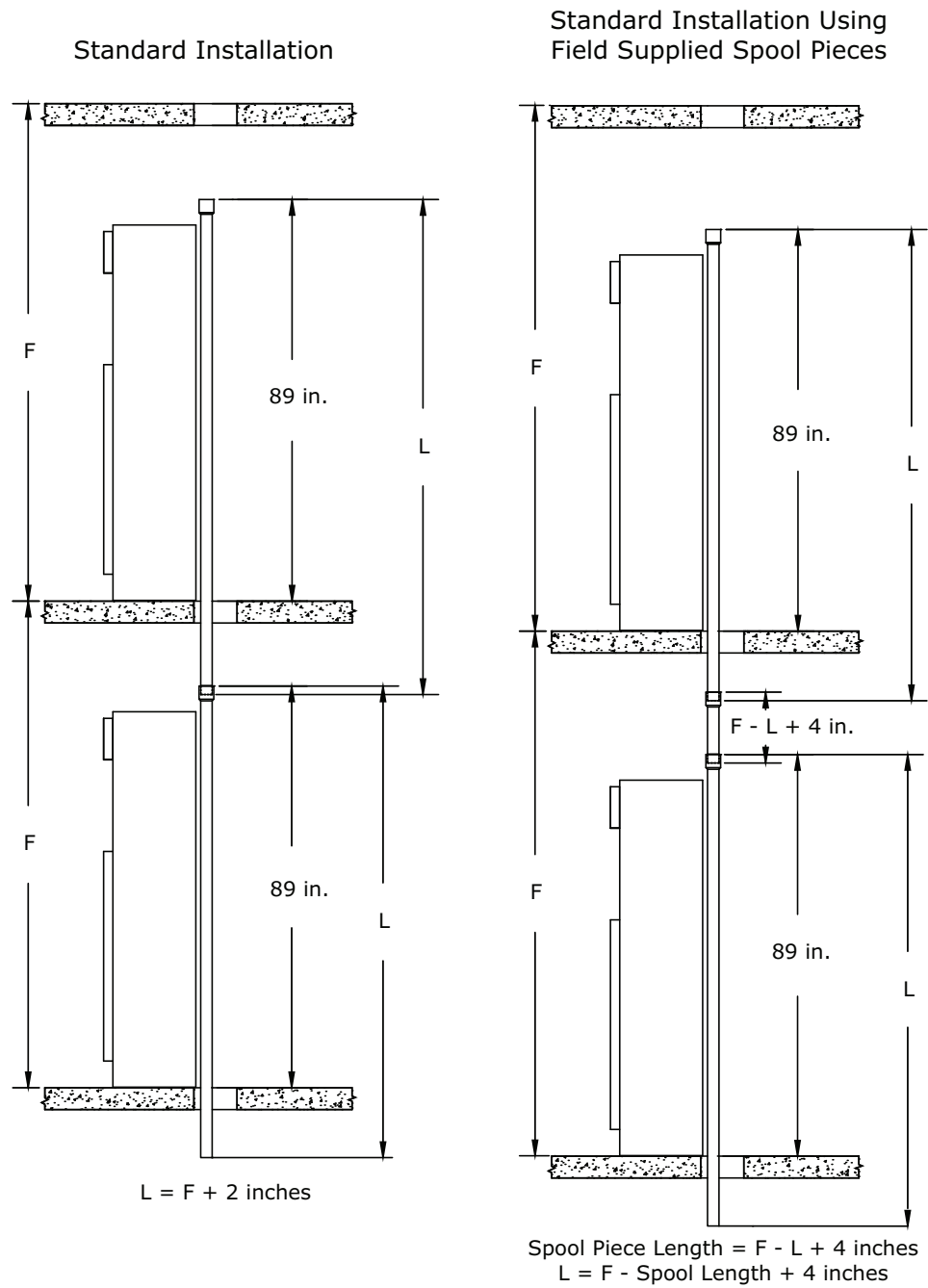


Figure 19. Riser installation dimensions (inches)



Return Air Panels

Return Air Panel with Flush Mount

Figure 20. Return air panel - flush mount (perimeter return)

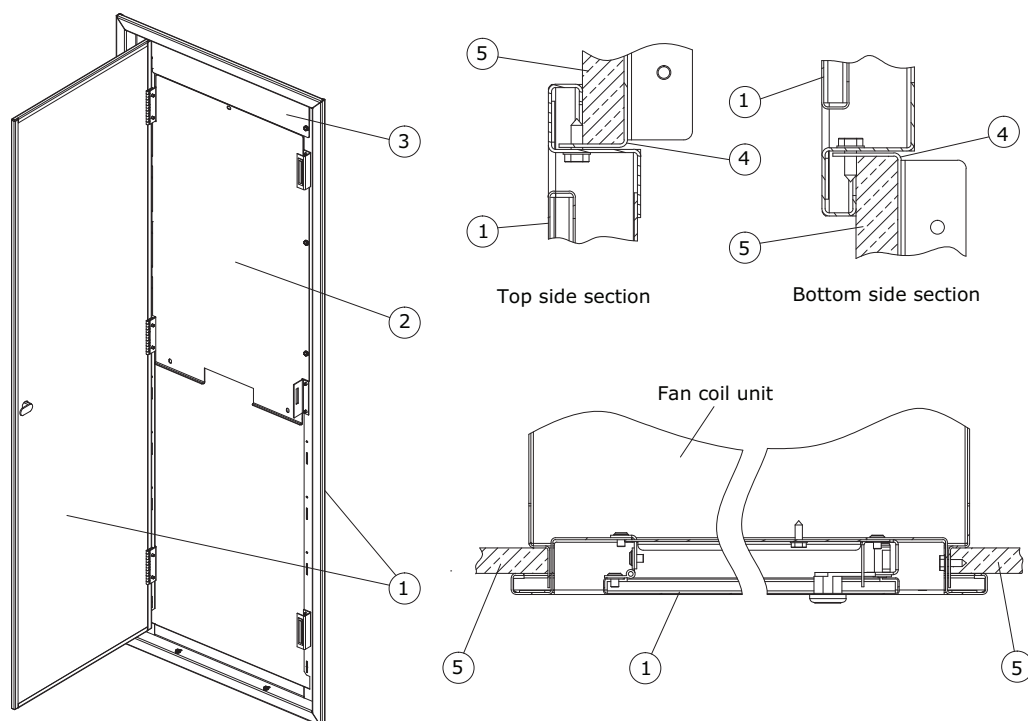


Table 11. Return air panel - flush mount fasteners callouts

1	Return air door
2	Fan cover for air blockoff
3	Control box cover for air blockoff
4	1-in. deep collar around return air opening on fan coil unit
5	1-in. drywall

Features

- Drywall attached directly to front of the unit
- Industry standard
- No exposed fasteners
- Easy to fit different thickness of drywall perimeter air return

Return Air Panel with Framed Out Drywall with Hinged Filter Access

Figure 21. Return air panel - framed out drywall with hinged filter access

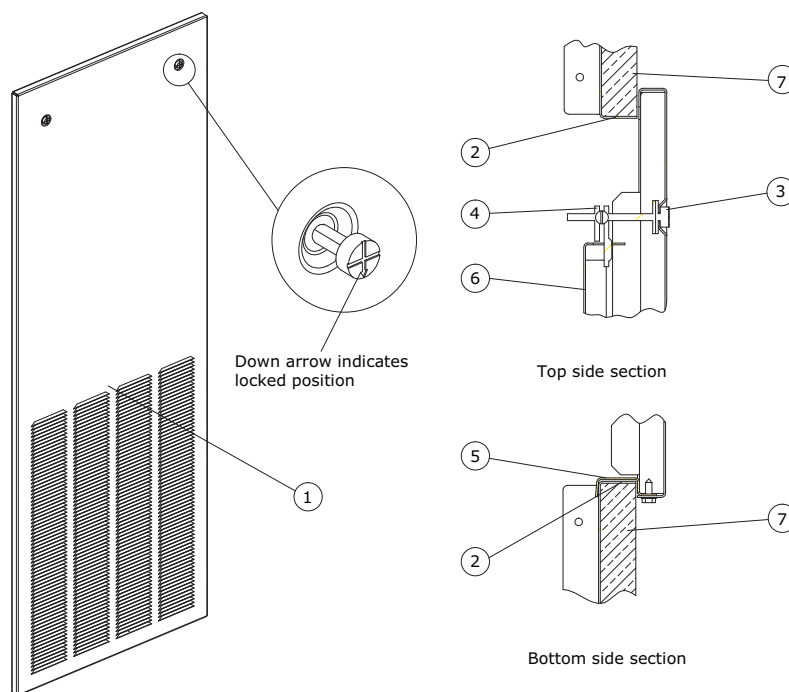


Table 12. Return air panel with framed out drywall with hinged access filter access callouts

1	Return air louver panel with quarter turn fastener
2	1 -in. deep collar around return air opening on fan coil unit
3	1/4 turn fastener with slotted head and square shaft
4	Latch of 1/4 turn fastener
5	Bottom hook of louver panel
6	Cover on fan coil unit
7	1 -in. drywall

Features

- Drywall attached directly to front of the unit
- Improved aesthetics
- Fast access with quarter turn fasteners

Fan Coil Weights

Table 13. Weights for fan coil units

Size	Weight
300	120

Dimensions and Weights

Table 13. Weights for fan coil units

400	120
600	150
800	150
1000	190
1200	190

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



Mechanical Specifications - Unit

General

Trane high rise fan coil shall be furnished and installed.

Equipment shall be factory assembled, piped, internally wired, and test operated at the factory.

Unit capacities are certified under the Industry Room Fan Coil Air Conditioner Certification Program in accordance with AHRI standard 440-2008. All standard units are UL and CUL approved. Service and caution labels shall be placed on the unit in their appropriate locations.

Cabinet casing (Matte-faced/Foil-faced insulation)

The cabinet assembly shall be constructed of heavy-gauge galvanized steel. The panels are insulated with 0.5-in. thick matte or foil faced glass fiber insulation to provide thermal and acoustical insulation. The insulation is classified 25/50 for flame spread and smoke developed characteristics.

The cabinet shall house the blower, fan, coil, piping, valves, and control hook-up to the unit thermostat or zone sensor. A drain pan with condensate hose shall be included with the cabinet design.

Access for inspection and cleaning of the unit drain pan, coils and fan section is provided. The unit shall be installed for proper access. Procedures for proper access, inspection and cleaning of the unit are included in the installation, operation and maintenance manual.

One or two supply air openings shall be factory provided with a 1-in. flange provided for each discharge opening. A line of sight baffle is included with two supply air openings.

Water Coil

All water coils are leak tested and proof tested. Maximum main coil working pressure is 400 psi. Maximum entering Water temperature is 200°F. Tubes and U bends are 0.375-in. OD copper. Fins are aluminum and are mechanically bonded to the copper tubes.

Electric Heat

The auxiliary electric heating coil is provided as auxiliary intermediate season heating. The electric heat coils are located in the reheat 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.

A call for electric heat operation will turn the fan on. Motors controls are synchronized with fan/ valve operation to ensure safe operation and 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. The electric heat also contains manual backup protection.

Drain Pan

The condensate pan shall be constructed of corrosive resistant material and features a slide out design for cleanability. The bottom of the drain pan shall be sloped in two planes to pitch the condensate towards the drain connection and insulated with closed cell insulation. Drain pan shall be factory piped to the condensate riser. The unit utilizes a rubber hose for an internal trap. A UL508 float switch shall be factory installed on all units as standard to protect against the overflow of condensate from the drain pan.



Mechanical Specifications - Unit

Fan and Motor Assembly

The fans are DWDI (Double Width Double Inlet) forward curved centrifugal blower type. The fans are direct drive mounted directly to the motor shaft. All fans are dynamically balanced. All units have a single fan.

A 60 Hz, variable speed, multiple voltage EC motor has a plus or minus 10 percent voltage utilization range. The motor is open type with permanently sealed ball bearings, internal overload protection, and uses a radial mount or pedestal mount. The motor is factory installed, programmed, and wired to the fan coil control panel. 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 on the motor control board accessible without factory service personnel. Motors will soft-ramp between speeds to lessen the acoustics due to sudden speed changes. Motors can be operated at single speed, three speeds or with single zone VAV control.

The motor will choose the highest speed if there are simultaneous/conflicting speed requests. All motors have integral thermal overload protection and are permanently lubricated. The motors have a maximum ambient operating temperature of 104°F. Motors are capable of operating at 90 percent of rated voltage on all speed settings. Motors can operate up to 10 percent over voltage. The motor can be serviced easily with a quick connect wire connector.

Type M Riser

Factory supply, return, and drain risers shall be Type M copper. Swags is provided at the top of each riser. Diameters and length shall be as specified by the equipment model number.

Type L Riser

Factory supply and return risers shall be Type L copper. The drain riser shall be Type M copper. Swags will be provided at the top of each riser. Diameters and length shall be as specified by the equipment model number.

Riser Insulation

The insulation shall be recognized with a flammability rating of UL94-5V. The main and auxiliary risers can optionally be insulated with 3/4-in. closed cell insulation. The condensate riser is insulated with 3/8-in. closed cell insulation.

Electrical

The unit control box shall contain all necessary devices to allow heating and cooling operation to occur from a remote wall or unit mounted thermostat or sensor. These devices follows, 24 VAC energy limiting class II 75 VA breaker type transformer.

Power connections shall be made through the right side of the unit. In case of right side risers, the connection shall be made on the left side. The connection shall provide access directly to the control box.

Control Box

The unit control box shall contain all necessary devices to allow heating and cooling operation to occur from a remote wall or unit mounted thermostat or sensor. These devices are as follows:

- 24 VAC energy limiting class II 75 VA breaker type transformer.
- Optional non-fused disconnect

Controls

CSTI and CSTI with Fan Status

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 24V 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.

An additional option with the CSTI option is a fan status switch. Fan status provides a dry contact output to give a fan status indication.

Tracer® UC400-B and UC400-B with AirFi®

The Tracer® UC400-B controller delivers single zone VAV control in a stand-alone application or as part of a building automation system with BACnet® communication. The Tracer® UC400-B offers the combined advantages of a factory mounted, wired and programmed controller for dependable out-of-the box operation. Standard control features include options normally available on more elaborate control systems. All control options are available factory programmed with additional configuration and programming in the field using a service tool. The UC400-B ships with unit of measure over BACnet® link in SI units. When a BAS system is unable to convert to other desired units a free software tool is available for changing to other unit of measure.

The Trane Wireless Comm Interface (WCI) enables wireless communication between system controls, unit controls, and wireless sensors for the new generation of Trane control products.

The WCI replaced the need for communication wire in all system applications and communicates via the ZigBee PRO protocol.

Zone Sensor/Thermostat

Setpoint dial zone sensor

A wall mounted zone sensor is provided with the unit. The sensor shall also include a fan speed switch (Off/Auto/High/Med/Low) and temperature setpoint dial. A 3- or 12-in. pigtail will be provided depending on unit selection.

Setpoint dial zone sensor with communication jack

A wall mounted zone sensor is provided with the unit. The sensor shall also include a fan speed switch (Off/Auto/High/Med/Low), temperature setpoint dial and a communication jack. A 3- or 12-in. pigtail will be provided depending on unit selection.

Setpoint dial, On/Cancel with Comm.

A wall mounted zone sensor is provided with the unit. The sensor shall also include a fan speed switch (Off/Auto/High/Med/Low), temperature setpoint dial, On/Cancel buttons and a communication jack. A 3- or 12- in. pigtail will be provided depending on unit selection.

Digital zone sensor

A wall mounted zone sensor with a digital display is provided with the unit. The sensor shall also include a fan speed switch (Off/Auto/High/Med/Low), temperature setpoint buttons, On/Cancel buttons and a communication jack. A 3- or 12-in. pigtail will be provided depending on unit selection.

Air-Fi® wireless digital display sensor

A wireless zone sensor and receiver kit monitors the temperature of the specific space where the it is installed. The sensor also has configurable functions such as occupancy override, temperature setpoint, fan speed and system interface.

Mechanical Specifications - Unit

Telkonet®

The Telkonet® thermostat monitors and controls the temperature of the specific building space where it is installed. The thermostat displays zone temperature, remote temperature, or setpoint, and has other configurable options such as occupancy, fan, system control, and a locking feature. The total system is used to maintain the zone at a selected temperature. 3 or 12-in. pigtail will be provided depending on unit selection.

Piping Package

All piping packages are factory installed and leak tested. The maximum working pressure of the interconnecting piping is 300 psig.

The piping package is designed so that any condensation is directed into the drain pan. Insulation of piping package is not required. Control valves are mounted in all factory piping packages.

Basic with Manual Circuit Setter

Shut-off ball valve on the supply line. Control valve, manual circuit setter and shut-off ball valve on the return line.

Deluxe with Manual Circuit Setter

Strainer and shut-off ball valve on the supply line. Control valve, manual circuit setter and shut-off ball valve on the return line.

Deluxe with Auto Flow and Circuit Setter

Union, Strainer and shut-off ball valve on the supply line. Control valve, auto flow valve and shut-off ball valve on the return line.

Ball Valve

The ball valve is a manual shutoff valve with maximum working pressure of 600 psig. The valve has a 2-in. handle that rotates 90° to a fully open position. The valve body and ball is brass with an RPTFE seat.

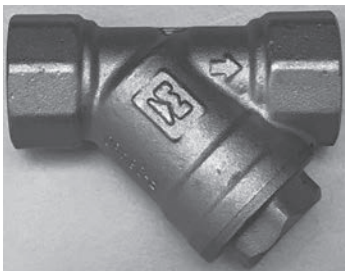
Figure 22. Ball valve



Strainer

Forged Brass body with cleanable stainless steel mesh basket. Strainer is provided with a plug with a TFE coated Neoprene O-ring to access the basket. 0.5-in. strainer contains a 20 mesh screen with 2.50 square inches of screen area. The working pressure of the strainer is 700 psig with a water temperature range of -40°F to 300°F.

Figure 23. Strainer



Manual Circuit Setter

The manual circuit setter acts as both a flow setting device and a stop valve. The manual circuit setter includes 1/4-in. Schrader ports in the valve body to measure pressure drop across the valve. The working pressure of the valve is 300 psig with a maximum water temperature of 250° F.

Figure 24. Manual circuit setter



Automatic Flow Control (Auto Flow Valve)

Located on the return line this device is a non-adjustable flow control valve that maintains the GPM through the unit with a cartridge sized to a specific flow rate. The cartridge can be serviced in the field without disconnecting piping. It has differential operating pressure of 2-80 psid up to 5 GPM and 3-80 psid in excess of 5.5 GPM. Operating temperature ranges from 32 to 225°F with a maximum working pressure of 600 psig.

Figure 25. Auto flow valve

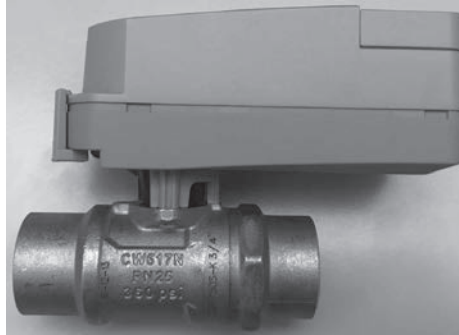


Two Position Control Valve

2-way two position control valves are ball valve design with zero leakage. The ball valve incorporates self-cleaning technology to provide superior clog resistance. The actuator is easily removable for service without removing the valve body. Actuators are capacitor discharge return. Maximum working pressure is 360 psig. Close off pressure is 75 psig. Water temperature ranges from 36 to 200°F.

Mechanical Specifications - Unit

Figure 26. Control valve



Modulating Control Valve

Modulating control valves are ball valve design with zero leakage. The ball valve incorporates self-cleaning technology to provide superior clog resistance. The actuator is easily removable for service without removing the valve body. The actuator is easily removable for service without removing the valve body. Actuators are fail in place. Maximum working pressure is 360 psig. Close off pressure is 75 psig. See previous figure of control valve.

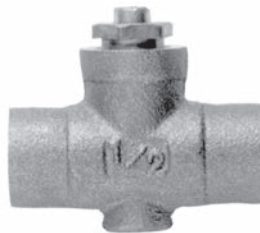
Analog Control Valve

Analog control valves are ball valve design with zero leakage. The ball valve incorporates self-cleaning technology to provide superior clog resistance. The actuator is easily removable for service without removing the valve body. The actuator is easily removable for service without removing the valve body. Actuators are fail in place. Maximum working pressure is 360 psig. Close off pressure is 75 psig. See previous figure of control valve.

Bypass Balance Valve

All 3-way control valve packages include a balance fitting in the bypass line to allow flow balancing in the bypass position. The balance valve is cast bronze with 11 gauge brass packing washer and rubber EPDM O-ring and incorporates both a brass gland screw and stem. The working pressure of this valve is 300 psig.

Figure 27. Balance fitting



Return Air Panel

A frame mounted acoustical door shall be provided to attenuate noise. The door shall be hinged to the wall frame and contain magnetic latches and a key lock to keep the door in place. It shall be flush mounted to the wall as to not protrude into the owner space. The door shall allow access to the unit for ease of filter replacement. The door shall be constructed from heavy-gauge formed galvanized steel and painted white.

Mechanical Specifications - Ship Loose Risers

Louvered Panel

A removable panel with louvers painted white shall be provided. The panel is removable and shall allow access to the unit for ease of filter replacement.

Filters

A 1-in. throwaway filters shall be standard and factory installed.

The filter is concealed from sight and easily removable. A 1-in. MERV 8 filter is provided in the unit. The 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.

Discharge Grille

One or two supply air openings shall be factory provided with a one inch flange provided for each discharge opening. A single or dual air deflection grille shall be provided.

Mechanical Specifications - Ship Loose Risers

General

Trane high rise fan coil shall be furnished and installed. Equipment shall be factory assembled, piped, internally wired, and test operated at the factory.

Unit capacities are certified under the Industry Room Fan Coil Air Conditioner Certification Program in accordance with AHRI standard 440-2008. All standard units are UL and CUL approved. Service and caution labels shall be placed on the unit in their appropriate locations.

Type M Riser

Factory supply, return, and drain risers shall be Type M copper. Swags will be provided at the top of each riser. Diameters and length shall be as specified by the equipment model number.

Type L Riser

Factory supply and return risers shall be Type L copper. The drain riser shall be Type M copper. Swags will be provided at the top of each riser. Diameters and length shall be as specified by the equipment model number.

Riser Insulation

The insulation shall be recognized with a flammability rating of UL94-5V. The main and auxiliary risers can optionally be insulated with 3/4-in. closed cell insulation. The condensate riser is insulated with 3/8-in. closed cell insulation.



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