

Engineered
Comfort

**VERTICAL STACK FAN COILS WITH
UNSURPASSED OPERATING EFFICIENCY AND ... NOW
WITH "INTEGRAL" THERMAL RECOVERY!**

**REMOVABLE
THERMAL
RECOVERY
MODULE**



**15+
YEARS OF
PROVEN ECM
TECHNOLOGY**

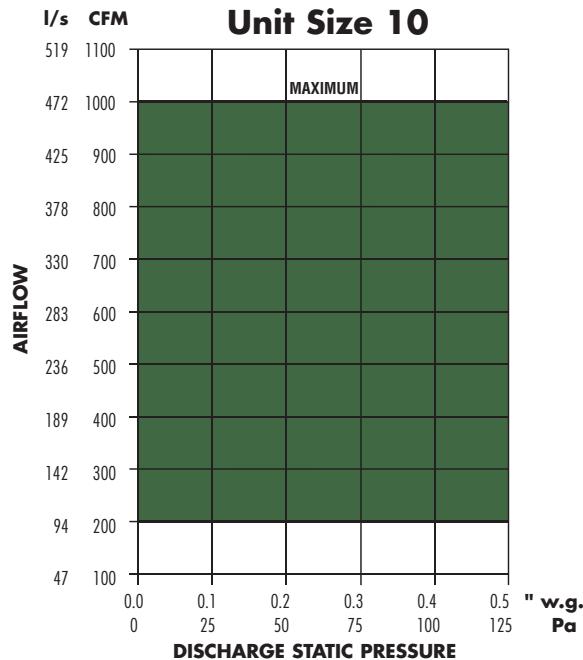


**EPIC/ECM
FAN TECHNOLOGY[®]**



These Units Allow the Introduction of Outside Ventilation Air at Extreme Temperatures!

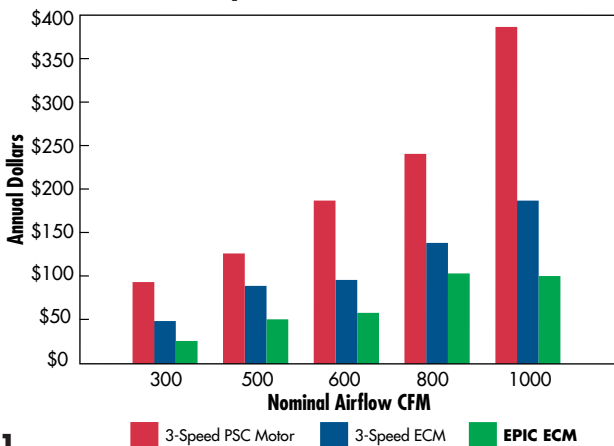
Model Series: 39 • ECM Motor Fan Performance Curves Airflow vs. External Static Pressure



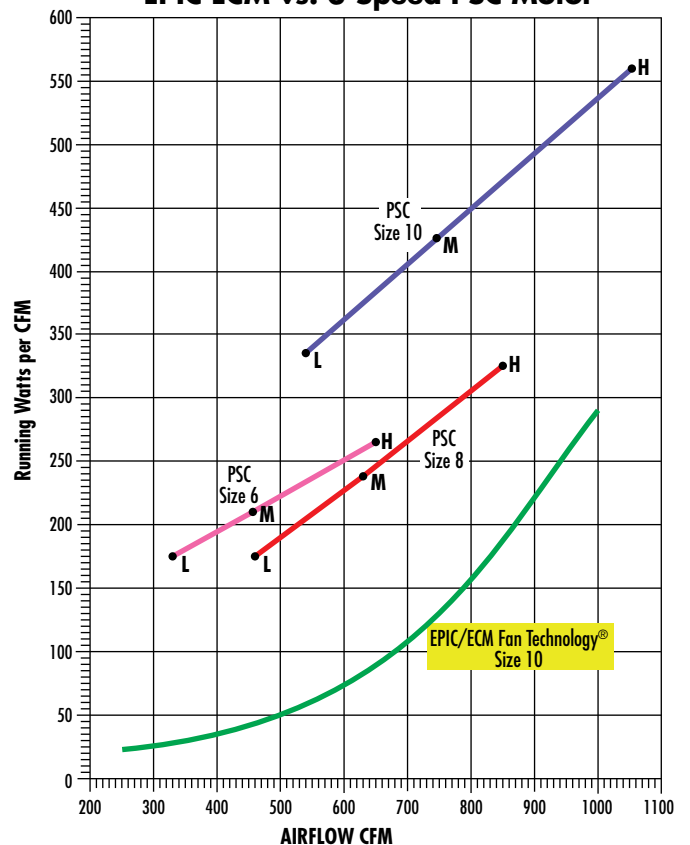
Further ECM EPIC Fan Technology® Benefits:

- Minimum CFM's can be ultra-low when using fully modulating ECM's (Wider turn down ratios...up to 80%)
- ECM energy efficiency remains almost constant even when running at minimum speeds; PSC efficiency drops off considerably at low speeds
- Longer motor life (Approx. 90,000 hours ECM vs. 50,000 hours PSC)
- ECM's brushless technology ensures units run considerably quieter
- Our fan coils allow for high static capabilities...**TESTED AND CERTIFIED** up to 0.7" ESP!
- The motor automatically compensates for any changes in static pressure such as filter loading
- Minimal heat gain from the ECM motor into the airstream
- Fewer unit models are required to cover a wide range of airflows. As such, design selection and on-site installation are greatly simplified
- Improved overall system efficiency and reduced operating expenses
- Quick payback period typically ranging from 18 - 36 months

Typical Operating Cost Comparison PSC vs. 3-Speed ECM vs. EPIC ECM



Energy Consumption Comparison Chart EPIC ECM vs. 3-Speed PSC Motor



- NOTES:**
1. Only one EPIC ECM Size 10 Unit is needed to cover the range that would require three conventional PSC unit sizes.
 2. 120V motor, 5 Row Coil (3/2).
 3. EPIC units also include a MERV 8 filter.
 4. 3-speed PSC motor taps are Low (L), Medium (M), and High (H); EPIC ECM motor is fully modulating variable air volume.

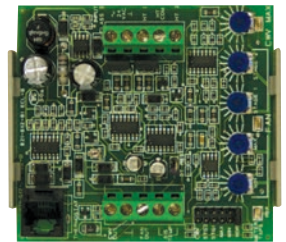
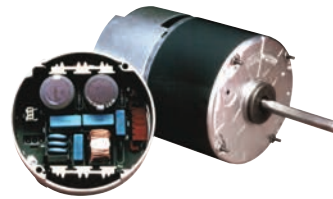
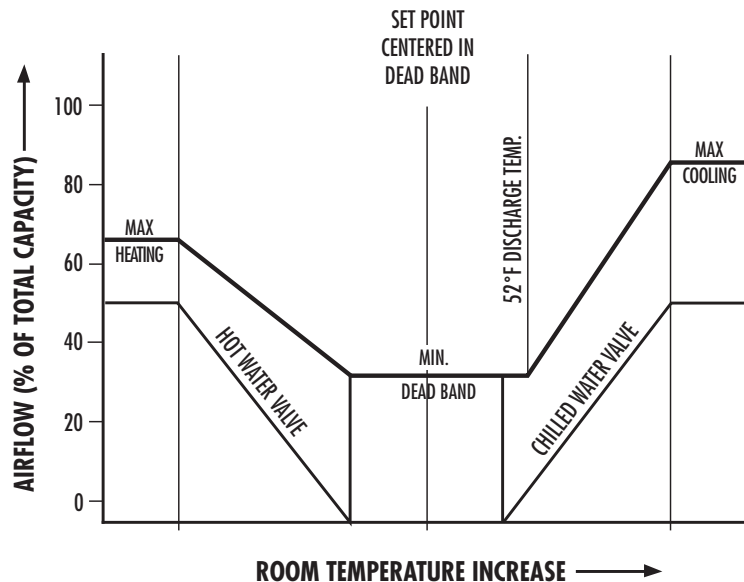
ECM/EPIC Fan Technology® Story

Nailor®/Engineered Comfort was the first company to introduce the GE ECM™ motor to the commercial HVAC market (ASHRAE Journal, April 1997). Our pioneering efforts led to the development of our EPIC Fan Technology® which has taken ECM motors to the highest energy efficiency levels on the market. One of our first major fan coil projects to incorporate this proven technology was The Hilton Americas in Houston, Texas. When this 1,200 guest room convention hotel opened in 2003 it was recognized as being the most energy efficient in the world! This technology and our state-of-the-art EPIC® control package, now allows us to offer **VAV/MWF Fully Modulating** fan coil units which feature: **MWF** – fully modulating water flow (Heating & Cooling); **VAV** - variable air volume pressure independent fan operation, unique pre-set air volume capacities, higher turn down ratios allowing for more flexibility, reduced system pump operating HP, improved chiller efficiency, **SIGNIFICANT** energy savings, very low noise levels, lower humidity and improved comfort, soft starts and extended motor life (ECM = up to 90,000 hours on average), low motor operating temperatures which offsets heat gain and wider operating ranges which means fewer fan coil models are required.

"Ultra Plus" HE Thermal Energy Recovery Module Story (TRM)

Our companion "ULTRA PLUS" HE thermal energy recovery module has helped us to take energy savings even further while helping to meet the more stringent LEED® and Municipal energy savings demands. This component provides constant tempered air which not only recovers energy efficiently but also improves indoor air quality (IAQ). It is internally mounted and while it runs as a self contained module, it is designed to work in concert with Engineered Comfort's vertical stack fan coils. The **TRM** module was designed SPECIFICALLY for multi-unit residential high-rise buildings in extreme climates and comes with these standard features: Factory set constant ventilation rate with multiple selections for balanced supply and exhaust, high speed intermittent pure exhaust for up to three bathrooms (100 - 150 CFM), super low noise levels, simple remote exhaust activation, auto-defrost and non-recirculating, leak proof washable sensible or enthalpic cores, anti-mold and fungus/bacteria protection, three filter options with a unique quick release mounting system, compact size which is easily accessible, and when applied with our bifurcated wall boxes it's NOT affected by wind or stack effect!

FAN COIL WITH EPIC/ECM FAN TECHNOLOGY® AND FULLY MODULATING WATER FLOW VALVE PACKAGE



Introducing
our new
EZstat!

Cooling Operation:

On a call for cooling, the chilled water valve will begin to modulate open. As the cooling demand increases, the valve will continue to open until the discharge air temperature reaches 52° F (11°C). On continued call for cooling, the fan will begin to modulate toward the maximum cooling fan airflow as the chilled water valve continues to modulate open maintaining a 52° F (11°C) discharge air temperature. This process will continue until the fan reaches the cooling maximum airflow and the chilled water valve reaches maximum flow. Upon a decrease in cooling demand, the sequence will reverse.

Heating Operation:

On a call for heat, the hot water valve will begin to modulate open. As the heating demand increases, the valve will continue to modulate open as the fan begins to modulate from dead band towards the maximum heating fan airflow. This process will continue until the fan reaches the heating maximum airflow and the hot water valve reaches maximum flow. Upon a decrease in heating demand, the sequence will reverse.

Dead Band Operation:

With no demand in the space, there will be no call for heating or cooling. The fan will be at minimum airflow and both the hot and chilled water valves will be closed.

39VH - SYNERGY FAN COIL UNIT

Standard Features & Benefits

- ECM EON® EPIC Fan Technology® offers whisper quiet operation, ultra-low air flows and 80% turn down ratios that far exceed standard 3-Speed ECM motor efficiency. Our fan coils utilize the lowest actual **"Running"** watts making these the most **Energy Efficient** Fan Coils on the market!
- Our removable **"Integral"** thermal recovery modules (TRM) are capable of exhausting multiple bathrooms and can be run on **LINE** voltage
- All Engineered Comfort products are fully **AHRI** performance **CERTIFIED**, and sound tested
- Our **"Polar Shield"** multi-level freeze protection technology independently protects the Fan Coil system
- Stainless Steel braided hoses come standard to help with riser loop expansion, on-site flexibility, ease of installation and serviceability. 2 and 4 pipe configurations can be located on the back, left or right side of unit and can quickly & easily be changed on-site if required
- Durable, scratch and scuff resistant single panel access door with ¼ turn screws allows for quick and easy removal. The reinforced, insulated construction also means better sound attenuation for the tenant
- Filter Rack & Filter - 1" Throwaway Glass Media type standard (MERV 8 Pleated Filters are available)
- Slide out blower for easy maintenance & service

Control Systems Available:

- Staged ECM 3-Speed (**Manual**)
- Staged ECM 3-Speed (**Auto**)
- **EPIC/ECM** Fan Technology® - **Fully Modulating**
 - Defaults to **Ultra Low** speed when no demand
 - MWF, Modulating water flow valve package for both chilled and hot water
 - VAV, Pressure independent fan operation
 - Lowest operating efficiency available!

"INTEGRAL" TRM THERMAL ENERGY RECOVERY MODULE WITH INDEPENDENT VENTILATION FAN CONTROL

Standard Features:

- Helps to meet the stringent LEED® and municipal energy saving demands
- Improves Indoor Air Quality (IAQ)
- Super low noise levels
- Dedicated constant tempered air
- MERV 6 & Electrostatic filters
- Activated charcoal intake filters
- Leak proof washable sensible or enthalpic cores
- Not affected by wind or stack effect
- Factory set constant ventilation rate with multiple selections for balanced supply and exhaust
- Auto-defrost, non-recirculating
- Anti-mold and fungus/bacteria protection
- High speed intermittent pure exhaust for up to 3 bathrooms (150 CFM)
- Simple-N-Smart "Energy Optimizer" decorative line voltage timer wall controls, as shown below



AHRI Standard Ratings - Fan Coil

Unit Size	Coil			Airflow CFM (Dry Flow)	Cooling Capacity		Water		Power Input @ FLA (Watts)
	Row	FPI	CIRC		QT (BTUH)	QS (BTUH)	Flow Rate (GPM)	WPD ft - wg	
10	3		2	200 - 1000	29000	21000	6.7	12.5	510
	4	14	4		33000	22000	7.3	11.1	510

NOTE: Based on 80°F DB and 67°F WB EAT, 45°F EWT 10° temperature rise, maximum fan speed. Motor type is EPIC/ECM and motor voltage is 115/1/60; Airflow under dry coil conditions. Our EPIC/ECM software enables us to operate over a broader, stable air volume range as compared to standard ECM Motors. All of these models were tested at **0.7"** external static pressure.

Value Added Features:

- Special Plenum and Hush Balancing Damper Mechanism to suit ECCODUCT™ II In-Slab Supply Duct (Optional)
- Energy Meter Compatible (Optional)
- De-Humidification
- Full Fan Modulation
- Improved Chiller Efficiency
- Extremely Low "Running" Watts (As low as 18 watts!)
- Improved Fan Coil Air Quality (IAQ)
- Reduced System Pump Operation HP

Nominal Constant Ventilation				Bathroom	Rated Electrical 1.5 AMPS	
Supply & Exhaust Factory Set CFM (L/S)				Intermittent Exhaust CFM (L/S)	Typical Running Load BTR Module	
Type 1	35 (16.5)	50 (23.5)	—	100 (47)	62 Watts L	90 Watts H
Type 2	35 (16.5)	50 (23.5)	70 (33)	150 (71)	62 Watts L	92 Watts H
Thermal Performance HE Core - Heating						
CFM	L/S	Sensible Efficiency		Apparent Sensible Effectiveness		
50	24	69%		85%		
70	33	65%		79%		

Performance values based on CAN/CSA C439 Test Method; Performed and certified by an independent laboratory

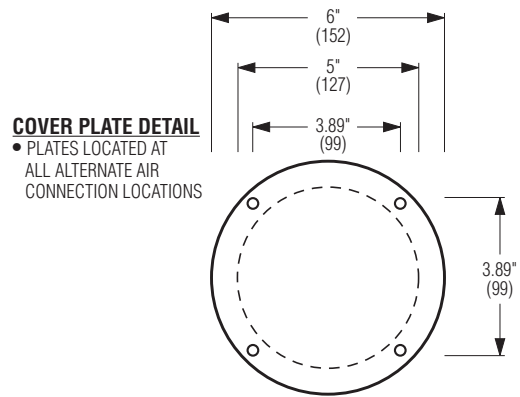
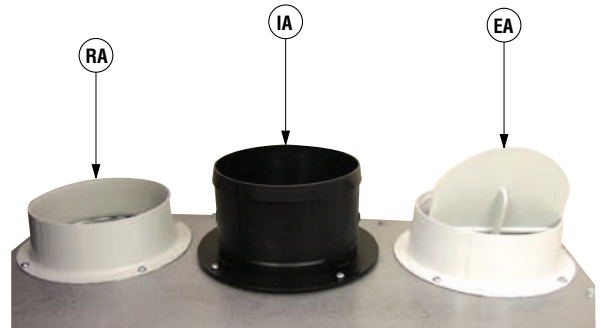
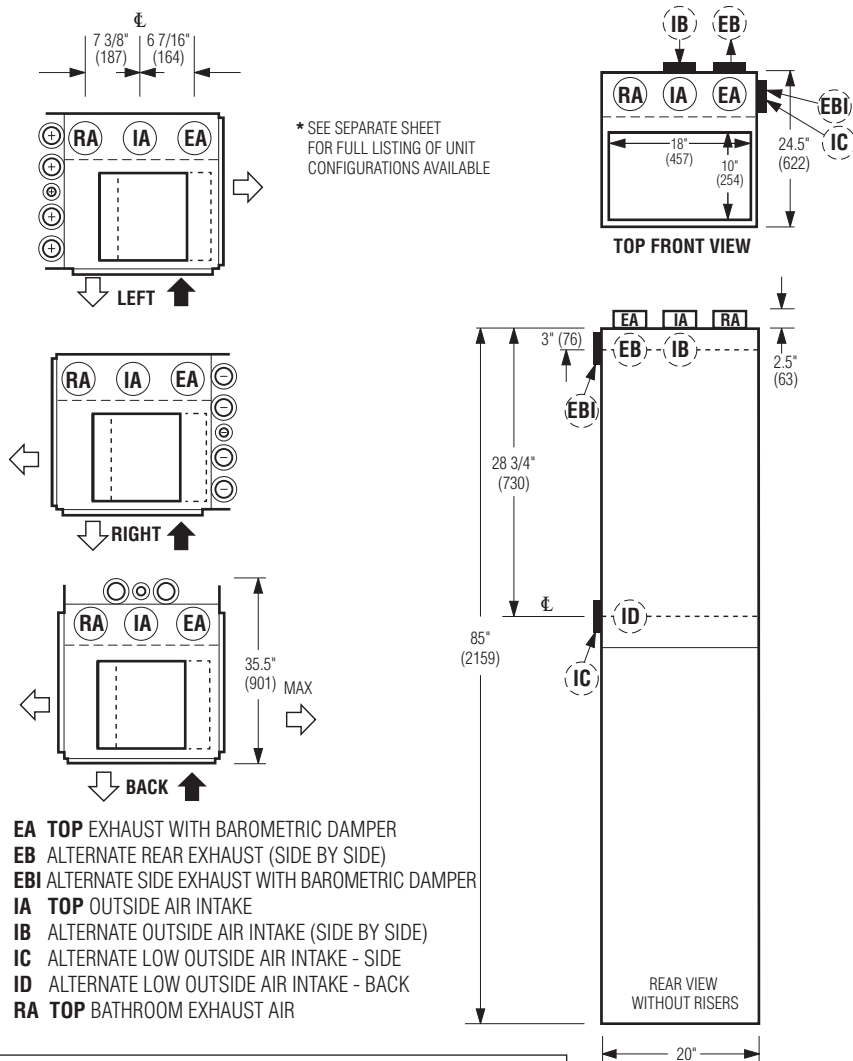
Optional Items:

- Sensible core and drain
- Alternate enthalpic core
- Optional constant low speed



Intertek

Manufactured in Canada & the U.S.A.



- EA TOP EXHAUST WITH BAROMETRIC DAMPER
- EB ALTERNATE REAR EXHAUST (SIDE BY SIDE)
- EBI ALTERNATE SIDE EXHAUST WITH BAROMETRIC DAMPER
- IA TOP OUTSIDE AIR INTAKE
- IB ALTERNATE OUTSIDE AIR INTAKE (SIDE BY SIDE)
- IC ALTERNATE LOW OUTSIDE AIR INTAKE - SIDE
- ID ALTERNATE LOW OUTSIDE AIR INTAKE - BACK
- RA TOP BATHROOM EXHAUST AIR

IMPORTANT:

When the rear of the fan coil is mounted adjacent to the outside wall, and the rear connections are used (EB, IB or ID), you must allow a minimum of 12" from the wall. This is critical to ensure proper installation of insulated ductwork to the wall boxes.

Performance Range

Air Volume

Fan Coil - 200 to 1000 CFM @ 0.5 ESP

TRM - 25 to 150 CFM up to 0.6 ESP;
dependent on actual CFM requirement

Thermal Performance

Fan Coil - Nominal 3/4 to 2 1/2 ton cooling
Nominal 15 MBH to 74 MBH heating

TRM - 85% ASEF - Heating
(50 CFM) 49% Total Recovery - Cooling

Notes:

- Top, side and rear combinations of ventilation ducts can be facilitated in most cases - units ship with top connections only as standard to minimize shipping issues.
- All alternate intake and exhaust connection collar conversions shall be performed by the installing contractor in the field.
- Factory mounted full faced gasketed cover plates are provided at the alternate air openings - they have the same hole pattern as the standard top connection collars.
- All duct collars are 5" diameter nominal with integral barometric damper as required.
- ERV/HRV ventilation ducts cannot exit on the same side as the risers.
- Risers can be provided loose with extra length flexible hoses for alternate connection locations.
- 20" x 24.5" footprint *includes* exhaust air (EA) duct.

Independent Laboratory Certification and Testing

Engineered Comfort is committed to providing accurate and reliable performance data on our entire range of products. As such we voluntarily certify our product performance with an independent rating/testing agency, **AHRI**. It's also important to note that during the development stages Engineered Comfort enlists an independent testing facility, Energistics Laboratory, to conduct product performance analysis and sound power level data. We willingly do this even though sound certification isn't currently required to comply with **AHRI 440!** Energistics Laboratory is a state-of-the-art facility complete with all of the equipment and personnel necessary to ensure that we comply with **All** applicable industry standards. We trust that our project experience, coupled with our commitment to independent testing, will serve as a testament that we now offer the most comprehensive, reliable and energy efficient fan coil systems in North America!

