

Copeland™ variable speed
scroll compressors and drives
for commercial applications

COPELAND™



EMERSON™

Superior efficiency, control and reliability.

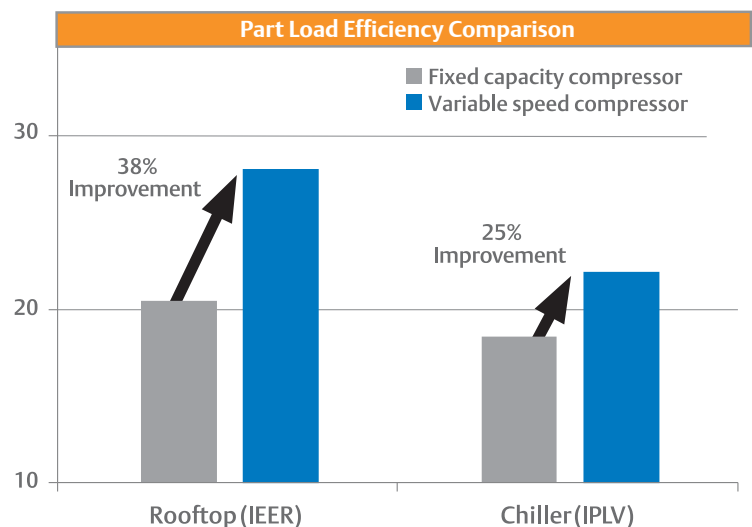
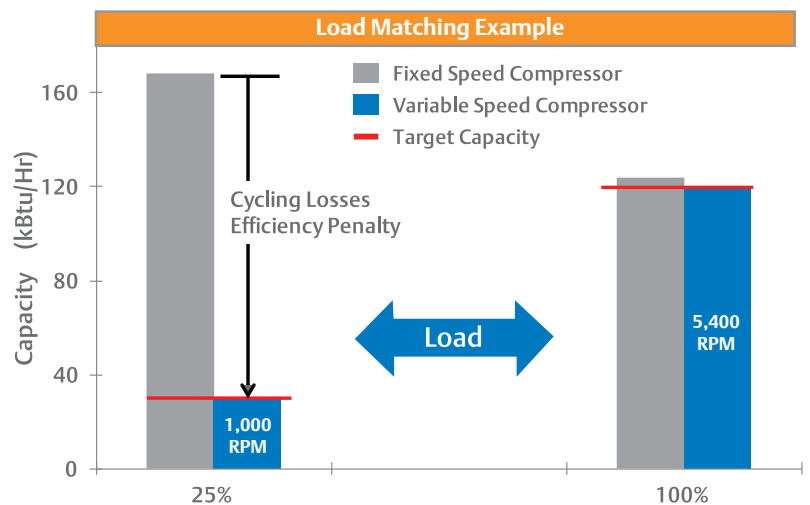
Introducing the latest innovation of Copeland variable speed scroll technology – for maximum commercial HVAC system performance.

Breakthrough efficiency

Emerson's Copeland variable speed scroll compressors are designed to deliver maximum cooling and heating efficiency when you need it most. Whether designing for a roof-top unit in the United States or an air-cooled chiller in Europe or Asia, our latest variable speed compressor technology allows system manufacturers and building owners to achieve superior performance, including:

- **Expansive 900*-7,200 RPM speed range** for enhanced light load efficiency and dehumidification
- **Highest part load efficiency in its class** enabling significant energy savings and standards compliance
- **Capability to build tandems and trios** for maximum flexibility in system design 'paralleling'
- **Both compressor and drive are agency approved** for reduced design time, cost, and speed to market

*Please reference the compressor operating envelope and AE bulletin for low speed operation.



The unmatched efficiency of Copeland variable speed scroll compressors enables maximum efficiency

Proven Copeland scroll platform

– enhanced and optimized for variable speed

- Optimized scroll elements for variable speed performance
- Low oil circulation compressor plus scroll oil injection for low speed performance and reliability
- BPM motor technology for highest efficiency
- Sound reduction technology for reversible chiller transition and defrost*
- Technology to boost efficiency across a range of conditions
- 2-15 ton

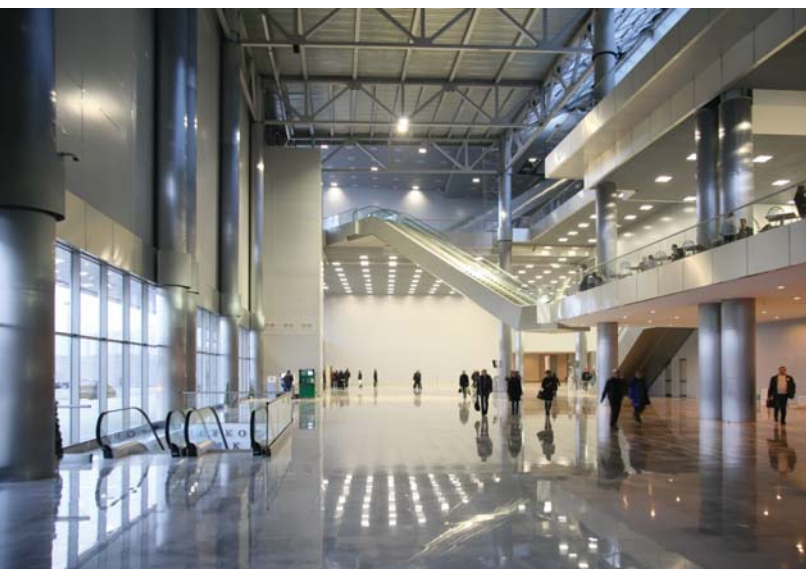
* Available on select models



Expansive control

The Copeland variable speed scroll design enables system manufacturers, building owners, and contractors alike to experience a new level of control thanks to the following enhancements:

- Expanded operating envelope providing the greatest flexibility in design and desired condition
- Low turndown to 900 RPM means less cycling for better dehumidification and light load efficiency
- Enables precise temperature and humidity control across a wide range of conditions
- AC drive controls motor stator heating thereby eliminating the need for a crankcase heater





Motor Control Drive Offerings

Emerson offers two types of AC drives to be paired with Copeland variable speed 2-15 ton scroll compressors. Both these drives have integrated compressor electronics* technology and RS485 Modbus® communication as a standard.

Modular design for ease of fit (separate filter and choke)

- For use with 2-5 ton variable speed compressors
- Protection and fault LED codes for diagnostics and troubleshooting
- Stator heating capability
- Drives are available with finned (air-cooled) or flat plate (refrigerant cooled) heat sink



Packaged design for ease of use

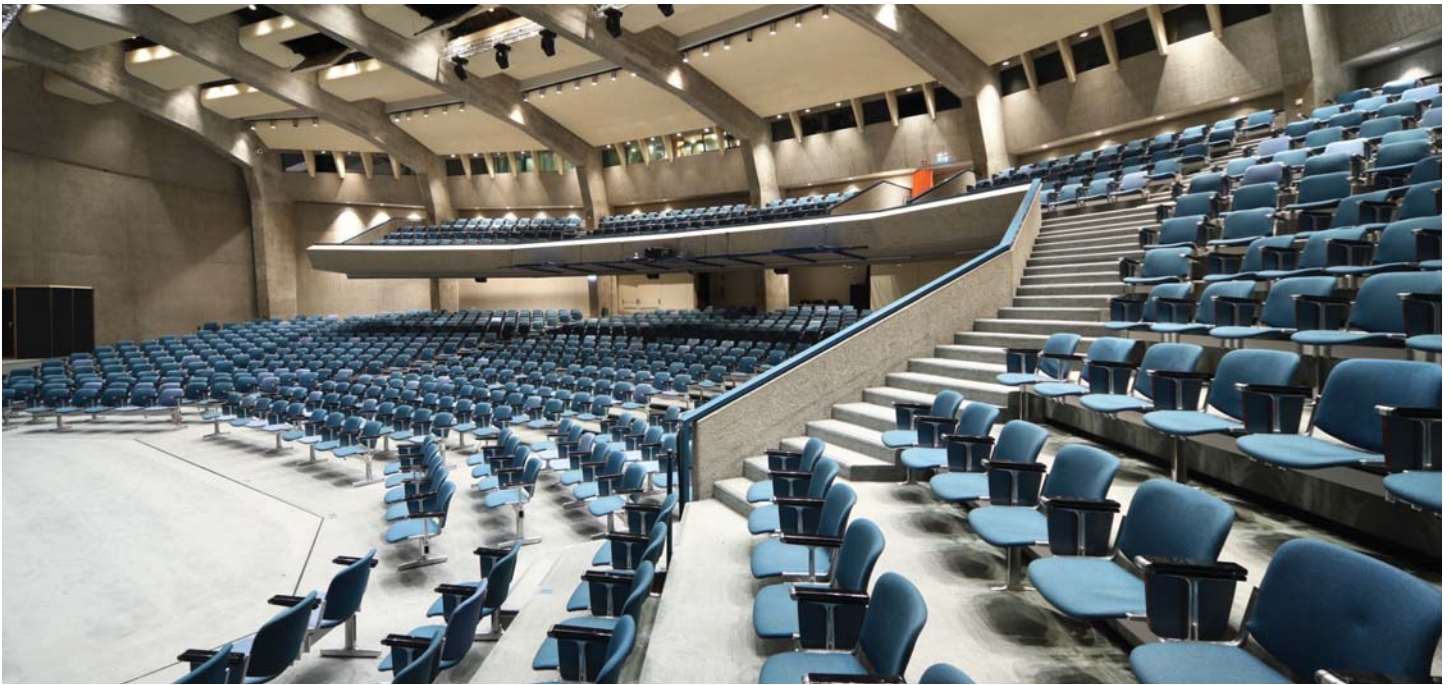
- For use with 10-15 ton variable speed compressors
- Dedicated compressor menu structure and parameters for quick and easy setup
- Optional range of multi-language click-in LCD keypads available for rapid set-up and superior diagnostics
- Slot for Smartcard/SD card for parameter cloning, storage, backup, and restore
- Compact aluminum chassis allows flexible mounting, with built-in high performance extruded heat sink
- System integration module slots for additional I/O

See for yourself

Efficiency. Control. Reliability. To learn more about Copeland variable speed scroll compressors and how they can improve your business results visit Climate.Emerson.com/CommercialVS

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

*Formerly CoreSense technology



Comprehensive protection and reliability

Copeland variable speed scroll compressors take reliability to a new level with the integration of compressor electronics* technology. These active protection algorithms incorporated into the motor control drive safeguard the compressor and drive from many adverse operating conditions. The types of protection features include:

- Locked rotor detection
- Phase protection and correction
- Maximum operating current detection
- Discharge line temperature protection
- Anti-short cycling

This builds upon the reliability and proven performance from over 25 years of scroll experience and more than 100 million installations around the world.

*Formerly CoreSense technology



Copeland Commercial Variable Speed Scroll Compressor

Displacements	Tonnage																
	1	2	3	4	5	6	7	8	10	12	14	15	16	18	20	21	
ZPV021	█																
ZPV028	█																
ZPV034	█																
ZPV038	█																
ZPV043	█																
ZPV066	█																
ZPV096	█																

ZPV models for rooftop applications @ 50/120

Compressor Model	ZPV021	ZPV028*	ZPV034	ZPV038	ZPV041	ZPV066	ZPV096
Displacement	21cc	28cc	34cc	38cc	41cc	66cc	96cc
Speed Range	900-7,000	900-7,000	900-7,000	900-7,000	900-7,000	1,000-7,200	1,200-7,200
Performance							
Condition (Evap/Cond)	50/120	50/120	50/120	50/120	50/120	50/120	50/120
RPM	4,500	4,500	4,500	4,500	4,500	5,400	5,400
Capacity (BTU/Hr)	35,500	47,000	56,000	64,000	69,300	133,000	197,000
EER/IEER	13.6/27.3	14.4/27.1	14.1/28.3	14.1/27.8	14.6/28.1	14.6/29.6	14.5/29.6

Drive Model	EV2055	EV2080	EVC115	EVC185
Drive Size	5.5kW	8kW	15kW	18.5kW

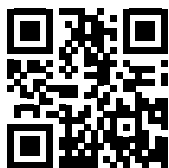
Note: Drives and compressor matching depends on system operating conditions. Consult Application Engineering for assistance.

Copeland Scroll variable speed compressor nomenclature

Z	P	V	066	2	E-	7	E	9-	XXX
Z = Scroll Family	P = AC, R-410A	V = Variable Speed Technology	Cubic Centimeters of Displacement Per Revolution (3 Numeric Characters)	Model Variation	Optional E = POE Oil	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	C	115	0	B-	K	1-	XXX
E = Electronics	V = Variable Speed (modular) VC = Variable Speed (packaged)	Model Variation	Input Power 115 = 15 kW 185 = 18.5 kW	Model Variation	Reserved for Future Use	Electronic Power Input Codes J: 200-240V 3 φ K: 380-460V 3 φ L: 575V 3 φ	Varies by Model	X: Type of Module 1,2: AC OEM 7,8,9: Aftermarket X: Software Variation X: Hardware Variation



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