Copeland™ EazyCool™

Outdoor Condensing Unit - ZX Range

High Efficiency In Compact Design

ErP Ready

EMERSON™
Climate Technologies

Outdoor Condensing Unit - ZX
The Best Choice For Small Retail And Food Service Applications

The new generation of Copeland EazyCool™ ZX condensing unit is the latest generation of Emerson Climate Technologies outdoor condensing units. Responding to space and noise constraints, this new range is designed to ease refrigeration integration into the application environment.

Simplifying Refrigeration System Integration

For years, Copeland EazyCool™ outdoor condensing units have brought innovation to refrigeration by providing solutions for quick and easy installation. Regular communication between Emerson Climate Technologies and its customers has resulted in the latest outdoor condensing unit design, taking this concept one step further. The combination of proven Copeland Scroll™ technology with the unit's compact design exactly meets the market requirements.

Building Integration With Maximum Space Saving

The ZX condensing units are:

- Built for any type of outdoor applications
- Perfect for wall or roof installation in city centres

Simple Installation

The improved accessibility, the pre-configured controller and a clear interface design enable time and money saving installations.

One Condensing Unit - Multiple Refrigerants at Best Efficiency

All Copeland ZX condensing units are suitable for multiple refrigerants. Depending on the application models are qualified for R404A, R134a, R407A and R407F. This allows for reduced number of models, simplifies logistics and increases flexibility.

Urban Environment Integration Through Noise Attenuation

A significant noise attenuation is guaranteed through:

- The integration of low speed fan motors with sickle blades and fan speed controller
- The intelligent fan speed control can be adjusted to match perfectly to the application requirements and reduces the sound level during night when temperatures tend to be low.

Energy Savings

- Copeland Scroll™ compressor with significantly higher efficiency than traditional piston compressors in the target applications
- Enhanced condenser coil and fan combination with automatic adjustment of condensing temperature to ambient conditions
- Vapor injection technology on low temperature models further improves the operational efficiency
- ZX condensing units already meet future (2016 and 2018) efficiency requirements of the Ecodesign Directive (2009/125/EC).

ErP Ready

High Reliability Through Diagnostic Protection Capabilties

The built-in electronics detect and display the system status in real time and can forward these via Modbus. Galvanized panels and coated condensers ensure protection towards corrosion. They also provide unique protection for the compressor against the following:

- Over-current
- Phase imbalance
- Phase loss
- Incorrect phase rotation

Reduced Life Cycle Cost

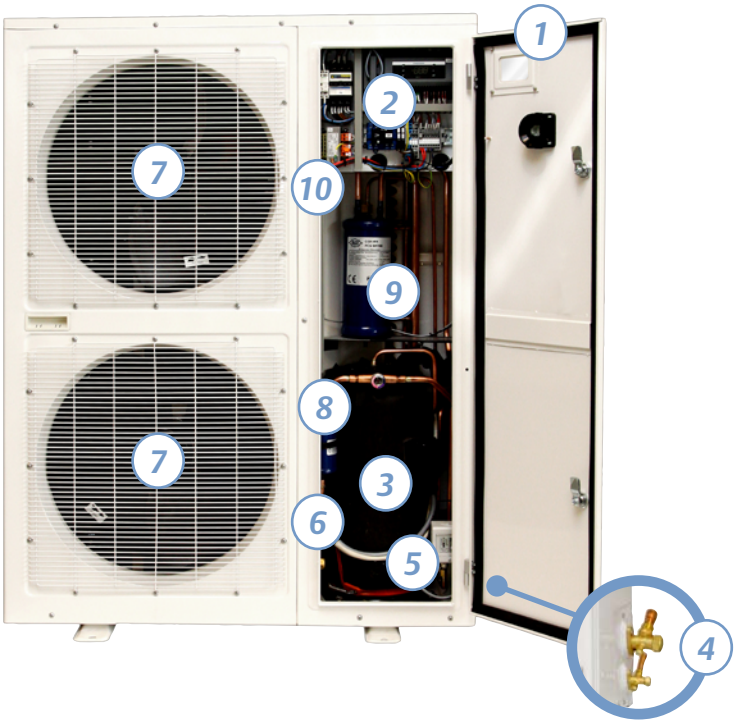
With very short installation time, superior efficiency and high reliability Copeland EazyCool™ ZX condensing unit helps customers to reduce "total life cycle costs" to a minimum.

The new Copeland EazyCool™ series of outdoor scroll condensing units are specifically designed to cater for a wide range of refrigeration applications covering medium and low evaporating temperatures.

Typical applications for Copeland EazyCool™ ZX include:

- Convenience stores
- Cold rooms
- Fast food chains and restaurants
- Beverage coolers

Features Copeland EazyCool™ ZX



1. *Front Door with Quick Check Window*
2. *Universal Controller with Status Display and adjustable settings*
3. *Copeland Scroll™ compressor with crankcase heater and sound jacket*
4. *Easy, accessible suction and liquid line connections – slanted for compact design*
5. *Adjustable low pressure control switch*
6. *Liquid line isolating valve for drier replacement*
7. *Low speed fan motors with sickle blades*
8. *Filter drier and sight glass*
9. *Oil separator (LT version only)*
10. *Suction accumulator (LT version only)*

Performance Data For Medium and Low Temperature Models

Medium Temperature Models	Capacity (kW*)			
	R404A	R134a	R407A	R407F
ZXME-020E	3.6	2.3	3.5	3.4
ZXME-025E	4.3	2.7	4.2	4.1
ZXME-030E	5.2	3.2	4.9	4.9
ZXME-040E	7.0	4.4	6.3	6.9
ZXME-050E	9.1	5.5	8.7	8.6
ZXME-060E	10.4	6.5	9.8	9.7
ZXME-075E	11.9	7.5	11.3	11.2

*EN 13215 Conditions, Te -10°C, Ta = 32°C, SGT 20°C

Low Temperature Models	Capacity (kW*) - (all data preliminary)		
	R404A	R407A	R407F
ZXLE-020E	1.7	1.5	1.6
ZXLE-030E	2.4	2.0	2.1
ZXLE-040E	4.0	3.2	3.3
ZXLE-050E	5.0	3.6	3.8
ZXLE-060E	5.8	4.2	4.4
ZXLE-075E	6.5	4.8	5.0

*EN 13215: Te - 35°C, Ta 32°C, SGT 20°C

Outdoor Condensing Unit - ZX Digital
The Compact Solution For Continuous Capacity Modulation

Copeland EazyCool™ ZX Digital Condensing Units represent the top level of the ZX product platform. The advantages of the standard models compactness, silence and efficiency are further extended by the capability of continuous capacity modulation. This makes ZX Digital condensing units the perfect fit for applications with wide load variations.

Simplifying Capacity Modulation

On many refrigeration systems the load will vary over a wide range, thus requiring the use of capacity control if a high frequency of system on/off cycles should be avoided. Based on the unique and proven Copeland Scroll Digital™ compressor technology, the ZX Digital condensing units operate on a simple mechanism.

Capacity control is achieved by separating the compressor scroll sets axially over a short period of time. It is a simple mechanical solution allowing precise temperature control thus improving system efficiency.

Reducing Installation Effort

ZX Digital condensing units are ready for operation and can easily and quickly be implemented into any system design. Compared to alternative modulation solutions like parallel condensing units or compressor speed control ZX Digital units significantly reduce installation time. In addition the compact dimensions and light weight enable easy handling.

Energy Savings With Digital Scroll Technology

Digital Scroll technology provides:

- Continuous modulation from 10% to 100% capacity
- No restrictions to the operating envelope
- Immediate load adjustment
- Reduced compressor cycling with high current starting periods to a minimum
- Precise temperature control that allows lifting the evaporating temperature thus saving energy
- Superior energy efficiency through low condensing temperatures in capacity modulation mode

Preserving Food Quality

As a result of digital continuous modulation system, pressures and temperatures are tightly controlled which allows:

- An accurate control of display case and cold room temperatures
- Precise adjustment of evaporating temperatures
- Less dehumidification of the food and preservation of food quality

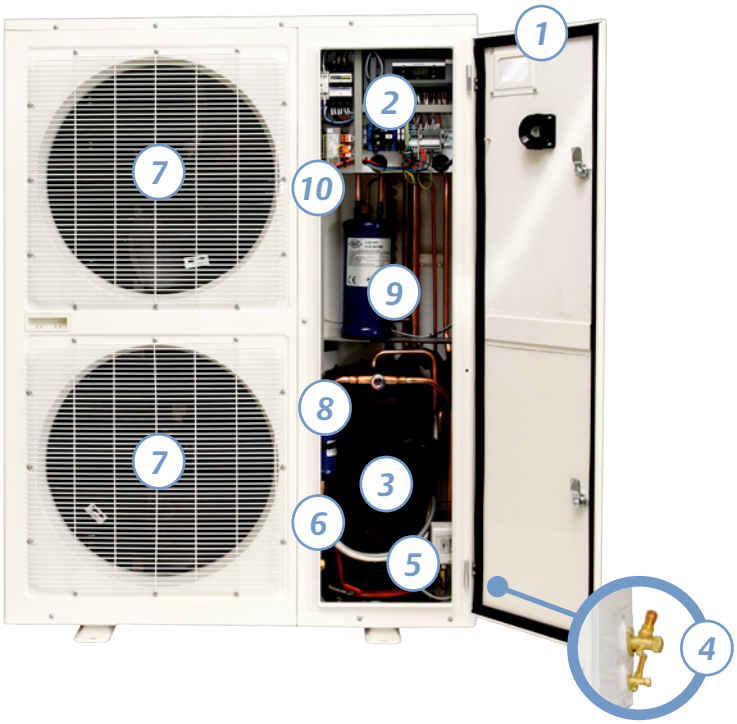
Reducing System Downtime And Lifecycle Costs

The refrigerant flow back to a Digital Scroll compressor is identical to a standard scroll compressor, even at low capacity. The Digital Scroll compressor motor runs at full speed at all times, never slowing the oil flow to the compressor. Its reliability level is as high as in standard compressors. It does not cause motor overheating or resonance vibrations in the condensing unit. The reliability of ZX Digital condensing units is further supported by:

- Less mechanical stress on the unit due to fewer start/stop cycles
- Selection of adjusted quality components including the controller
- Proven Digital Scroll technology
- Equipped with oil separator to guarantees constant oil levels
- Oil Separator to guarantee constant oil levels

Thanks to those features the ZX Digital condensing units significantly improve system reliability reduce system downtime and lifecycle costs.

Features Copeland EazyCool™ ZX Digital



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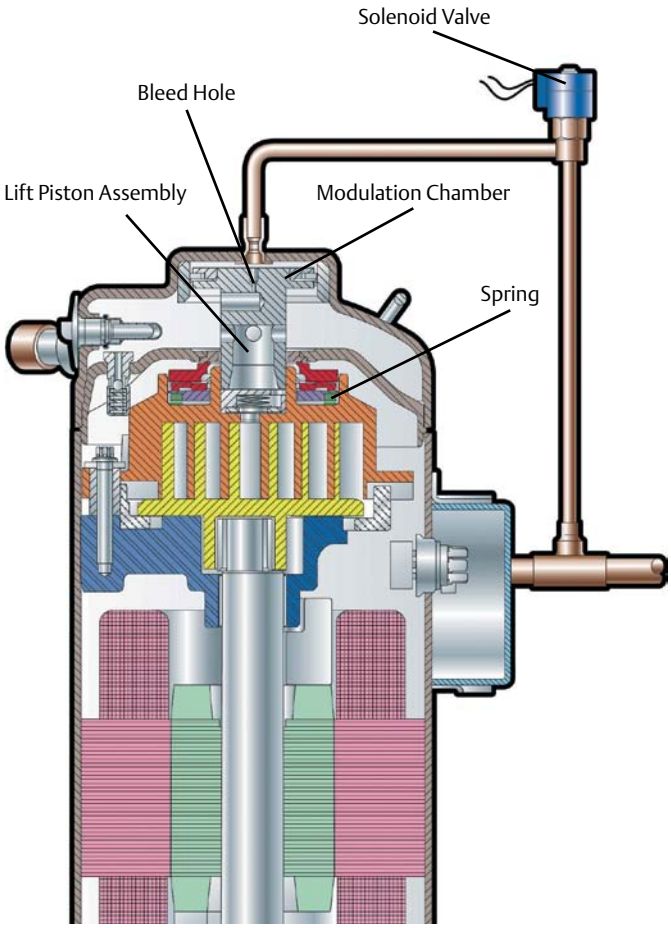
8. *Filter drier and sight glass*
9. *Oil separator*

Performance Data For Medium Temperature Models

Medium Temperature Models	Capacity (kW*)			
	R404A	R134a	R407A	R407F
ZXDE-040E	7.6	4.3	7.3	7.2
ZXDE-050E	9.0	5.3	8.7	8.6
ZXDE-060E	10.5	6.3	9.8	9.0
ZXDE-075E	11.9	7.2	11.3	10.2

*EN 13215 Conditions, Te -10°C, Ta = 32°C, SGT 20°C

Digital Capacity Modulation



Digital Mechanism

Capacity modulation is based on PWM (Pulse Width Modulation) control of a solenoid valve that operates a piston fitted rigidly to the upper scroll. This piston is actuated by gas pressure. The solenoid opens to allow the modulation chamber to communicate with suction via the external tube.

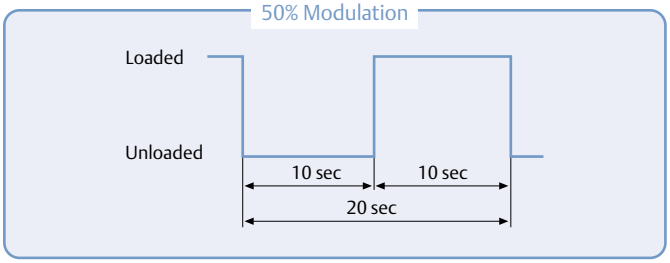
Discharge pressure on the lower side of the piston forces it upwards, bringing with it the upper scroll – there is no compression. When the solenoid closes, pressure builds up in the modulation chamber. Pressure in the modulation chamber is controlled via a small bleed hole. The upper scroll moves down to its normal contact position – compression resumes.

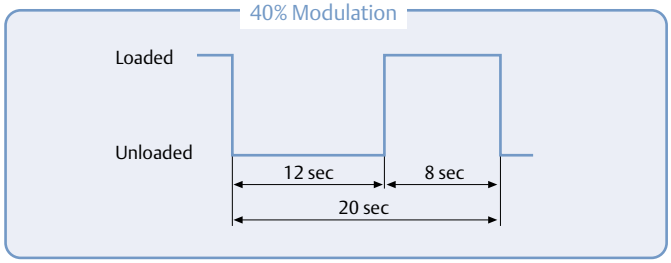
Cycle Time

The compressor capacity is controlled by modulating the solenoid valve input over time.

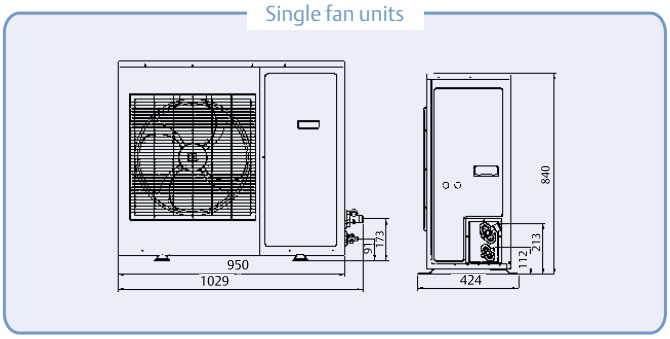
Example 1:
Cycle time: 20 sec
Valve inactive/ closed: 10 sec
Valve active/open: 10 sec
Resulting capacity: 50%

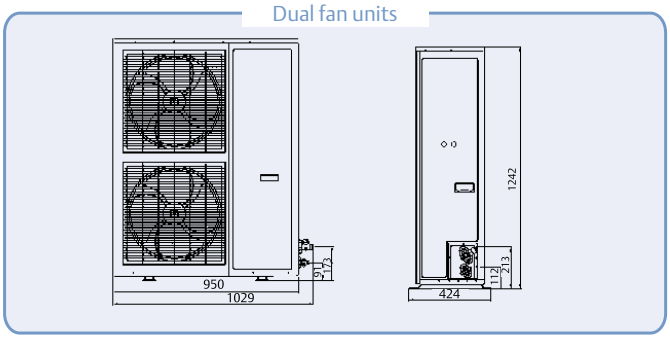
Example 2:
Cycle time: 20 sec
Valve inactive/ closed: 8 sec
Valve active/open: 12 sec
Resulting capacity: 40%





Dimensions





Technical Overview ZX (Preliminary data)

Model	Displacement (m^3/h)*	Max. Operating Current (A)	Number Of Fans	Total Fan Motor Power	Connection Lines (in)		Height (mm)	Width (mm)	Depth (mm)	Weight (kg)	Sound Level (dB[A])**	
					Suction	Liquid					Day	Night
Medium Temperature 380-420V / 50Hz / 3~												
ZXME-020E-TFD	5.9	5.0	1	116	¾	½	840	1029	424	76	39	36
ZXME-030E-TFD	8.6	6.1	1	116	¾	½	840	1029	424	79	40	37
ZXME-040E-TFD	11.7	7.5	1	116	⅞	½	840	1029	424	91	40	37
ZXME-050E-TFD	14.4	9.6	2	246	⅞	½	1242	1029	424	108	41	38
ZXME-060E-TFD	17.1	11.5	2	246	⅞	½	1242	1029	424	112	41	38
ZXME-075E-TFD	18.8	11.9	2	246	⅞	½	1242	1029	424	118	42	39
Medium Temperature 220-240V / 50Hz / 1~												
ZXME-020E-PFJ	5.9	12.8	1	116	¾	½	840	1029	424	76	39	36
ZXME-025E-PFJ	6.8	14.2	1	116	¾	½	840	1029	424	76	39	36
ZXME-030E-PFJ	8.6	16.4	1	116	¾	½	840	1029	424	79	40	37
ZXME-040E-PFJ	11.7	23.5	1	116	⅞	½	840	1029	424	91	40	37
Low Temperature 380-420V / 50Hz / 3~												
ZXLE-020E-TFD	6.1	5.7	1	116	¾	½	840	1029	424	79	39	36
ZXLE-030E-TFD	8.0	6.7	1	116	¾	½	840	1029	424	81	40	37
ZXLE-040E-TFD	12.7	9.2	1	116	⅞	½	840	1029	424	93	40	37
ZXLE-050E-TFD	14.4	11.9	2	246	⅞	½	1242	1029	424	106	41	38
ZXLE-060E-TFD	17.1	13.7	2	246	⅞	½	1242	1029	424	116	41	38
ZXLE-075E-TFD	18.8	14.6	2	246	⅞	½	1242	1029	424	121	41	38
Low Temperature 220-240V 50Hz 1~												
ZXLE-020E-PFJ	6.1	14.4	1	116	¾	½	840	1029	424	79	39	36
ZXLE-025E-PFJ	7.1	16.4	1	116	¾	½	840	1029	424	80	40	37
ZXLE-030E-PFJ	8.0	18.6	1	116	¾	½	840	1029	424	81	40	37

** ISO 3744 @ 10 m

Technical Overview ZX Digital (Preliminary data)

Model	Displacement (m^3/h)*	Max. Operating Current (A)	Number Of Fans	Total Fan Motor Power	Connection Lines (in)		Height (mm)	Width (mm)	Depth (mm)	Weight (kg)	Sound Level (dB[A])**	
					Suction	Liquid					Day	Night
Medium Temperature 380-420V / 50Hz / 3~												
ZXDE-040E-TFD	11.4	7.7	2	246	⅞	½	1242	1029	424	104	40	37
ZXDE-050E-TFD	14.4	10.4	2	246	⅞	½	1242	1029	424	112	41	38
ZXDE-060E-TFD	17.1	11.6	2	246	⅞	½	1242	1029	424	114	41	38
ZXDE-075E-TFD	18.8	12.4	2	246	⅞	½	1242	1029	424	119	42	39

** ISO 3744 @ 10m

Emerson Climate Technologies At A Glance

Emerson Climate Technologies is the world's leading provider of heating, ventilation, air conditioning, and refrigeration solutions for residential, industrial, and commercial applications. We combine technically superior products and services from our industry-leading divisions and brands with our global engineering, design and distribution capabilities to create reliable, energy efficient climate systems that improve human comfort, safeguard food, and protect the environment.

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For more details, see www.emersonclimate.eu

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