

Industrial Unit Coolers



We Know Cold Storage

Heatcraft Worldwide Refrigeration announces its latest addition of large capacity unit coolers for the Cold Storage and Industrial Refrigeration industries. Designed with energy efficiency, food safety and reliability in mind, Heatcraft Industrial unit coolers are engineered for the most extreme applications, such as blast freezers and coolers and processing facilities.

And what about durability? Each unit is constructed with a mill finished G90 galvanized steel cabinet, 5/8" diameter aluminum finned/copper tube evaporator coils, premium efficient totally enclosed fan motors and a **double wall insulated drain pan**. We know Cold Storage!



Nomenclature

HL	3	000	16	144	6	4	0100	F	A
Model Series	#of Fans	Coil Materials	Tubes High	Finned Length	Rows Deep	Fin Spacing	Motor HP	Fluid	Defrost
HL=Warehouse		C = CU/AL					0075=.75	F=R40A, R407A, 407C, 407F	A=Air
HR = Between the Rails		D = CU/CU					0100=1	C=C02	E=Electric
HD= Dual Flow		3 = STL/AL					0150=1.5	B=Brine	G=Hot Gas Coil w/E Pan
							0200=2		H=Hot Gas Coil w/HG Pan
							0300=3		
							0500=5		
							0750=7.5		

Warehouse Unit Coolers, HL Models

The Heatcraft Climate Control HL warehouse unit coolers provide extended capacity ranges and air throw capability required by large cold storage and food processing facilities. Built on a rugged and durable chassis, HL models are uniquely suited for extreme applications, such as blast freezers and coolers. HL warehouse unit coolers include service friendly features, including hinged fan and access panels.



Standard Features

- Mill finished G90 galvanized steel cabinet provides a heavy duty, durable structure
- High capacity 5/8" diameter aluminum finned/copper tube evaporator coils
- High temperature applications feature 6 FPI coils for increased heat transfer. Medium and low temperature applications feature 4 FPI evaporator coils increasing protection against air restriction due to ice formation
- Premium efficient totally enclosed fan motors for long reliable unit operation
- **Composite polymer non-overloading airfoil fan blades** provide highly efficient air circulation
- Double wall insulated drain pan to help prevent exterior condensation. Drain pan is **triple pitched** for superior condensate removal.
- Hinged fan panels allow for quick access to coil surface and fan motors for easier cleaning and maintenance
- Hinged end covers allow for faster installation and easier maintenance
- Available in air, electric and hot gas defrost configurations
- Electric defrost heaters are inserted into coil slab to provide efficient electric defrost. Heater elements are stainless steel sheathed and are **self-centering**

Options

- Units available with copper finned/copper tube and aluminum finned/stainless steel tube coils for increased corrosion protection
- 304 Stainless steel casing and drain pan construction available for improved corrosion protection
- Full coverage drain pan to provide additional condensation protection from casing and fans
- Wash down motors available for sanitary applications (230/3/60, 460/3/60 and 575/3/6)
- Hinged drain pan to allow for maintenance and cleaning
- Aluminum blade
- Long air throw collars for large warehouse and industrial applications
- Factory mounted 45° and 90° air outlet configurations for flexibility in unit application
- Mounted and wired disconnect switches provide simplified installation. Unit available with individual motor disconnects or a common motor disconnect. Disconnects available as either fused or non-fused
- Mounted expansion valves (thermal and electronic) for faster installation
- Floor Mounting Legs

Dual Flow Unit Coolers, HD Models

The Heatcraft Climate Control large HD center mount unit coolers excel in storage and processing environments requiring low velocity air movement and/or high humidity levels. HD dual flow unit coolers feature a dual flow blow through design allowing for gentle air movement across operating personnel in preparation rooms and fragile products like flowers. Industrial design elements provide a long lasting durable product for years of worry free operation.



Standard Features

- Mill finished G90 galvanized steel cabinet provides a heavy duty durable structure
- Two high capacity 5/8" diameter aluminum finned/copper tube evaporator coils with individual refrigerant connections
- High temperature applications feature 6 FPI coils for increased heat transfer. Medium and low temperature applications feature 4 FPI evaporator coils increasing protection against air restriction due to ice formation
- Premium efficient totally enclosed fan motors for long reliable unit operation
- Composite polymer non-overloading airfoil fan blades provide highly efficient air circulation
- Double wall insulated drain pan to help prevent exterior condensation. Drain pan is triple pitched for superior condensate removal
- Hinged end covers for additional end protection while providing ease of servicing
- Available in air, electric and hot gas defrost configurations
- Electric defrost heaters are inserted into coil slab to provide efficient electric defrost. Heater elements are stainless steel sheathed and are self-centering

Options

- Units available with copper finned/copper tube and aluminum finned/stainless steel tube coils for increased corrosion protection
- 304 Stainless steel casing and drain pan construction available for improved corrosion protection.
- Aluminum blade
- Mounted and wired disconnect switches provide simplified installation. Unit available with individual motor disconnects or a common motor disconnect. Disconnects available as either fused or non-fused
- Mounted expansion valves (thermal and electronic) for faster installation
- Hinged fan guard panel allows for quick access for easier cleaning and servicing
- Single refrigerant connection manifolds

Between-the-Rail Unit Coolers, HR Models

Processing rooms have unique requirements for air movement and sanitation not found in standard storage applications. The new Heatcraft Climate Control line of between-the-rail unit coolers delivers large capacities with gentle dual air discharge making them ideally suited for large processing rooms. With full coverage drain pans, side access panels and an optional clean-in-place coil system, they provide the highest level of sanitation while allowing simple maintenance and servicing.



Standard Features

- Mill finished G90 galvanized steel cabinet provides a heavy duty durable structure
- High capacity 5/8" diameter aluminum finned/copper tube evaporator coils
- High temperature applications feature 6 FPI coils for increased heat transfer. Medium and low temperature applications feature 4 FPI evaporator coils increasing protection against air restriction due to ice formation
- Premium efficient totally enclosed fan motors for long reliable unit operation
- Composite polymer non-overloading airfoil fan blades provide highly efficient air circulation
- Double wall insulated drain pan to help prevent exterior condensation. Drain pan is triple pitched for superior condensate removal
- Hinged fan panels allow for quick access to coil surface and fan motors for easier cleaning and servicing
- Hinged end covers for additional end protection while providing ease of service
- Available in air, electric and hot gas defrost configurations
- Electric defrost heaters are inserted into coil slab to provide efficient electric defrost. Heater elements are stainless steel sheathed and are self-centering

Options

- Units available with copper finned/copper tube and aluminum finned/stainless steel tube coils for increased corrosion protection
- 304 Stainless steel casing and drain pan construction available for improved corrosion protection
- Wash down motors available for sanitary applications (230/3/60, 460/3/60 and 575/3/6)
- Aluminum blade
- Hinged drain pan to allow for maintenance and cleaning
- Mounted and wired disconnect switches provide simplified installation. Unit available with individual motor disconnects or a common motor disconnect. Disconnects available as either fused or non-fused
- Mounted expansion valves (thermal and electronic) for faster installation
- **Clean-in-place** system allows for easy coil cleaning in applications requiring high sanitation levels
- Air deflector for increased air dispersion and more uniform air flow

ROMAGA, S.A. INDUSTRIAL



Air-cooled Condensers

NTC Series



CLIMATE

CONTROL



Improved Energy Efficiency & Reduced Sound Levels

Three tiers of fan motor, fixed speed three phase A/C and VSEC (Variable Speed Electronically Commutated), are available to aid in reducing your energy consumption to the optimum level:



Fixed Speed AC

A tried and true motor technology, offering a choice of three fixed speeds (540, 830, and 1140 RPM) and corresponding capacities. Fixed speed motors are typically paired with pressure switches to regulate head pressure in stages. The 540 RPM model provides the lowest energy consumption and sound levels, while the 1140 RPM variation provides maximum capacity per condenser surface area. The 830 RPM model offers lower sound levels and energy consumption than the 1140 RPM model, but greater capacity per condenser surface than the 540 RPM model.



Rail Mounted VSEC

A new addition to the NTC platform, Rail Mounted VSEC is available in two peak speeds (830 and 1140 RPM) with capacities that match their fixed speed counterparts. VSEC motors are controlled by either an onboard fan speed controller, adjusting fan speed to maintain a target head pressure, or by a user supplied input signal (0-10V DC or 4-20mA). The advantage over a comparable capacity fixed speed motor is that the RPM of the fans can be adjusted almost infinitely to match the airflow requirements of the condenser.



Venturi Mounted VSEC

The premium VSEC option for NTC condensers. Venturi Mounted VSEC fans come with modular fan and motor assemblies, composite swept blade fans and are paired with a Venturi-style fan panel to optimize airflow and reduce sound at all RPMs. Stepping up to a Venturi Mounted VSEC motor from a Rail Mounted VSEC motor provides the ultimate in energy efficiency and sound reduction.

830 RPM Rail Mounted VSEC Models Meet California Title 24 For Efficiency

Simplicity.

Variable speed without the complexity

Flexibility.

Maximum efficiency, minimum sound and capacity when you need it

Reliability.

The highest quality, backed by industry-leading warranties

Exclusivity.

Only from Heatcraft Worldwide Refrigeration

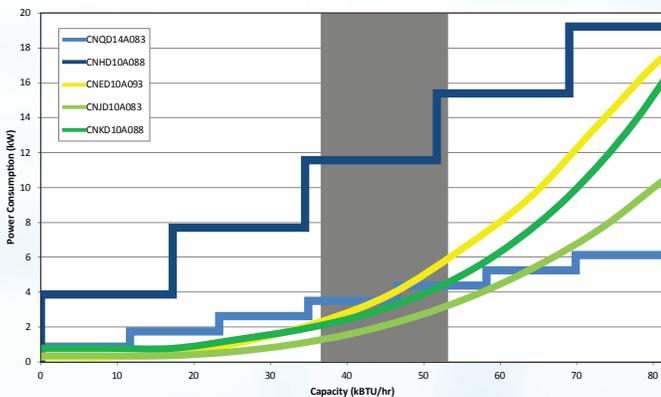


VSEC MOTORS

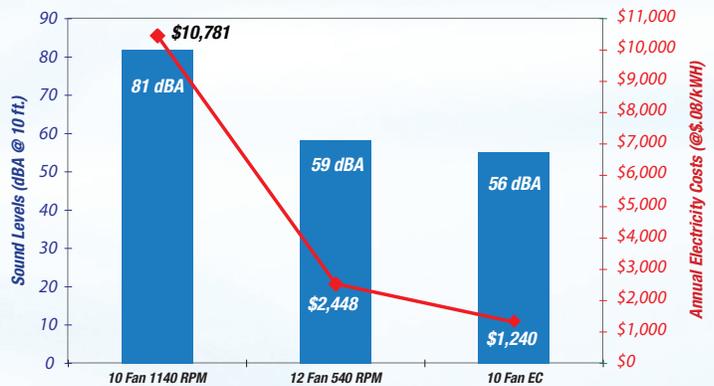
VSEC motors offer the lowest sound and highest energy efficiency in the industry. VSEC motor technology offers all the benefits of variable frequency drive (VFD) motors without the complexity. VSEC motors modulate fan speeds, optimizing airflow for load requirements, minimizing energy consumption and sound. VSEC motors are controlled by an optional, factory installed head pressure control system, or by a user supplied control signal.

Variable Speed Significantly Reduces Sound and Energy Levels

Power Consumption & Variable Speed Operation



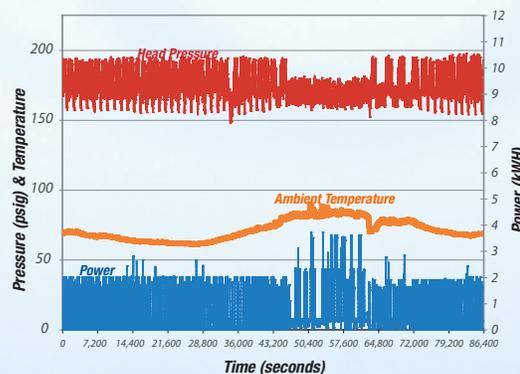
Energy & Sound Savings



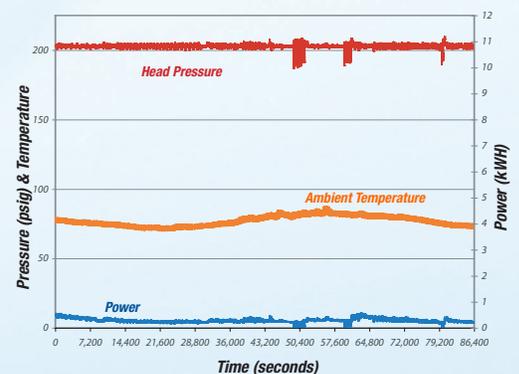
VSEC Motors Improve Overall System Performance

- Greater than 75% reduction in condenser power usage
- Maintains constant head pressure:
 - Improves compressor longevity
 - Stable operation at low ambient and low loads
 - Stable pressure control for better TXV operation
 - Stable head pressure control may enable operation at lower condensing temperatures

Standard Climate Control 1140 RPM Performance



Climate Control VSEC Motors Performance



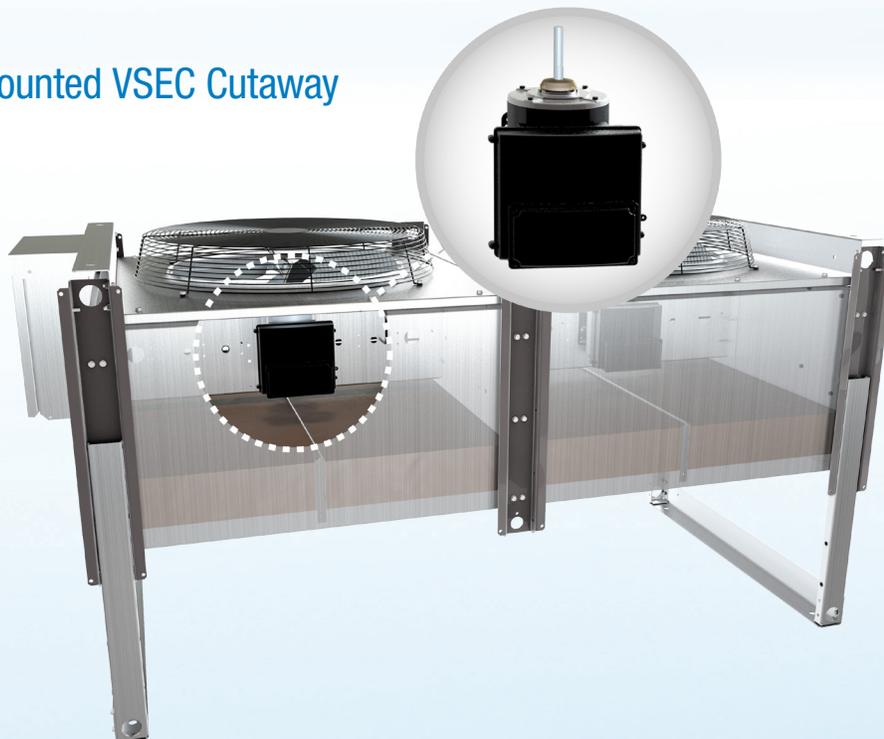


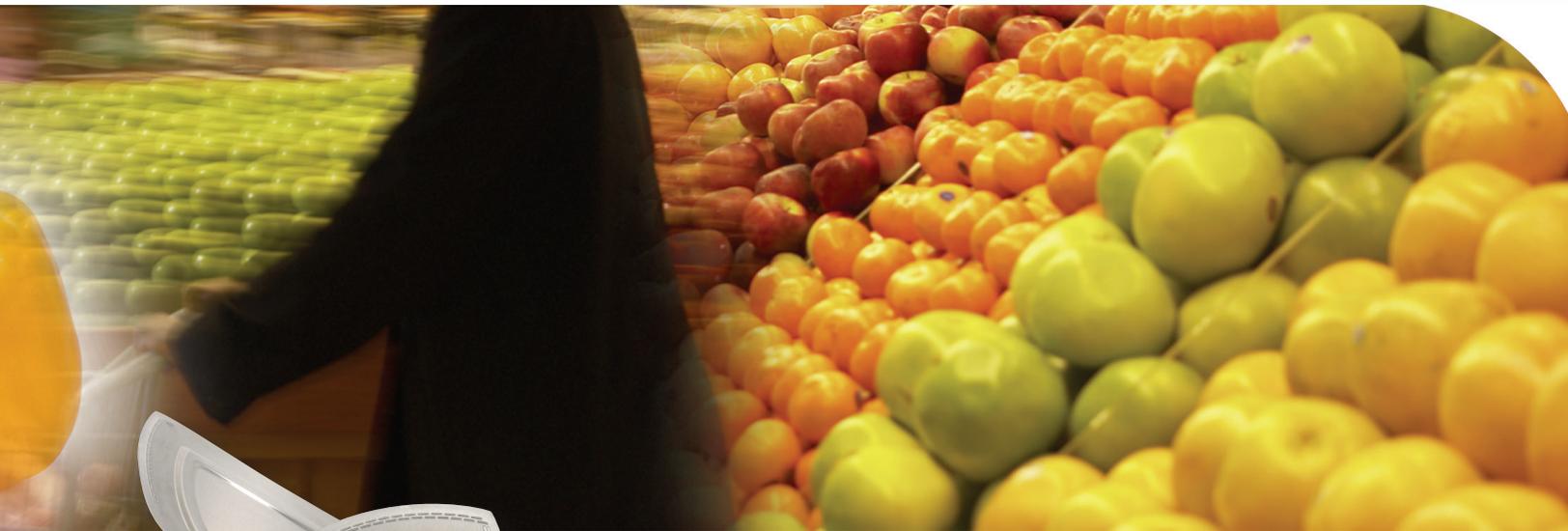
Solutions For An Advanced Industry

Rail Mounted VSEC Series

With the release of the new Rail Mounted VSEC motor, Heatcraft is ushering in a new era of performance, efficiency, and serviceability. VSEC motors are not new to the world of condenser fan motors, but standard form factor VSEC motors are. The newest selection of VSEC motors from Heatcraft Refrigeration Products provides all of the energy saving and noise reduction benefits available in the air-cooled condenser product line, with the added benefit of carrying the same serviceability as the fixed speed, 3 phase motors.

Rail Mounted VSEC Cutaway





Quiet, Innovative Efficiency

The Cutting Edge Of Quiet QuietEdge™ Fan Technology

The Heatcraft patented QuietEdge technology uses specially designed swept fan blades to reduce noise levels. These blades are uniquely designed for each motor speed, optimizing performance and ensuring you are receiving the lowest sound levels possible. QuietEdge is available with four blades on 540 RPM models and five blades on 830 RPM (1.0HP) motors.

Advanced Features and Engineering



Service Ease™ Motor Mount

This system enables one service technician to remove and replace the motor, while reducing the risk of damaging the coil.



Floating Tube™ Coil Design

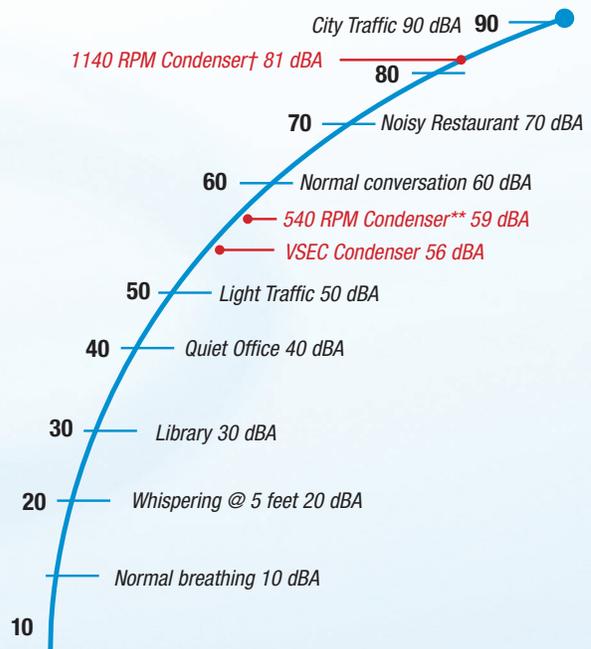
Refrigerant-carrying copper tubes float through oversized holes in the tube sheet and are expanded into the aluminum fins, minimizing wear and virtually eliminating the possibility of tube sheet leaks. Additional fixed tubes are designed into the tube sheet to support the weight of the coil.



Hinged Venturi

A hinged Venturi option allows for easy maintenance and servicing of the condenser. The Venturi can effortlessly be lifted by one service technician and latched for safety to allow for maintenance activities such as cleaning the unit.

Common Sound Levels



Source: Noise Pollution Clearinghouse, 2005

* 10 Fan with EC motors **12 Fan with 540 motors † 10 Fan with 1140 motors

QUIET, EFFICIENT PERFORMANCE

- The Heatcraft patented QuietEdge™ fan technology provides substantial reductions in sound levels and improves motor efficiency
- Multiple VSEC options offer a quiet, efficient solution for every application

MAXIMUM CAPACITY, MINIMUM SPACE

- Heatcraft condenser coils incorporate the latest advances in coil technology to maximize capacity in a smaller footprint
- The cabinet is designed to minimize footprint and reduce overall length by up to 12 inches

SIMPLE INSTALLATION AND MAINTENANCE

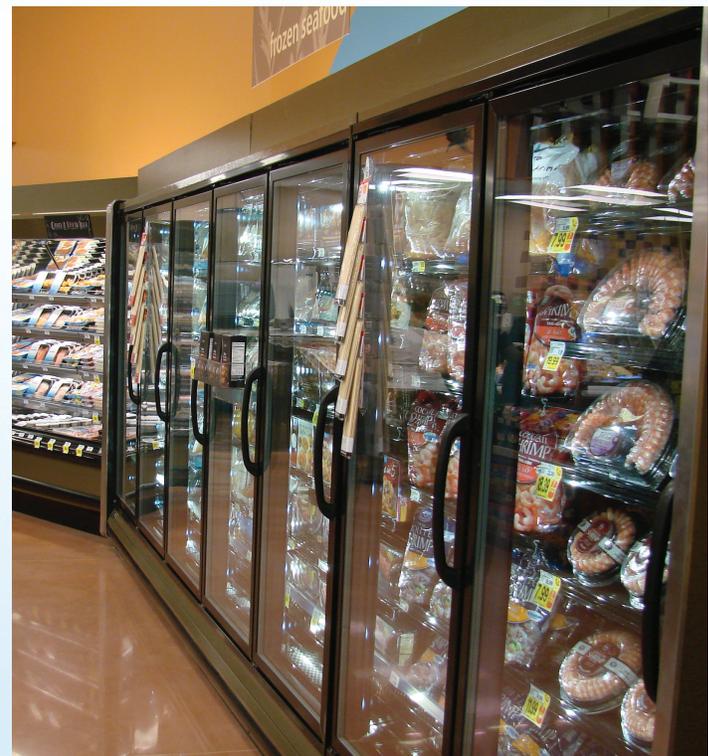
- Heatcraft Service Ease™ motor mount allows for easy motor maintenance and helps prevent damage to coils
- Hinged Venturi can be lifted easily by one person and latched for safety, allowing easy access to coils (side access panels also available)
- Units are available in capacities ranging from 11 to 264 nominal tons (horizontal and vertical airflow configurations) and in ambient temperature ratings of -20°F to 120°F

LONG-LASTING RELIABILITY

- Floating Tube™ coil design virtually eliminates the possibility of leaks at the tube sheet
- Fan motors have thermal overload protection and permanently lubricated ball bearings
- Cabinets are constructed of corrosion-resistant, galvanized steel (aluminum housing also available)
- All internal wiring connections and components are tested at the factory

INDUSTRY-LEADING WARRANTY

- Condensers are backed by a **two-year warranty** on parts and labor
- Venturi Mounted VSEC Motors are backed by a **three-year warranty**
- Rail Mounted VSEC Motors are backed by a two-year warranty
- Limited **five-year warranty** against leaks at the tube sheet and center supports



Three Solutions Tailored To Fit Your Unique Needs

Choose from Fixed Speed, Rail Mounted VSEC or Venturi Mounted VSEC series of Heatcraft air-cooled condensers. Choosing the Venturi Mounted VSEC Series means that you are selecting the ultimate in capacity, sound reduction, and increased energy efficiency. The Rail Mounted VSEC option offers all of the benefits of variable speed in a conventional condenser package, while the fixed speed options continue to provide proven performance and capacity.

FEATURE	1140 RPM FIXED SPEED	830 & 540 RPM FIXED SPEED	RAIL MOUNTED VSEC	VENTURI MOUNTED VSEC
Motors				
Standard Motor	1140 RPM	830, 540 RPM	Variable Speed EC Motors	Variable Speed EC Motors
P66 Motor Option	✓	✓		
Cabinet				
Standard Cabinet	Galvanized	Galvanized	Galvanized	Aluminum
Galvanized Option	(standard)	(standard)	(standard)	✓
Pre-Painted Galvanized Option	✓	✓	✓	✓
Aluminum Option	✓	✓	✓	(standard)
Venturi Cover				
Standard Venturi	Removable	Removable	Removable	EC Tall Optimized
Hinged Option	✓	✓	✓	-
Fan Blades				
Standard Blade	Standard	QuietEdge™	Standard/QuietEdge™	EC Optimized
Motor Mount				
Standard Motor Mount	Service Ease™	Service Ease™	Service Ease™	EC Optimized
Warranty				
Two-Year Warranty	✓	✓	✓	✓
Two-Year Warranty - Rail Mounted VSEC Motors	-	-	✓	-
Three-Year Warranty - Venturi Mounted VSEC Motors	-	-	-	✓
Five-Year Warranty - Floating TUBE™ Coil Design	✓	✓	✓	✓





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