

Copeland Scroll™  
variable speed compressors  
and motor control drives for residential applications



**COPELAND SCROLL™**

  
**EMERSON™**

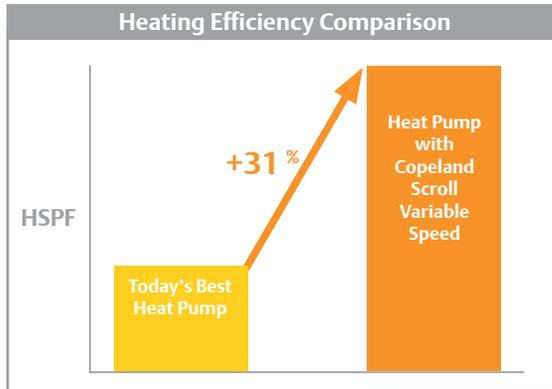
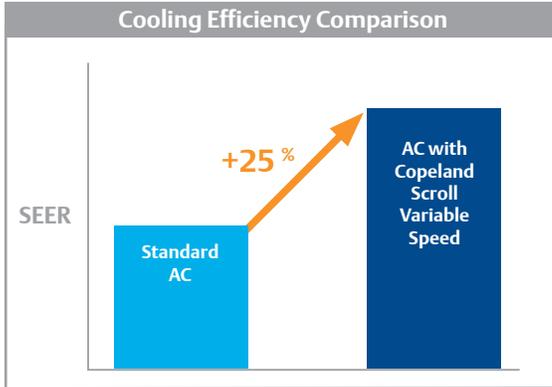


Breakthrough scroll efficiency.  
Enhanced comfort. Proven reliability.  
The best thing in variable speed technology  
just got better

### Breakthrough cooling and heating efficiency

Emerson's Copeland Scroll™ variable speed compressors are designed and engineered to deliver maximum cooling and heating efficiency when you need it most. With Copeland Scroll variable speed compressors, homeowners are able to save up to 40% on annual energy costs. Our latest second generation variable speed compressor technology enables system manufacturers and homeowners to achieve superior system performance, including:

- **Maximum cooling efficiency:** Capable of achieving 25+ SEER (Seasonal Energy Efficiency Ratio)
- **Breakthrough heating efficiency:** Capable of achieving 13+ HSPF (Heating Seasonal Performance Factor)
- **Enhanced light-load efficiency:** Turndown to 20% capacity enables better light load efficiency and dehumidification



*The unmatched performance of Copeland Scroll variable speed compressors enables maximum cooling and heating efficiency*



To download our e-saver mobile app visit [Emerson.com/MobileApps](http://Emerson.com/MobileApps)

## Proven Copeland Scroll platform, enhanced and optimized for variable speed

- **NEW:** Intermediate discharge valves to boost efficiency across a range of conditions
- **NEW:** New gas management method enables smooth gas flow into scroll set
- **NEW:** Optimized scroll elements for variable speed performance
- **NEW:** Positive displacement oil pump enhances reliability
- Brushless Permanent Magnet (BPM) motor technology for maximum efficiency



Revolutionary motor control d  
Copeland Scroll variable speed

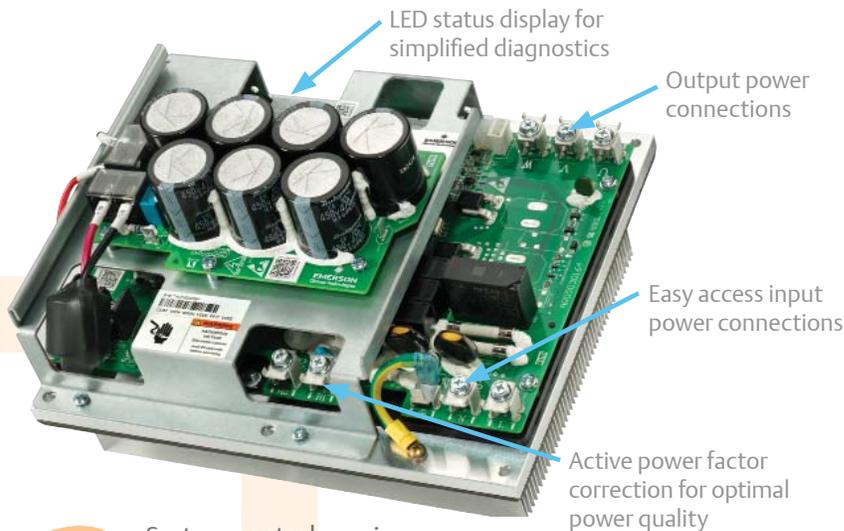


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Drive converts AC to DC power, sends it to compressor BPM motor, dynamically adjusting its speed. Drive manages compressor operation to ensure efficiency and protection from adverse circumstances such as lightning strikes, brownouts, etc.

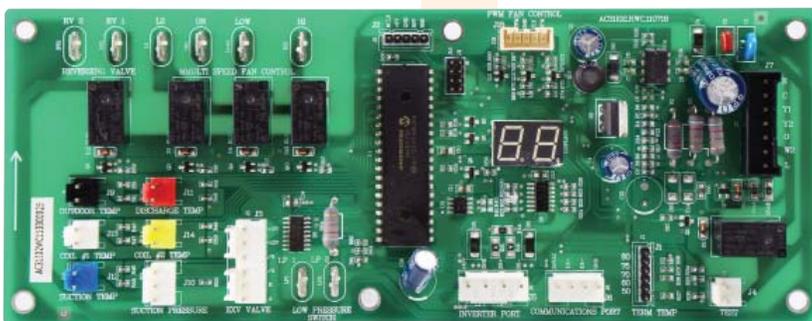


drive technology, optimized specifically for  
compressors for ease of application



**3** System control queries drive for diagnostics and continually monitors system performance, adjusting dynamically

**1** System control provides speed signal to motor control drive



## Key drive features

Integrated CoreSense™ technology is built into the drive for optimal compressor performance.

- Control features include soft start and controlled shutdown, speed/torque control and power interrupt capacity
- Protection features include overload/over current fold back, compressor envelope protection, input under/over voltage, high pressure cutout and scroll over temperature protection
- Available in 3.3, 3.7, 5.5 and 8.0 kW max power
- RS485 Modbus® communications standard
- 0-10V/PWM control option
- Stator heating capability eliminates need for crankcase heater
- Drives are available with finned heat sink for air-cooled applications and flat plate heat sink for refrigerant-cooled applications

The latest in technology and value. Emerson's compressor and motor control drive technology provides enhanced system performance and value



## Enhanced comfort

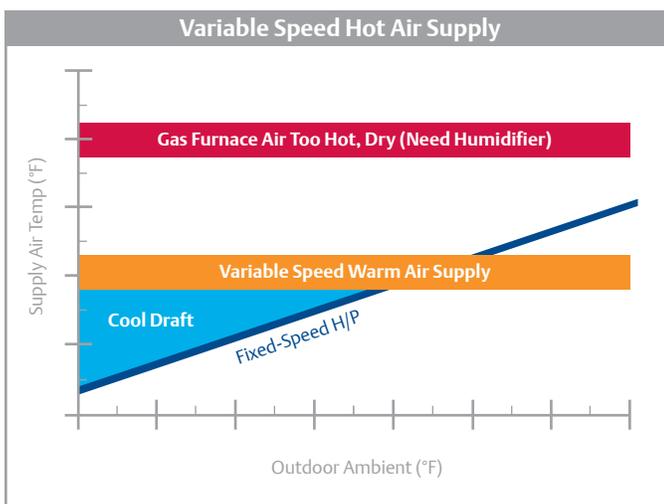
The next generation Copeland Scroll variable speed design enables homeowners to experience a new level of comfort thanks to the following enhancements:

- **Even temperatures:** Wide turndown capability means steady temperatures precisely tuned to the thermostat set point
- **Precise humidity control:** Turndown to 900 RPM in cooling mode means less cycling and better dehumidification
- **Hot air supply:** 7000 RPM overspeed capability in heating mode provides hot air supply even in extreme cold winter conditions

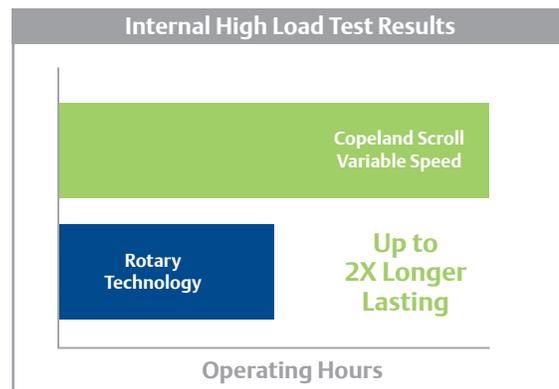
## Proven reliability

Copeland Scroll variable speed compressors represent the pinnacle of reliability through enhancements such as:

- **Active protection algorithms:** provided by the motor control drive
- **Robust scroll design:** Outstanding reliability over competing compression technology
- **Proven in-field performance:** Over 25 years of scroll experience and more than 100 million installations around the world



*This unique compressor design enables heat pumps to supply hot air even during cold winter conditions*



## See for yourself

Breakthrough efficiency. Enhanced comfort. Proven reliability. See how Copeland Scroll variable speed technology can improve your business results. For more information visit [Emerson.com/DesignerAir](http://Emerson.com/DesignerAir)

## Copeland Scroll variable speed compressor capacities

Model	Displacement	Tonnage												
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6.0	
ZPV	021			ZPV021										
	028			ZPV028										
	034			ZPV034										
	038			ZPV038										
	041			ZPV041										
ZHV	021			ZHV021										
	034			ZHV034										

ZHV models for hot water heating applications.  
Capacities are at 50/115 operating conditions.

## Copeland Scroll variable speed compressor nomenclature

Z	P	V	038	2	E-	2	E	9	XXX
Z = Scroll Family	P = AC/Heat Pump H = Heating Optimized	V = Variable Speed Technology	Cubic Centimeters of Displacement Per Revolution (3 Numeric Characters)	Model Variation	Optional E = POE Oil P = POE 410A	Motor Type	E = Enhanced External Protection X = Protection Not Specified	Reserved for Future Use	Bill of Material Variation Code

## Variable speed drive nomenclature

E	V	2	080	M	XX-	C	1-	XXX
E = Electronics	V = Variable Speed	Model Variation	Input Power 080 = 8.0 kW 055 = 5.5 kW 037 = 3.7 kW 033 = 3.3 kW	Communication Protocol M = RS485 5V Modbus Ascii and RTU	Reserved for Future Use	Electronic Power Input Codes B: 110/230 VAC C: 200-240 VAC D: 380-480 VAC	Power Output Codes	X: Type of Module 1,2: AC OEM 7,8,9: Aftermarket X: Software Variation X: Hardware Variation

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