Copeland™ variable speed scroll compressors and drives
for commercial applications
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.

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**Load Matching Example**

- Fixed Speed Compressor
- Variable Speed Compressor
- Target Capacity

**Part Load Efficiency Comparison**

- Fixed capacity compressor
- Variable speed compressor

*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

*Formerly CoreSense technology

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

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ZPV models for rooftop applications @ 50/120
### Copeland Scroll variable speed compressor nomenclature

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<th>Z</th>
<th>P</th>
<th>V</th>
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<tbody>
<tr>
<td>Z = Scroll Family</td>
<td>P = AC, R-410A</td>
<td>V = Variable Speed Technology</td>
<td>Cubic Centimeters of Displacement Per Revolution (3 Numeric Characters)</td>
<td>Model Variation</td>
<td>Optional E = POE Oil</td>
<td>Motor Type</td>
<td>E = Enhanced External Protection</td>
<td>X = Protection Not Specified</td>
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### Variable speed drive nomenclature

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<th>0</th>
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#### Drive Model

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<td>8kW</td>
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Note: Drives and compressor matching depends on system operating conditions. Consult Application Engineering for assistance.

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**Compressor Model**

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<thead>
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<th>ZPV021</th>
<th>ZPV028*</th>
<th>ZPV034</th>
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#### Performance

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<td>Capacity (BTU/Hr)</td>
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