

R410A Variable Speed Range



Outstanding performance for
commercial comfort applications

COPELAND™


EMERSON™

Copeland Scroll™ variable speed compressors and their qualified drive provide enhanced system performance and best value

Copeland Scroll Variable Speed compressors are designed to deliver maximum cooling and heating efficiency when you need it most. Equipped with the latest variable speed technology, they allow system manufacturers and building owners to achieve superior performance when designing reversible chillers, heat pumps, precision cooling systems, air handling units and rooftops. In addition to Copeland™ market-proven robustness, the ZPV range with its qualified inverter drives meets and exceeds the level of reliability expected for these applications.

Applications

Cooling and heating applications require stable temperatures to guarantee the best humidity control and comfort in all commercial areas. In addition to comfort, precise cooling or accurate temperature control have become even more important in applications such as process cooling or datacenters. Variable speed technology allows system manufacturers to match the load needed for accurate temperature control and best comfort thanks to a wide turndown ratio 7:1 and its full modulation capabilities. IT cooling equipment in datacenters is an increasing challenge for operators and design engineers. Power management is the major concern, followed by energy consumption and heat loads: best modulation is needed to better respond to load changes and reduce power consumption when the load is reduced. Meeting these challenges is essential for ensuring data safety and availability. Variable speed solutions enable the optimization of both process and datacenter systems, which contributes to reducing running costs.

Qualified and certified Emerson solution

The ZPV range gives the best of its performance when used with the close-coupled Emerson-Ruking drives. This allows system manufacturers to save development time while ensuring safety and reliability. Both compressor and drive are Copeland approved for reduced design time, cost and speed to market.

Key motor drive features

- DC drive with optimized permanent magnet motor control for maximum performance and reliability
- Dedicated compressor menu structure and parameters for quick and easy setup
- RS485 Modbus® communications as standard
- Motor and scroll temperature protection



EV3 and ED3 qualified inverter drives for Copeland Scroll™ variable speed compressors

Features and benefits

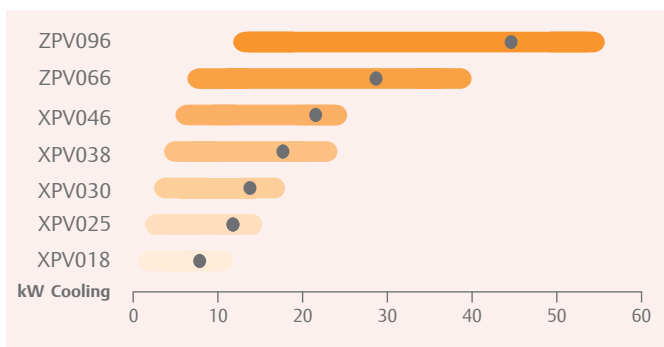
- Highest part load efficiency in its class enabling significant energy savings and standards compliance
- Wide speed range for enhanced part load efficiency and dehumidification: 1.000 - 7.200 RPM
- Capability to be tandemized with fixed speed compressors for maximum flexibility in system design
- BPM motor technology for highest efficiency
- Sound reduction technology for reversible chiller transition and defrost

Multi-scroll systems help to increase energy efficiency

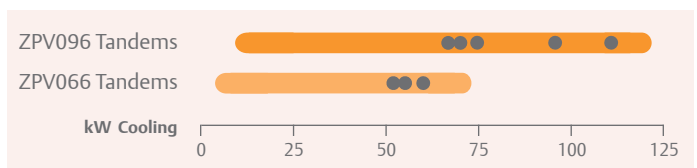
The capability of being tandemized with fixed speed compressors allows maximum flexibility in system design. When tandemized with fixed speed compressors, systems can be optimized to use the most efficient speeds when it matters, so when the energy consumption is higher. Copeland qualified tandems are unique on the market because they can be installed without the need of an oil separator.



Commercial variable speed line-up



Commercial variable speed tandem line-up

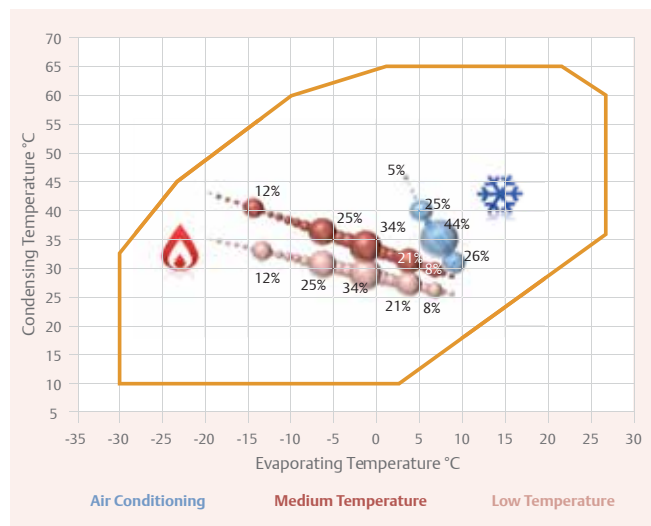


An efficient technology for a lower primary energy consumption

Environmental impact, reduction of carbon footprint and energy consumption are at the center of every discussion. Legislation such as the Energy Performance of Buildings (EPBD) directive, the Renewable Energy Sources (RES) directive and Ecodesign have been implemented to improve the use of primary energy and promote energy efficiency in heating and cooling. Measures will trigger numerous product improvements for a lower power consumption, this leads to a wider use of variable speed technology. Copeland Scroll Variable Speed solutions enable system manufacturers to comply with new and existing efficiency regulations while providing considerable energy savings:

- Designed to comply with the latest seasonal efficiency regulations
- Achieves highest efficiency class
- Designed to give maximum efficiency when needed
- Wide turndown ratio, 7:1, to match capacity needs, avoid ON and OFF to increase comfort and precision
- SCOP class A++
- SEER in line with highest requirement

Operating envelope and usage profile (R410A)





Technical overview

Compressor					
R410A	Cooling Capacity (kW)		Nominal Capacity (kW) @6000rpm	Net Weight (kg)	Length / Width / Height (mm)
	Min	Max			
XPV0182E	2.0	10.4	9.2	16	194/216/335
XPV0252E	2.7	14.5	12.4	16	194/216/335
XPV0302E	3.3	17.4	14.5	18	194/216/415
XPV0382E	4.3	22.5	19.3	21	194/216/416
XPV0462E	6.4	24.0	22.7	22	219/198/388
ZPV0662E	8.3	39.0	32.4	40	273/262/559
ZPV0962E	12.9	53.3	48.4	44	273/262/559

Conditions EN12900: Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K
Preliminary Data

Inverter Drive							
Model	Matched Compressor	Power (kW)	Amps (A)	Cooling	1Ph 230V	3Ph 400V	Depth / Width / Height (mm)*
		Nominal	Nominal				
ED3015A	XPV018	3.8	15	Air / Liquid	✓		205/240/144
ED3020A	XPV025	5.0	20		✓		205/250/180
ED3018B	XPV025/XPV030	5.0	18			✓	205/250/183
ED3022B	XPV038/XPV046	8.0	22			✓	233/316/150
EV3150B	ZPV066	15.0	27	Air		✓	180/250/380
EV3185B	ZPV096	18.5	38			✓	180/250/380

* Standard voltage air-cooled version including fins
 Conditions: Suction Superheat 5K, Subcooling 4K

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