

# Universal Modular Hi-Rise Series

FAN COIL TECHNICAL CATALOG



*BUILD YOUR REPUTATION ON OURS*

# Universal Modular Hi-Rise Series

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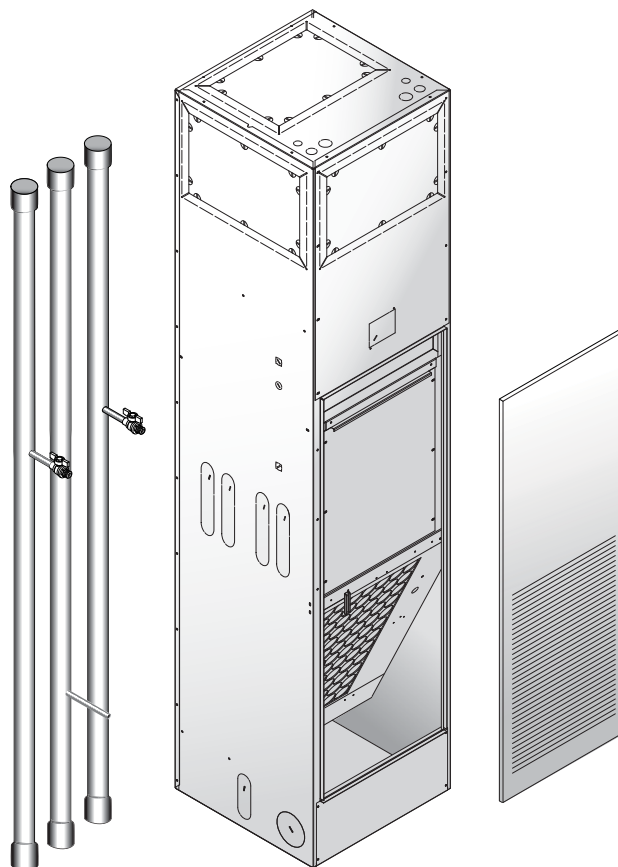
# Universal Modular Hi-Rise Series

UNIVERSAL MODULAR HI-RISE FAMILY

## Concealed Universal Modular Hi-Rise (MUY)

### 300 CFM to 1200 CFM

The MUY fan coil unit is designed for concealed applications in corners or along room walls. **International Environmental Corporation's (IEC) unique design utilizes laser cut knock-outs so that installers can easily field configure each unit to the desired configuration.** Once installed, only the thermostat control, supply air grille and decorative return air panel of the unit are visible in the room. Removal of the return air panel provides easy access to all internal components. Standard units are provided with a galvanized finish on the cabinet and a powder-coat paint finish on the return air panel. Optional supply air grilles are provided with arctic white powder coat or anodized aluminum finish.



### Versatility In Design and Installation

IEC's MUY fan coil system offers unit arrangement versatility in a factory-assembled and integrated package. They are designed to be of low visual impact in the room, often positioned in a corner, along the perimeter wall or as part of a partition separating two areas.

The MUY fan coil was designed for the new construction and retrofit-replacement markets. These units can easily be field configured into most conventional applications. Riser and condensate drain knock-outs have been strategically located on three sides of each unit for field configuration. Supply air knock-outs are located on 4 sides of the unit as well as the top of the unit (for ducted applications). Outside air knock-outs are located on the two sides adjacent to the return air opening. All risers ship separately from the units so contractors can pre-install the riser system earlier in the construction cycle and complete riser testing prior to installation of the units.

### Application Fit

- Concealed cabinets with multiple airflow configurations provide solutions for most applications.
- A variety of aesthetically pleasing return air panels will blend with most décors.
- Thermostats are available as surface or wall mounted for ease of interface.
- Units are specifically designed for quiet operation.

### Design Flexibility

- Easy to use computer rating program to speed up project design.
- Wide variety of coil configurations to match the heating and cooling loads of the space.
- Standard motor/blower assemblies will meet most needs of applications where duct work is required. Units should not exceed a maximum of 0.25" external static pressure.
- 1" throwaway non-woven synthetic and 1" pleated MERV 8 filters are available to address IAQ requirements.

- 24 V controls are standard.
- 1/2" standard fiberglass unit insulation material.
- Heavy galvanized or stainless steel drain pan with preformed EPDM (ethylene propylene diene monomer) p-trap.

### Ease of Installation

- Units assembled at the factory in coordination with the jobsite construction schedule.
- Riser length is matched to the job specifications and pre-fabricated with the specified material and insulation. Risers are shipped separately.
- Units are field connected to the risers using factory furnished flex hoses.
- Risers are swaged to reduce field brazing labor and to ensure the integrity of the connections.
- Drywall can be field applied directly to the surface of the concealed unit with factory provided duct collars and drywall stops to ensure a high quality finished appearance.

### Ease of Service

- Filters are easily accessible by removing the return air panel.
- Motor and blower assemblies are removable with quick-connect plug and fasteners.
- Control box at eye level for ease of field wiring and easy access.

### Quality and Safety

- Every unit tested and inspected at the factory for trouble free start-up.
- ETL listed
- AHRI certified

# Universal Modular Hi-Rise Series

## PRODUCT APPLICATION

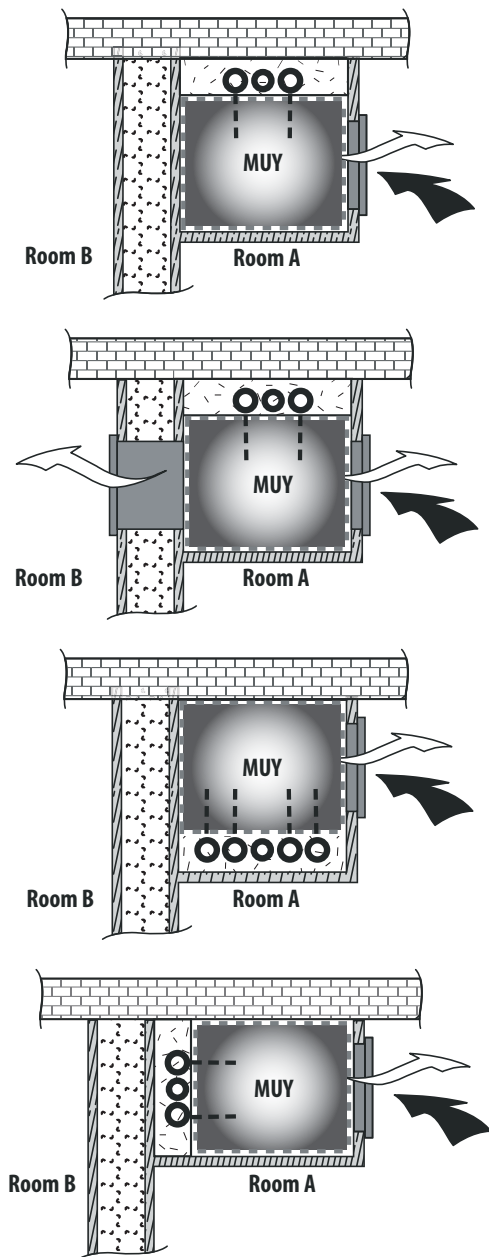
### Versatile Unit Arrangement Options

One of the unique traits of the MUY fan coil system is the variety of possible unit arrangements. The best unit design configuration for a specific single- or multi-story building, can be selected by choosing from numerous unit arrangement options that utilize knock-out designs while conserving floor space and reducing installation costs.

MUY fan coils are designed to be unobtrusive in the room and, thus, are often positioned in a corner, along a perimeter wall or, as part of a partition separating two areas.

Below are just a few pictorials of the many arrangement possibilities of the MUY fan coil system.

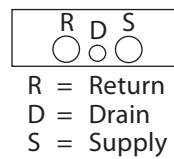
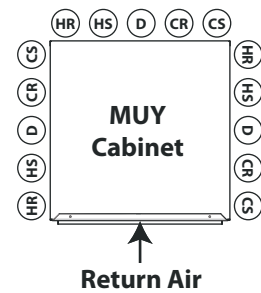
**NOTE:** Risers ship separately. Units field connected to risers using factory furnished flex hoses.



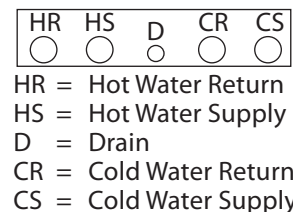
### Legend:

- Exterior Wall
- Field Sheetrock
- Separation or Utility Chase
- Modular Hi-Rise Unit
- Partition (or Separation) Wall
- Hoses for Field Installation
- Supply Air
- Return Air

The Supply, Return, and Drain risers (2-pipe or 4-pipe applications) can be oriented on any of three sides of the unit.



2-pipe



4-pipe

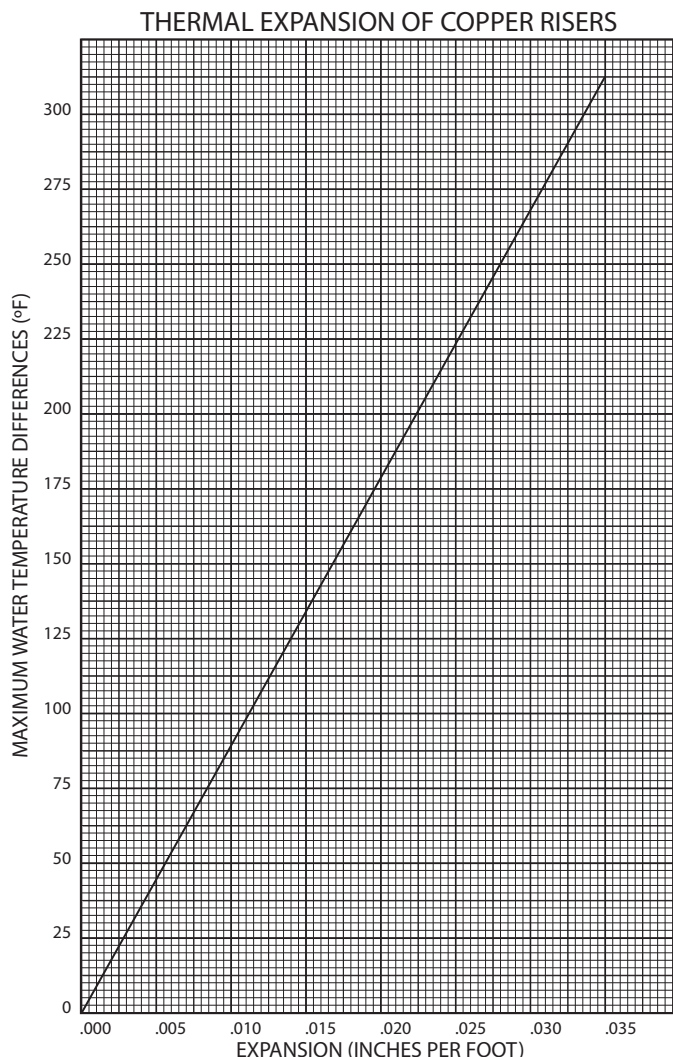
## Riser Material, Sizing and Insulation

MUY units require risers to operate. Risers are factory fabricated and shipped loose for field installation. The riser type, size and length, and insulation for each unit must be determined based on the position of the unit in the building. The chilled and hot water risers and condensate drain are available in a variety of diameters from 3/4" through 2-1/2". All risers and riser extensions, including condensate drains, should be insulated for the full riser length. Other materials to accommodate such critical specifications as riser expansion and between-the-floor fire proofing must be field furnished and installed by others. Consult the factory for special applications.

Riser sizing is normally based on the water flow requirements of each unit and the units above and below the unit in the riser column, depending on the type of system being used. A common design technique is to select the risers to limit water velocity at four to seven ft. per second. Using this method, risers may be reduced in size as the water flow reduces from floor to floor.

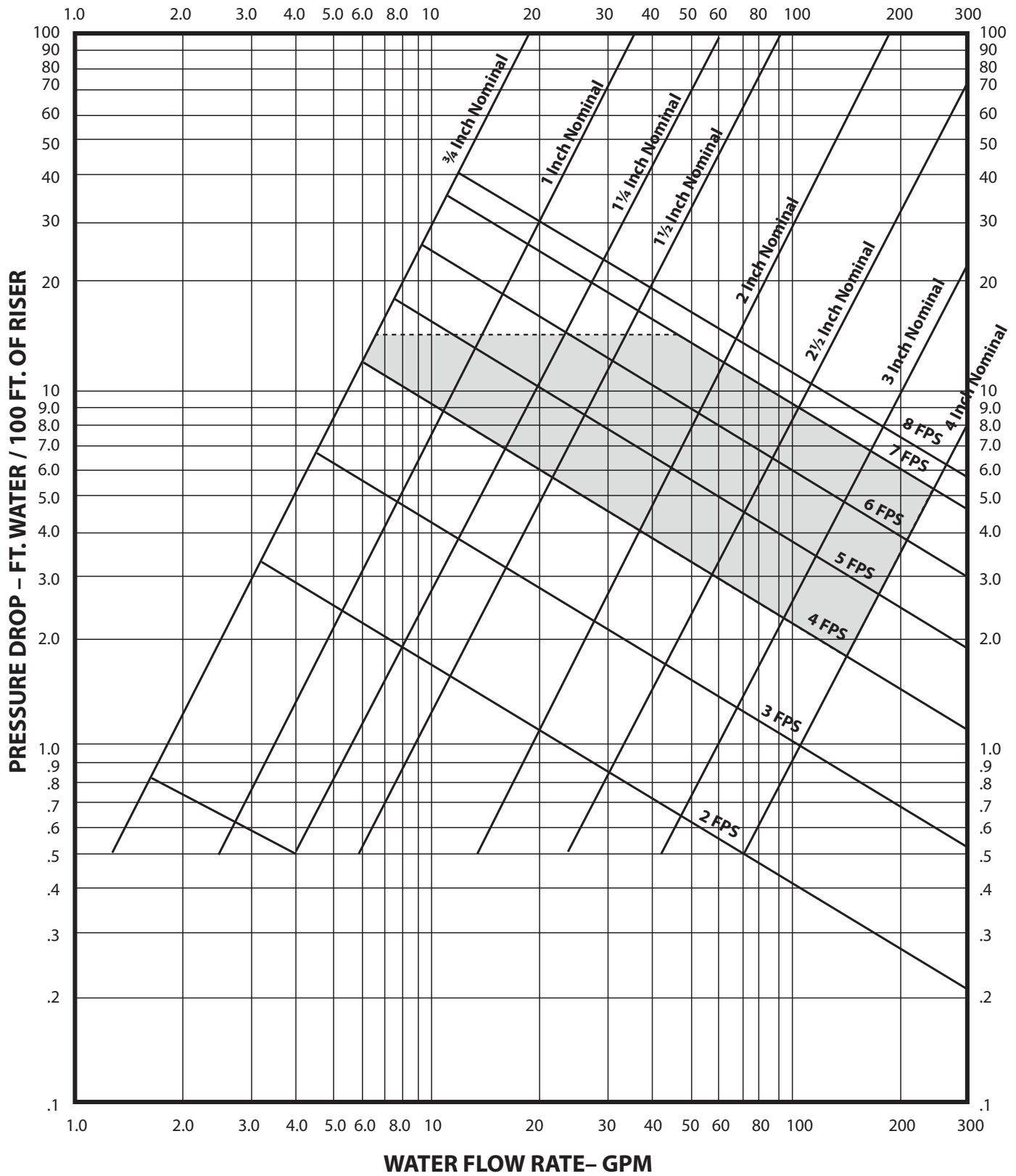
## Riser Expansion

IEC's Universal Modular Hi-Rise units are designed to be used with flexible hose connections between the coil and risers. This only allows for expansion between the unit and the riser. This allowance for the movement within the unit is not intended to replace necessary riser system expansion compensation devices that the consulting engineer may deem advisable for the external riser system. External riser expansion/contraction compensation and anchoring are the responsibility of the consulting engineer and the installing contractor.



# Universal Modular Hi-Rise Series

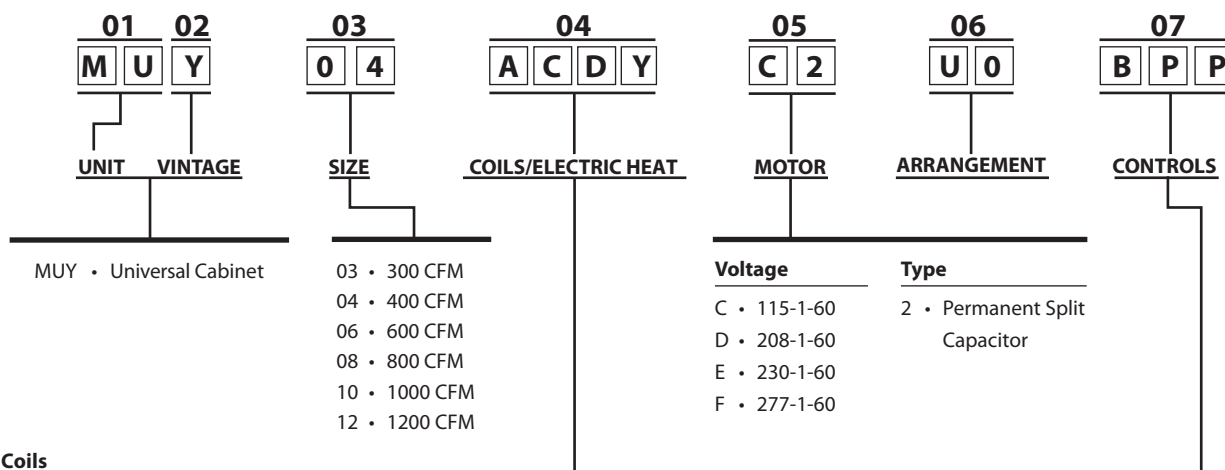
PRODUCT APPLICATION, Cont'd.



# Universal Modular Hi-Rise Series

## UNIT MODEL KEY

### Code Items Unit Code



### 2-Pipe or 4-Pipe Coils

#### Two-pipe Cooling and Heating or Four-pipe Cooling Coil

- A • 3 Row
- B • 4 Row

#### Four-pipe Heating Coil

- Y • None
- 6 • 1 Row Water Heating
- 7 • 2 Row Water Heating

#### Connections

- Y • No heating
- S • Same end

#### Materials

- Y • Std

### 2-Pipe Coils with Electric Heat

#### Coil

- A • 3 Row
- B • 4 Row

#### Voltage

- C • 115-1-60
- D • 208-1-60
- E • 230-1-60
- F • 277-1-60
- Y • No Electric Heat

#### kW<sup>1</sup>

- B • 1.00
- C • 1.50
- D • 2.00
- F • 3.00
- G • 4.00
- H • 5.00
- J • 6.00
- L • 8.00
- N • 10.00
- Y • No Electric Heat

#### Materials

- Y • Std

#### Voltage

- B • 24 V

#### System / Thermostat

##### Function Control

- G • 2-Pipe Heat Only
- H • 2-Pipe Cool Only
- J • 2-Pipe Heat and Cool, MCO<sup>2</sup>
- K • 2-Pipe Heat and Cool
- L • 2-Pipe Heat and Cool with Auxiliary Electric Heat, MCO<sup>2</sup>
- M • 2-Pipe Heat and Cool with Auxiliary Electric Heat
- N • 2-Pipe Cool with Total Electric Heat, MCO<sup>2</sup>
- P • 2-Pipe Cool with Total Electric Heat
- Q • 4-Pipe Heat and Cool, MCO<sup>2</sup>
- R • 4-Pipe Heat and Cool

##### Thermostat

- P • 24 V Digital Programmable Wall Series
- N • 24 V Digital Non-Programmable Wall Series
- 4 • Wall Series 4039
- A • Wall Series 155 Vertical
- B • Wall Series 155 Horizontal

1. The actual kW rating is dependent on voltage and unit size. Refer to Electric Heater Selection table on page 14.  
2. Available only with Series 4, A, or B thermostats.

# Universal Modular Hi-Rise Series

## RATINGS AND LISTINGS

### AHRI Certification

IEC's MUY Modular Hi-Rise Series units are certified in compliance with Air-Conditioning, Heating, and Refrigeration Institute (AHRI) industry standard AHRI-440 for room fan coil units. Approved standard ratings are tabulated below.



### C-ETL-US Listing

IEC's MUY Modular Hi-Rise Series units are listed by ETL. The C-ETL-US listing signifies that IEC's fan coil units have been examined by ETL and are in compliance with both the U.S. and Canadian applicable standards.



### Standard Ratings

Unit Type	Unit Coil Size	Nominal CFM	Cooling Capacity		Water		Power Input Watts PSC
			Total MBH	Sensible MBH	Flow Rate (GPM)	WPD (ft. wg.)	
MUY	03-A	300	11.5	7.0	2.7	4.4	85
	04-A	400	13.6	9.0	2.8	5.0	115
	06-A	600	21.9	14.0	4.1	4.1	135
	08-A	800	27.5	17.8	4.4	4.7	250
	10-A	1000	37.7	24.5	6.3	11.9	325
	12-A	1200	43.1	28.4	6.7	13.4	440
	03-B	300	12.2	7.3	3.2	8.6	85
	04-B	400	15.6	9.6	3.5	10.0	115
	06-B	600	26.0	15.3	5.1	8.3	135
	08-B	800	31.4	19.5	5.6	9.9	250
	10-B	1000	42.2	25.6	7.5	9.4	325
	12-B	1200	46.5	30.5	8.0	10.8	440

- NOTES:**
1. Ratings are based on 80°F DB and 67°F WB EAT, 45°F EWT, 10°F water temperature rise, high fan speed, motor voltage 115-1-60, and airflow under dry coil conditions.
  2. For all application ratings, use IEC's computer selection program, the quick-selection ratings provided in this catalog, or contact your local IEC representative.
  3. For additional information, please consult AHRI's website at [www.ahrinet.org](http://www.ahrinet.org).

### Hydronic Heating – Base Capacity

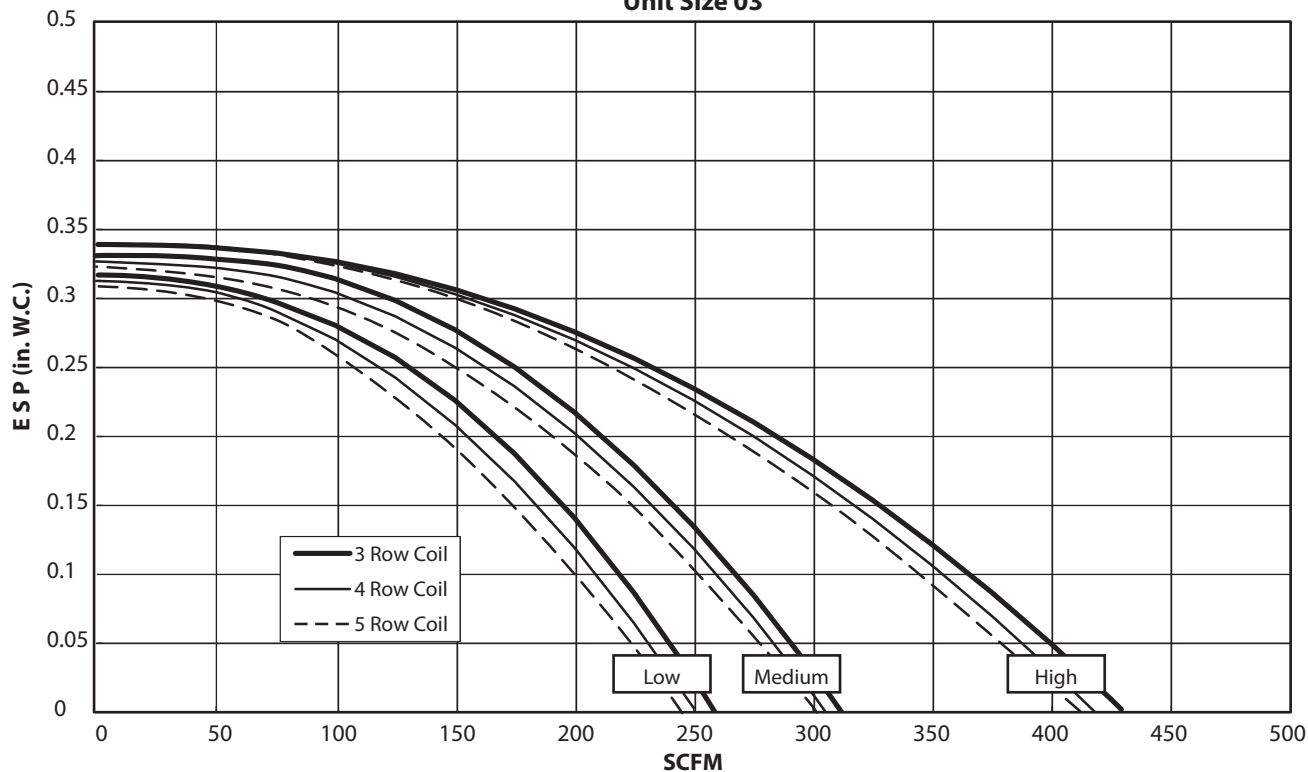
Rows	EWT	Unit Coil Size	GPM						
			0.5	1.0	2.0	3.0	4.0	6.0	8.0
1-Row	160°F	03	11.3	14.0	15.8	16.5	-	-	-
		04	11.5	14.4	16.3	17.1	-	-	-
		06	-	19.8	23.3	24.7	25.4	-	-
		08	-	20.1	23.9	25.4	26.2	-	-
		10	-	25.2	31.1	33.6	34.9	-	-
		12	-	25.4	31.6	34.1	35.5	-	-
2-Row	160°F	03	15.9	21.0	24.2	-	-	-	
		04	16.2	21.8	25.6	27.0	-	-	
		06	-	27.2	35.5	37.4	39.0	-	-
		08	-	28.0	36.1	39.5	41.1	-	-
		10	-	33.2	45.5	50.8	53.8	56.9	-
		12	-	33.7	46.6	52.5	55.8	59.3	61.2
3-Row	140°F	03	14.3	20.0	23.5	24.8	-	-	
		04	14.6	20.8	25.0	26.5	-	-	
		06	-	25.1	32.9	36.0	37.7	-	-
		08	-	25.7	34.6	38.3	40.3	-	-
		10	-	-	41.7	47.8	51.1	54.6	-
		12	-	-	42.9	49.7	53.5	57.7	-
4-Row	140°F	03	-	21.0	25.1	-	-	-	
		04	-	22.0	27.1	28.9	-	-	
		06	-	27.6	36.9	40.4	42.1	-	-
		08	-	28.4	39.3	43.7	46.0	-	-
		10	-	-	-	53.1	57.1	61.2	63.3
		12	-	-	-	55.7	60.5	65.5	68.1

- NOTES:**
1. All base hot water capacities are given in thousands of BTUH (MBH).
  2. Ratings are based on nominal CFM at 70°F EAT and 160°F EWT.
  3. For information regarding performance at specific conditions, please use the IEC rating program or consult your IEC representative for assistance.

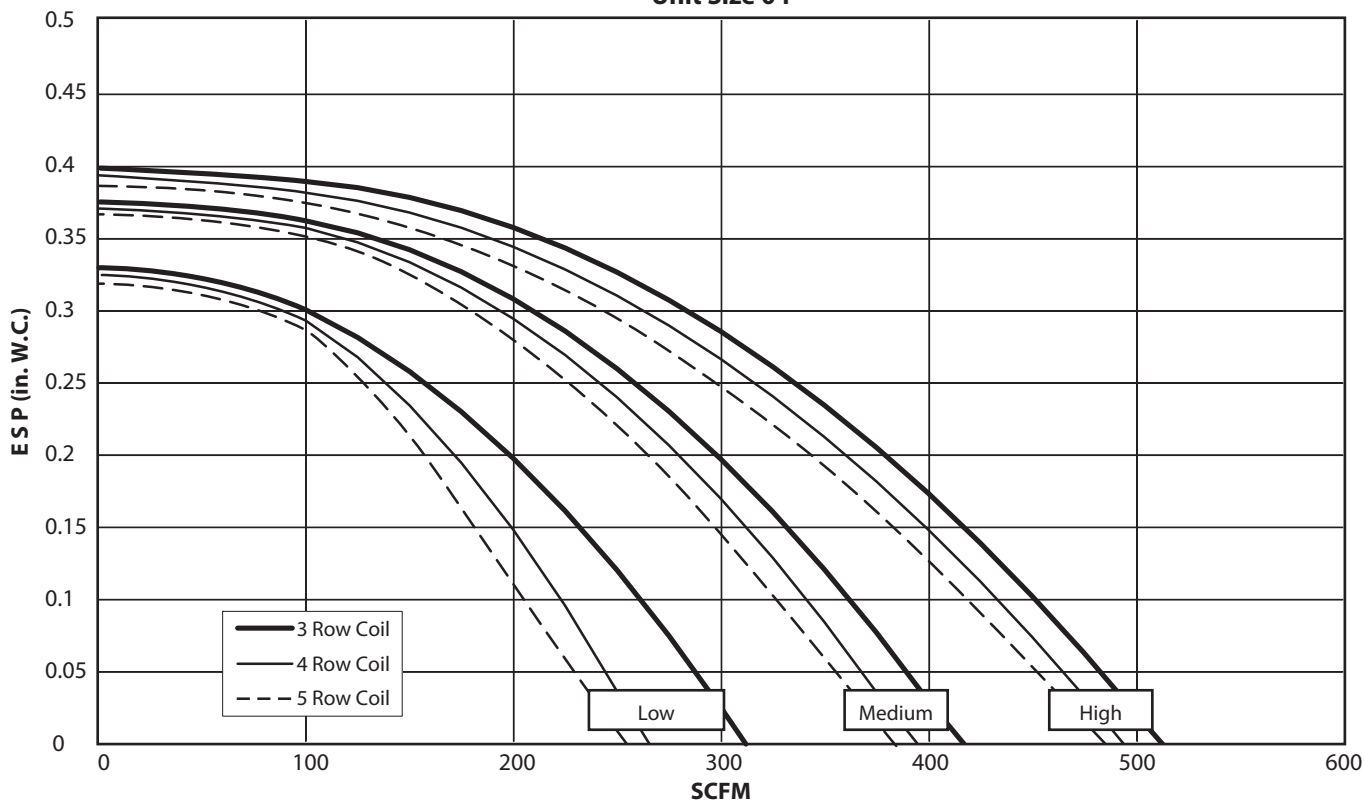
# Universal Modular Hi-Rise Series

FAN PERFORMANCE CURVES

**Unit Size 03**



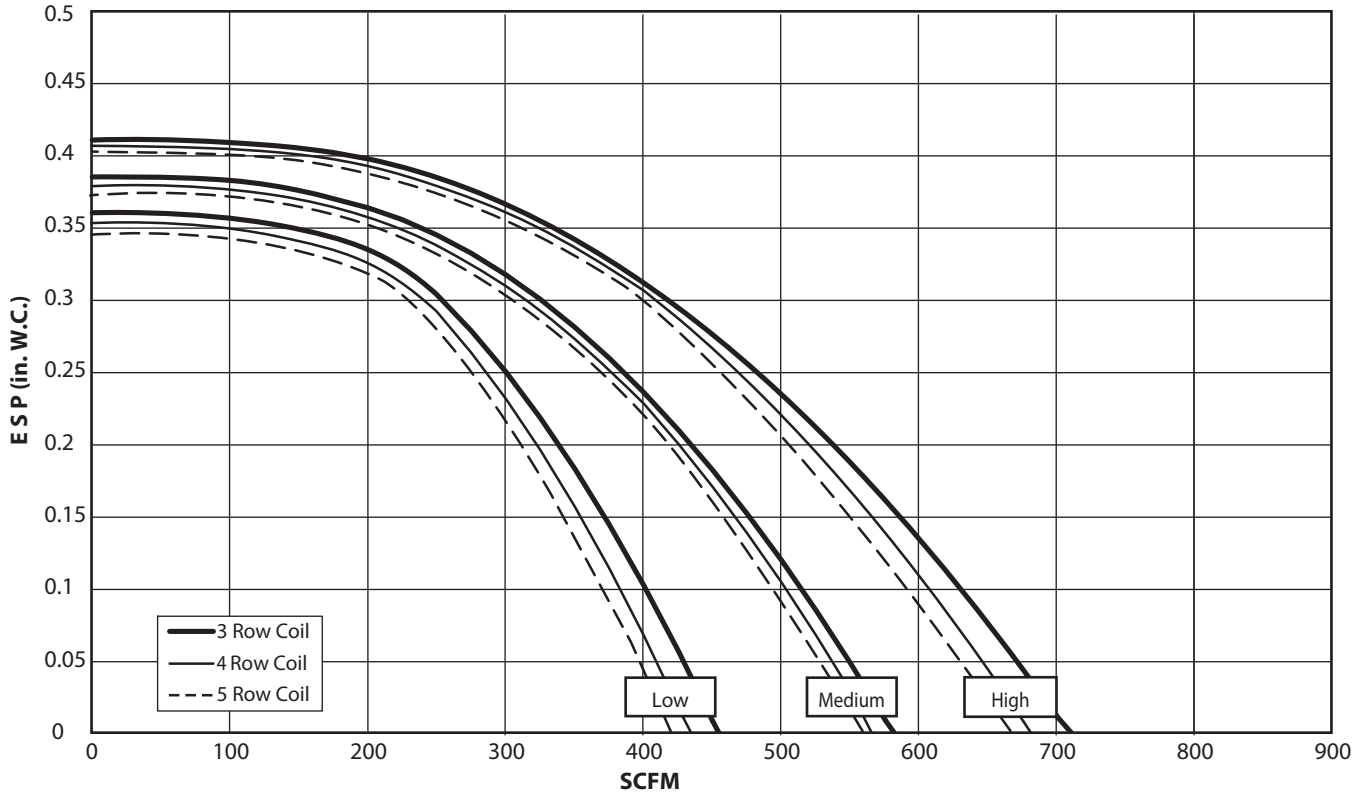
**Unit Size 04**



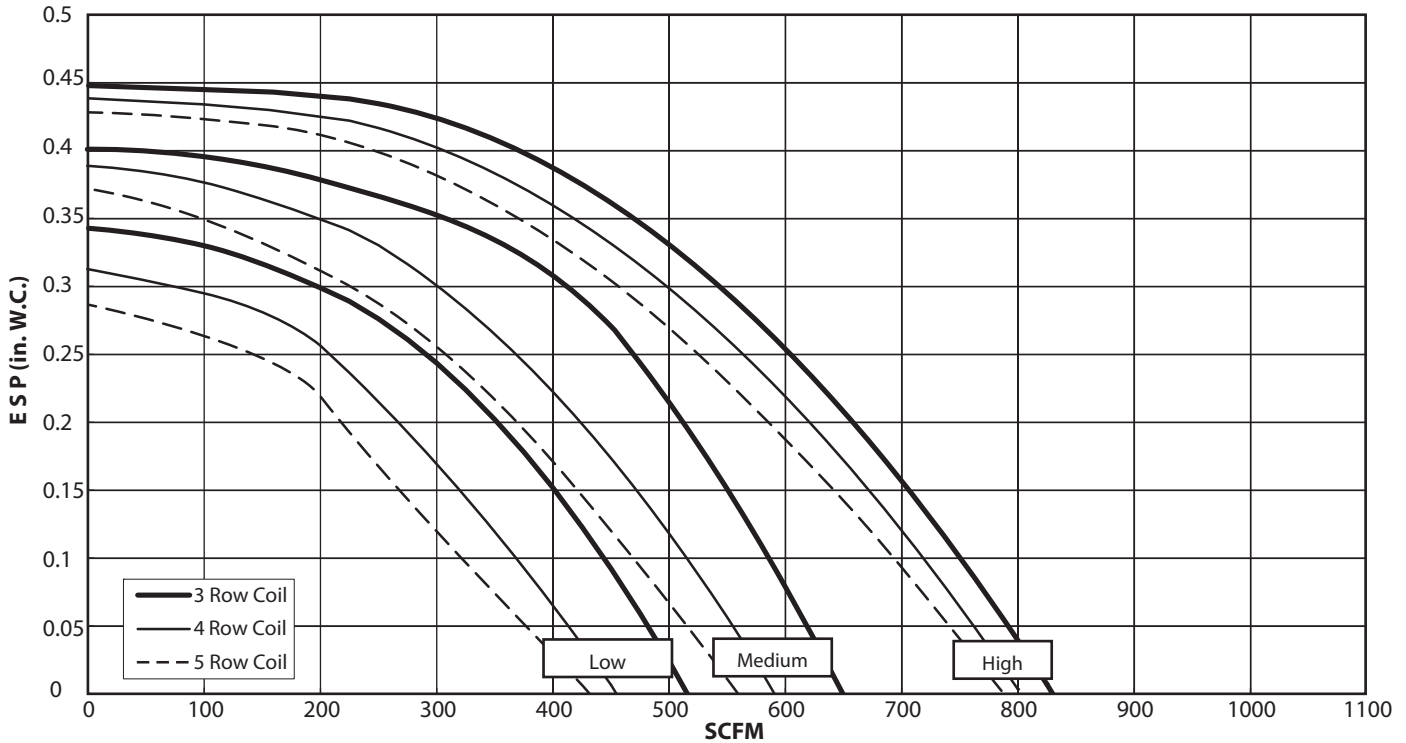
# Universal Modular Hi-Rise Series

FAN PERFORMANCE CURVES, Cont'd.

### Unit Size 06

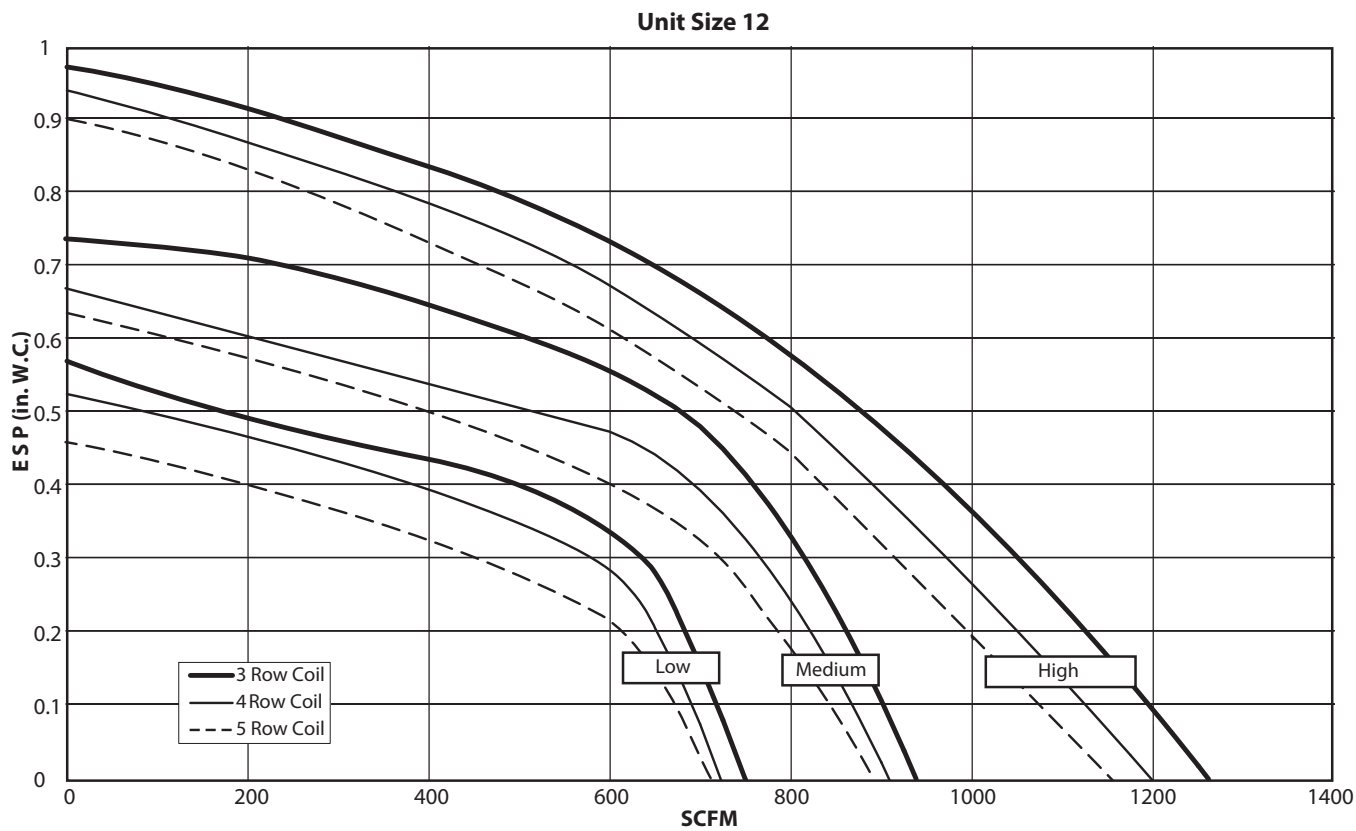
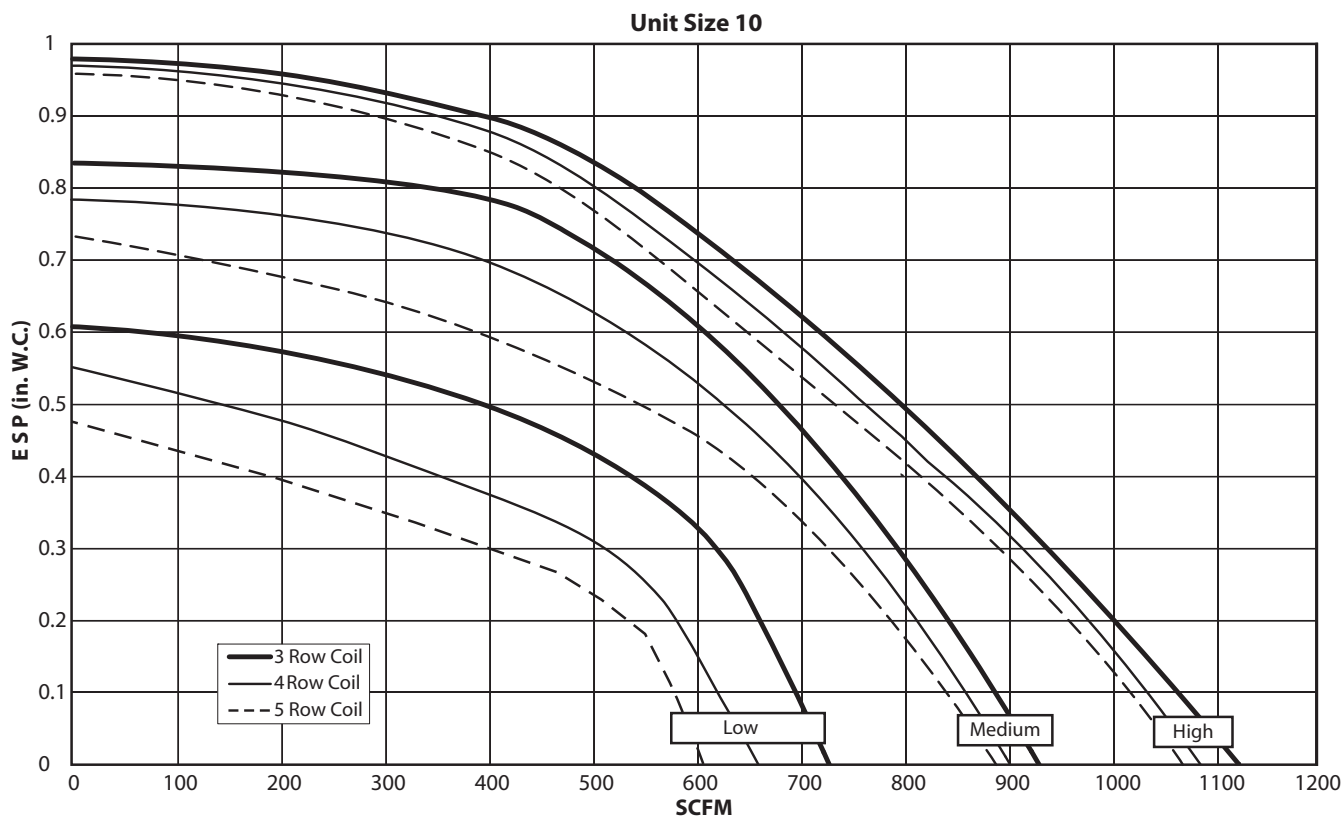


### Unit Size 08



# Universal Modular Hi-Rise Series

FAN PERFORMANCE CURVES, Cont'd.



# Universal Modular Hi-Rise Series

## ELECTRIC HEATING

### Electric Resistance Heating

Electric heaters are available on IEC MUY Series fan coil units for the following applications.

### Total Electric Heat

Total electric heat eliminates the requirement for a boiler. Heating and/or cooling may be available on an individual basis throughout the year. Two-pipe chilled water is used for cooling, and the electric heater is used for heating. Individual room controls can be supplied for either manual or automatic changeover.

### Auxiliary Electric Heat

Auxiliary electric heat is ideal for tempering room air between seasons and during the cooling season when chilled water is being circulated. Individual room controls are supplied to provide electric heat only when chilled water is being circulated. During regular heating season, heating is provided by hot water being circulated in the system.

### Construction

Heater coils of high-grade resistance wire are supported by ceramic insulators on plated steel brackets. These heating elements are located at the discharge area of the motor/blower. High limit thermal cutouts protect the unit in the event of airflow loss.

### Electric Heater Selection

Voltage	kW	Unit Size					
		03	04	06	08	10	12
120 V	1.0	●	●	●	●	●	●
	1.5	●	●	●	●	●	●
	2.0	●	●	●	●	●	●
	3.0	●	●	●	●	●	●
208 V	1.0	●	●	●	●	●	●
	1.5	●	●	●	●	●	●
	2.0	●	●	●	●	●	●
	3.0	●	●	●	●	●	●
	4.0	—	●	●	●	●	●
	5.0	—	—	●	●	●	●
	6.0	—	—	●	●	●	●
240 V 277 V	1.0	●	●	●	●	●	●
	1.5	●	●	●	●	●	●
	2.0	●	●	●	●	●	●
	3.0	●	●	●	●	●	●
	4.0	—	●	●	●	●	●
	5.0	—	—	●	●	●	●
	6.0	—	—	●	●	●	●
	8.0	—	—	—	●	●	●
10.0	—	—	—	—	●	●	

### Thermal Overload Protection

All PSC motors furnished by IEC contain internal thermal overload protection. The overload automatically resets when the temperature returns to a safe limit.

### Motor Performance Data

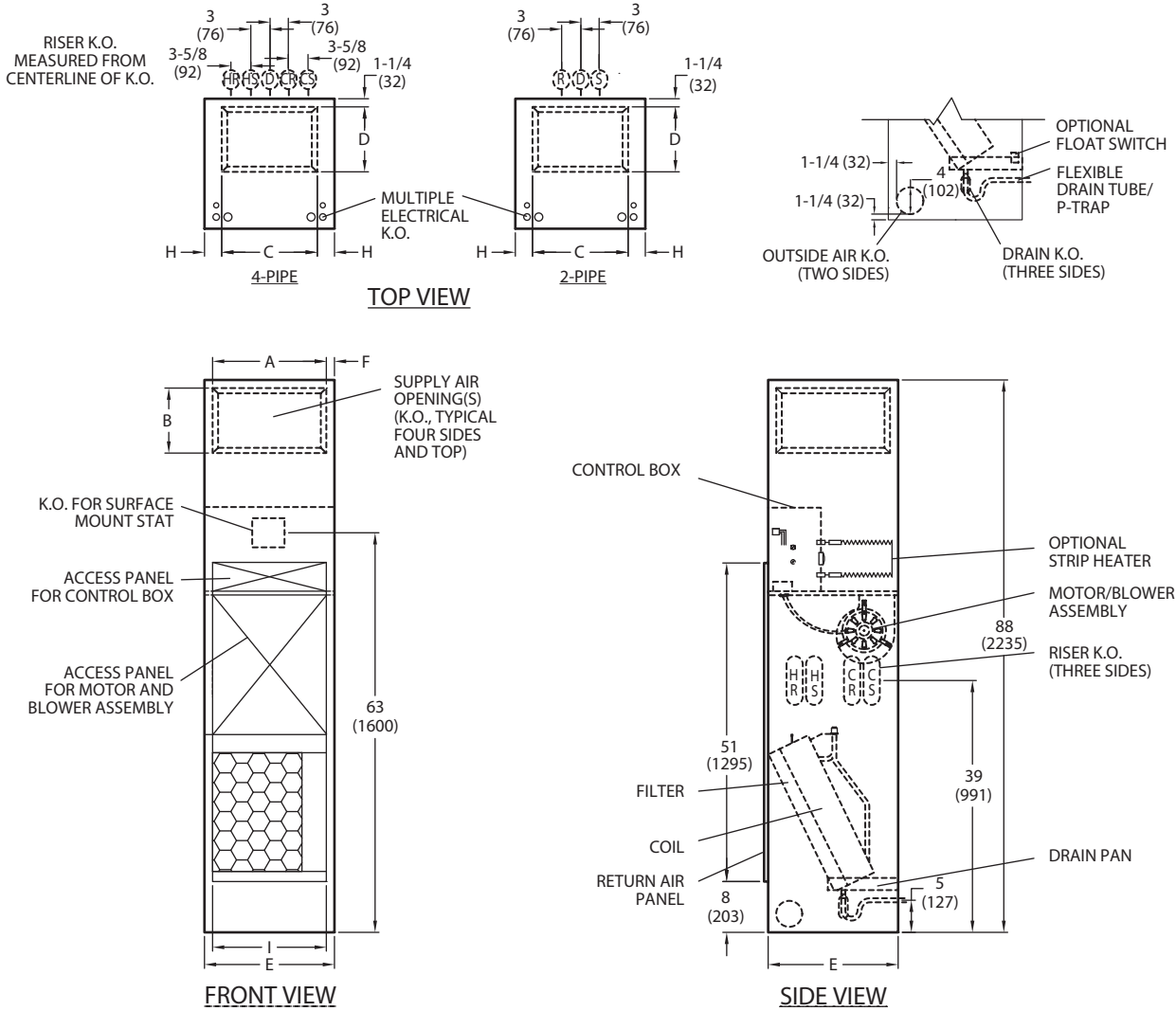
Voltage	Fan Speed	Unit Size	03	04	06	08	10	12
		Nominal HP	1/30	1/20	1/15	1/5	1/5	1/4
115 V 60 Hz 1-Phase	High	Amps	0.81	1.20	1.30	2.33	3.30	5.10
		Watts	85	115	135	210	325	420
	Medium	Amps	0.60	0.70	1.00	1.40	2.46	2.80
		Watts	60	70	100	145	255	285
	Low	Amps	0.40	0.50	0.65	1.00	2.00	2.20
		Watts	40	50	65	90	190	210
208 V 60 Hz 1-Phase	High	Amps	0.31	0.60	0.70	0.96	1.40	2.20
		Watts	122	114	125	185	300	355
	Medium	Amps	0.35	0.32	0.46	0.77	1.10	1.20
		Watts	66	63	95	137	214	235
	Low	Amps	0.24	0.21	0.35	0.68	0.86	0.80
		Watts	42	40	70	122	162	150
230 V 60 Hz 1-Phase	High	Amps	0.31	0.60	0.70	0.96	1.40	2.20
		Watts	140	130	140	193	320	405
	Medium	Amps	0.36	0.33	0.46	0.77	1.10	1.20
		Watts	76	72	105	152	245	270
	Low	Amps	0.25	0.22	0.38	0.69	0.91	0.85
		Watts	50	47	85	140	186	180
277 V 60 Hz 1-Phase	High	Amps	0.30	0.50	0.60	0.71	1.20	1.60
		Watts	80	115	135	200	325	420
	Medium	Amps	0.20	0.30	0.40	0.60	1.00	1.17
		Watts	60	75	100	160	270	300
	Low	Amps	0.10	0.20	0.35	0.50	0.75	0.90
		Watts	40	50	77	115	180	200

**NOTE:** Total motor Amps and Watts are shown.

# Universal Modular Hi-Rise Series

## PHYSICAL DATA

### MUY – Universal Modular Hi-Rise Concealed



Unit Model	Dimension - Inches (Millimeters) <sup>1</sup>								Connections		Unit Weight <sup>2</sup>
	Side Supply		Top Supply		E	F	H	I	Coil	Drain	
	A	B	C	D							
MUY 03	14 (356)	12 (305)	14 (356)	10 (254)	17 (432)	3 (76)	1-1/2 (38)	14 (356)	1/2" (13) SWT x 37.5° Flare Adapter	7/8" (22) ID EPDM Tube	180 (82)
MUY 04											225 (102)
MUY 06	18 (457)	12 (305)	16 (406)	12 (305)	20 (508)	1 (25)	2 (51)	18 (457)			240 (109)
MUY 08											260 (118)
MUY 10	22 (559)	16 (406)	18 (457)	16 (406)	24 (610)	1 (25)	3 (76)	22 (559)			280 (127)
MUY 12									305 (138)		

- NOTES:**
- Unit measurements on drawings are shown in inches and millimeters.
  - Unit weights are approximate (shown in pounds and kg) and are based on dry coils, minimum rows and exclude packaging, valves or other components. Add 2 lbs. for electric heater option.
  - Units are fabricated of galvanized steel with a 16 gauge galvanized fan deck.
  - Thermostats shipped loose for field installation.
  - Blower, motor, valves, coil, and filter are accessible through the return air opening.
  - Unit and control box are insulated with 1/2" (13) coated standard fiberglass insulation.
  - All risers will ship separately from units.
  - Flex hoses ship with unit. Threaded fittings on both ends of flex hoses must be field tightened and leak tested.

# Universal Modular Hi-Rise Series

## STANDARD FEATURES AND OPTIONS

Features and Options	Standard	Factory Installed Option	Field Installed Option
<b>Coils</b>			
3 Rows 2-pipe	X	-	-
4 Rows 2-pipe	-	X	-
3/1, 3/2, or 4/1 Rows CW/HW	-	X	-
Manual Air Vent	X	-	-
<b>Drain Pan</b>			
Galvanized Internally Coated with 2 Part Closed Cell Foam	X	-	-
Stainless Steel Externally Coated with 2 Part Closed Cell Form	-	X	-
Antimicrobial Coating for Drain Pans	-	X	-
<b>Fin Material</b>			
Aluminum with Galvanized End Sheets	X	-	-
<b>Nichrome Wire Strip Electric Heater</b>			
		X	
<b>Filters</b>			
1" Throwaway Non-Woven Synthetic	X	-	-
1" Pleated MERV 8	-	X	-
<b>Insulation</b>			
1/2" Standard Fiberglass	X	-	-
<b>Motor Type</b>			
Standard 3-Speed PSC Motors with Quick-connect Plug	X	-	-
<b>Motor Voltage</b>			
120/1/60 3-Speed	X	-	-
208/230/277/1/60 3-Speed	-	X	-
<b>Supply Grilles</b>			
Double Deflection, Supply Grille (Aluminum or Arctic White)	-	-	X (J, K)
Double Deflection, Supply Grille with Opposed Blade Dampers (Aluminum or Arctic White)	-	-	X (L, M, D)
<b>Return Air Panel</b>			
Standard Height with or without Frame	-	-	X (F, H)
<b>Cabinet Modifications</b>			
Standard Height is 88"	X	-	-
<b>Risers</b>			
Risers Shipped Loose	X	-	X
<b>Hose Kits</b>			
Flex Hose and Connections	X	X	-
<b>Controls</b>			
24 V Controls (line voltage not available)	X	-	-
Thermostats	-	-	X
Surface Mounted with Tile Ring	-	-	X
Wall/Remote Mounted	-	-	X
Service Switch	-	X	-
Single Point Power Connection (mandatory with electric heat)	-	X	-
Incoming Power Fusing (recommended with electric heat)	-	X	-
Condensate Overflow Switch	-	X	-

# Universal Modular Hi-Rise Series

## STANDARD FEATURES AND OPTIONS, Cont'd.

### Controls:

As detailed in the table below, IEC offers a control for most customer needs. Additional controls and devices are available to meet even the most demanding operating logic.

### 3-speed Fan Control

All of our basic control schemes utilize a 3-speed fan control to modulate the cooling output, to maximize the percentage of latent heat removal, and to further reduce the sound level when maximum cooling or heating performance is not required.

### Low Voltage Control (24 V)

A low voltage control is standard with all of our control schemes.

### Thermostats

Thermostats	System	Function	Mode	Control Type*				
				P	N	4	A	B
<b>Basic Control Needs</b>	2-Pipe	Heat Only	–	X	X	X	X	X
	2-Pipe	Cool Only	–	X	X	X	X	X
	2-Pipe	Heat/Cool	ACO	X	X	X	X	X
			MCO	X	X	X	X	X
	2-Pipe	Heat/Cool with Auxiliary Electric Heat	ACO	X	X	X	X	X
			MCO	X	X	X	X	X
	2-Pipe	Heat/Cool with Total Electric Heat	ACO	X	X	X	X	X
			MCO	X	X	X	X	X
	4-Pipe	Heat/Cool	ACO	X	X	X	X	X
			MCO	X	X	X	X	X
<b>Thermostat Features</b> <b>All listed controls include fan switching.</b>	24 V			X	X	X	X	X
	Programmable			X	N/A	N/A	N/A	N/A
	Non-Programmable			N/A	X	X	X	X
	Surface Mounted			X	X	X	X	X
	Remote Wall Mounted			X	X	X	X	X
	3-Speed Fan			X	X	X	X	X
	Continuous Fan			X	X	X	X	X
	Cycling Fan			X	X	N/A	N/A	N/A
	Remote Temperature Sensor			X	X	N/A	Opt	Opt
	Adjustable Operating Range			X	X	Kit	Kit	Kit
	Touch Pad/Digital Display			X	X	N/A	N/A	N/A
	Local Temperature Set-Back			X	X	N/A	N/A	N/A
	Water Temperature Purge Cycle			X	X	N/A	N/A	N/A
Pipe Sensor			X	X	N/A	N/A	N/A	

\* Control Type Legend:

- P** 24 V Digital Programmable Wall Series
- N** 24 V Digital Non-Programmable Wall Series
- 4** Wall Series 4039
- A** Wall Series 155 Vertical
- B** Wall Series 155 Horizontal

### Service Switches

IEC offers concealed service switches as standard for use by maintenance and service personnel to shut off the power while working on the unit. For units with total electric heat we offer SPSF (single power source fusing) and IPF (incoming power fusing).

### Fusing

We offer as standard incoming power fusing for all units as well as blower motor and control sub-fusing for units that use electric heat. The blower motor and control sub-fusing (single power source wiring) is required when single source power with electric heat is specified.

### Controls (Continued):

#### IEC Digital Non-Programmable/ Programmable Thermostats

- 2- or 4-pipe
- 3-speed fan
- Digital display
- Backlit
- Dry contact NO/NC (Condensate Overflow)
- Auto changeover
- Auto changeover with sensor (Lockout HT/CL 2-pipe application)
- HT/CL indicator light
- Adjustable deadband
- Setpoint only display
- Celsius or Fahrenheit display
- Remote sensor
- Keypad lockout (optional)



### Accessories:

- Lockout Cover – decorative cover easily mounts over the face of the thermostat to prevent individuals from changing a zone's desired set points (optional). (Available through IEC Parts).
- Relay Pack – factory mounted and wired to control the unit's fan speeds.
- Changeover Sensor – used in 2-pipe applications to monitor the water's temperature to determine the proper cooling or heating mode.
- Remote Sensor – serves as an interface between the thermostat and any external sensor inputs.
- Small Wall Plate – small decorative wall plate used to mount over a 4 x 4 junction box.
- Large Wall Plate – large decorative wall plate used to mount over a 4-11/16" x 4-11/16" junction box or when the thermostat will not cover existing holes in the wall. (Available through IEC Parts).

### Control Mounting Options:

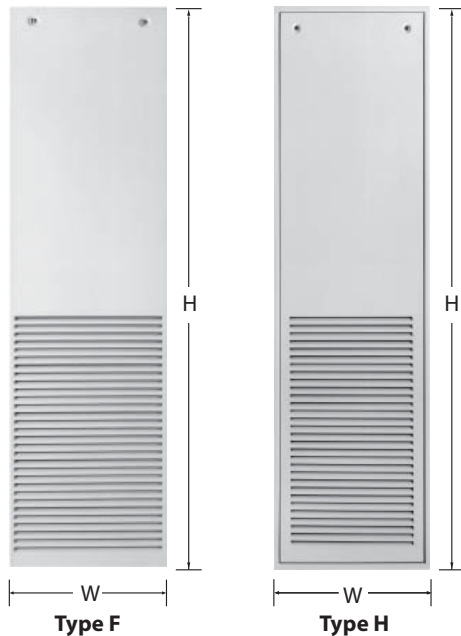
**Surface mounted**—This requires a tile ring mounted above the return air panel and quick-connect plug wiring on the thermostat. After the dry wall has been applied to the cabinet, the thermostat plug will be attached to a matching plug in the unit and the thermostat will be fastened to the tile ring. These applications can use panel styles F, H, R, or S.

**Remote wall mounted**—Thermostat is mounted on a wall away from the cabinet and wiring from the unit to thermostat is done in the field. Use with panels F, H, R, and S

# Universal Modular Hi-Rise Series

STANDARD FEATURES AND OPTIONS, Cont'd.

## Return Air Panels



Panel Type	Unit Size and Dimensions					
	03/04		06/08		10/12	
	H	W	H	W	H	W
F	52.5 (1334)	15.5 (394)	52.5 (1334)	19.5 (495)	52.5 (1334)	23.5 (597)
H	51.7 (1313)	15.1 (384)	51.7 (1313)	19.1 (485)	51.7 (1313)	23.1 (587)

**NOTE:** Dimensions shown in inches and millimeters.

Return air panels for the Universal Mod units are designed to be applied over a single sheet of drywall. If multiple sheets of drywall are being used or if drywall is extended away from the cabinet, panel style H should be used.

### General Specifications:

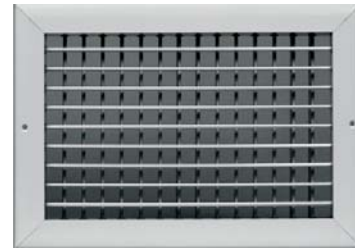
- Heavy gauge galvanized steel with arctic white powder-coat finish
- Rear of panel is insulated with 1/2" dual density fiberglass
- Integral stamped steel return air grille
- 1/4 turn tamper-proof fasteners for panel removal
- Removal of panel provides service access to all internal components

### Filters

Unit Size	Nominal 1" Filter Size <sup>2</sup>	Unit Size	Nominal 1" Filter Size <sup>2</sup>
03	12-1/2 (316) X 24-1/4 (616)	08	16-1/4 (413) X 26-3/4 (679)
04	12-1/2 (316) X 24-1/4 (616)	10	20-1/2 (521) X 29-1/4 (743)
06	16-1/4 (413) X 26-3/4 (679)	12	20-1/2 (521) X 29-1/2 (743)

- NOTES:**
1. Sizes shown are nominal ordering sizes.
  2. Dimensions shown in inches and millimeters.

## Supply Air Grilles



Unit Size	Recommended Grille Sizes		
	Single Supply	Double Supply	Top Supply
03/04	14 (356) x 12 (305)		
06/08	18 (457) x 12 (305)		
10/12	22 (559) x 16 (406)		

### General Specifications:

Frame and blades are 6063 extruded aluminum alloy with 200-R1 satin anodized finish. The frame has a typical wall thickness of .050" and is separated from the blades with injection-molded nylon bushings. This method of assembly minimizes corrosion and vibration. The frame mounting holes are dimpled, allowing for a counter-sunk fastener head appearance.

All blades are airfoil in design, individually adjustable and spaced 3/4" on center. At the outer edge of the frame is a specially engineered channel which retains an extruded flexible vinyl bulb gasket that produces a positive air seal at the mounting surface, minimizing smudging.

An optional opposed blade damper is screwdriver-operated through the face of the unit and has the same extruded aluminum construction and injection-molded nylon bushings.

The unit achieves an effective area of 80% with the blades set at a 0° pattern, thus eliminating high velocity and pressure drop at the grille face. Wider deflection with reduced throw may be achieved at the 22° and 45° blade settings with slightly increased sound levels.

Suitable for sidewall application. Available in clear anodized, white or a variety of custom colors. Contact the factory for available optional colors and color chart.

### GENERAL DESCRIPTION

**MUY** - Concealed Universal Modular Hi-Rise Fan Coil Units:

**NOTE: These are general mechanical specifications. Please refer to [www.iec-okc.com](http://www.iec-okc.com) for more detailed specifications.**

### PART 1

#### 1.1 SUMMARY

This section includes fan coil units and accessories.

#### 1.2 SYSTEM DESCRIPTION

MUY Fan Coil Units, 2-pipe, 4-pipe, or 2-pipe with electric heat, in floor mounted, concealed cabinets, direct connect to field supplied risers.

#### 1.3 QUALITY ASSURANCE

MUY Fan Coils shall be tested in accordance with AHRI Standard 440. Each coil shall be factory tested for leakage at 300 psig air pressure with coil submerged in water. Insulation and adhesive shall meet NFPA-90A requirements for flame spread and smoke generation.

Base or "standard" units shall be ETL listed.

#### 1.4 DELIVERY, STORAGE AND HANDLING

Unit shall be handled and stored in accordance with the manufacturer's instructions.

### PART 2. PRODUCTS

#### 2.1 MANUFACTURER

Basis of design shall be fan coils by International Environmental Corporation.

#### 2.2 CONFIGURATION

##### A. General:

Factory assembled MUY fan coil units complete with water coil with integrated motorized control valve, fan, motor, drain pan, and all required wiring, piping and controls.

##### B. Concealed MUY Units:

1. Units shall be constructed of heavy-gauge galvanized steel frame and back panel.
2. Interior surfaces shall be lined with 1/2" standard fiberglass insulation.

3. Units shall be designed to have wallboard applied directly to the unit surface.
4. All units will include a return air block-off panel.
5. Units shall have an optional double deflection aluminum discharge grille(s) or an optional Arctic White painted double deflection discharge grille(s).
6. Units shall have an Arctic White painted steel return air louvered panel, removable to provide access to all internal components.
7. Controls shall be provided with a quick connect plug for field-mounting of thermostat on the front of unit.
8. Drain pans shall be field piped to the drain riser with a removable/cleanable "p-trap".
9. Galvanized drain pans shall be coated with a 2-part closed cell foam insulation. Optional insulated stainless steel drain pan offered.
10. Units shall have 1" throwaway non-woven synthetic (MERV 8 pleated) filters.
11. Units shall have stainless steel hose hits.

#### 2.3 CERTIFICATION

##### A. Safety:

IEC's MUY Modular Hi-Rise Series units are listed by ETL. The C-ETL-US listing signifies that IEC's fan coil units have been examined by ETL and are in compliance with the both the U.S. and Canadian applicable standards.

##### B. Capacities:

Unit capacities are tested and certified in accordance with AHRI Standard 440.

#### 2.4 MATERIALS

##### A. Coils:

All coils shall have 1/2" copper tubes, manual air vent, and aluminum fins, 14 fins per inch spacing. Coil fins shall be mechanically bonded to copper tubes. Copper tubes must comply with ASTM B-75.

# Universal Modular Hi-Rise Series

## MECHANICAL SPECIFICATIONS, Cont'd.

Fin thickness shall be 0.0045" and tube thickness shall be 0.016". All coils shall be leak tested with air at 300 psig under water.

1. For installation in a 2-pipe system, unit shall be equipped with:
  - a. 3-row or 4-row coil as shown on equipment drawings
  - b. 2 ball valves with flare fittings
  - c. 1 circuit setter valve
  - d. 1 motorized control valve with 150 PSI close-off pressure differential
2. For installation in a 4-pipe system, unit shall be equipped with:
  - a. 3/1, 3/2, or 4/1 row-split coil, as shown on equipment drawings
  - b. 4 ball valves
  - c. 2 circuit setter valves
  - d. 2 motorized control valves with 150 PSI close-off pressure differential

### B. Motorized Control Valves:

1. Shall be rated at 300 psig.
2. Shall be rated to operate with fluid temperatures from 40° F to 180° F.
3. Normally closed valve shall be powered open with spring driven closure.
4. All control valves to be rated at 150 psi close off pressure.

### C. Fans:

1. Fans shall be direct-drive, double-width fan wheels with forward-curved blades.
2. Blower wheels shall be statically and dynamically balanced.
3. Scrolls and fan wheels shall be constructed of galvanized steel.
4. Fans shall be easily removable.

### D. Fan Motors:

1. Motors shall be 3-speed, single phase, 60 Hz permanent split capacitor type for 115 V (208 V, 230 V, or 277 V), permanently lubricated, with sleeve bearings.
2. Motors shall be equipped with quick connect electrical plugs.
3. Motors shall have thermal overload protection with automatic reset.
4. Motors shall be factory mounted on the blower housing.

### E. Electric Heaters:

Unit shall be equipped with nichrome wire electric strip heaters for total or auxiliary electric heat as specified on the equipment schedule.

1. Heaters shall be protected by an automatic reset safety cutout switch and a fusible link.
2. Heater capacity shall be as specified on the equipment schedule.
3. Heaters shall be single phase, 120 V (208 V, 240 V, or 277 V) as specified on the equipment schedule.
4. Heaters shall be of single stage configuration.

### F. Water Supply Hose for Fan Coil:

1. Construction
  - a. Hose must have an external component constructed of stainless steel 304L wire braid with an internal core tube of EPDM Rubber.
  - b. Hoses have 37.5° Female Swivel Crimp on Fittings on either end for attachment to Brass 1/2" Male adapters.
  - c. Hoses are assembled with a patented process which bonds the tube to the outer braid, minimizing the possibility of the hose assembly kinking during installation.
  - d. All hoses equipped with permanently installed (crimped) end fittings to

eliminate the possibility of bands or clamps loosening and creating leaks.

- e. Plated steel hose swivel fittings and brass adapters to reduce the possibility of over-torquing.

### 2. Regulations

- a. Hoses meet UL-94 VO rating listed as Underwriters Laboratories Yellow Card number QMFZ2.E80017.
- b. 1/2" hoses rated for a maximum working pressure of 400 psi and burst pressure of 1600 psi.
- c. Temperature range for hose assemblies are -40°F up to 200°F.
- d. Field connection of hoses are by others.
- e. Torque specifications for hose connections are 350 in. lbs. +10/-0 in. lbs. to prevent leaks.

### G. Controls:

1. Manual (or Auto) changeover heating/cooling thermostat with integral 3-speed fan switch
2. Continuous (or cycling) fan
3. Water temperature sensing for 2-pipe CW/HW system changeover
4. Wall or surface mounted thermostat
5. Low voltage components
6. Digital display

### H. Safeties:

1. Fan motors shall include thermal overloads.
2. Electric heaters shall include thermal overloads with fusible link back-up.
3. Equipment shall be supplied with a service switch and unit fusing.
4. Electric heat units shall also include blower motor and control sub-fusing.

### I. Electrical Requirements:

Standard unit shall operate on 115 V (208 V, 230 V, or 277 V), single phase, 60 Hz electrical power. All externally exposed wiring shall be in flexible conduit.

### J. Options and Accessories:

#### 1. Risers for field installation:

- a. Supply risers shall be 1 to 2-1/2" diameter as shown on the equipment drawings.
- b. Length of risers shall be as specified on the equipment drawings.
- c. Supply and return risers shall be Type M (or L) copper.
- d. Drain riser shall be Type M copper.
- e. Insulation on risers shall be 1/2" (or 3/4") thick closed cell insulation.

#### 2. Supply grille:

- a. Double-deflection aluminum finish supply grille(s) shall be furnished for field installation.
  - b. Double-deflection aluminum finish supply grille(s) with opposed blade damper shall be furnished for field installation on two or more discharge units only.
3. Return air panels (or grilles) shall be supplied as shown on the equipment drawings.
  4. An outside air knockout opening shall be provided as shown on the equipment drawings.



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