

# Mega Modular Hi-Rise Series

FAN COILS



***LARGEST MODULAR HIGH RISE UNIT IN THE INDUSTRY***

***BUILD YOUR REPUTATION ON OURS***

# Mega Modular Hi-Rise Series

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## Concealed Modular (MGY)

### 1400 CFM to 2000 CFM

The Concealed Mega Modular (MGY) fan coil unit, International Environmental Corporation's (IEC) premier Modular unit, is designed to deliver nominal airflow at 0.5" w.g. ESP in a ducted application. Although usually installed in a small mechanical closet, the unit also features an optional decorative return air panel to allow for a classic high-rise type installation. Standard MGY units are provided with a galvanized finish on the cabinet.

## Hospitality

Consider using a Mega Modular Hi-Rise Unit in lieu of multiple smaller units. Mega Modular Hi-Rise Units conditioning lower level conference rooms and upper level suites can share a riser with the smaller high rise units, which are conditioning guest rooms in between.

## Residential

Decrease system complexity by utilizing fewer risers of Mega Modular Hi-Rise Units on a high-rise condo project. The unit's high static capability will easily handle high efficiency air filters and decorative supply grilles, while the modular design provides quiet operation and factory installed valve packages.



Shown with optional return air panel.

# Mega Modular Hi-Rise Series

## FEATURES AND BENEFITS

### Versatility In Design and Installation

Mega Modular Hi-Rise fan coil systems offer versatile unit arrangements made possible as a factory-assembled and integrated package. They are designed to be installed in a closet or furred in enclosure and ducted to provide indoor air comfort.

### Application Fit

- Cabinet designed for a ducted application and feature an optional supply plenum to provide for multiple supply locations.
- An aesthetically pleasing optional return air grille that will blend with most décor.
- 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. Coils with different materials and pressure drops to meet the needs of custom applications are also available.
- Optional supply air plenum is available when requirements dictate non-ducted applications.
- Wide variety of valve packages are factory installed to meet desired control specification requirements.
- Make-up air knockouts are provided to meet ventilation requirements.
- Multiple filter media types are available to address IAQ requirements.
- Different types of control options are available.
- Wide variety of insulation materials are available to address IAQ concerns.
- Stainless steel drain pan with external insulation and pre-formed rubber p-trap is standard.

- Antimicrobial drain pan coating available to address IAQ concerns.

### Ease of Installation

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

### Ease of Service

- Filters are easily accessible.
- Removable motor and blower with quick-connect plug and minimal fasteners.
- Control box at eye level for ease of field wiring and easy access.

### Quality and Safety

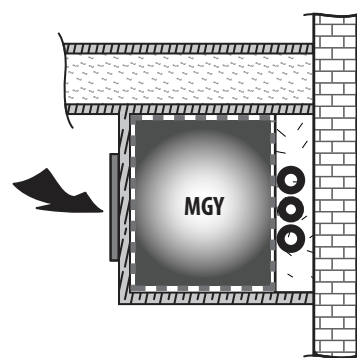
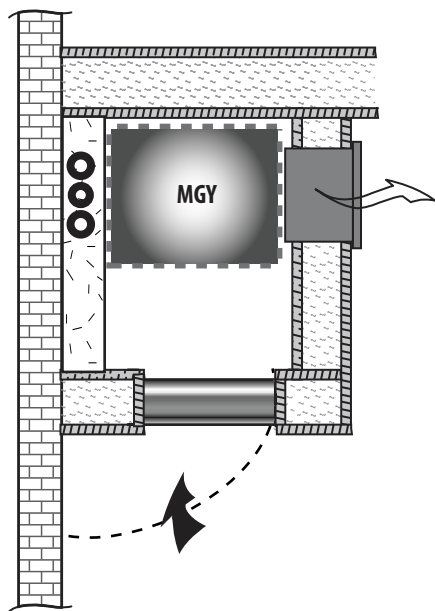
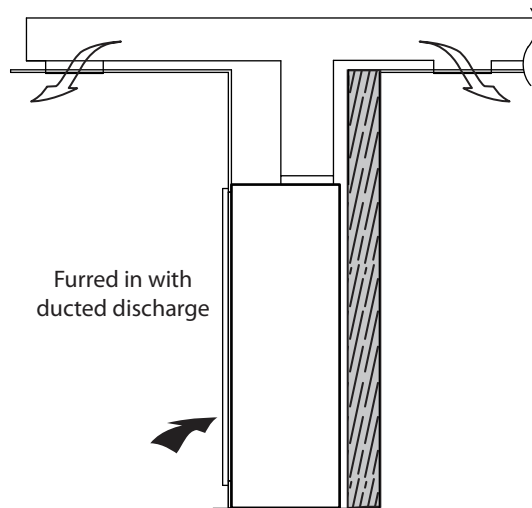
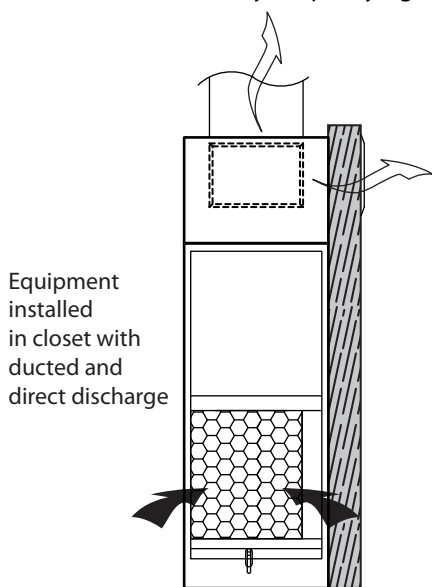
- Every unit tested and inspected at the factory for trouble free start-up.
- ETL listed.

### Unit Configuration Options


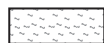

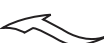
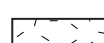



Mega Modular Hi-Rise units are designed to be installed either in a small mechanical closet, or furred in with drywall adhered directly to the cabinet. One of the unique traits of the Mega Modular Hi-Rise fan coil system is its optional discharge plenum. The discharge plenum is a factory installed option that adds 22" to the unit height and provides multiple air duct or supply air grille connections. The designer is afforded the luxury of specifying a single

unit, which can duct to multiple spaces, direct discharge to a single space, or provide a combination of the two. If necessary, the plenum is added or removed in the field to accommodate design changes.

Below are a few of the many arrangement possibilities of the Mega Modular Hi-Rise fan coil system.



#### LEGEND

- |   |                             |   |                                |
|---|-----------------------------|---|--------------------------------|
|  | Exterior Wall               |  | Partition (or Separation) Wall |
|  | Field Sheetrock             |  | Supply Air                     |
|  | Separation or Utility Chase |  | Return Air                     |
|  | Modular Riser Unit          |  | Field Installed Risers         |

**NOTE:** Risers ship separately. Units should be field connected using factory furnished flex hoses.

# Mega Modular Hi-Rise Series

PRODUCT APPLICATION, Cont'd.

## Riser Material, Sizing and Insulation

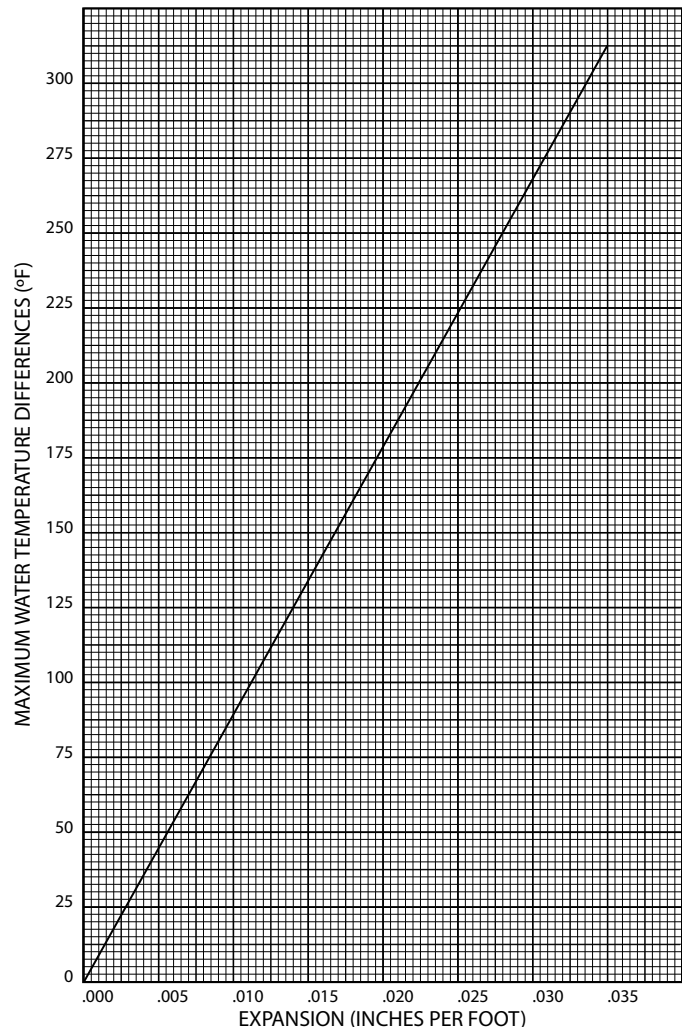
Mega Modular Hi-Rise units can be installed with or without risers, making it ideal for a high-rise building, or a shorter building with horizontal runs. Risers are factory fabricated and shipped loose for field installation. The riser type, size, and length must be determined based on the position of the unit in the building. The chilled and hot water risers are available in a variety of diameters from 3/4" through 2-1/2". Condensate risers are available in 1" and 1-1/4" for standard configuration units. 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 4 to 6' per second. Using this method, risers may be reduced in size as the water flow reduces from floor to floor.

## Riser Expansion

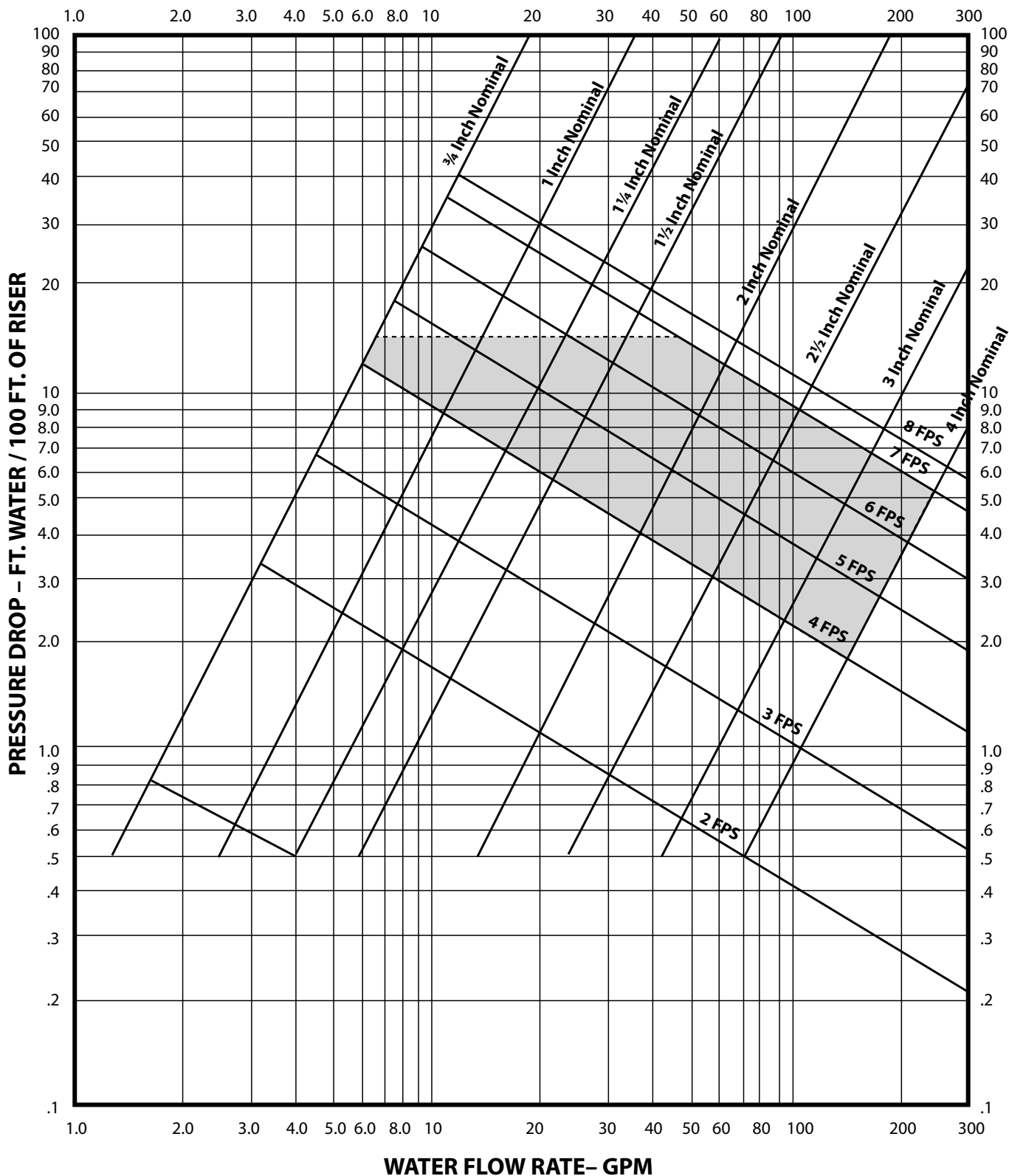
IEC's Mega Modular Hi-Rise units are designed to be used with flexible hose connections between the coil and risers. This only allows for expansion between the unit and the riser. This allowance for the movement within the unit is not intended to replace expansion compensation devices that the consulting 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.

THERMAL EXPANSION OF COPPER RISERS



# Mega Modular Hi-Rise Series

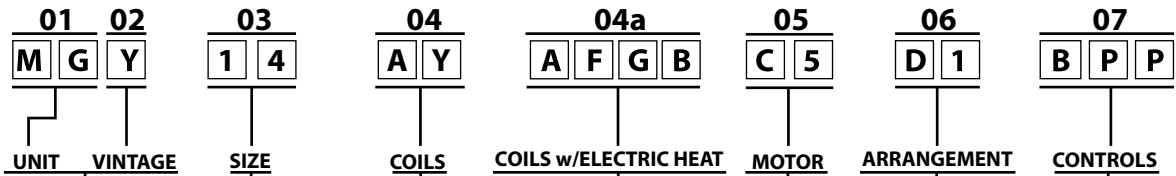
PRODUCT APPLICATION, Cont'd.



# Mega Modular Hi-Rise Series

## UNIT MODEL KEY

### Code Items Unit Code



MGY • Concealed Cabinet

14 • 1400 CFM  
16 • 1600 CFM  
20 • 2000 CFM

Voltage	Type
C • 115-1-60	5 • Permanent Split Capacitor, High Static
D • 208-1-60	6T • ECM - Tap Board
E • 230-1-60	6R • ECM - Rheostat Board
F • 277-1-60	6P • ECM - Proportional Board

### Cooling (4-Pipe) Cooling and Heating (2-Pipe)

- A • 3 Row
- B • 4 Row
- J • 5 Row

### Heating (4-pipe)

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

### SINGLE SUPPLY

ARR Code	Return	Supply
D1	Front	Top

**NOTE:** No B7 combination

Coil	Voltage	kW	Stages
A • 3 Row	D • 208-1-60	G • 4	B • Two Stage
B • 4 Row	E • 240-1-60	J • 6	
	F • 277-1-60	L • 8	
	Y • No Electric Heat	N • 10	
		P • 12	

**Voltage**  
B • 24 Volt

### System / Thermostat

#### Function Control

- G • 2-Pipe Heat Only
- H • 2-Pipe Cool Only
- K • 2-Pipe Heat and Cool
- M • 2-Pipe Heat and Cool w/ Aux. Elec. Heat
- P • 2-Pipe Heat and Cool w/ Total Elec. Heat
- R • 4-Pipe Heat and Cool

#### Thermostat

- P • IEC Digital Programmable
- N • IEC Digital Non-Programmable
- 6 • Remote thermostat by others (field mounted)
- D • Bacnet Compatible Digital Thermostat
- E • Lonworks Compatible Digital Thermostat

# Mega Modular Hi-Rise Series

RATINGS AND LISTINGS

## ETL Listing

IEC's Mega Modular Hi-Rise Series units are certified by Intertek Testing Services (ITS). ITS's C ETL US listing signifies that IEC's blower coil units have been examined by ITS and comply with the minimum requirements of U.S. and Canadian national product safety standard, UL 1995/CSA C22.2 No. 236, and that IEC's manufacturing site has been audited. ITS's re-examination service includes periodic visits to IEC's factory to ensure continued compliance for all listed products.



## AHRI Rating

IEC's Mega Modular Hi-Rise Series Unit size 14 is certified in compliance with Air-Conditioning, Heating, and Refrigeration Institute (AHRI) industry standard AHRI-440 for room fan coils. Approved Standard Ratings are tabulated below.



## AHRI Certified Standard Rating

Unit Type	Unit Coil Size	Nominal CFM	Cooling Capacity		Power Input W
			Total MBH	Sensible MBH	
MGY	14-A	1400	38.3	27.9	670
	14-B	1400	45.2	32.4	630

**NOTE:** Nominal airflow for Mega Modular Unit sizes 16 and 20 fall outside the performance range covered by standard 440.

## Standard Hydronic Cooling Ratings

Unit Type	Cooling Rows	Cooling Capacity		Water Flow GPM	Coil ΔP Ft. w.c.
		Total MBH	Sensible MBH		
MGY	14A	38.3	27.9	7.7	2.5
	14B	45.2	32.4	9.0	1.9
	14J	55.7	37.3	11.1	8.8
	16A	42.9	31.6	8.6	3.1
	16B	49.9	36.0	10.0	2.4
	16J	63.2	42.7	12.6	11.4
	20A	49.0	35.6	9.8	4.3
	20B	58.7	42.0	11.7	3.5
20J	73.4	49.5	14.7	16.3	

- 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, 0.2" w.g. ESP, motor voltage 120-1-60, no deco panel, and no electric heater.
  2. For information regarding performance at specific conditions please use IEC Rating Program or contact your IEC representative for assistance.

## Standard Hydronic Heating Capacity

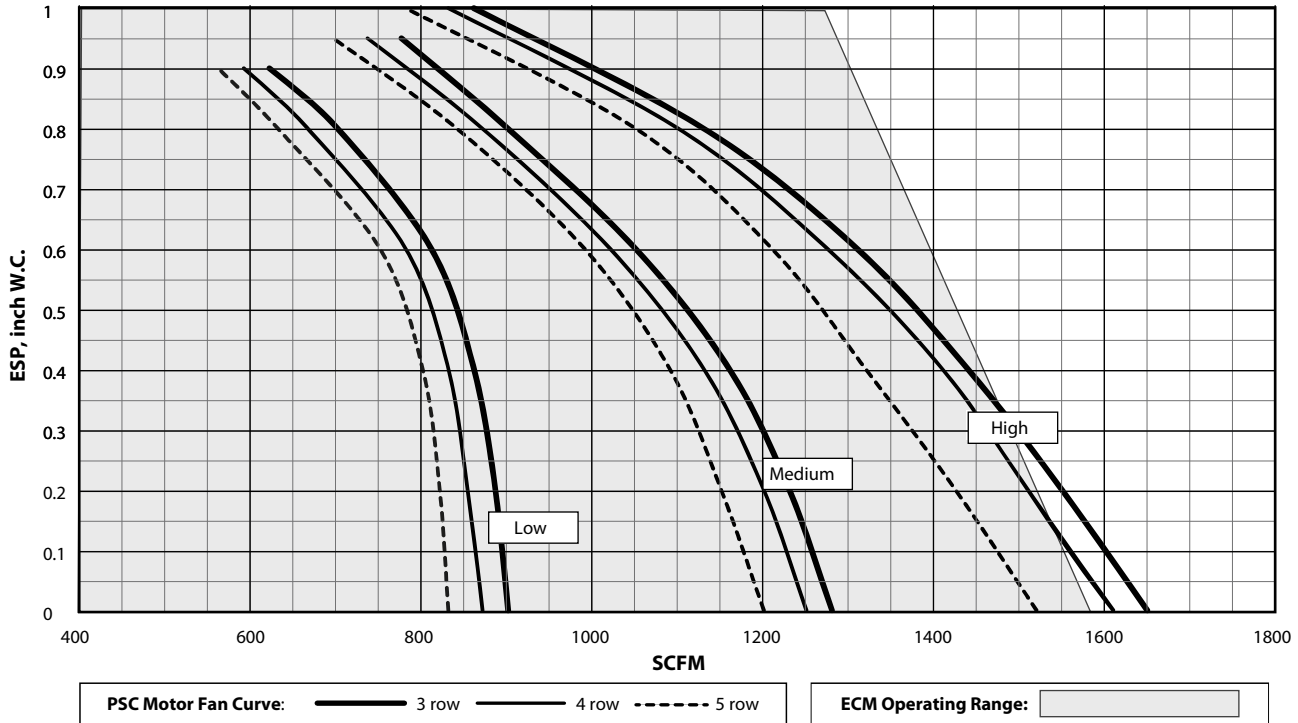
Heating Row	Unit Size	Heating Capacity, MBH (160°F EWT)				
		2 GPM	3 GPM	4 GPM	6 GPM	8 GPM
1	14	30.7	33.5	35.0	36.7	N/A
	16	32.5	35.6	37.4	39.3	N/A
	20	35.5	39.3	41.4	43.8	N/A
2	14	44.4	50.6	54.1	58.0	60.0
	16	47.4	54.7	59.0	63.7	66.3
	20	51.2	60.0	65.1	70.9	74.1
3	14	54.0	64.4	70.5	77.1	80.7
	16	56.9	69.2	76.5	84.7	89.2
	20	60.1	74.0	82.5	92.2	97.6
4	14	58.2	71.5	79.3	87.7	92.1
	16	60.6	75.6	84.8	95.0	100.5
	20	64.3	81.9	93.0	105.6	112.6
5	14	65.3	79.3	87.2	95.5	99.8
	16	68.8	85.5	95.4	106.3	112.1
	20	72.6	92.3	104.7	118.5	126.0

- NOTES:**
1. Ratings are based on 70°F DB and 60°F WB EAT, 160°F EWT, high fan speed, 0.2" ESP, motor voltage 120-1-60, no electric heater, and no deco panel.
  2. N/A - water velocity in copper tubes/pipes will exceed recommended limit.
  3. For information regarding performance at specific conditions please use IEC Rating Program or contact your IEC representative for assistance.

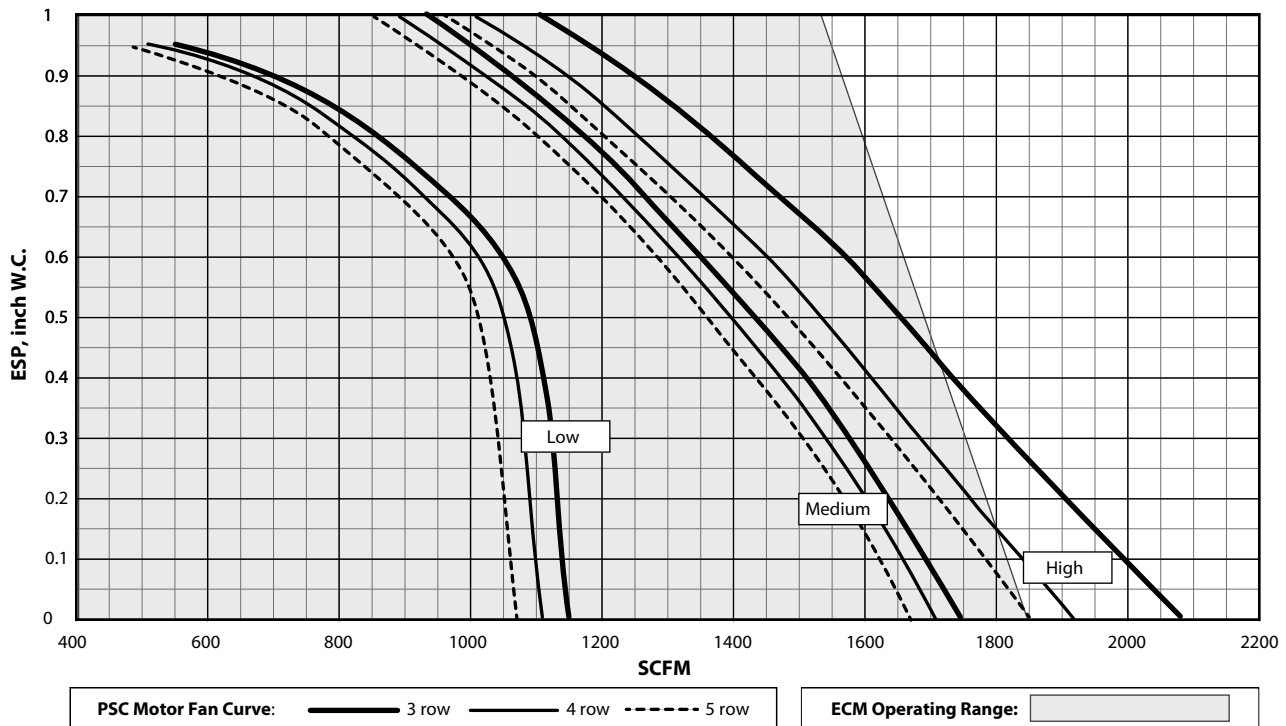
# Mega Modular Hi-Rise Series

## FAN PERFORMANCE CURVES

### MGY 14



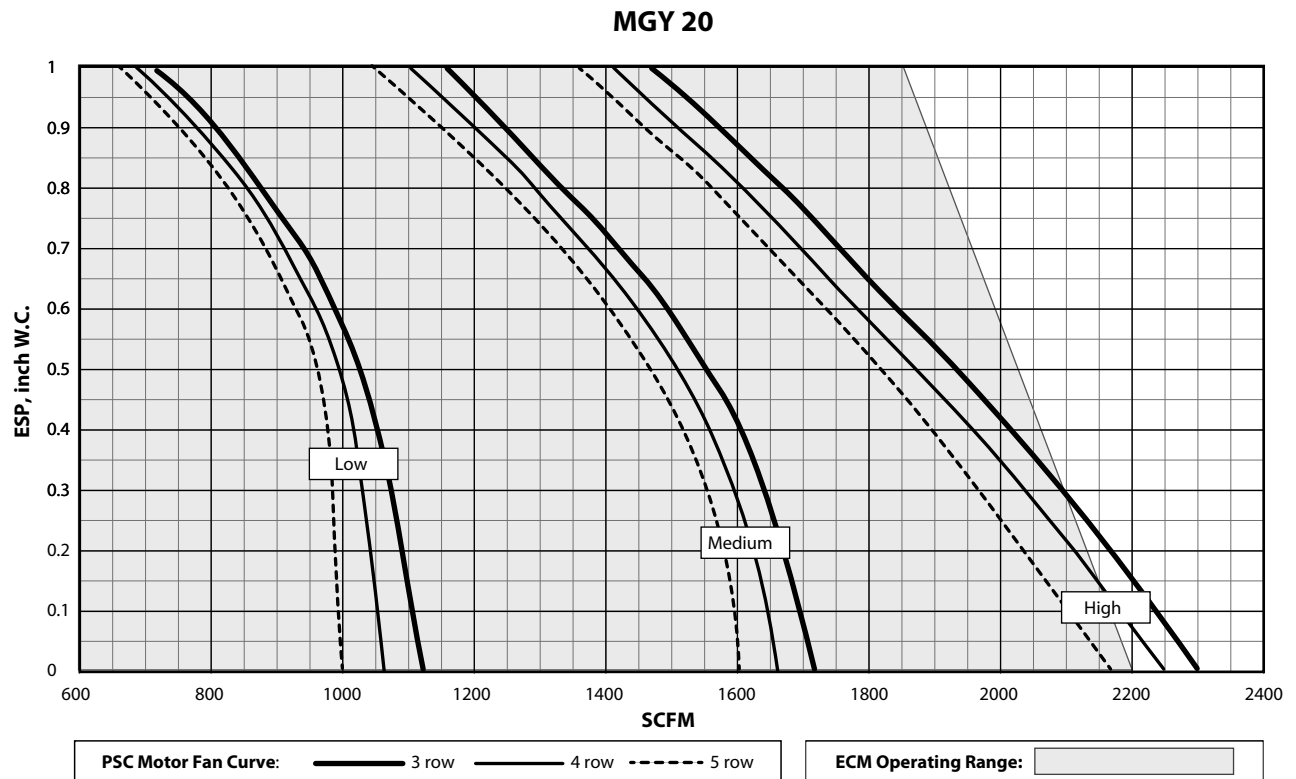
### MGY 16



**NOTE:** 1. The Mega Modular Hi-Rise unit with an Eco-telligent™ motor can operate at any airflow and static pressure combination within the shaded area.

# Mega Modular Hi-Rise Series

FAN PERFORMANCE CURVES, Cont'd.



**NOTE:** 1. The Mega Modular Hi-Rise unit with an Eco-telligent™ motor can operate at any airflow and static pressure combination within the shaded area.

# Mega Modular Hi-Rise Series

## ELECTRIC RESISTANCE HEATING

Electric heaters are available on IEC Mega Modular Hi-Rise 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.

### Two Stage Electric Heat

Two stage electric heat is available for a two stage thermostat or with a sequencer for use with a one stage thermostat.

### Construction

Heater coils of high-grade nickel chromium 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. There are many special applications and control sequences for electric heat. For special applications please consult the factory.

### Electric Heater Selection

Voltage	kW	Unit Size		
		14	16	20
120 V		Not Available		
208 V	4	•	•	•
	6	•	•	•
	8	•	•	•
240 V	4	•	•	•
	6	•	•	•
	8	•	•	•
	10	•	•	•
277 V	4	•	•	•
	6	•	•	•
	8	•	•	•
	10	•	•	•
	12	•	•	•

### Motor Performance Data – MGY

PSC and Eco-telligent™ motors behave differently to changes in static pressure. The two tables below indicate full load amperage (FLA), for both PSC and Eco-telligent motors. **In the motor tables below, PSC FLA information is given at 0.0" w.g. ESP, while the Eco-telligent FLA condition occurs at 1.0" ESP.**

Note that this data is for design purposes and should not be used for an energy analysis. Full load condition for a PSC motor will occur at 0.0" w.g. external static. As static pressure increases, the amp draw of a PSC motor will decrease. Conversely, an Eco-telligent motor reaches full load condition at the unit's maximum external static because it has increased output to maintain airflow. An Eco-telligent motor decreases output with lower static causing the minimum power usage to occur at 0.0" w.g. ESP.

PSC Motor – FLA (Watts) @ 0.0 ESP				
Voltage	Fan Speed	14	16	20
		1/2 HP	3/4 HP	3/4 HP
120 V	High	7.3 (658)	8.7 (730)	10.8 (1051)
	Medium	5.4 (523)	5.9 (600)	8.1 (816)
	Low	4.2 (392)	5.0 (497)	5.7 (545)
208 V	High	3.0 (558)	3.7 (690)	4.5 (842)
	Medium	2.4 (411)	3.1 (553)	3.2 (572)
	Low	1.7 (280)	2.2 (369)	2.2 (370)
230 V	High	3.0 (597)	3.8 (753)	4.4 (908)
	Medium	2.4 (464)	3.0 (606)	3.4 (680)
	Low	1.9 (339)	2.4 (445)	2.4 (446)
277 V	High	2.5 (585)	3.1 (735)	3.7 (926)
	Medium	2.0 (458)	2.5 (608)	2.9 (716)
	Low	1.5 (328)	2.0 (464)	2.0 (464)

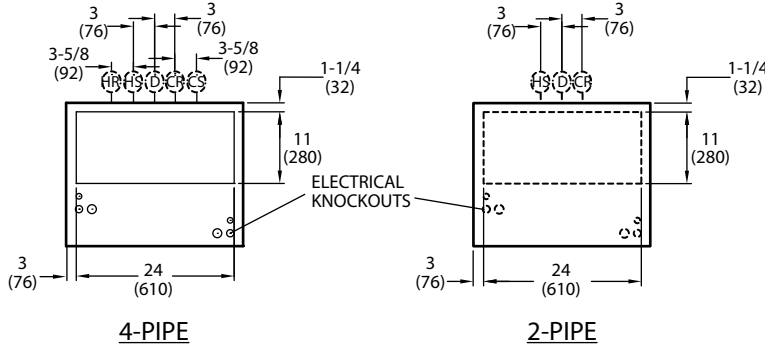
Eco-telligent™ Motor – FLA (Watts) @ 1.0 ESP				
Voltage	Fan Speed	14	16	20
		3/4 HP	1 HP	1 HP
120 V	High	7.1 (588)	8.2 (690)	11.1 (971)
	Medium	4.4 (350)	5.0 (403)	6.7 (554)
	Low	2.7 (201)	3.0 (228)	3.7 (285)

- NOTES:**
1. Total unit motor Amps and Watts are shown.
  2. All PSC motors furnished by IEC include automatic thermal overload protection.
  3. UL approves the motor and thermal overload combination at locked rotor conditions only.

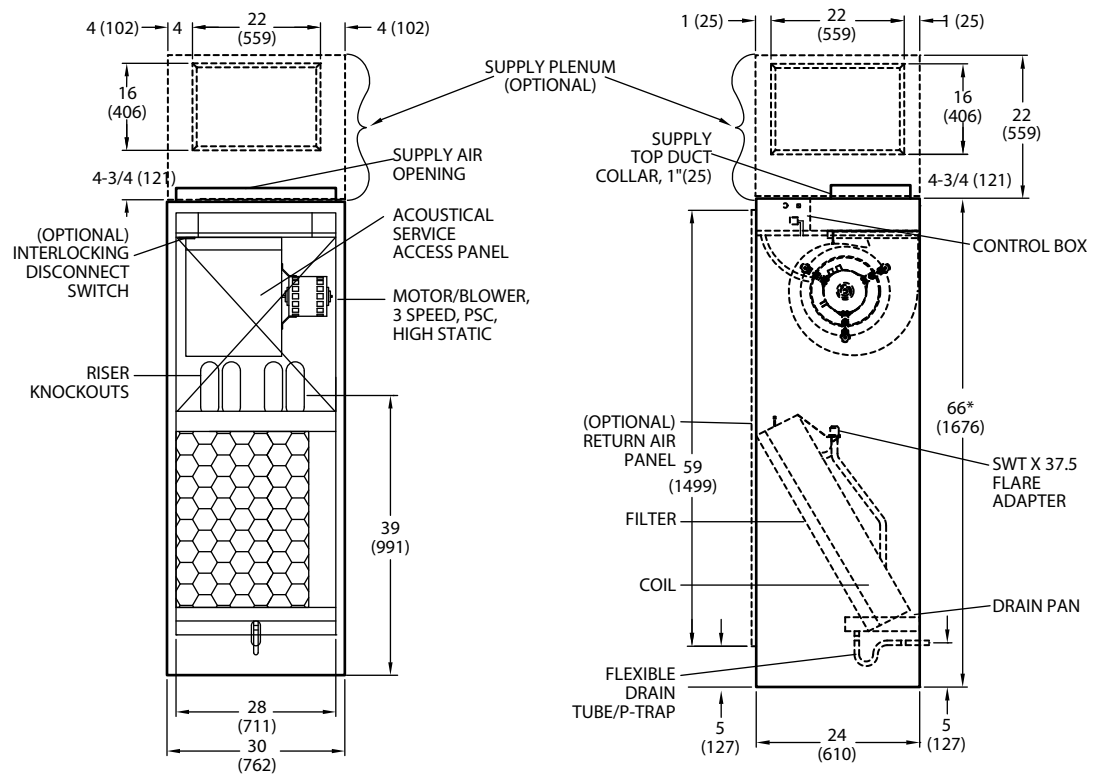
# Mega Modular Hi-Rise Series

## PHYSICAL DATA

### Model MGY – Concealed (Sizes 14-20)



**Drawing is provided for reference only. Dimensions may vary with options ordered. Consult IEC website for submittal drawings.**

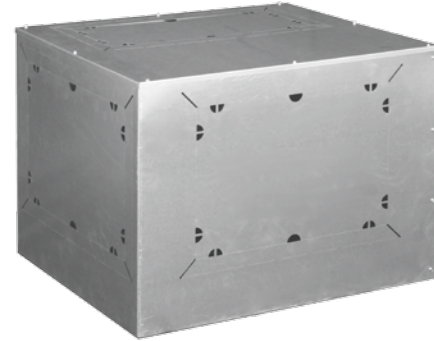
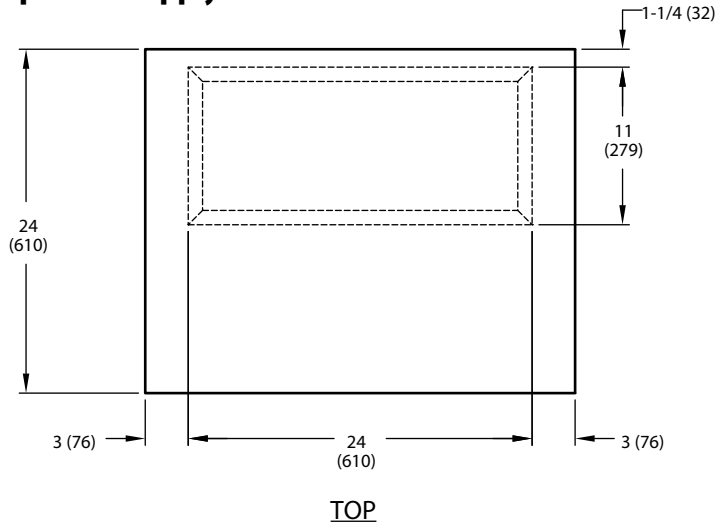


- NOTES:**
1. Unit measurements on drawings are shown in inches and (millimeters).
  2. Units are fabricated of galvanized steel with a 16 gauge galvanized fan deck.
  3. Blower, motor, valves, coil and filter are accessible through the return air opening.
  4. Unit and control box are insulated with 1/2" (13) standard fiberglass insulation.
  5. Maximum riser size is 2-1/2" (64) in diameter. If larger sizes are required, please consult the factory.
  6. This drawing is pictorial. (See unit arrangements for actual supply and return air orientation.)
  7. Riser length = {floor to floor + 2" (51)}. Maximum riser length is 119" (3023).
  8. Unit shipping weight is approximately 390 lbs.

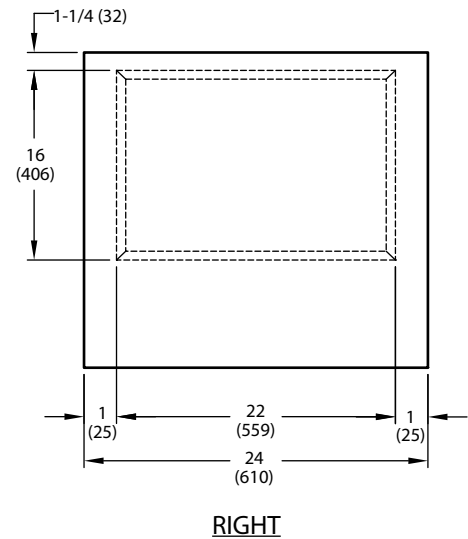
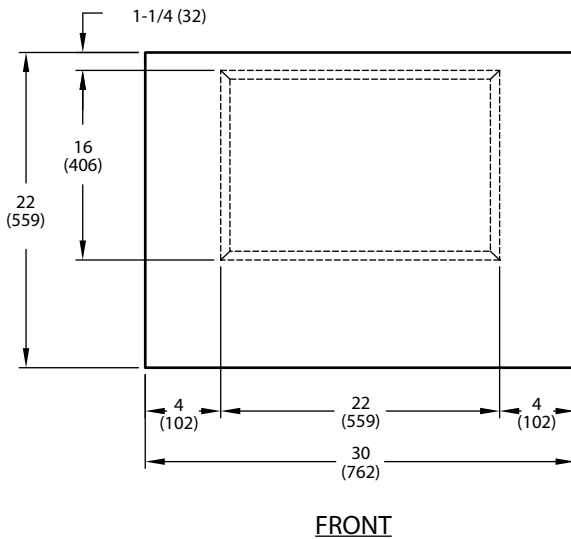
# Mega Modular Hi-Rise Series

PHYSICAL DATA, Cont'd.

## Optional Supply Plenum



**Drawing is provided for reference only. Dimensions may vary with options ordered. Consult IEC website for submittal drawings.**



- NOTES:**
1. Plenum box adds 22" (559) to unit height, adds 26 lbs. to unit weight, and is factory installed.
  2. 1/4" closed cell insulation is standard for the plenum box.
  3. Side supply is 22" (559) x 16" (406) on all four sides.
  4. Top supply is 24" (610) x 11" (279) which matches unit top ducted discharge.

## Filters

Unit Size	Nominal 1" Filter Size
	MGY
14	24.5" (622) x 29.5" (749)
16	24.5" (622) x 29.5" (749)
20	26.5" (673) x 29.5" (749)

**NOTE:** Sizes shown are nominal ordering sizes.

# Mega Modular Hi-Rise Series

## OPTIONS AND ACCESSORIES

### Controls:

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

### Three-speed Fan Control

All of our basic control schemes utilize a 2- or 3-speed switch to modulate the cooling output, to maximize the percentage of latent heat removal, and to further minimize 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.

### Condensate Overflow Switch

This switch shuts down the unit when the water level in the drain pan reaches an unsafe level. Building code changes in many locales now require this type of device.

### Service Switches

We offer concealed service switches for use by maintenance and service personnel to shut off the power while working on the unit.

### Fusing

We offer 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.

### Thermostats

	System	Function	Mode	P	N	D	E
<b>Basic Control Needs</b>	2-Pipe	HW - Heat Only	ACO	X	X	X	X
	2-Pipe	CW - Cool Only	ACO	X	X	X	X
	2-Pipe	CH/HW - Heat/Cool	ACO	X	X	X	X
			MCO	X	X	X	X
	2-Pipe	CW/HW - Heat/Cool with Aux. Electric Heat	ACO	X	X	X	X
			MCO	X	X	X	X
	2-Pipe	CW/HW - Heat/Cool with Total Electric Heat	ACO	X	X	X	X
			MCO	X	X	X	X
4-Pipe	CW/HW - Heat/Cool	ACO	X	X	X	X	
		MCO	X	X	X	X	
<b>Thermostat Features</b>  <b>All listed controls include fan switching.</b>	24 Volts			X	X	X	X
	Programmable			X	N/A	N/A	N/A
	Non-Programmable			N/A	X	X	X
	Remote Wall Mounted (No surface mounting)			X	X	X	X
	3-Speed Fan			X	X	X	X
	Continuous Fan			X	X	X	X
	O.A. Damper Signal			X	X	X	X
	Remote Temperature Sensor			X	X	X	X
	Adjustable Operating Range			X	X	X	X
	Touch Pad/Digital Display			X	X	X	X
	Staged 3-Speed Fan			X	X	X	X
	Local Temperature Set-Back			X	X	X	X
	Pipe Sensor			X	X	X	X

\*Control Type Legend:

P Programmable

N Non-Programmable

D Bacnet Compatible Digital Thermostat

E Lonworks Compatible Digital Thermostat

### Thermostats (Continued):

#### Non-Programmable/Programmable

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



#### Accessories:

- Lockout Cover – decorative cover easily mounts over the face of the thermostat to prevent individuals from changing a zone’s desired set points.
- 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 when the thermostat will not cover existing holes in the wall.
- Large Wall Plate – large decorative wall plate used when the thermostat will not cover existing holes in the wall.

#### Eco-telligent™ Motor

Interface Options	Standard Package	Applied Package	Proportional Package
Speed Control	3 discrete speeds (H, M, L)	3 discrete speeds (H, M, L)	Proportional Airflow
Compatible With:	Thermostat or controller with 1 to 3 discrete speed outputs	Thermostat or controller with 1 to 3 discrete speed outputs	Thermostat or DDC controller with a 0-10 VDC or 4-20mA fan output
Field Airflow Adjustment	Jumpers provide 4 different predetermined airflow settings per speed	Adjustable rheostats allow each speed to be set anywhere in the unit’s operating range	Controller is able to set fan to any speed in motor’s operating range

# Mega Modular Hi-Rise Series

## OPTIONS AND ACCESSORIES, Cont'd.

Features and Options	Standard	Factory Installed Option	Field Installed Option	Factory Special Quote
<b>Air Flow Arrangement</b>				
Front Return	X			
Bottom Return		X		X
Supply - Top	X			
Discharge Plenum (Field Configurable Supply Openings)		X		
<b>Coils</b>				
4-Rows 2-Pipe	X			
3-Rows, 5-Rows, 2-Pipe		X		
3/1, 3/2, or 4/1-Rows CW/HW		X		
Manual Air Vent	X			
Automatic Air Vent		X		
<b>Drain Pan</b>				
Stainless Steel Externally Coated with a 2 part closed cell foam	X			
Removable Drain Pan		X		
<b>Fin Material</b>				
Aluminum w/Galvanized End Sheets	X			
Aluminum w/Stainless End Sheets		X		
Copper w/Stainless End Sheets & Bottom Coil Baffle		X		X
<b>Nickrome Wire Strip Electric Heater</b>				
		X		
<b>Filters</b>				
1" Throwaway Nonwoven Synthetic	X			
1" Pleated MERV 8		X		
1" Pleated MERV 13		X		
<b>Insulation</b>				
1/2" Standard Fiberglass	X			
1/2" Premium IAQ Fiberglass, Sealed Edges		X		X
1/2" Foil Face, Taped Edges		X		
1/4" Closed Cell		X		
<b>Motor Type</b>				
High static 3-Speed PSC Motor w/Quick connect Plug	X			
ECM Motor w/Jumper Control Board		X		
ECM Motor w/Rheostat Control Board		X		
ECM Motor w/Proportional Control Board		X		
<b>Motor Voltage</b>				
120/1/60	X			
208/230/277/1/60		X		
<b>Supply Grilles</b>				
Double Deflection, Aluminum or Arctic White Supply Grille			X	
Double Deflection, Aluminum or Arctic White Supply Grille w/Opposed Blade Dampers			X	
Custom Painted Supply Grille			X	X

# Mega Modular Hi-Rise Series

OPTIONS AND ACCESSORIES, Cont'd.

Features and Options	Standard	Factory Installed Option	Field Installed Option	Factory Special Quote
<b>Return Air</b>				
Acoustical Service Access Panel	X			
Standard Panel with Arctic White Linear Grille			X	
Custom Return Air Panel			X	X
<b>Risers</b>				
Risers Shipped Loose			X	
Flex Hoses		X	X	
Riser Length (Up to 119")	X			
Riser Diameter (3/4"-2-1/2") Chilled or Hot Water			X	
Riser Diameter (1", 1-1/4") Condensate Drain			X	
Custom Risers			X	X
<b>Closed Cell Riser Insulation</b>				
1/2"	X			
3/4"		X		
<b>Fiberglass Riser Insulation</b>				
				X
<b>Riser/Drain Material</b>				
Type M Copper			X	
Type L Copper			X	
Riser Extension (M or L)			X	
<b>Controls</b>				
Interlocking Disconnect		X		
Single Point Power Connection		X		
Incoming Power Fusing (Required for Electric Heat)		X		
24 V Controls	X			
Condensate Overflow Switch		X		
Thermostats			X	
Wall/Remote Mounted			X	
Special Control (DDC)		X		X
<b>Make-Up Air Dampers</b>				
Manual Controlled Damper		X		
Motorized Controlled Damper		X		X

# Mega Modular Hi-Rise Series

OPTIONS AND ACCESSORIES, Cont'd.

## Optional Return Air Panel



See table below for height and width information.

Panel Type	Unit Size and Dimensions <sup>1</sup>			
	14/16		20	
	H	W	H	W
P	60.5(1537)	29.5(749)	60.5(1537)	29.5(749)

**NOTE:** 1. Dimensions shown in inches and (millimeters).

### General Specifications:

- Optional 18 gauge galvanized steel with arctic white powder-coat finish return air filter grille
- Rear of panel is insulated with 1/2" dual density fiber glass
- 1/4 turn tamper-proof fasteners for panel removal
- Removal of panel provides service access to all internal components

### Control mounting option:

**Remote wall mounted**—Thermostat is mounted on a wall away from the cabinet. Wiring from the unit to the thermostat is done in the field.

### GENERAL DESCRIPTION

#### Mega Modular Hi-Rise Fan Coil Units:

MGY – Concealed Mega Modular Hi-Rise

**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

Mega Modular Hi-Rise Fan Coil Units, 2-pipe, 4-pipe, or 2-pipe with electric heat, concealed or exposed cabinets that are floor mounted; direct connected to optional factory supplied risers.

#### 1.3 QUALITY ASSURANCE

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 Mega Modular Hi-Rise fan coil units complete with water coil with integrated motorized control valve, fan, motor, drain pan, and all required wiring, piping and controls.

##### B. MGY Concealed Mega Modular Hi-Rise 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 (1/2" Premium IAQ

fiberglass, 1/2" foil face with taped edges, or 1/4" closed cell) insulation.

3. Units shall be designed to have wallboard applied directly to the unit surface.
4. Controls shall be factory wired and accessible from front of unit.
5. Return air/access opening shall provide access to all internal components.
6. Stainless steel (or removable stainless steel) drain pans shall be externally coated with a 2 part closed cell foam insulation.
7. All valve package piping to coil(s) shall be factory installed.
8. Units shall have 1" nonwoven synthetic throwaway (MERV 8 or 13 pleated) filters.

#### 2.3 CERTIFICATION

##### A. Safety:

IEC's Mega Modular Hi-Rise 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.

##### B. Capacities:

Coil capacities are tested in accordance with AHRI Standard 410.

#### 2.4 MATERIALS

##### A. Coils:

All coils shall have 1/2" copper tubes, manual (or automatic) 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. 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, 4-row, or 5-row coil as shown on equipment drawings

# Mega Modular Hi-Rise Series

## MECHANICAL SPECIFICATIONS, Cont'd.

- b. 2 ball valves
- c. 1 circuit setter
- d. 1 motorized control valve

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 setters
- d. 2 motorized control valves

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.

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 High Static permanent split capacitor type for 115 V (208 V, 230 V, or 277 V), permanently lubricated, with sleeve bearings.
- 2. Provide Eco-telligent™ brushless DC fan motor for use with single phase, 120 V (208 V, 230 V, 277 V), 60 Hz. power. Motor shall have a slow speed change ramp and a soft start.
  - a. Provide jumper style control board for field adjustment of airflow utilizing jumpers. Airflows for each discrete speed shall be selected from a list of four options.

- b. Provide potentiometer style control board for field adjustment of airflow. Each discrete speed may be set anywhere in the unit's programmed operating range.
- c. Provide proportional style control board. Control board shall receive a 0-10VDC fan control signal, and operate the fan accordingly, within the unit's programmed operating range.

- 3. Motors shall be equipped with quick connect electrical plugs.
- 4. Motors shall have thermal overload protection with automatic reset.
- 5. 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, 208 V (240 V, or 277 V) as specified on the equipment schedule.

F. Controls:

- 1. Manual (or Auto) changeover heating/cooling thermostat with integral 3-speed fan switch
- 2. Continuous (or cycling) fan
- 3. Manual make-up air damper
- 4. Water temperature sensing for 2-pipe CW/HW system changeover
- 5. Remote mounted thermostat
- 6. Low voltage components
- 7. Standard (or digital) display
- 8. Condensate overflow switch to shut down unit when water is at unsafe level

### G. 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 interlocking disconnect switch and unit fusing.
4. Electric heat units shall also include blower motor and control sub-fusing.

### H. Electrical Requirements:

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

### I. Options and Accessories:

1. Risers:
  - a. Supply risers shall be 3/4"-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 or 1/2" (or 1") fiberglass insulation.
2. Return air panels (or grilles) shall be supplied as shown on the drawings.
3. A make-up air opening shall be provided as shown on the equipment drawings.
4. Furnish unit with factory installed discharge plenum.



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