

Copeland™ Outdoor Refrigeration Unit, X-Line Series

Fixed speed and digital capacity units for medium and low temperature applications



Small-Format Stores • Convenience Stores • Foodservice Establishments
R-22, 134a, 404A/507A, 407C/A, 448A/449A • ¾ - 6 HP

COPELAND™


EMERSON™

Innovative design based on three factors demanded by industry users

1 – Energy Efficiency

Copeland outdoor refrigeration units significantly reduce energy consumption by utilizing scroll and digital scroll compressor technology, variable speed fan motors, large capacity condenser coils and advanced control algorithms. Compared to hermetic reciprocating units, end-users will save up to 50% in energy costs.

2 – Reliability

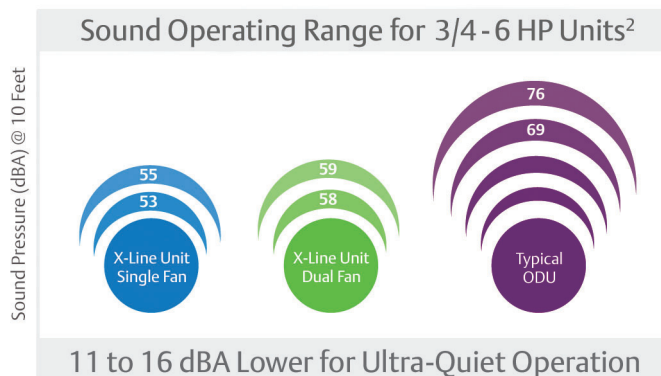
Combining the proven reliability of Copeland scroll compressors with advanced on-board diagnostics, equipment reliability is greatly enhanced. Fault code alerts and fault code retrieval capabilities provide information to help improve speed and accuracy of system diagnostics. Integrated electronics provide protection against over-current, over-heating, incorrect phase rotation, compressor cycling, high pressure resets, low pressure cut-outs and liquid flood-back conditions that cause unexpected performance losses or worse, unplanned equipment failure. As part of the Emerson family of products, Copeland outdoor refrigeration units provide unsurpassed access to system status, diagnostics, and operational control.



3 – Flexibility

The light weight and slim-line profile ease the installation process. The ultra quiet variable-speed fan motor significantly reduces exterior sound levels, allowing use in noise restricted residential zones. With high and low ambient operation capability, coated coils for coastal applications, multi-refrigerant capabilities, and optional wall mounting capability, the units deliver unmatched mounting and environmental location flexibility.

Copeland outdoor refrigeration units are perfectly suited for walk-in and display case applications. All units integrate the many benefits of scroll compressor technology, fan speed control, and advanced on-board diagnostics, delivering higher energy efficiency and lower sound levels, while ensuring reliable performance and operation in foodservice applications.



Two sound values shown represent the X-Line unit's lowest and highest operating dBA measurements, or typical industry outdoor unit published data, for both MT and LT products. Sound pressure values are 10 feet from the unit at 25°F evap for MT and -10°F evap for LT at 90°F ambient. A sound reduction of up to 3 dBA will occur in ambient temperatures below 70°F. This data is typical of 'free field' conditions for horizontal air cooled condensing units and may vary depending on the condensing unit installation. There are many factors that affect the sound reading of a condensing unit such as unit mounting, reflecting walls, background noise and operating condition.



Standard Features

- Electronic control module consolidating all unit operations, defrost, diagnostics, compressor protection, and communications
- External service valves and hinged service panel for easy setup and service
- Standard moisture indicator and liquid filter drier
- Quiet variable speed condenser fan
- Heated and insulated receiver with pressure relief valve
- Powder-coated galv-annealed chassis and coated condenser fins for corrosion protection
- Standard accumulator and oil separator on low temp models. Optional accumulator on only fixed speed medium temp models.

Accessories

Part Number	Description	Purpose
074-7286-00	Wall bracket	Allows mounting unit to walls
074-7289-00	Adjustable stand	Raises unit 12 inches from ground level
943-0224-00	PC interface kit	Allows direct connection of unit to PC
943-0058-00	Remote display	Control/view unit status up to 30 feet from unit

Nomenclature

X	F	A	M	-	0	2	0	Z	-	T	F	C	-	0	8	1
Family = X-Line	F = Multi-refrigerant	A = Air-Cooled	L = Low Temp M = Medium Temp P = Multiple Applications			.75 to 6.0 = HP		Z = Scroll D = Digital Scroll		CFV = 208/230V-1ph-60Hz TFC = 208/230V-3ph-60Hz TFD = 460V-3ph-60Hz				0 = UL Listed Product		81 = Standard

To place an order select **Base Model > Electrical > Bill of Material**

Feature

Owner/Enterprise Benefit

Energy improvement	<ul style="list-style-type: none"> • Lower operating costs
Sound improvement	<ul style="list-style-type: none"> • Creating a more comfortable environment for guests • Beneficial for regions with noise ordinances
Diagnostic protection capabilities	<ul style="list-style-type: none"> • Reduce nuisance calls • Extends life of your equipment • Faster, more accurate service, and reduced call-backs • Maintains your equipment to original standards, maintaining energy efficiency and temperature control • Have confidence in what your contractor is fixing
Slim profile, lighter weight, and optional wall mount capability	<ul style="list-style-type: none"> • Lower installation costs • Improved appearance of your enterprise site • Avoids more costly solutions for potential location issues
Multi-refrigerant*	<ul style="list-style-type: none"> • R-22, R-134a, R-404A, R-407C/A, R-448/449A
Emerson family of electronics	<ul style="list-style-type: none"> • Scalable electronics can operate as a stand-alone unit or connect as part of a full intelligent store

* Visit Emerson.com/CopelandOPI for specific refrigerant approvals for each model.

Copeland Digital Outdoor Refrigeration Unit, X-Line Series

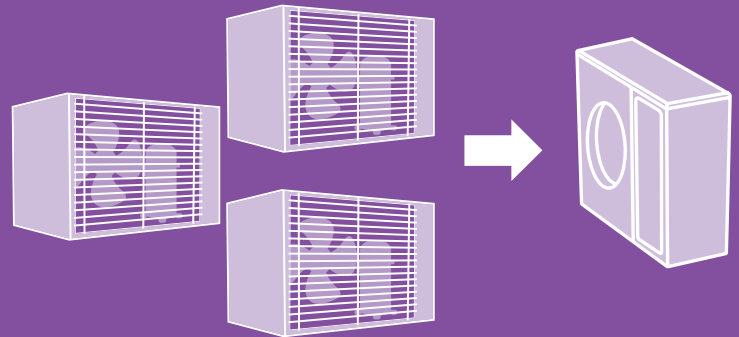
The compact solution for continuous capacity modulation

The Copeland digital outdoor refrigeration unit sets a new standard for energy efficiency, reliability, and installation flexibility. With 20-100% modulation now available and expanded refrigerant approvals, its industry leading on-board diagnostics and system protection can help optimize operational efficiency and deliver peace of mind to any end user. Digital X-Line units are available for applications commonly found in today's foodservice and food retail establishments.

The perfect solution for refrigeration applications with wide load variation:

- Walk-In Coolers
- Food Preparation Rooms
- Display Cases
- Industrial Process Chillers

Digital compression technology means fewer condensing units are needed to install and maintain for numerous refrigeration loads, which results in fewer line runs, lower refrigerant charges, and faster installation.



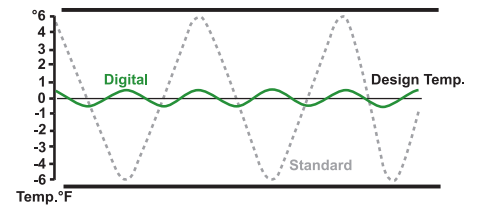
A Superior Solution for Food Safety

Digital modulation enables tighter control of case temperatures. This provides supermarkets and foodservice establishments with the security of knowing that their food is safe from harmful bacteria growth and other harmful micro-organisms.

A Superior Solution for Energy Savings

Traditional modulation technologies consume close to full load energy no matter what the required capacity. Copeland digital scroll compressor technology reduces power consumption linearly as it modulates capacity resulting in optimum system performance and control, as shown in Chart A.

Chart A
Temperature control comparison digital vs. standard technology



What's Inside

Heated and insulated receiver

- Allows operation in low ambient temperature situations

Larger condenser coils

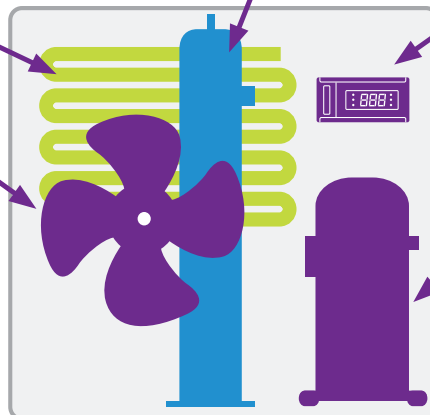
- Increase energy efficiency
- Corrosion-resistant copper tube and coated aluminum fins

Variable-speed fan motor control

- Contributes to quiet operation
- Provides efficient head pressure control

Digital technologies

- Variable-capacity modulation for precise temperature control
- Highly flexible load matching
- Linear power reduction relative to modulated capacity



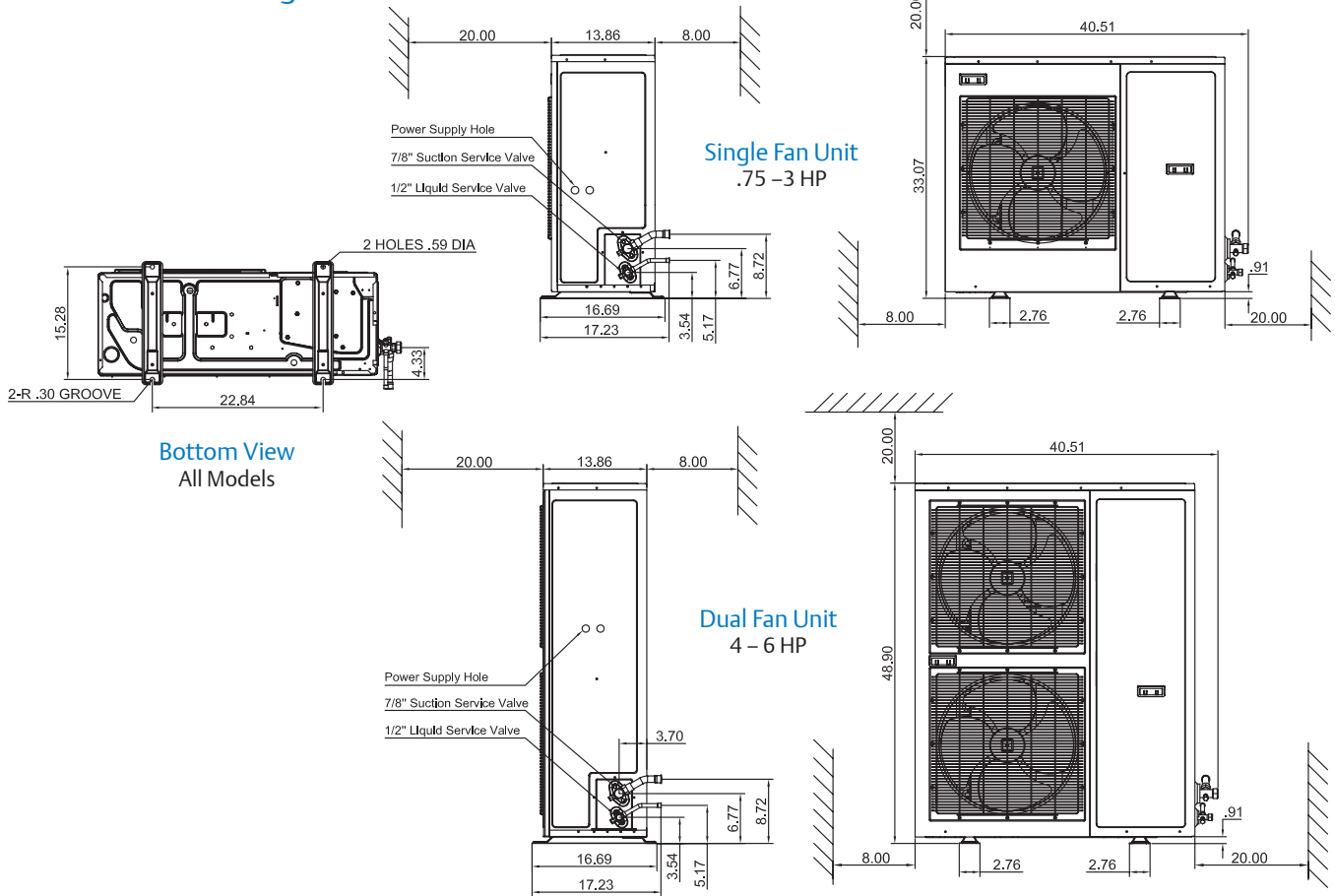
Electronic controls

- Offer greater reliability than traditional mechanical controls
- Avoid nuisance service calls
- Allow technicians to diagnose issues quickly and accurately

Copeland digital scroll compressor technology

- Based upon field-proven Copeland Scroll design
- Provides the most reliable, highest-efficiency compression available
- Available in 3 to 6 HP

Dimensional Drawings



Application Engineering Bulletins

available at Emerson.com/CopelandOPI

- 4-1273 Factors to Consider in Converting Compressor Rated Capacity to Actual Capacity
- 4-1327 Economized Vapor Injection (EVI) Compressors
- 11-1147 Suction Accumulators
- 11-1297 Liquid Line Filter Driers
- 17-1260 Compressor Overheating
- 17-1268 Compressor Ratio as it Affects Compressor Reliability

- 22-1182 Liquid Refrigerant Control in Refrigeration and Air Conditioning Systems

- 5-1412 Copeland Scroll Outdoor Refrigeration Unit – X-Line User Manual *(This bulletin is provided with each unit and is a source for additional product details.)*

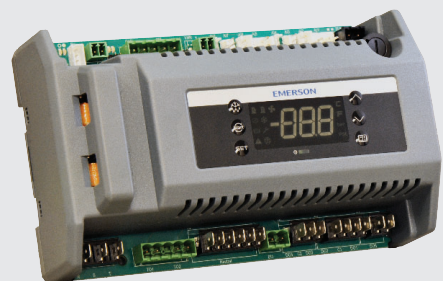
For more information visit
Climate.Emerson.com/CopelandOutdoorUnit

Diagnostic Features

On-board diagnostics provide connectivity to facility management control systems (including Emerson's Site Supervisor suite of control products) to alert owner/operators of faults and key performance indicators (KPIs).

- Over-current protection
- Incorrect phase detection
- High-pressure lockout

- Flood-back prediction
- Demand Cooling™
- Flooded start protection ("bump-start" logic)
- Discharge temperature protection
- Anti-short cycle time delay
- Digital fault code display/remote alarming
- Over/under voltage protection



Capacity and Efficiency

Medium Temp Capacity @ 95°F Ambient/25°F Evap, 65° RG; 5° subcooling																	
Model Number*	Comp.	R-134a		R-22		R-404A		R-407A		R-407C		R-448A		R-449A		R-507A	
		Cap.	AWEF	Cap.	AWEF	Cap.	AWEF	Cap.	AWEF	Cap.	AWEF	Cap.	AWEF	Cap.	AWEF	Cap.	AWEF
XFAM-008Z-CFV	ZB06KAE	4,830	-	-	-	8,030	7.6	7,220	7.6	6,770	-	7,390	7.6	7,400	7.6	8,170	-
XFAM-008Z-TFC	ZB06KAE	4,830	-	-	-	8,030	7.6	7,220	7.6	6,770	-	7,390	7.6	7,400	7.6	8,170	-
XFAM-010Z-CFV	ZB07KAE	5,870	-	-	-	9,690	7.6	8,780	7.6	8,080	-	8,780	7.6	8,790	7.6	9,870	-
XFAM-010Z-TFC	ZB07KAE	5,870	-	-	-	9,690	7.6	8,780	7.6	8,080	-	8,780	7.6	8,790	7.6	9,870	-
XFAM-012Z-CFV	ZB08KAE	6,880	-	-	-	11,000	7.6	10,200	7.6	9,370	-	10,300	7.6	10,300	7.6	11,200	-
XFAM-012Z-TFC	ZB08KAE	6,880	-	-	-	11,000	7.6	10,200	7.6	9,370	-	10,300	7.6	10,300	7.6	11,200	-
XFAM-015Z-CFV	ZS09KAE	7,810	-	12,400	-	12,400	7.6	11,400	7.6	10,900	-	10,700	7.6	10,700	7.6	12,400	-
XFAM-015Z-TFC	ZS09KAE	7,810	-	12,400	-	12,400	7.6	11,400	7.6	10,900	-	10,700	7.6	10,700	7.6	12,400	-
XFAM-017Z-CFV	ZS11KAE	9,270	-	14,100	-	14,400	7.6	13,500	7.6	12,900	-	12,800	7.6	12,800	7.6	14,400	-
XFAM-017Z-TFC	ZS11KAE	9,270	-	14,100	-	14,400	7.6	13,500	7.6	12,900	-	12,800	7.6	12,800	7.6	14,400	-
XFAM-020Z-CFV	ZS13KAE	10,500	-	16,000	-	17,000	7.6	15,300	7.6	14,600	-	14,500	7.6	14,500	7.6	17,000	-
XFAM-020Z-TFC	ZS13KAE	10,500	-	16,000	-	17,000	7.6	15,300	7.6	14,600	-	14,500	7.6	14,500	7.6	17,000	-
XFAM-022Z-CFV	ZS15KAE	12,600	-	18,700	-	20,300	7.6	18,300	7.6	17,500	-	17,300	7.6	17,300	7.6	20,300	-
XFAM-022Z-TFC	ZS15KAE	12,600	-	18,700	-	20,300	7.6	18,300	7.6	17,500	-	17,300	7.6	17,300	7.6	20,300	-
XFAM-025Z-CFV	ZS19KAE	14,100	-	21,000	-	21,700	7.6	20,400	7.6	19,600	-	19,200	7.6	19,200	7.6	21,700	-
XFAM-025Z-TFC	ZS19KAE	14,100	-	21,000	-	21,700	7.6	20,400	7.6	19,600	-	19,200	7.6	19,200	7.6	21,700	-
XFAM-030Z-CFV	ZS21KAE	18,700	-	27,600	-	28,200	7.6	26,300	7.6	25,800	-	26,500	7.6	26,500	7.6	28,200	-
XFAM-030Z-TFC	ZS21KAE	18,700	-	27,600	-	28,200	7.6	26,300	7.6	25,800	-	26,500	7.6	26,500	7.6	28,200	-
XFAM-033Z-CFV	ZS26KAE	20,600	-	30,300	-	31,700	7.6	29,300	7.6	28,400	-	28,100	7.6	28,100	7.6	31,700	-
XFAM-033Z-TFC	ZS26KAE	20,600	-	30,300	-	30,700	7.6	29,100	7.6	28,400	-	28,100	7.6	28,100	7.6	31,700	-
XFAM-037Z-CFV	ZS29KAE	22,800	-	33,500	-	35,300	7.6	31,800	7.6	31,400	-	32,500	7.6	32,500	7.6	35,300	-
XFAM-037Z-TFC	ZS29KAE	22,800	-	33,500	-	35,300	7.6	31,800	7.6	31,400	-	32,500	7.6	32,500	7.6	35,300	-
XFAM-045Z-CFV	ZS33KAE	25,600	-	37,900	-	39,100	7.6	36,800	7.6	35,400	-	36,800	7.6	36,800	7.6	40,500	-
XFAM-045Z-TFC	ZS33KAE	25,600	-	37,900	-	39,100	7.6	36,800	7.6	35,400	-	36,800	7.6	36,800	7.6	40,500	-
XFAM-045Z-TFD	ZS33KAE	25,500	-	-	-	39,300	7.6	36,600	7.6	35,200	-	37,400	7.6	37,400	7.6	41,400	-
XFAM-050Z-CFV	ZS38K4E	29,400	-	43,000	-	46,700	7.6	43,600	7.6	42,900	-	44,500	7.6	44,500	7.6	46,700	-
XFAM-050Z-TFC	ZS38K4E	29,400	-	43,000	-	46,700	7.6	43,600	7.6	42,900	-	44,500	7.6	44,500	7.6	46,700	-
XFAM-050Z-TFD	ZS38K4E	29,300	-	-	-	44,700	7.6	43,200	7.6	42,500	-	44,000	7.6	44,000	7.6	46,400	-
XFAM-060Z-TFC	ZS45K4E	35,000	-	51,500	-	53,000	7.6	51,500	7.6	51,000	-	52,500	7.6	52,500	7.6	53,000	-
XFAM-060Z-TFD	ZS45K4E	34,600	-	-	-	52,000	7.6	51,000	7.6	49,900	-	50,000	7.6	51,000	7.6	54,000	-
Digital																	
XFAM-030D-CFV	ZBD21KCE	-	-	-	-	27,000	7.6	24,000	7.6	-	-	24,600	7.6	24,600	7.6	27,300	-
XFAM-030D-TFC	ZBD21KCE	-	-	-	-	27,000	7.6	24,500	7.6	-	-	25,100	7.6	25,100	7.6	27,900	-
XFAM-040D-TFC	ZBD30KCE	-	-	-	-	36,900	7.6	35,400	7.6	32,700	-	34,000	7.6	34,000	7.6	38,200	-
XFAM-050D-CFV	ZBD38KCE	-	-	-	-	45,100	7.6	42,300	7.6	-	-	42,700	7.6	42,700	7.6	46,700	-
XFAM-050D-TFC	ZBD38KCE	-	-	-	-	45,300	7.6	44,400	7.6	-	-	42,500	7.6	42,600	7.6	47,000	-
XFAM-060D-TFC	ZBD45KCE	-	-	-	-	52,000	7.6	49,100	7.6	47,400	-	49,400	7.6	49,400	7.6	54,000	-

*Data for XFAM models also applies to equivalent XFAP models.

This refrigeration system is designed and certified for use in walk-in cooler applications. See Emerson.com/OPI for complete specifications.

Low Temp Capacity @ 95°F Ambient/-10°F Evap											
Model Number*	Compressor	R-404A		R-407A		R-407C		R-448A / 449A		507A	
		Cap.	AWEF	Cap.	AWEF	Cap.	AWEF	Cap.	AWEF	Cap.	AWEF
XFAL-008Z-CFV	ZF03KAE	4230	2.92	3590	2.89	3360	-	3740	2.9	4230	-
XFAL-008Z-TFC	ZF03KAE	4230	2.92	3580	2.89	3360	-	3740	2.9	4230	-
XFAL-009Z-CFV	ZF04KAE	5770	2.98	4890	2.94	4540	-	5080	2.95	5770	-
XFAL-009Z-TFC	ZF04KAE	5770	2.98	4890	2.94	4540	-	5080	2.95	5770	-
XFAL-010Z-CFV	ZF05KAE	6960	3.04	5780	2.98	5390	-	6020	2.99	6960	-
XFAL-010Z-TFC	ZF05KAE	6960	3.04	5780	2.98	5390	-	6020	2.99	6960	-
XFAL-012Z-CFV	ZF07KAE	10700	3.15	9020	3.13	8210	-	9070	3.14	10700	-
XFAL-012Z-TFC	ZF07KAE	10700	3.15	9020	3.13	8210	-	9070	3.14	10700	-
XFAL-020Z-CFV	ZX106KCE	12910	3.15	9230	3.15	9110	-	11290	3.15	12910	-
XFAL-020Z-TFC	ZX106KCE	12910	3.15	9230	3.15	9110	-	11290	3.15	12910	-
XFAL-030Z-TFC	ZX109KCE	16800	3.15	13450	3.15	11050	-	13930	3.15	16800	-
XFAL-035Z-CFV	ZX111KCE	18900	3.15	15120	3.15	14560	-	17200	3.15	18900	-
XFAL-035Z-TFC	ZX111KCE	18900	3.15	15120	3.15	14560	-	17200	3.15	18900	-
XFAL-040Z-CFV	ZX114KCE	24210	3.15	21080	3.15	19760	-	22870	3.15	24210	-
XFAL-040Z-TFC	ZX114KCE	24210	3.15	21080	3.15	19760	-	22870	3.15	24210	-
XFAL-050Z-TFC	ZX115KCE	26620	3.15	22170	3.15	20530	-	25660	3.15	26620	-
XFAL-051Z-CFV	ZX116KCE	26620	3.15	22170	3.15	20530	-	25660	3.15	26620	-
XFAL-060Z-TFC	ZX118KCE	33720	3.15	29270	3.15	25380	-	27680	3.15	33720	-

*Data for units containing ZF compressors are rated at 40 degree return gas; ZI compressors are rated at 65 degree return gas

This refrigeration system is designed and certified for use in walk-in freezer applications. See Emerson.com/OPI for complete specifications.

Condensing unit performance, electrical, and mechanical information can be accessed online at
Emerson.com/CopelandOPI via online product information (OPI).

About Emerson

Emerson (NYSE: EMR), headquartered in St. Louis, Missouri (USA), is a global technology and engineering company providing innovative solutions for customers in industrial, commercial, and residential markets. Our Emerson Automation Solutions business helps process, hybrid, and discrete manufacturers maximize production, protect personnel and the environment while optimizing their energy and operating costs. Our Emerson Commercial and Residential Solutions business helps ensure human comfort and health, protect food quality and safety, advance energy efficiency, and create sustainable infrastructure. For more information visit **Emerson.com**.

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