



Introducing the Leaf   
Vertical Stacked Fan Coil by  
Temspec

*... the Highest efficiency stacked fan coil available*

***“PUTTING GREEN INTO HIGH RISE BUILDINGS”***

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# Temspec Leaf Fan-Coil Units

In a time when environmental responsibility has never been greater, it is our duty as an HVAC equipment manufacturer to design equipment with the lowest environmental impact. The Leaf unit is a result of more than a year of design and testing to produce the highest efficiency vertical stacked fan coil unit available today.

Our design criteria was quite simple; have the smallest footprint, the lowest fan wattage, the quietest operation, and all at no cost premium.

The new Leaf units were designed for customers looking to raise the bar on efficiency, reliability, longevity, and quiet operation. The Leaf unit is the most efficient vertical stacked fan coil on the market today. Typical applications are multiple floor apartments, office buildings, hotels, dormitories, long term care facilities and armed forces barracks.

The small footprint maximizes your leasable space, and the variable speed backward inclined ECM impeller fans offer the highest efficiency in the industry with fan energy savings of 70%.

## Application flexibility

The Leaf product line offers 2-pipe change-over, 2-pipe with primary or auxiliary electric heat, and 4-pipe. 120 – 277 single phase AC power supply options are standard.

Control valve options include 2 & 3 way, 2 position, analog, and 6-way 2 position or analog.

The three cabinet sizes cover an airflow range of up to 400, 800 and 1200CFM.

The Leaf unit offers three cabinet configurations: concealed, (86" tall 20ga galvanized metal), exposed, (86" tall 18ga powder coated metal), and compact ducted unit, (70" tall 20ga galvanized metal)



# Temspec Leaf Model Number

## Digits 1, 2 – Finished Goods Identifier

Must always be “TL”

## Digit 3 – Spacer

## Digit 4 - Cabinet

G = Concealed cabinet

L = Finished cabinet

## Digit 5 - Outside Air

A = Fixed OA volume

F = No OA

## Digits 6,7 – Cabinet Size

04 = 03 and 04 units

08 = 06 and 08 units

12 = 10 and 12 units

## Digit 8 - Spacer

## Digit 9,10 - Concealed & Finished = 86, Compact = 70”

## Digit 11 - M

## Digit 12 - K

## Digit 13 - Y

## Digit 14 - Spacer

## Digit 15 - Primary Cooling

C = Chilled Water (Single Purpose Coil)

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

Y = No Cooling Coil

## Digit 16 - Primary Heating

H = Hot Water (Single Purpose Coil)

W = Hot Water (2-pipe Changeover Coil)

E = Electric Resistance

Y = No Heating Coil

## Digit 17 - Auxiliary Heat

E = Electric Resistance (not available on 4-pipe system)

Y = None

## Digit 18 – Spacer

## Digit 19 – Nominal CFM - I/S

E = 300 / 142

G = 400 / 188

H = 575 / 271 Free discharge 250mm fan in 08 cabinet

K = 600 / 283

M = 800 / 378

P = 1000 / 472

R = 1200 / 566

## Digit 20 – Unit Connected Voltage

1 = 120/1/60

2 = 208/1/60

3 = 240/1/60

4 = 277/1/60

## Digit 21 - Motor Type

V= ECM Variable Speed

## Digit 22 – Water Coils

**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. All coils have manual air vent, SS Flexible Hoses, aluminum fins, copper tubes and galvanized casing.

### 3 Row Coils

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

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

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

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

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

Z = 4/1 (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.

Y = No piping package

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

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

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

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

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

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

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

H = 3-w ay 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, flexible braided hoses and unions on supply and return are standard features. Control valves are mounted on coil return.

Y = no piping package

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 (unit supply voltage)

Y = No Electric Heat

A = 0.75 kW

B = 1.0 kW

C = 1.5 kW

D = 2.0 kW (maximum kW for 120V)

E = 2.5 kW

F = 3.0 kW

G = 3.5 kW (maximum kW for size 03-04)

H = 4.0 kW

J = 4.5 kW

K = 5.0 kW

L = 6.0 kW (maximum kW for size 06-08)

M = 7.0 kW

N = 8.0 kW

## Digit 26 – Control Interface

(Provided and installed by factory unless otherwise noted) Note: standard thermostat is "J".

0 = **0-10VDC Speed Fan Control**, thermostat by others (Terminal strip provided)

K = **3 Speed Fan Control**, thermostat by others (Terminal strip provided)

E = **3 Speed Fan Control** manual/Auto changeover, Non- Programmable, thermostat with integrated 3 Speed fan Switch, NC 2 position valves

J = **0-10VDC Fan Control**, Digital programmable manual changeover, on/auto fan speed, energy savings input, remote sensor input, NO or NC 2 position valve control

H = **0-10VDC Fan Control** Digital programmable auto changeover, on/auto fan speed, modulating or 2 position valve control and BACnet

L = **3 Speed Fan Control** Digital programmable auto changeover, on/auto fan speed, modulating or 2 position valve control and BACnet

## Digit 27 – Heating & Cooling Valve Control

Note: all valves are 24VAC

Y = None, installed by others

C = **2-pipe**, Contractor supplied, factory installed

L = **4-pipe**, Contractor supplied, factory installed

A = **2-pipe**, 2-position NO spring return

B = **2-pipe**, 2-position NC spring return

D = **2-pipe**, 3-wire floating, fail last

E = **2-pipe**, 0-10 vdc NO spring return

F = **2-pipe**, 0-10 vdc NC spring return

M = **2-pipe**, Floating, NO spring return

N = **2-pipe**, Floating, NC spring return

G = **4-pipe**, 2 position CW NO, HW NC

H = **4 pipe**, 2 position CW NC, HW NO

J = **4-pipe**, 0-10 vdc CW NO, HW NC

K = **4-pipe**, 0-10 vdc CW NC, HW NO

P = **4-pipe**, 2-position NO spring return

Q = **4-pipe**, 2-position NC spring return

R = **4-pipe**, 3-wire floating, fail last

S = **4-pipe**, 0-10 vdc NO spring return

T = **4-pipe**, 0-10 vdc NC spring return

U = **4-pipe**, Floating, NO spring return

V = **4-pipe**, Floating, NC spring return

W = **4-pipe**, Floating CW NO, HW NC

Z = **4-pipe**, Floating CW NC, HW NO

Note: Consult Temspec for PIC, 6-Way, OEM specific valve, different controls of CW and HW valves and any other options which are not listed above.

## Digit 28 – Thermostat & Insulation

A = Remote mounted thermostat (1.0" fiberglass insulation)

B = Unit mounted thermostat (1.0" fiberglass insulation)

C = Remote mounted thermostat (1/2" Closed Cell insulation)

D = Unit mounted thermostat (1/2" Closed Cell Insulation)

## Digit 29– Drain Pan

Note: all drain pans are double sloped

0 = None (heating only)

1 = Acrylic coated galvanized steel (Size 06-12) Corrosion Resistance - **Good**

2= Acrylic coated galvanized steel with condensate switch (sizes 06-12) Corrosion Resistance - **Good**

3 = 304 SS (Size 03-12) Corrosion Resistance - **Better**

4 = 304SS (Size 03-12) with condensate switch, Corrosion Resistance - **Better**

5 = Polymer (Sizes 03-04) Corrosion Resistance - **Best**

6 = Polymer with condensate switch (sizes 03-04) Corrosion Resistance - **Best**

## Digit 30 – Design Sequence

A= Current design

### **Digit 31 – Spacer**

### **Digit 32,33 – Supply Air Opening(s)**

Note: line of sight and sound baffle provided with front and back or two side grills selected. See grill size chart grill sizes by unit size

Y = no top duct connection

V = top duct connection

Z = no top duct connection

A = single front

B = single back

C = single left

D = single right

E = front and left

F = front and right

G = front, right & left

H = front and back

J = left and right

K = back & left

L = back & right

M = top opening only E

Example: top duct and front = VA

### **Digit 34 – Filters 1” MERV 10**

1 = 1 set

2 = 2 sets

### **Digit 35 – Riser location**

Y = no risers

3 = Left

4 = Right

5 = Back

6 = Reverse Left

7 = Reverse Right

8 = Reverse Back

### **Digit 36 – Risers, Shipping Method**

Note: see separate riser code string if supplied

Stub-out height is 36". Consult factory for specials

Y – no risers

1 = attached to the unit

2 = shipped loose

### **Digit 37– Raised Base**

Y = none

A = 4" raised base

B = 8" raised base

C = 8" raised base with access door

D = 8" raised base with access door and 120 – 240v condensate pump

E = 8" raised base with access door and 277v

condensate pump

F = 12" raised base

G = 12" raised base with access door

H = 12" raised base with access door and 120-240v

condensate pump

J = 12" raised base with access door and 277v

condensate pump

Note: \* If condensate pump is required, raised base with condensate pump must be factory installed.

### **Digit 38 ESP Static Pressure**

F = free blow

J = .2

K = .4

Note: see catalogue for static pressure limitations by unit size

### **Digit 39 – Spacer**

### **Digit 40,41, – Riser Number**

YY = no riser number

0 = Spacer

Example:

Riser 9 = 09

### **Digit 42,43 – Floor Number**

YY = no floor number

Example:

6<sup>th</sup> floor = 06,

35<sup>th</sup> floor = 35

### **Digit 44,45,46,47 – Room Number**

YYYY = no room number

0 = spacer

Example:

suite 10 = 0010,

suite 945 = 0945

suite 1030 = 1030

### **Digit 48 – Special**

Y = none

1 = 6-way valve

2 = PIC Valves

3 = Low Temperature Protection

4 = non- standard colored grill

5 = 1-year extended warranty (parts only)

6 = Full Face Panel

7 = Outdoor air opening

8 = outdoor air with manual damper

9 = Outdoor air 2-position damper actuator

10 = Integrated HRV

11 = Integrated ERV

Note: Please contact factory for any specials not listed

# What makes us Better?

## High Efficiency ECM Impeller Fans



100-400 CFM



300-1200 CFM

Electronically commutated motors, ECM, with backward inclined fans are typically 25% more efficient than PSC motors and forward curved fans at full load and up 70% more efficient at part load. In a typical 250 suite condominium or hotel in climate zone 5, this represents energy savings more 100,000 kWh annually and significant maintenance cost reduction. The 0-10VDC variable speed fan operates at the lowest speed possible to maintain the room temperature for a quiet and extremely efficient operation

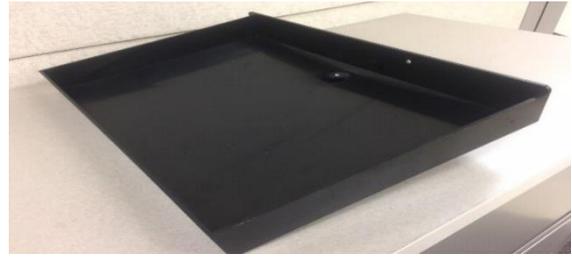
## Smallest Footprint



Our 300-400CFM units footprint is 17% smaller than most competitors. In a 250-suite project, this represents 60 sq ft of leasable savings and allows the unit to fit any retrofit application

## Exceptionally Quiet

The new stacked fan coil unit was designed with the target of being the quietest unit on the market. The cabinet size and shape, fan design and location, and cabinet acoustic treatments all play a role in achieving your desired space NC level



## 100% Corrosion Resistant Polymer Drain Pan

The failure mode for any drain pan, stainless or galvanized steel is corrosion leading to a leak. Polymer offers an indefinite service life and is the least expensive option



## Hinged Filter Access Panel

Makes filter changes quick and easy with no tools



## Digital Programmable Thermostat

Our standard thermostat provides variable speed fan control, un-occupied setpoints, optional remote temperature and occupancy sensor for additional energy savings. Wi-Fi, BACnet, and multi-speed fan thermostats are compatible

## Swaged Riser Ends



Allows quick installation with no couplings which saves significant time and material cost. It is estimated that the installation time is reduced by 30 minutes per unit by having to solder only one joint

# 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 using 120V AC motor, 0.05 inches ESP without filters or grilles.

Model	Coil	Airflow (cfm)	Total Capacity (MBH)	Sensible Capacity (MBH)	Water Flow (GPM)	WPD (ft H2O)	Power Input (w)
03	3 Row cooling/ 14 FPI	300	9.1	6.5	2.1	4.5	29
	4 Row cooling/ 14 FPI	300	10.0	6.8	2.3	3.7	31
	3 Row cooling/ 12 FPI	300	8.5	6.2	1.95	3.7	28
	4 Rows cooling/ 12 FPI	300	9.2	6.7	2.14	3.4	30
04	3 Row cooling/ 14 FPI	400	11.2	8.2	2.6	6.6	58
	4 Row cooling/ 14 FPI	400	12.3	8.7	2.8	5.6	59
	3 Row cooling/ 12 FPI	400	10.3	7.9	2.4	5.1	56
	4 Row cooling/ 12 FPI	400	11.4	8.5	2.63	4.9	57
06	3 Row cooling/ 14 FPI	600	19.3	13.5	4.5	12.9	64
	4 Row cooling/ 14 FPI	600	21.9	14.6	5.1	15.4	66
	3 Row cooling/ 12f FPI	600	18.1	12.7	4.2	11.7	62
	4 Row cooling/ 12 FPI	600	20.6	13.9	4.8	19.1	65
08	3 Row cooling/ 14 FPI	800	23.9	17.5	5.6	19.7	139
	4 Row cooling/ 14 FPI	800	27.1	19.2	6.4	22.9	142
	3 Row cooling/ 12 f FPI	800	21.9	16.5	5.1	16.4	138
	4 Row cooling/ 12 FPI	800	25.4	18.3	5.9	17.9	140
10	3 Row cooling/ 14 FPI	1000	31.6	22.5	7.4	18.9	174
	4 Row cooling/ 14 FPI	1000	36.2	24.7	8.5	16.5	177
	3 Row cooling/ 12 FPI	1000	29.3	21.4	6.8	15.2	173
	4 Row cooling/ 12 FPI	1000	33.8	23.7	7.9	16.5	175
12	3 Row cooling/ 14 FPI	1200	35.4	25.8	8.3	20.4	277
	4 Row cooling/ 14 FPI	1200	40.9	28.6	9.6	18.9	282
	3 Row cooling/ 12 FPI	1200	32.6	24.4	7.6	18.8	278
	4 Row cooling/ 12 FPI	1200	38.6	27.6	9.0	19.9	280

## Heating Capacities

Heating performance is based on 70°F entering air temperature and listed entering water temperatures. All performance measured using 120V AC motor, 0.05 inches ESP without filters or 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.

### Cabinet 03-04

Entering Water Temp. 140°F										
Size		Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)
CFM	Rows Heating	1.0 GPM			2.0 GPM			3.0 GPM		
300	1-Row Heating	9.4	0.8	119	10.7	2.6	128	11.2	5.4	132
300	2-Row Heating	12.5	0.2	113	14.9	0.8	124	15.7	1.6	129
400	1-Row Heating	10.7	0.8	117	12.5	2.6	127	13.3	5.4	131
400	2-Row Heating	14.2	0.2	110	17.7	0.8	121	19.0	1.6	126
Entering Water Temp. 160°F										
Size		Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)
CFM	Rows Heating	1.0 GPM			2.0 GPM			3.0 GPM		
300	1-Row Heating	12.2	0.8	133	13.9	2.5	145	14.5	5.1	149
300	2-Row Heating	16.3	0.2	125	19.2	0.8	139	20.3	1.5	145
400	1-Row Heating	13.9	0.8	130	16.2	2.5	143	17.1	5.1	148
400	2-Row Heating	18.5	0.2	120	22.9	0.8	135	24.6	1.5	142
Entering Water Temp. 180°F										
Size		Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)
CFM	Rows Heating	1.0 GPM			2.0 GPM			3.0 GPM		
300	1-Row Heating	15.0	0.7	147	17.0	2.4	161	17.6	4.8	166
300	2-Row Heating	20.2	0.2	136	23.7	0.7	154	25.0	1.5	162
400	1-Row Heating	17.1	0.7	143	19.9	2.4	158	21.1	4.9	165
400	2-Row Heating	23.0	0.2	130	28.8	0.7	149	30.3	1.5	158

## Heating Capacities

Heating performance is based on 70°F entering air temperature and listed entering water temperatures. All performance measured using 120V AC motor, 0.05 inches ESP without filters or 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.

### Cabinet 06-08

Entering Water Temp. 140°F										
Size/model		Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)
CFM	Rows Heating	1.5 GPM			2.5 GPM			3.5 GPM		
600	1-Row Heating	17.0	0.4	116	19.5	0.9	123	20.8	1.7	127
600	2-Row Heating	24.7	0.8	105	28.5	1.9	116	30.3	3.4	121
800	1-Row Heating	19.1	0.4	113	22.4	0.9	121	24.1	1.7	125
800	2-Row Heating	27.9	0.8	100	33.5	1.9	111	36.2	3.4	118
Entering Water Temp. 160°F										
Size/model		Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)
CFM	Rows Heating	1.5 GPM			2.5 GPM			3.5 GPM		
600	1-Row Heating	22.2	0.4	128	25.2	0.9	138	26.7	1.6	143
600	2-Row Heating	32.1	0.8	114	36.9	1.8	130	39.2	3.3	136
800	1-Row Heating	25.0	0.4	124	29.1	0.9	135	31.3	1.6	141
800	2-Row Heating	36.3	0.8	108	43.3	1.8	123	46.8	3.3	131
Entering Water Temp. 180°F										
Size/model		Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)
CFM	Rows Heating	1.5 GPM			2.5 GPM			3.5 GPM		
600	1-Row Heating	27.3	0.3	141	30.9	0.8	153	33.0	1.5	159
600	2-Row Heating	39.4	0.7	123	45.3	1.7	141	48.1	3.1	150
800	1-Row Heating	30.8	0.4	136	35.8	0.8	149	38.5	1.5	156
800	2-Row Heating	44.7	0.7	116	53.2	1.8	134	57.5	3.1	144

## Heating Capacities

Heating performance is based on 70°F entering air temperature and listed entering water temperatures. All performance measured using 120V AC motor, 0.05 inches ESP without filters or 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.

### Cabinet 10-12

Entering Water Temp. 140°F										
Size/model		Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)
CFM	Rows Heating	2.5 GPM			3.5 GPM			4.5 GPM		
1000	1-Row Heating	24.4	1.1	119	26.4	2.0	124	27.6	3.0	127
1000	2-Row Heating	36.8	2.3	108	40.2	4.0	115	42.2	6.2	119
1200	1-Row Heating	26.5	1.1	117	28.9	2.0	122	30.4	3.0	125
1200	2-Row Heating	39.9	2.3	105	44.2	4.1	112	46.8	6.3	117
Entering Water Temp. 160°F										
Size/model		Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)
CFM	Rows Heating	2.5 GPM			3.5 GPM			4.5 GPM		
1000	1-Row Heating	31.9	1.0	133	34.1	1.9	139	35.5	2.9	143
1000	2-Row Heating	47.5	2.2	118	51.9	3.9	127	54.5	6.0	133
1200	1-Row Heating	34.4	1.1	129	37.4	1.9	136	39.3	2.9	141
1200	2-Row Heating	51.6	2.2	114	57.1	3.9	124	60.5	6.0	130
Entering Water Temp. 180°F										
Size/model		Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)	Total Capacity (MBH)	WPD (ft H2O)	LWT (°F)
CFM	Rows Heating	2.5 GPM			3.5 GPM			4.5 GPM		
1000	1-Row Heating	39.1	1.0	147	42.2	1.8	154	43.1	2.8	157
1000	2-Row Heating	58.3	2.1	128	63.7	3.7	139	65.3	5.7	145
1200	1-Row Heating	42.4	1.0	142	46.0	1.8	151	48.3	2.8	156
1200	2-Row Heating	63.4	2.1	123	70.1	3.7	135	74.2	5.7	143

# Sound Data

Casing Radiated (Free Blow)											
			1/3 Octave Band Frequencies (Hz)								
			63	125	250	500	1000	2000	4000	8000	A-wt. (dBA)
Model	CFM		Sound Power, dB								
03-04	175	-	60	52	42	38	32	26	26	32	42
	225	-	60	57	44	39	34	28	26	32	45
	300	-	59	61	49	43	38	33	27	32	48
	350	-	59	62	54	46	39	34	28	32	50
	400	-	60	60	61	49	42	37	31	32	54
06-08	400	-	58	61	42	42	39	35	29	31	48
	500		59	62	46	44	40	33	28	31	51
	600	-	64	65	53	48	44	36	28	32	54
	700	-	63	66	55	51	46	40	30	32	57
	800	-	65	67	58	54	48	43	33	32	59
10-12	600	-	63	68	53	48	44	36	28	32	54
	700	-	63	72	55	51	46	40	30	32	57
	800	-	65	73	58	54	48	43	33	32	59
	900	-	67	73	61	56	51	46	36	32	60
	1000	-	68	73	64	58	53	49	39	33	62
	1100	-	70	75	67	61	55	51	42	34	64
	1200	-	71	75	70	64	57	53	45	36	66

Consult factory for sound power values not listed. Maximum airflow for size 03-04 unit is 400CFM @ 0.2" WC ESP. Maximum airflow for size 06-08 unit is 800CFM and 10-12 unit is 1200CFM both @ 0.4" WC ESP.

## Sound testing conducted in NVLP Accredited Lab (Lab Code 100424-0) Sound Power based on ANSI/AHRI 260 Test Standard

*The Temspec Leaf unit's control algorithm is designed to deliver the minimum airflow to maintain the room setpoint. This control strategy saves energy, provides superb dehumidification in cooling mode, and provides the quietest operation possible. For example, in a hotel application, since peak cooling load occurs during the day, the fan will operate at a reduced speed during sleeping hours.*

*Note: An acceptable hotel suite or condominium NC level is 35 at design airflow.*

*Wondering what the resulting space NC level will be on your project? Temspec will conduct a free sound analysis. Just send us your room dimensions, duct layout, (if ducted), and the architectural details of the space, like floor and ceiling materials, and we will give you a detailed sound analysis showing the resulting space NC level.*

Ducted Discharge											
			1/3 Octave Band Frequencies (Hz)								
			63	125	250	500	1000	2000	4000	8000	A-wt. (dBA)
Model	CFM	ESP	Sound Power, dB								
03-04	175	0.0	65	52	40	37	34	28	26	32	43
	225	0.0	66	54	46	39	34	29	26	32	45
	300	0.0	66	57	49	42	35	30	27	32	47
	350	0.0	67	60	53	45	35	30	27	32	49
	400	0.0	67	57	60	48	37	31	28	32	53
	175	0.2	67	58	50	42	34	28	27	32	47
	225	0.2	65	55	49	43	36	32	29	32	46
	300	0.2	67	59	55	46	36	29	27	32	50
	350	0.2	65	56	61	49	37	31	28	32	54
	400	0.2	66	59	66	52	38	31	29	33	58
06-08	350	0.0	74	53	43	38	32	28	28	32	49
	400	0.0	67	60	49	42	34	30	28	32	48
	450	0.0	66	61	50	42	33	28	27	32	48
	500	0.0	65	62	52	44	35	29	28	32	50
	600	0.0	68	65	57	48	38	32	29	32	53
	700	0.0	71	69	61	52	41	37	34	33	57
	800	0.0	70	68	64	55	43	37	34	33	59
	400	0.2	64	59	52	44	34	29	28	32	48
	450	0.2	68	61	54	45	36	32	29	32	50
	500	0.2	67	64	56	47	38	33	30	32	52
	600	0.2	68	67	60	50	41	36	32	33	56
	700	0.2	68	67	63	53	43	38	34	34	58
	800	0.2	72	68	68	58	45	40	37	35	62
10-12	700	0.0	70	65	53	46	38	32	28	32	52
	800	0.0	69	65	57	50	41	34	30	32	54
	900	0.0	72	66	60	53	44	36	33	32	56
	1000	0.0	72	68	63	55	47	39	36	33	58
	1100	0.0	74	70	66	58	50	42	39	35	61
	1200	0.0	75	70	68	61	52	45	42	37	63
	600	0.2	67	63	52	45	37	31	29	32	50
	700	0.2	69	65	56	49	40	33	30	32	53
	800	0.2	71	65	59	51	43	35	33	33	55
	900	0.2	74	67	62	54	46	38	35	33	58
	1000	0.2	73	70	65	57	48	40	37	34	60
	1100	0.2	79	69	67	61	50	43	40	36	63
	1200	0.2	77	70	71	62	53	46	43	38	65

Consult factory for sound power values not listed. Maximum airflow for size 03-04 unit is 400CFM @ 0.2" WC ESP. Maximum airflow for size 06-08 unit is 800CFM and 10-12 unit is 1200CFM both @ 0.4" WC ESP.

# Electric Heat

Model	KW Volts/ph./Hz	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
		Heater Amps												
03-04	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	-	-	-	-	-	-
06-08	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	-	-
10-12	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

Note: Electric heat is available on 2-pipe systems only either as auxiliary or primary.

- 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

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

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

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

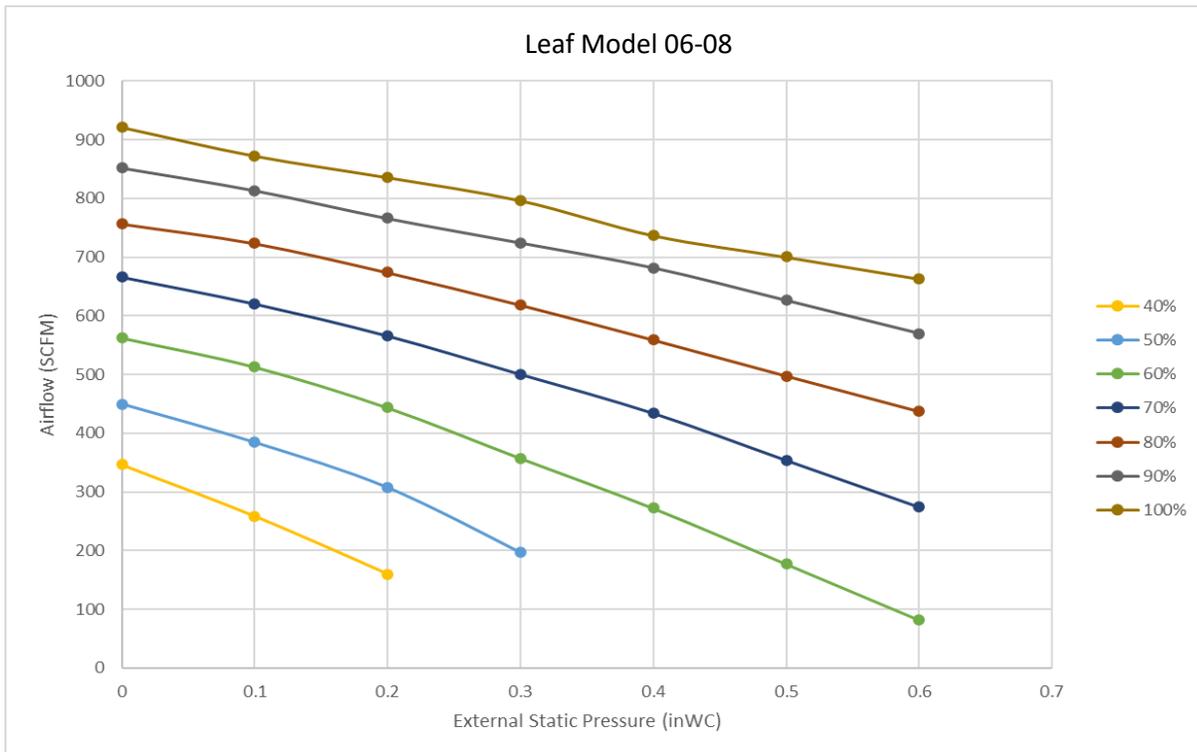
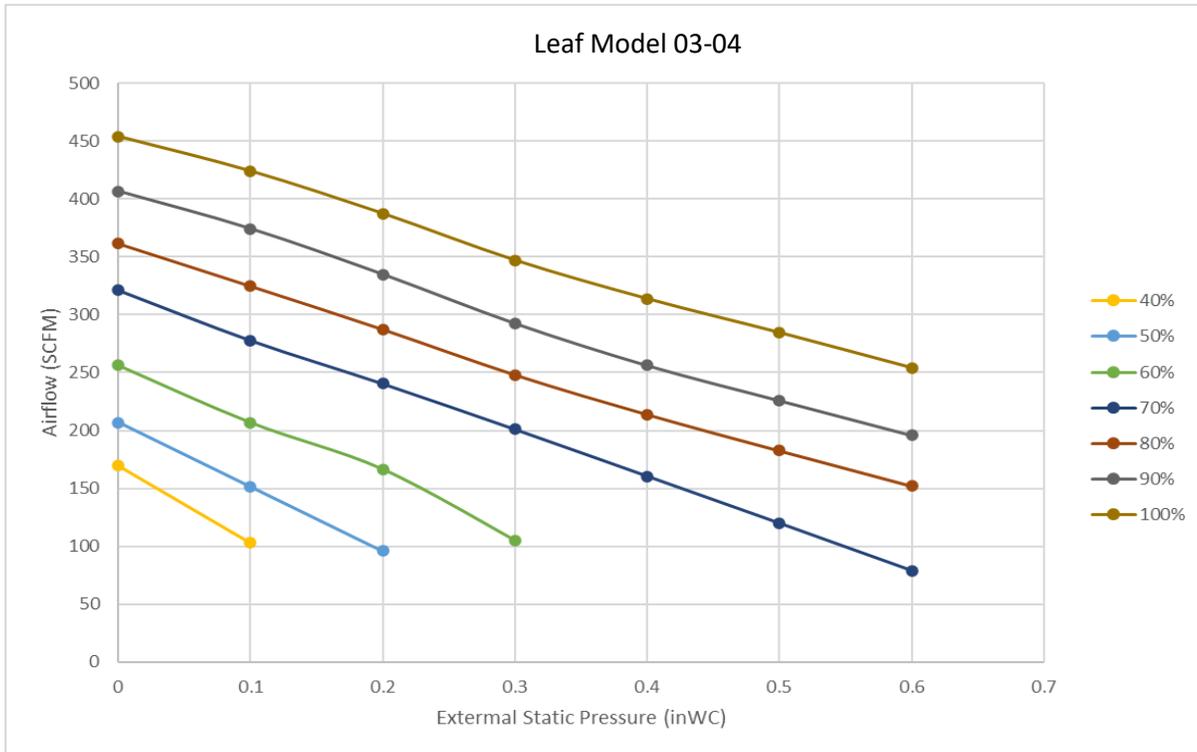
- If the value of the calculated rating does not equal standard current rating of overcurrent protective device, the marked maximum rating shall be the next lower standard rating.
- Exception No. 1: The marked maximum rating of the overcurrent protective device shall be the standard rating next higher than the computed value if the next lower standard rating 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.

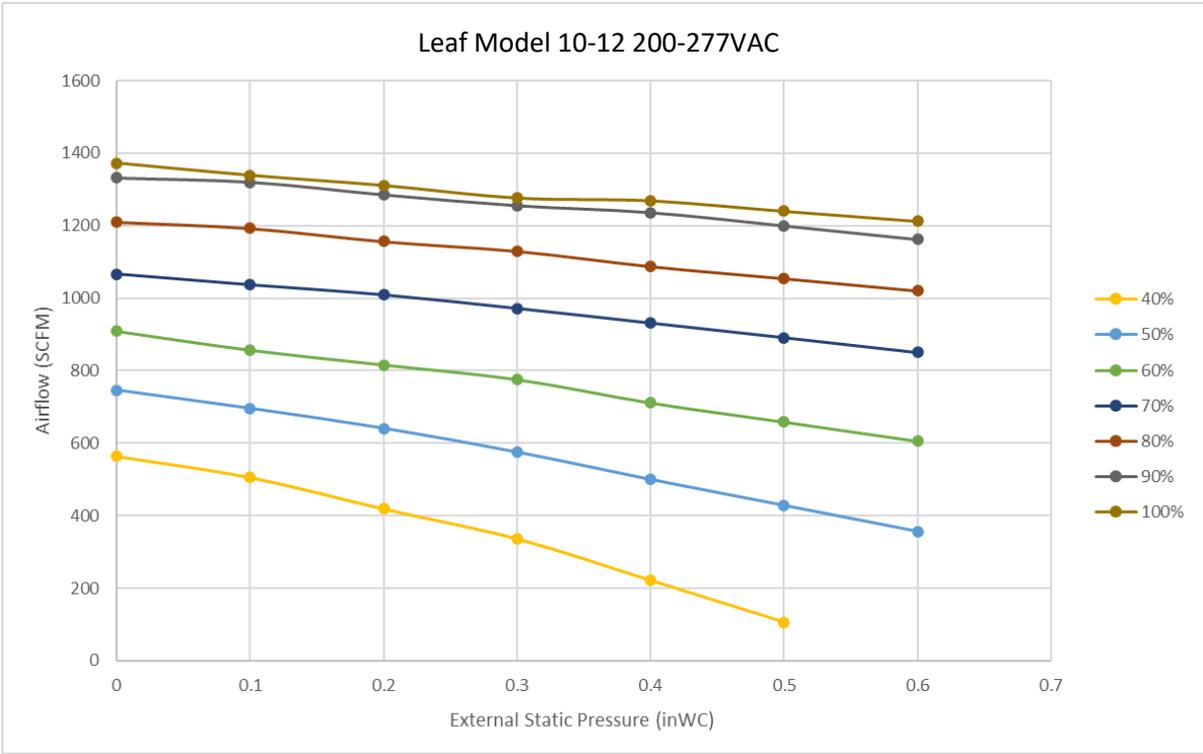
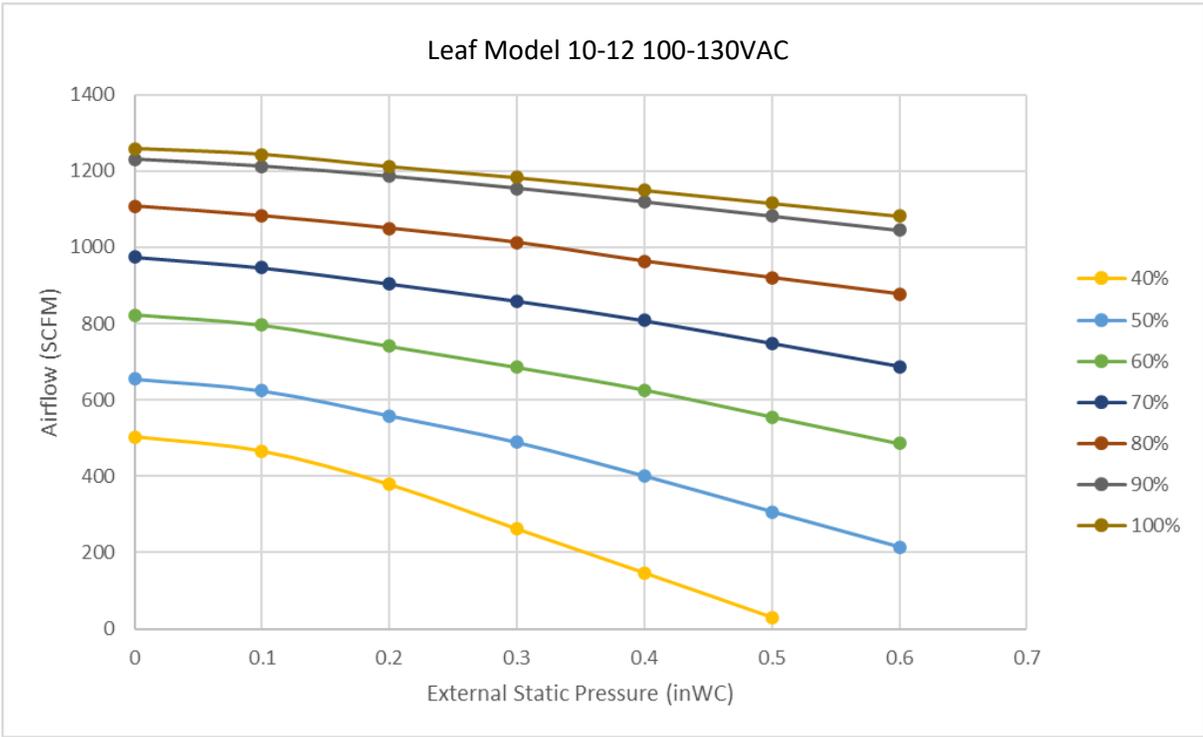
# Motor Data (ECM 0-10VDC Control Signal)

Model	Connection Voltage	ECM Nameplate Data		FLA	MOP	Model	CFM*	Watts* (Free discharge)
	Volts/ph./Hz	Wattage	Amps	Amps	Amps			
03	120V/1/60	85	1.3	1.63	15	03	220	14
	208-240V/1/60	80	0.7	.88	15		272	21
	277V/1/60	80	0.7	.88	15		*300	29
04	120V/1/60	85	1.3	1.63	15	04	328	32
	208-240V/1/60	80	0.7	.88	15		370	44
	277V/1/60	80	0.7	.88	15		*400	59
06	120V/1/60	165	2.3	2.88	15	06	426	29
	208-240V/1/60	168	1.4	1.75	15		563	50
	277V/1/60	168	1.4	1.75	15		600	66
08	120V/1/60	165	2.3	2.88	15	08	571	50
	208-240V/1/60	168	1.4	1.75	15		658	74
	277V/1/60	168	1.4	1.75	15		743	107
10	120V/1/60	345	3.0	3.75	15	10	*800	142
	200-277V/1/60	500	2.2	2.75	15		667	67
							776	88
12	120V/1/60	345	3.0	3.75	15	12	929	133
	200-277V/1/60	500	2.2	2.75	15		*1000	177
							768	97
							823	107
							1081	196
							*1200	282

\*AHRI certified operating points. Other CFM readings recorded during factory performance testing

# AHRI-440 Rated Fan Curves





# Control Options Thermostats (24Vac)

Manufacturer	Model	Part Number	Heat/Cool Changeover	Description	Available Fan Speeds	Application
 <b>Spartan</b>	TE226		Manual	Programmable Digital On-off Valve and 0-10VDC Fan Control <b>BEST VALUE</b>	On/Auto	Residential or Hospitality
 <b>Peco</b>	TA155-O46	68604	Manual	Non-Programmable 3 speed Fan switch On-off valve control	3	Residential or Hospitality
 <b>Viconics</b>	VT8300		Auto	Programmable Digital or analog valve control and 0-10VDC fan control & BACnet	On/Auto	Residential or Hospitality
 <b>Temspec</b>	EVO		n/a	Converts conventional 3 speed fan signal thermostat to 0-10VDC – allows max RPM adjustment for each speed		Residential or Hospitality (used with TA155-046)
Note: The EVO board is required with any thermostat that does not have a 0-10VDC fan speed output. It is highly recommended that a variable speed fan signal be used to reduce energy consumption, deduce noise, and maintain a lower relative humidity in cooling mode. The Leaf unit is compatible with all wire-less thermostats. Contact us to select the appropriate interface.						
 <b>INNCOM</b>	E7		n/a	Digital programmable 0-10VDC fan control, digital valve control, IoT gateway, PIR motion sensor		Residential or Hospitality
 <b>Energey</b>	Dream		Auto	Digital programmable 0-10VDC Fan Control Digital valve control WiFi, App management Wireless PIR motion sensor		Residential or hospitality

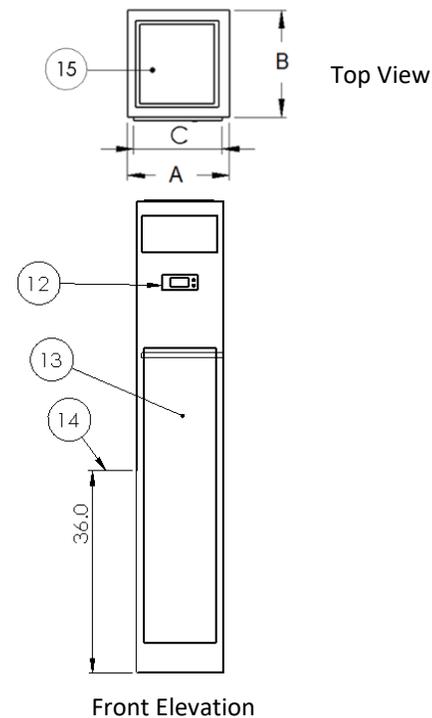
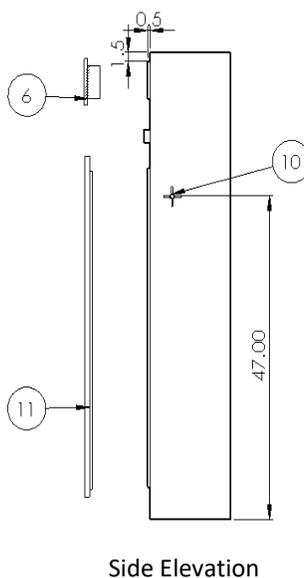
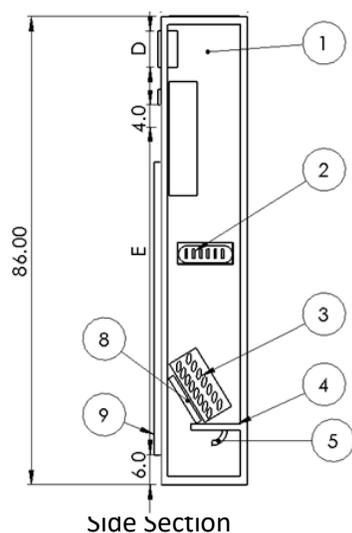
## Standard Sequence of Operation: (Spartan TE226 – On/Off heating/cooling programmable temperature controller with P + I control for ECM variable airflow fan)

The thermostat measures the room temperature with an integral sensor with optional 10K external sensor. The P+I algorithm will signal the heating or cooling valve to open or close and modulate the fan speed to maintain the setpoint. The fan speed will slow as the setpoint is approached until it reaches 20% of airflow and then close the valve and signal the fan to stop. In fan mode, the fan will continue to operate when the set point is met delivering a minimum airflow set by the contractor/owner.

The thermostat has optional digital inputs such as occupancy sensors to enhance energy savings. It is equipped with a large LCD screen showing room temperature and set point, time, day, and related status. Minimum and maximum airflows can be set, as well adjustable hi/low limit setpoint range.

# Concealed Fan Coil Unit Dimensions

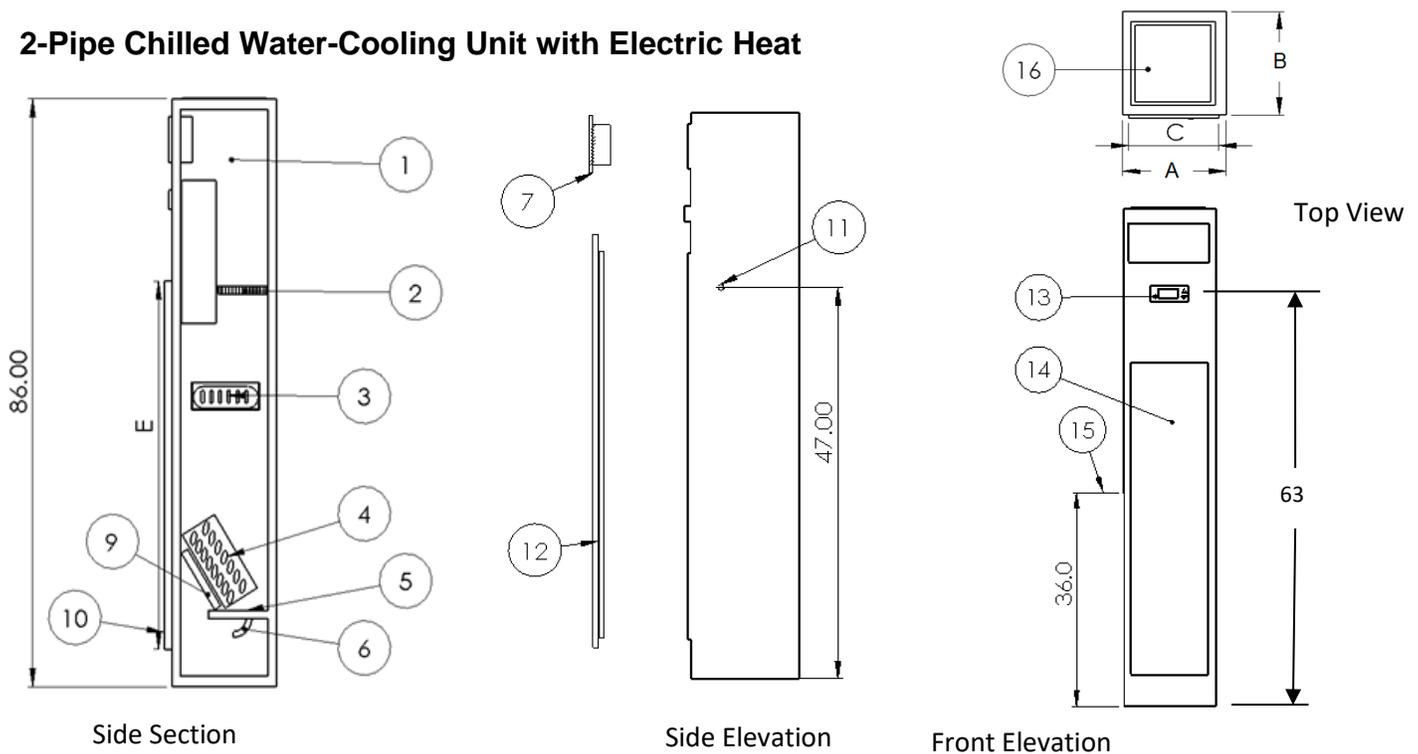
## 2-pipe Chilled Water-Cooling Unit



Model	A	B	C	E
03	16	16	12	52
04	16	16	12	52
06	20	18	14	52
08	20	18	14	52
10	24	18	16	54
12	24	18	16	54

1) 20 ga. steel cabinet, lined with 1-inch fiberglass insulation coated on air side; ½" -inch closed-cell foam optional.	9) ½-inch flange on front of unit. Allows direct application of drywall to the unit.
2) Variable Speed EC Motor, Backward Inclined Impeller Fan (0-10VDC Fan Speed Signal)	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.
3) Chilled Water Coil; Hot Water changeover optional.	11) Hinged return air grille/access panel.
4) Drain pan - acrylic (black polyester powder) coated 20 gauge galvanized steel or ABS positively sloped in two directions towards the outlet.	12) Unit mounting location for thermostat/controller
5) Drain Hose from drain pan to condensate riser. The flexible hose forms a running trap	13) Fan shield, acoustically lined. Identification and safety caution labels are affixed to this panel.
6) Double deflection steel supply air grille at front, left, back or any combination when there are multiple openings. Dimension "D" varies with CFM: 5, 8, 10, 12 or 14 inches.	14) Vertical centerline of coil connection run outs. Connections are at the back, left or right sides of the unit.
8) 1" (one inch) MERV 10 disposable filter.	15) Top supply air opening (knock out) for attachment of ductwork.

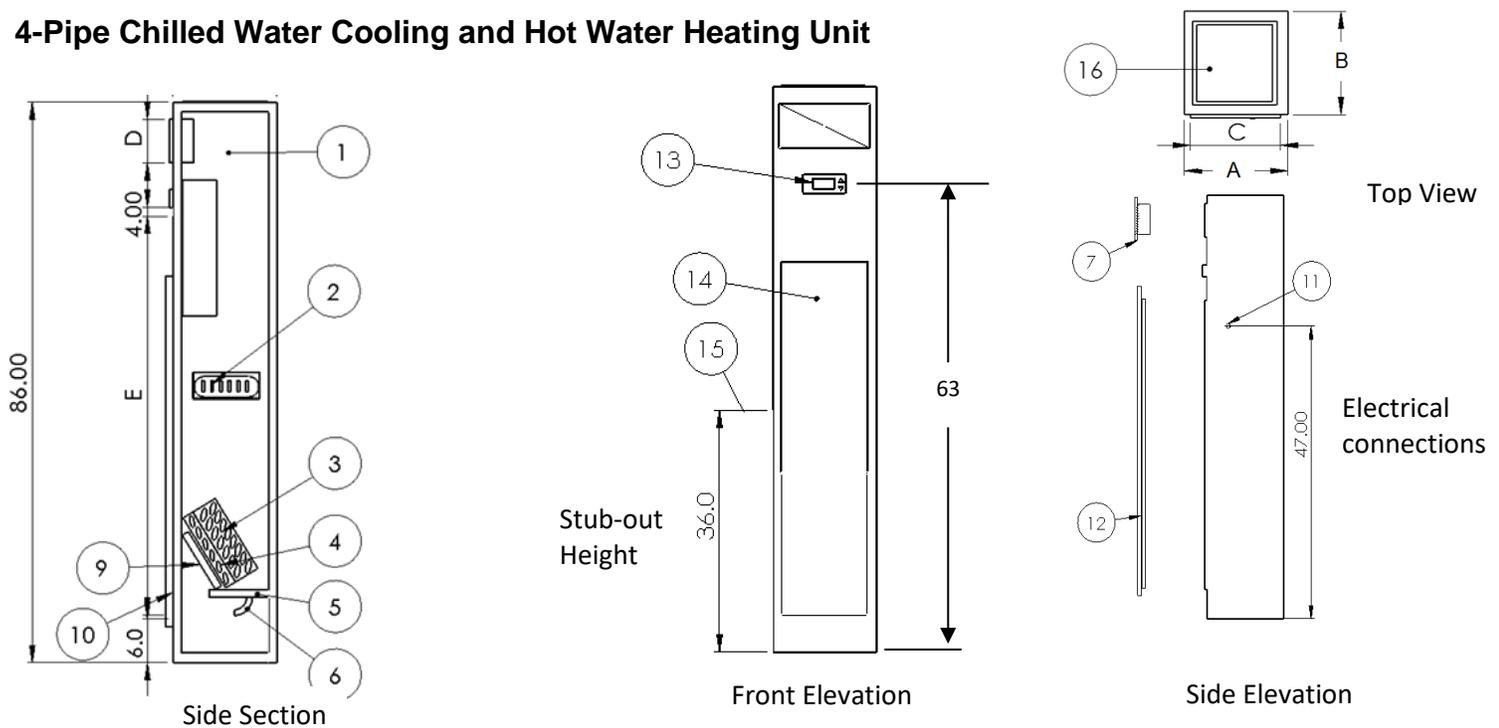
## 2-Pipe Chilled Water-Cooling Unit with Electric Heat



Model	A	B	C	E
03	16	16	12	52
04	16	16	12	52
06	20	18	14	52
06	20	18	14	52
10	24	18	16	54
12	24	18	16	54

1) 20 ga. steel cabinet, lined with 1/2-inch fiberglass insulation coated on air side; 3/8 -inch closed-cell foam optional. (1-inch fiberglass insulation coated on air side or 1/2-inch closed-cell on size 03-04 unit)	10) ½-inch flange on front of unit. Allows direct application of drywall to the unit.
2) Electric Heater (Primary or auxiliary)	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) Variable Speed EC Motor, Backward Inclined Impeller Fan (0-10VDC Fan Speed Signal)	12) Hinged return air grille/access panel.
4) Chilled Water Coil; hot water changeover optional.	13) Unit mounting location for thermostat/controller. Note: ADA compliant thermostat must be remote mounted
5) Drain pan - acrylic (black polyester powder) coated 20 gauge galvanized steel or ABS positively sloped in two directions towards the outlet.	14) Fan shield, acoustically lined. Identification and safety caution labels are affixed to this panel.
6) Drain Hose from drain pan to condensate riser. The flexible hose forms a running trap	15) Vertical centerline of coil connection run outs. Connections are at the back, left or right sides of the unit.
7) Double deflection steel supply air grille at front, left, back or any combination when there are multiple openings. Dimension "D" varies with airflow: 5, 8, 10, 12 or 14 inches.	16) Top supply air opening (knock out) for attachment of ductwork.
9) One inch MERV 10 disposable filter.	

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



Model	A	B	C	E
03	16	16	12	52
04	16	16	12	52
06	20	18	14	52
08	20	18	14	52
10	24	18	16	54
12	24	18	16	54

1) 20 ga. steel cabinet, lined with 1/2-inch fiberglass insulation coated on air side; 3/8 -inch closed-cell foam optional. (1-inch fiberglass insulation coated on air side or 1/2-inch closed-cell foam on size 03-04 unit)	10) 1/2-inch flange on front of unit. Allows direct application of drywall to the unit.
2) Variable Speed EC Motor, Backward Inclined Impeller Fan (0-10VDC Fan Speed Signal)	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.
4) Hot Water Coil	13) Unit mounting location for thermostat/controller Note: ADA compliant thermostat must be remote mounted
5) Drain pan - acrylic (black polyester powder) coated 20 gauge galvanized steel or ABS positively sloped in two directions towards the outlet.	14) Fan shield, acoustically lined. Identification and safety caution labels are affixed to this panel.
6) Drain Hose from drain pan to condensate riser. The flexible hose forms a running trap	15) Vertical centerline of coil connection run outs. Connections are at the back, left or right sides of the unit.
7) Double deflection steel supply air grille at front, left, back or any combination when there are multiple openings. Dimension "D" varies with airflow: 5, 8, 10, 12 or 14 inches.	16) Top supply air opening (knock out) for attachment of ductwork.
9.) One inch MERV 10 disposable filter.	

# Finished Cabinet Fan Coil



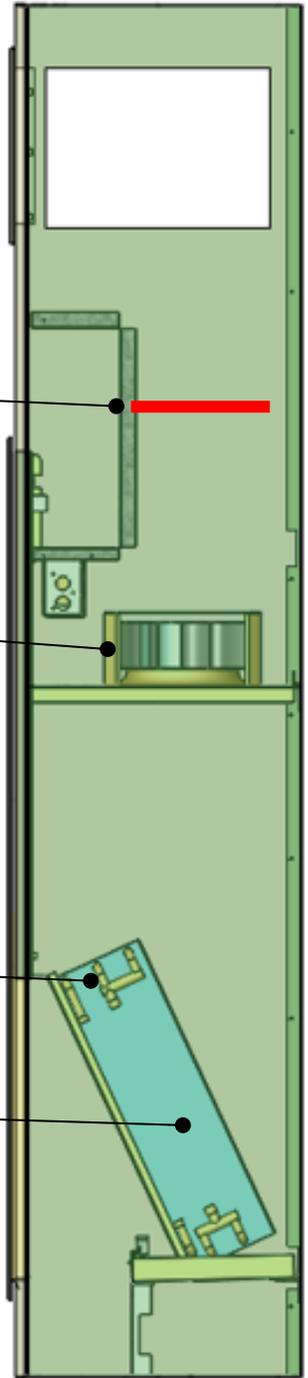
18 ga. cabinet, powder coated (3 standard colors available) ½" acoustic insulation.

Optional electric heater – (primary or auxiliary heat)

Variable speed backward inclined impeller fan with ECM

Factory installed piping package, 2-way, 3-way, 6-way, 2 position or modulating control

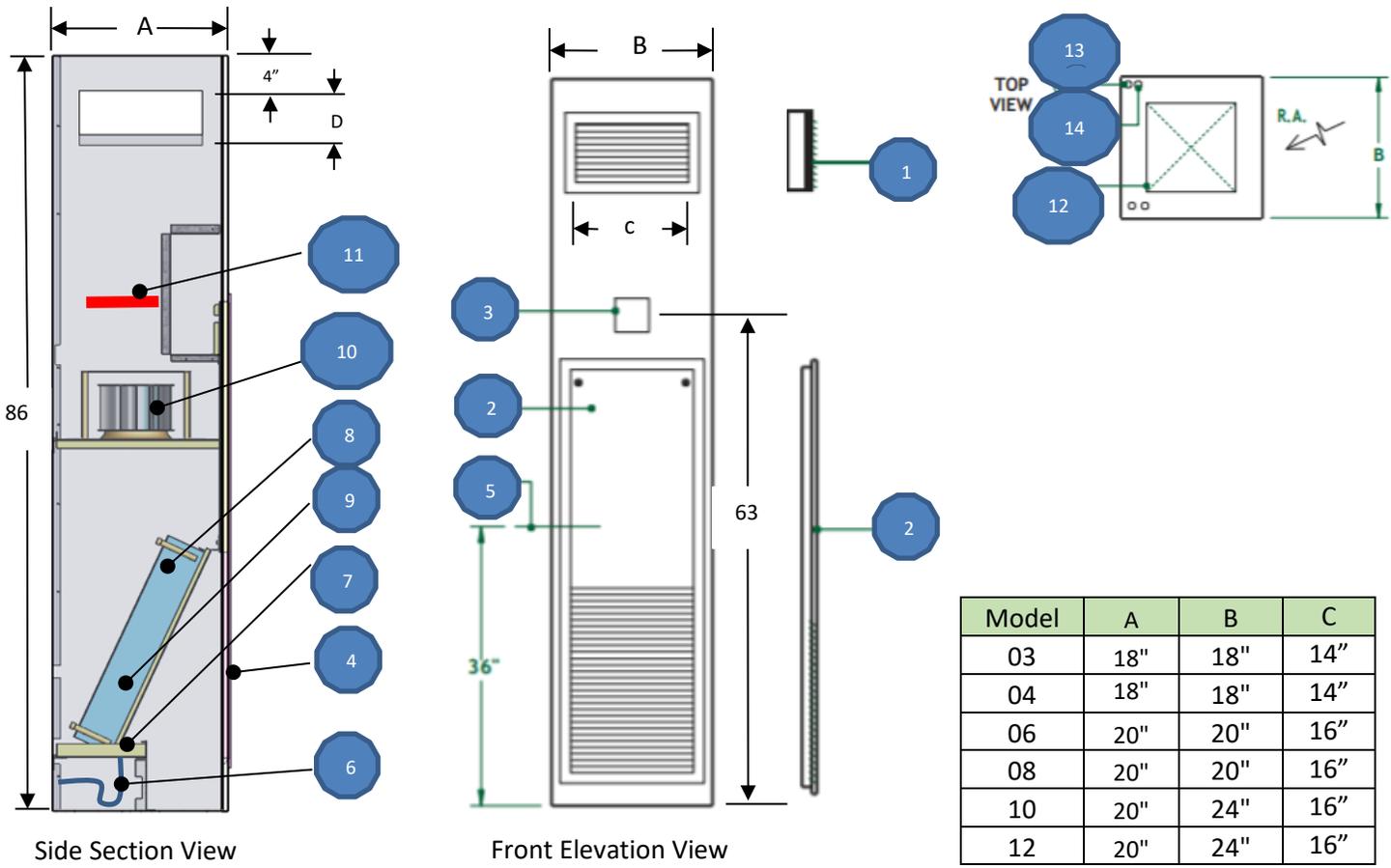
CW/HW coils, 2 pipe or 4-pipe



*The finished cabinet fan coil is designed for dormitories or other spaces where an exposed unit is desirable. The unit is constructed of robust 18 gauge metal with a powder coated finish for durability. Optional pipe (riser covers) and top extensions are*

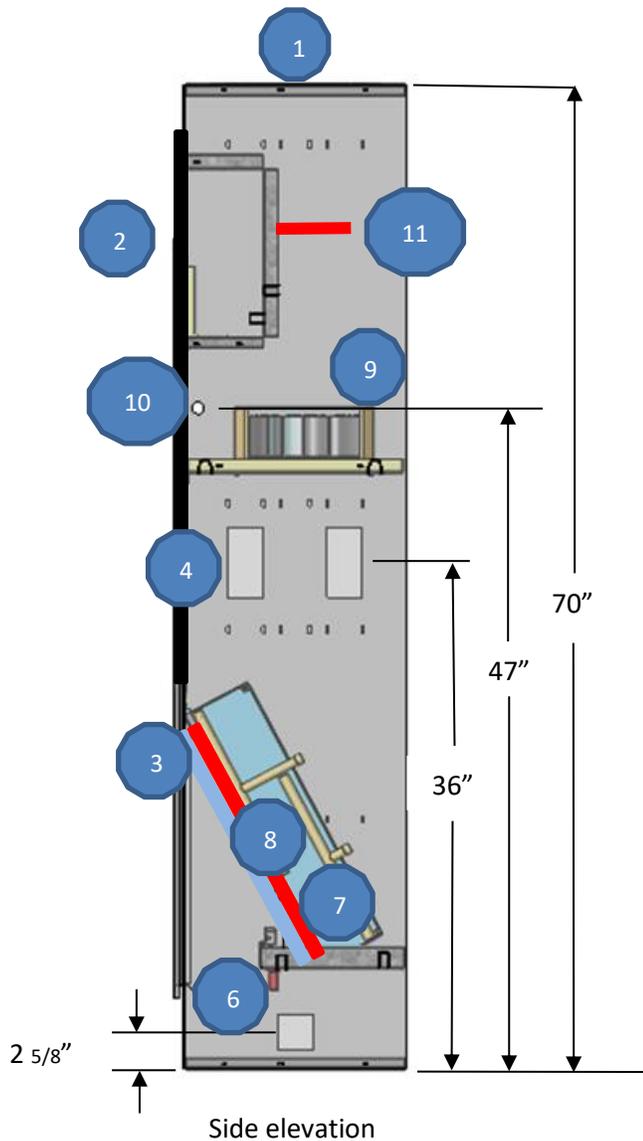
*available to provide a finished appearance with no exposed ductwork or water piping. The thermostat can be unit or remoted mounted. Power and control cable entry is on the top of unit.*

## Finished Cabinet Unit Dimensions



1) Double deflection supply air grille at front, left, right, back or any combination when there are multiple openings. Dimension's "D" varies with CFM 5", 8" 10" or 12"	8) Chilled water coil (3 or 4 row)
2) Removeable access panel incorporating return air grille	9) Hot water coil (1 or 2 row) in 4-pipe units
3) Thermostat location if unit mounted Note: ADA compliant height thermostat must be remote mounted	10) High efficiency backward inclined impeller fan with variable speed EC motor
4) 1" MERV 10 disposable filter (see page 31 for size)	11) Electric heater (primary or auxiliary)
5) Vertical centerline of coil connection run outs. Connections can be back, left, or right	12) Top supply air opening (knock out) for attachment of ductwork
6) Hose from drain pan to condensate riser. The reinforced rubber hose forms a running trap	13) Control cable entry (for remote mounted thermostat) Note: ADA compliant thermostat must be remote mounted
7) Double sloped drain pan insulated on under side	14) Power cable entry point

# Compact Unit (top ducted for mechanical closets)



Top Duct Connections	
Air Flow (CFM)	L x W (inches)
300	10 x 10
400	12 x 12
600	14 x 14
800	14 x 14
1000	16 x 16
1200	16 x 16

1) Top supply air opening for attachment of ductwork	6) Hose from drain pan to condensate riser. The reinforced rubber hose forms a running trap
2) Removeable motor/electrical enclosure access panel	7) Chilled water coil (3 or 4 row)
3) 1" MERV 10 disposable filter (see page 31 for size)	8) Hot water coil (1 or 2 row) in 4-pipe units
4) Back left or right riser connections (36")	9) High efficiency backward inclined impeller fan with variable speed EC motor
5) Vertical centerline of coil connection run outs. Connections can be back, left, or right	10) Control and power cable entry (for remote mounted thermostat) (qty two 7/8" knockout located on both sides)
	11) Electric heating element (kW size varies by voltage)

# Supply Air Opening Connection Dimensions

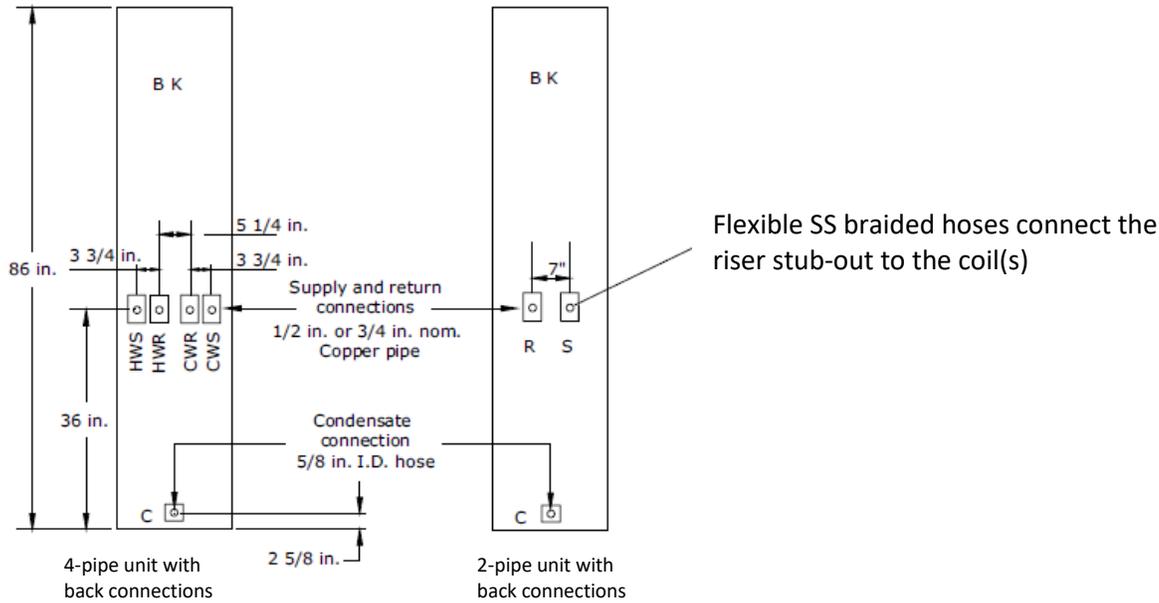
**Supply Air Openings (Non ducted Units)**

	Single (any one side)	Double (any two sides)	Triple (any three sides)
03 concealed cabinet	14" x 8"	14" x 5"	14" x 5"
04 concealed cabinet	14" x 10"	14" x 5"	14" x 5"
06 concealed cabinet	14" x 12"	14" x 8"	14" x 5"
08 concealed cabinet	14" x 14"	14" x 8"	14" x 8"
06 finished cabinet	16" x 12" (front & back) 14" x 12" (left & right)	16" x 8" (front & back) 14" x 8" (left & right)	16" x 5" (front & back) 14" x 5" (left & right)
08 finished cabinet	16" x 14" (front & back) 14" x 14" (left & right)	16" x 8" (front & back) 14" x 8" (left & right)	16" x 8" (front & back) 14" x 8" (left & right)
10 all cabinets	16" x 14" (front or back) 14" x 14" (left or right)	16" x 10" (front or back) 14" x 10" (left or right)	16" x 8" (front or back) 14" x 8" (left or right)
12 all cabinets	16" x 14" (front or back) 14" x 14" (left or right)	16" x 12" (front or back) 14" x 12" (left or right)	16" x 10" (front or back) 14" x 10" (left or right)
	One Grille Provided	One Grille & One Register Provided	One Grille & Two Register Provided

**Supply Air Openings (Ducted Units)**

	100% Top Ducted	One on unit & Top Duct		Two on unit & Top Duct		Three on unit & Top Duct	
		Register	Duct Connection	Register	Duct Connection	Register	Duct Connection
03	10" x 10"	14" x 5"	10" x 10"	14" x 5"	10" x 10"	14" x 5"	10" x 10"
04	12" x 12"	14" x 8"	10" x 10"	14" x 8"	12" x 10"	14" x 8"	10" x 10"
06	14" x 14"	16" x 8" (front or back) 14" x 8" (left or right)	12" x 12"	16" x 5" (front or back) 14" x 5" (left or right)	10" x 10"	16" x 5" (front or back) 14" x 5" (left or right)	10" x 10"
08	14" x 14"	16" x 8" (front or back) 14" x 8" (left or right)	12" x 12"	16" x 8" (front or back) 14" x 8" (left or right)	12" x 12"	16" x 5" (front or back) 14" x 5" (left or right)	10" x 10"
10	16" x 16"	16" x 8" (front or back) 14" x 8" (left or right)	14" x 14"	16" x 8" (front or back) 14" x 8" (left or right)	12" x 12"	16" x 8" (front or back) 14" x 8" (left or right)	12" x 12"
12	16" x 16"	16" x 8" (front or back) 14" x 8" (left or right)	14" x 14"	16" x 10" (front or back) 14" x 10" (left or right)	12" x 12"	16" x 5" (front or back) 14" x 5" (left or right)	12" x 12"

# Fan Coil Units without Risers



# Riser Thermal Expansion

Anchoring risers subject to thermal expansion and contraction in hi-rise HVAC systems must be considered by the Design Engineer. Copper pipe expands or contracts at a rate of 1.2" (30.5mm) per 100ft (30.5m) per 100F (38C). Operating heating systems at lower temperatures, <140F, (60C), reduces both the volume and linear thermal expansion requirements and reduces thermal stress on all components. The expansion of a riser system operating at 160F in 20 story building will be 2.4".

Figure 1.0 illustrates a horizontal expansion system while figure 2.0 illustrate an in-line system. Figure 3.0 illustrates a full floating system which had gained popularity because there are no additional potential failure components introduced to the piping system



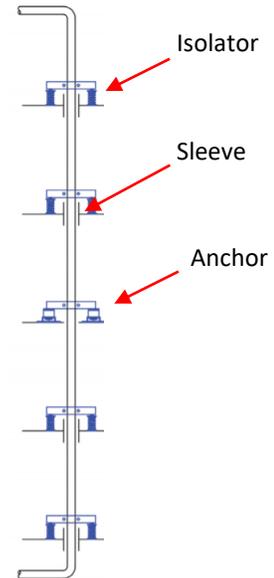
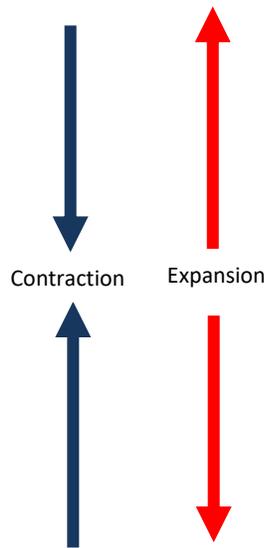
Fig. 1.0 Horizontal Thermal Expansion Loops



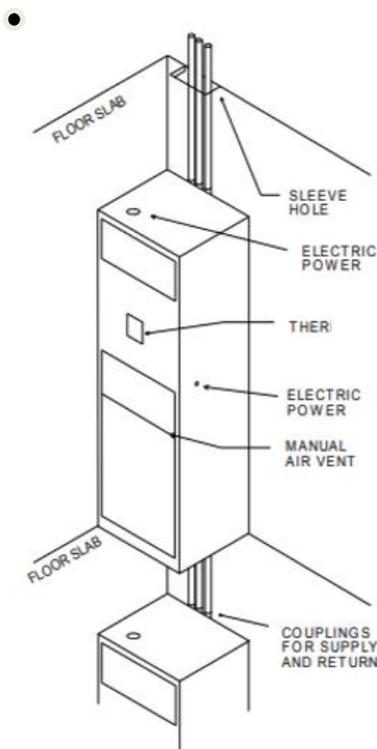
Fig 2.0 In-Line Rubber or Stainless Steel Thermal Expansion Compensators



Fig. 3.0 Full Floating Riser System using Spring Isolators



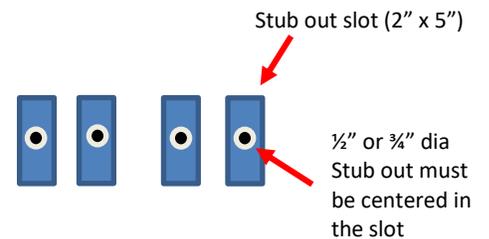
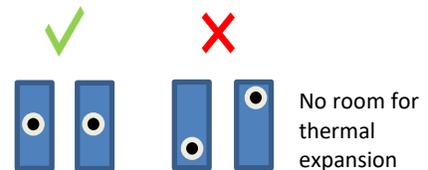
## Thermal Expansion in V-Stack Units



Stainless steel braided hoses inside the cabinet allow thermal expansion of the riser system



Position of the stub-out in the cabinet riser slot



Temspec Inc. does not take responsibility for the riser support, anchoring, sizing, linear thermal expansion compensators, volume thermal expansion, or fire stop between floors or adjacent suites. Regardless of the thermal expansion device used in the riser piping, it is imperative that the riser stub-outs be centered in the cabinet stub-out slot at room temperature as shown. Refer to the installation manual for further guidance on riser expansion and anchoring (IMM 2020-01-02)

# Riser Packages

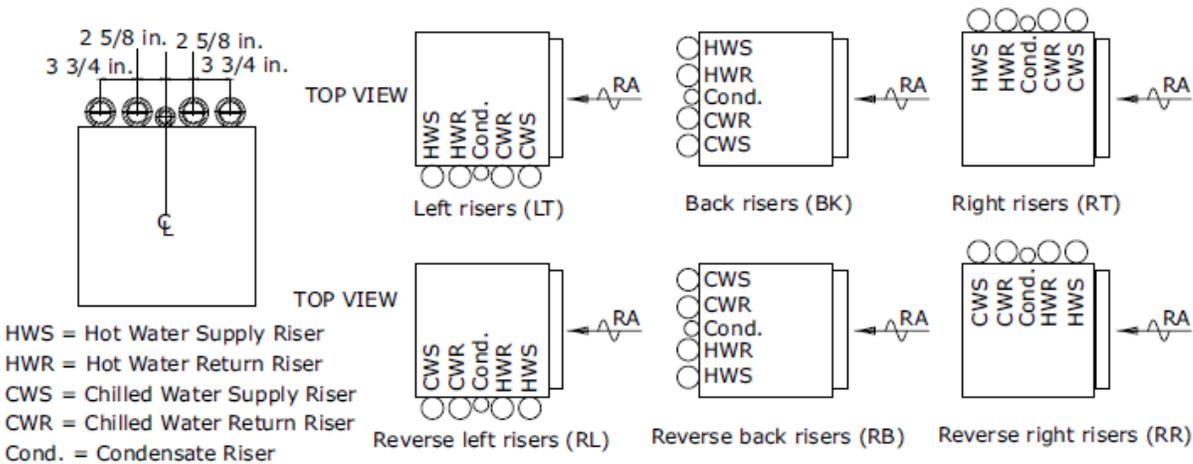
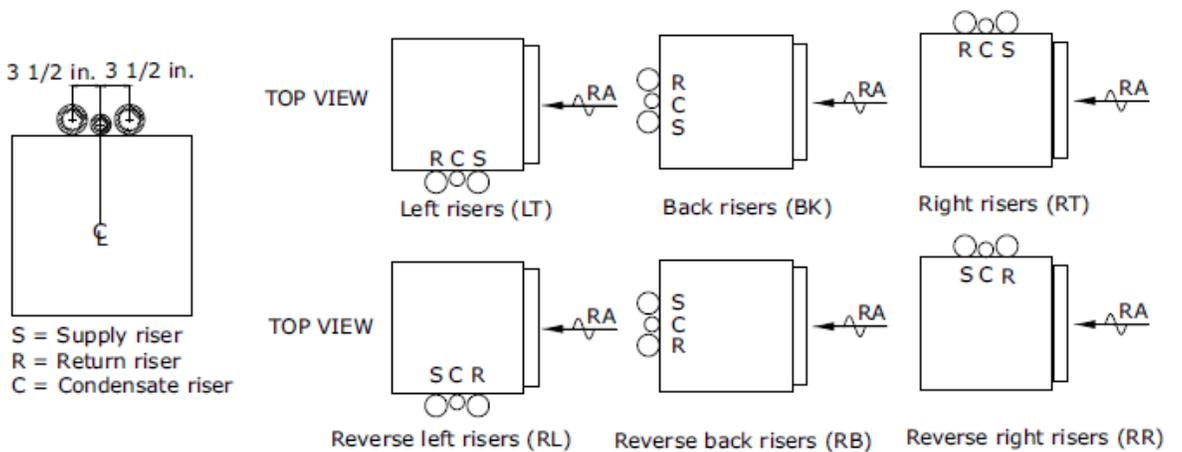
## Factory- and field-installed risers

Insulated risers are available factory-installed on the units or can be shipped with or prior to the units for field installation. Isolation sweat ball valves are included with factory risers.

All copper risers are factory cut to a maximum 120" in length. Swaged connections for all supply and return risers are standard. Insulation meets or exceeds current flammability classification UL94. Insulation to cover swaged connections must be field provided.

- Supply and return risers are of type "L" copper in nominal 3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2 & 3" diameters with 1/2" to 1.5" factory installed, closed cell flexible foam insulation
- Insulation within cabinet height is standard. Full riser length insulation is an option
- Drain risers are type "M" copper (insulation included), in nominal 3/4", 1" or 1-1/4" diameter
- Optional L or K type copper is available

Note: Insulation thickness is limited on larger risers due to physical space available – consult factory



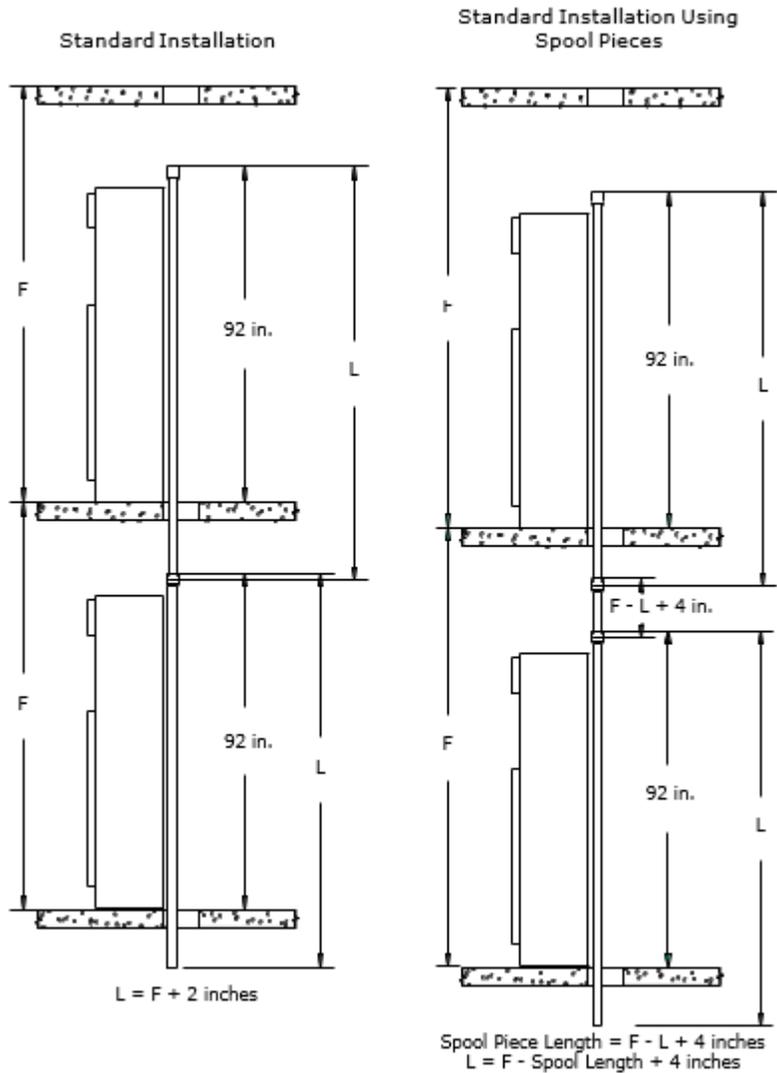
Reverse Riser orientations are used to aid in eliminating cross over piping when units on a riser stack change position from floor to floor or when two units share a common riser (primary/secondary)



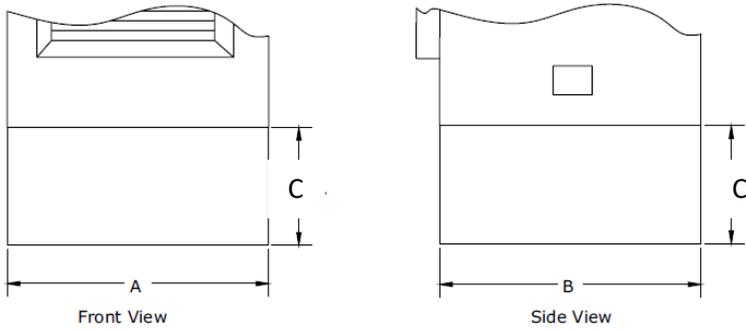
Risers are always sized based on the floor to floor height to ensure the proper assembly. To ensure proper alignment, the top of the riser should always be positioned at a distance of 92" from the floor. This distance allows all risers to be properly sized based on the distance of  $L = F + 2"$ , where the extra 2" allows for the riser to protrude to the floor below for connection.

Using the 92" height for installation allows the riser to be installed correctly on all floors, even when access to the stub out heights is not practical.

In the cases where the floor to floor distance is greater than the maximum riser pipe length, a spool piece can be added to make up the extra height needed.



# Raised Base options



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

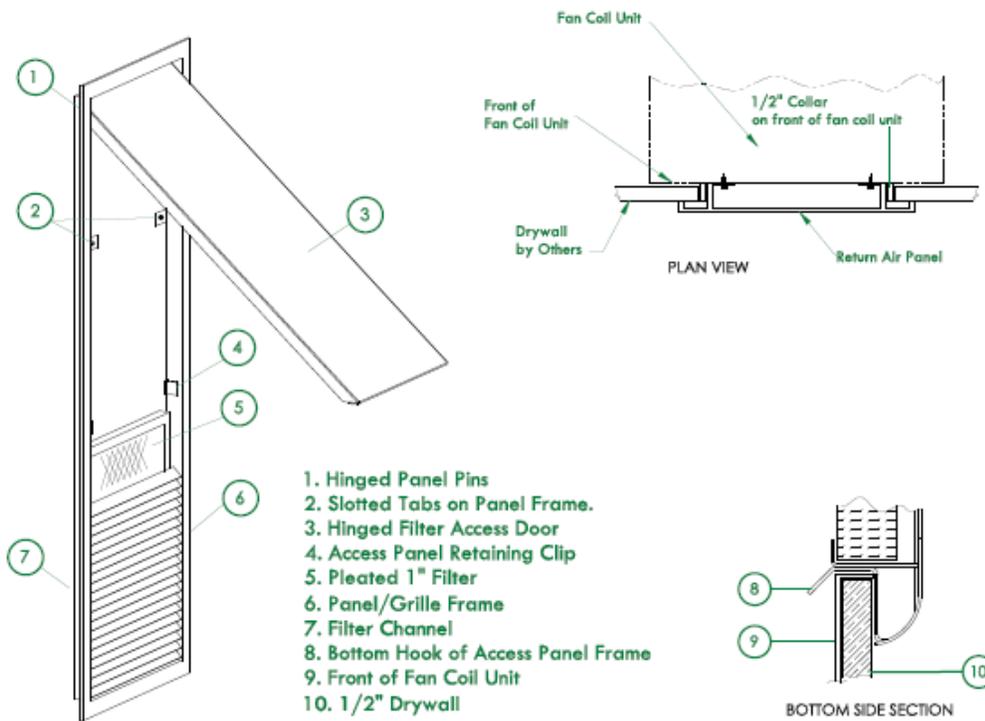
## Raised Base Dimensions (inches)

Model	A	B	C
03	16	16	4, 8 or 12
04	16	16	4, 8 or 12
06	20	18	4, 8 or 12
08	20	18	4, 8 or 12
10	24	18	4, 8 or 12
12	24	18	4, 8 or 12

Note: 8" raised based minimum required for factory installed condensate pump

# Return Air Panels

## Return Air Panel with Hinged Filter Access



## Fan Coil Weights

(dry without risers or accessories)

Model	Concealed Cabinet	Finished Cabinet
03	130 lbs. (59 kg)	141lbs (64 kg)
04	130 lbs. (59 kg)	141 lbs. (64 kg)
06	170 lbs. (77 kg)	182 lbs. (84 kg)
08	180 lbs. (82 kg)	190 lbs. (86 kg)
10	210 lbs. (95 kg)	221 lbs. (100 kg)
12	220 lbs. (100 kg)	230 lbs. (104 kg)

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

## Fan Coil Filter Sizes

(MERV 10) (W x H x D)

Model	Concealed Cabinet	Finished Cabinet
03-04	12" x 20" x 1"	14" x 20" x 1"
06-08	14" x 25" x 1"	16" x 25" x 1"
10-12	16" x 25" x 1"	16" x 25" x1"

Standard filter is 1.0" MERV 10. 1.0" MERV 8 to 13 available

## Humidity Control (Without Reheat)

One of the advantages of using variable speed ECM fan is their ability to operate very efficiently at low speeds. The standard thermostat control PI algorithm slows the fan speed to 10%, (adjustable) as it reaches the temperature setpoint before closing the chilled water valve. This low air flow coil lowers SAT which lowers the grains of moisture. The low air velocity, less than 50 FPM, does not create drafts so there is no occupant discomfort. The lower SAT offers 71% more dehumidification than the standard fan coil ECM and forward curved fan.

Leaf Fan Coil	Conventional Fan Coil
SAT = 50F	SAT = 55F
RAT = 75F	RAT = 75F
RAH= 60%	RAH = 60%
Grains Removed = 78 – 54 = <b>24</b>	Grains Removed = 78 - 64 = <b>14</b>

The Leaf unit offers 71% more dehumidification making it an ideal replacement for applications where reheat was used

## Warranty

Free replacement parts will be provided by the Company in the event any product supplied by the Company proves defective in material or workmanship for a period of eighteen (18) months from the date of shipment. Labor to replace the part is covered by the installing contractor. Temspec may request the failed component to be returned for analysis or examination. Any component found to fail due to improper maintenance or operation will be not covered under our warranty program.

Measures to avoid non warranty claims are:

- 1) Store the fan coil unit in conditioned space protected from dust and moisture while waiting for installation
- 2) Keep unit protected from dust and moisture after installation
- 3) Do not operate the fan coil unit during construction – construction dust can be harmful to filters, motors, and electrical components
- 4) Flush the chilled and hot water systems before opening isolation valves to the units
- 5) Operate the unit with treated water only – fresh water may damage piping components
- 6) Do not use chlorine or ammonia-based cleaning products on the fan coil units to avoid corrosion
- 7) Thoroughly flush the coil and drain pans after cleaning to avoid corrosion
- 8) Do not exceed the design chilled and hot water operating temperatures

# Retrofit Package

There is no good time to retrofit a hotel suite so minimizing the disruption to guest occupancy is a top concern. Temspec has developed a unique package where the old unit can be removed, and a new high efficiency LEAF unit be installed without losing a day's revenue.

Speak to Temspec sales representative to learn more about this quick retrofit solution.



*Existing*

*Remove R/A Panel  
S/A grille and drywall*

*Remove Unit*

*Slide in the Leaf*

- *Small footprint*                      16" x 16" (Model 03-04)
- *Highest motor efficiency*            28.5 Watts (325CFM)
- *Finished Full Face panel means no drywall or painting*



<b>LEAF Fan Coil Specifications</b>			
	Model 03-04	Model 06-08	Model 10-12
Dimensions	86"H x 16"W x 16"D 2133mmH x 406mmW x 406mmD	86"H x 20"W x 18"D 2133mmH x 508mmW x 457mmD	86"H x 24"W x 18"D 2133mmH x 609mmW x 457mmD
MAX Airflow	100-400CFM, (47 - 189l/s)	200-800CFM, (94 - 378l/s)	300-1200CFM, (142 - 566l/s)
MAX ESP @ design airflow	0.2" WC, (50pa)	0.4" WC, (100pa)	0.4' WC, (100pa)
Weight	170lbs, (59kg)	170lbs, (77kg)	210lbs, (95kg)
Cooling	Hydronic		
Heating	Hydronic, Electric		
Construction	20 Gauge galvanized metal		
Insulation	1" (25mm) Glass fibre with Acrylic facing, 1/2" (12mm) Closed Cell		
Condensate Drain	Polymer or 304 Stainless Steel	Acrylic coated galvanized or 304 Stainless Steel	Acrylic coated galvanized or 304 Stainless Steel
Filter	12" x 20" x 1" MERV 10	14" x 25" x 1" MERV 11	16" x 25" x 1" MERV 12
Coils	0.0045" aluminum fins mechanically boded to 1/2" diameter x 0.015" copper tube. 18 gauge galvanized or optional 304 SS coil casing		
Voltage	100-130VAC, 200-240VAC, 277VAC	100-130VAC, 200-240VAC, 277VAC	100-130VAC, 200-277VAC
Disconnect switch	Yes		
Piping packages	shut-off valve, strainer, manual or autoflow balancing valve, pressure independent control (PIC), stainless braided hoses		
Control Valves	2-way, 3-way, 6-way, 2 position, 0-10VDC modulating, floating point control,		
Fresh air Opening	4"H x 6"W, manual or motorized damper		
Raised Bases	4.0", 8.0", or 12.0" High, with optional access door		
Condensate pump	Optional with 8.0" or 12.0" H raised base		
Fan Motor	ECM		
Operating Temp Range	-25C to +60C		-13F to 140F
Fan Speed Control Input	0-10VDC	0-10VDC	0-10VDC
ECM Output	0-10VDC, 10mA	0-10VDC, 10mA	0-10VDC, 10mA
Soft Start	Yes		
Motor Current Limit	Yes		
Power Limiter	Yes		
Thermal overload protection	Yes		
Under voltage Protection	Yes		
Integrated PID Controller	Yes		
Unit Mounted Risers	3/4" to 3.0" Type M or L Copper		
Riser Insulation	1/2" to 1.5" Fibreglass, Polyolefin, Elastomeric K-Flex, Armaflex (thickness restrictions based on riser diameters)		

# Mechanical Specifications (Guide Spec)

## 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/C22.2 No. 236.

## Construction

The cabinets shall be fabricated from 20 gauge steel lined with 1" inch fiberglass insulation bonded with a thermosetting resin or grip nails and coated on the airstream side with an acrylic facing. In addition, there is an option available for ½ - inch closed cell cabinet insulation.

The drain pan shall be 100% corrosion resistant polymer, galvanized acrylic coated steel, or 304 stainless steel positively sloped in two directions towards the outlet. The stainless steel, and acrylic coated galvanized drain pan shall be insulated on the underside with ½-inch closed cell insulation. The drain hose from the outlet to the condensate riser shall form a running trap. An optional float switch will close CW control valve upon detection of high-water level in condensate drain pan.

## Fan & Motor

Variable speed backward inclined impeller fan with integrated electronically commutated motor, (ECM). Fan must have an over-all minimum efficiency of 58%. Forward curved fans and/or PSC motors cannot be accepted

The fan motor shall be an electronically commutated, EC brushless, type with sealed bearings. All motors have a maximum ambient operating temperature of 140°F and are permanently lubricated. The motor can accept a 0-10VDC signal configured to deliver the specified airflow with no special tools. PSC motors cannot be accepted. Fan wattage listed in schedule must not be exceeded.

## Disconnect

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

## Coils

The coil shall have 0.0045" ± 0.0005" aluminum fins mechanically bonded to ½-inch diameter with minimum 0.015" tube wall copper tube. The coil shall be factory pressure tested at no less than 300 PSig. A manual air vent shall be incorporated at the high point of the coil.

## Piping Packages

The piping package shall include: Ball type shut-off valves at the coil supply and return (combined with manual or automatic balancing valves or strainers when used), and a two- or three-way control valve with 24v two-position, modulating 0-10 VDC, 3 wire floating point, pressure independent actuator. Chilled water valves are normally closed and heating water valves normally open. Valves are installed at the coil return.

## Electrical Heat

Units with electric heat shall have single power connection and 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 MERV 10 disposable filter shall be shipped loose with return air access panel.

Units equipped with 1.0" 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.

## Controls

The fan coil manufacturer shall supply a low voltage (24V) digital programmable thermostat with remote sensor and energy savings contacts option for remote mounting, or unit mounted. The thermostat has a PI 0-10VDC fan output control and 2 binary outputs for 2 position NO or NC valve control. 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. An optional thermostat with analog valve control, 0-10VDC fan control, and BACnet compatible is available as an option.

## Riser Package

Risers from ¾" to 3.0" are available in both type "L" and type "M" copper for supply, return and condensate. Riser

insulation is available in ½-inch to 1.5” wall thickness for closed cell foam (polyolefin), closed cell elastomeric (similar to Armaflex®) or fiberglass (wrapped with vapor barrier). Insulation thickness shall comply with ASHRAE 90.1.

Riser diameter and insulation thickness are subject to physical limitations. Contact Temspec on 4-pipe risers larger than 2.0 inches in diameter. The risers shall have an approximately 3.0 inch swaged expansion at the top end to allow a 3.0 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 Temspec fan coils scope.

### **Return Air Access Panel**

The return air access panel shall have a fixed blade return air grille in the lower portion with a hinged panel filter access on concealed units. The return air 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 secured to the unit by a hook on the bottom edge and sheet metal fasteners to the cabinet. The panel is shipped loose for installation after the unit is installed, dry wall is applied, and the walls are painted.

There is optional full-face panel designed to cover the entire opening for retrofit applications available in sizes from 86” – 94” high x 18” - 22” wide.

### **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.

Supply grilles and or registers are factory mounted on finished cabinet models.

### **Fresh Air Openings**

Fresh air openings shall be 4” round or 6” x 4”. Fresh air opening shall have manual damper. Fresh air opening shall have motorized damper and freeze protection.

### **Raised Bases**

Raised base shall be of 4 inches, 8 inches or 12 inches in height. Provide access panel in the 8 inch and 12inch bases when a condensate pump is supplied.

***Temspec Inc***  
***2360 Millrace Court***  
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