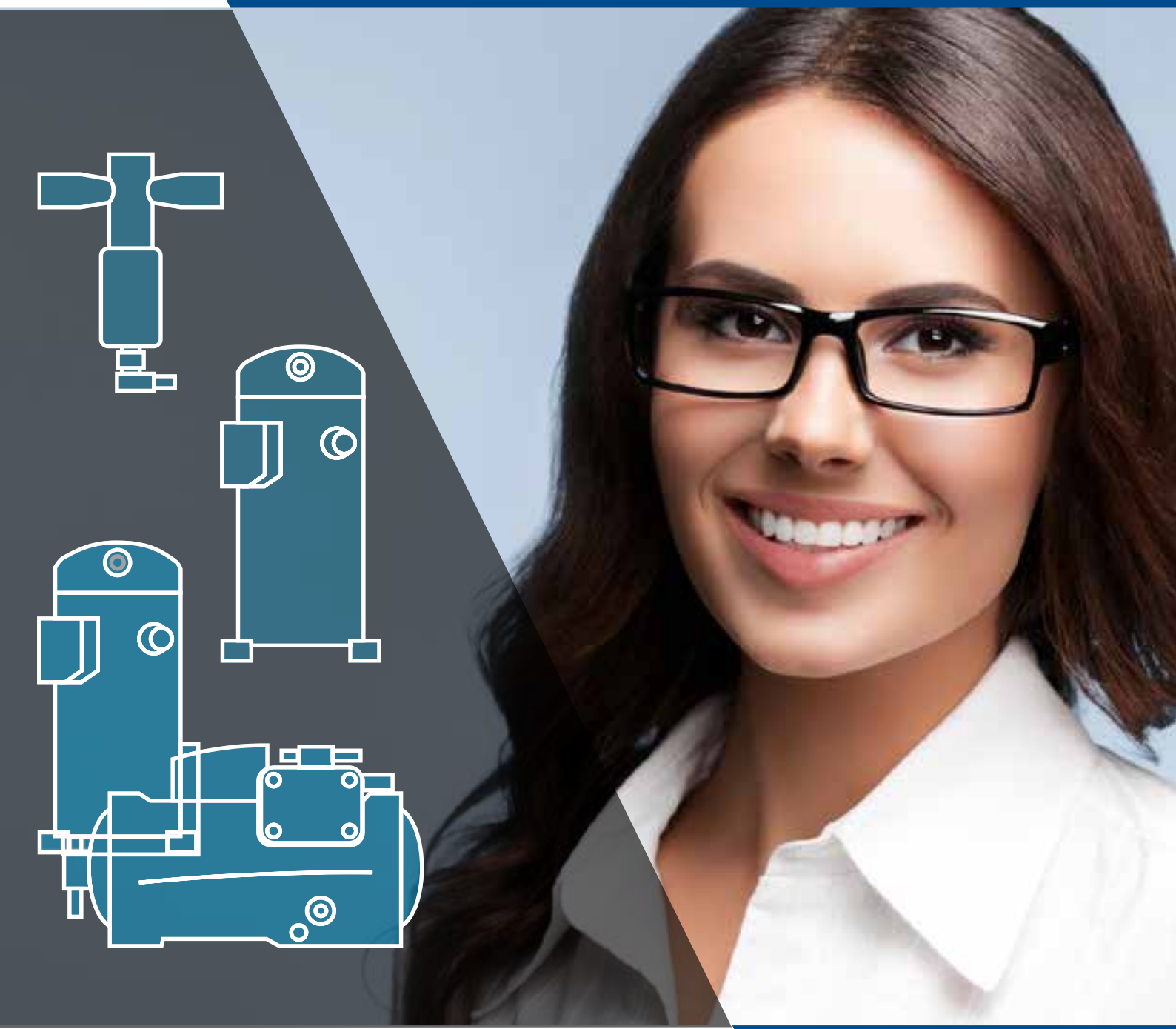
General Product Guide 2018

For refrigeration, air conditioning and heat pumps



EMERSON™

Note

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Pioneering Technologies for Best-in-Class Products

Emerson is a global technology and engineering company providing innovative solutions for customers in industrial, commercial, and residential markets. Emerson Commercial and Residential Solutions, one of Emerson's business platforms, provides advanced solutions for heating, ventilation, air conditioning and refrigeration, while ensuring human comfort and health, protecting food quality and safety, advancing energy efficiency, and creating sustainable infrastructure.

For more than 80 years we have been introducing innovative technology to the market, from the first semi-hermetic and hermetic compressors in the 1940s and 1950s, over the high efficiency Discus, air conditioning and heating scroll compressors in the 1980s and 1990s, to the new Stream semi-hermetic compressors, the digital scroll compressor and the variable speed scroll with drive technology of today.

Based on this, we have developed an unequalled range of solutions for the refrigeration and air conditioning markets. In recent years, we have become a major solutions provider to the heat pump industry. Our range of Copeland™ brand compressors is engineered for higher efficiency, lower sound levels, superior durability and unsurpassed reliability. They allow the integration of new and environmentally-friendly refrigerants into your systems, while seamlessly improving efficiency and performance levels. Alco Controls™ is the leading provider of precision mechanical controls for the refrigeration and air conditioning markets, and together with the range of Emerson electronic controls we continue to pioneer the control of refrigerant flow with innovative design, keeping system performance optimization central to our product development.

More than 1,250 employees develop and deliver Emerson's high-class technology and manufacture our products in four European plants: Belgium, Northern Ireland and the Czech Republic (two plants). R&D centers in Welkenraedt (Belgium) and Mikulov (Czech Republic) enable new developments not only to meet our customers' requirements, but also to redefine the limits of technology.

With sales offices in Germany, France, Spain, Italy, the United Kingdom, Scandinavia, Benelux, Poland, as well as in Eastern Europe and Russia, Emerson supports its European customers in a lean and efficient manner, supporting the industry with advanced technology, technical support and training services.

Our 2018 product catalogue gives a comprehensive overview of Emerson, Copeland brand and Alco Controls products. Take a look and discover our broad product ranges including these innovations:

- Next generation of 20 and 25hp ZP*KZE and 30 and 40 hp ZP*KPE R410A compact scrolls with optimized seasonal performance, for efficient and reliable large chillers
- New commercial variable speed models with their matched inverter drive for superior performance when designing reversible chillers, heat pumps, precision cooling systems or rooftops
- New variable speed scrolls and their matched drives for residential applications
- The extended range of 4-cylinder Stream compressors for R744 transcritical and subcritical applications
- The CS3 series of safety pressure switches with fixed switch point settings for CO_2 applications.
- The EXD-SH1/2 superheat controller controller, specifically designed for Emerson EX and CX electrical control valves in high-pressure CO_2 / high MOPD applications.

More in-depth technical data is available through our user-friendly Copeland and Alco selection software tools accessible via our web page www.emersonclimate.eu. For individual consultancy and service please contact your European sales office.

Copeland Scroll™ Compressors

With the launch of scroll technology in the mid 1980s, Emerson revolutionized the market setting new standards in the air conditioning industry. Since then, Copeland Scroll has become the reference not only in air conditioning but in refrigeration and heating applications too. Thousands of customers trust our proprietary technology: today, over 100 million Copeland Scrolls are installed worldwide, more than any other scroll compressor brand. Copeland Scroll compressors range from 1.5 to 60 hp and are designed to work with all the main refrigerants, including CO_2. With compressors built in both vertical and horizontal versions and capable of digital modulation, Emerson has expanded the capability of scroll technology to new heights.

Additional innovations such as Enhanced Vapor Injection, the new Variable Speed scroll with drive technology for heat pump compressors or the design of the Emerson sound shell give manufacturers, installers and end users the right tools to reduce the carbon footprint of their installations, optimize system design, efficiency, sound and reliability, while ensuring long equipment lifetime and minimizing capital and operating costs.

Applications for scroll compressors continue to grow thanks to innovation and adaptation. Industry as a whole has embraced its responsibility to put the environment first in its list of priorities, and this has led to strategic imperatives such as the need to introduce larger capacity scrolls with improved seasonal performance, modulated systems and product designed for use with “green” refrigerants such as CO_2. Emerson is staying abreast of these challenges by successfully further developing its technologies in each of these areas.

Comfort Applications

Comfort Applications

For decades, Emerson has driven advancement in the air conditioning and heat pump industry, leading the field with engineering products and systems that maximize the comfort of office and living spaces – while minimizing costs and inefficiencies.

Copeland Scroll™ compressors are designed to deliver the highest performance in residential and commercial applications. Thanks to the widest selection of scroll compressors optimized for air conditioning and heating, it has never been easier to match all desired applications with the highest efficiency and reliability. The capacity of our single scrolls ranges from 1.5 to 60hp and they can reach an overall capacity of 180 hp per circuit when combined in even and uneven tandems and trios. Whether your need is a cooling optimized, heating optimized or reversible unit, you will find the most advanced technology within our range.

One of the most important recent innovations for comfort applications has been the introduction of Variable Speed technology. It was first introduced with the ZHW compressors (featuring Enhanced Vapor Injection), as a solution for residential heat pump applications. Now we also offer the XHV range for cost-competitive heating systems. In addition to the ZHW and XHV ranges for residential applications, a wide range of models for reversible and low temperature commercial applications are available, from 18 to 96 cm^3: XPV and ZPV Variable Speed scroll compressors allow system manufacturers and building owners to achieve superior performance when designing reversible chillers, heat pumps, precision cooling systems or rooftops.

Emerson is introducing the next generation of 20 and 25hp ZP*KZE and 30 and 40 hp ZP*KPE compact scrolls for R410A with advanced monitoring features and optimized seasonal performance.

ZR Copeland Scroll™ Compressor Range for R407C and R134a

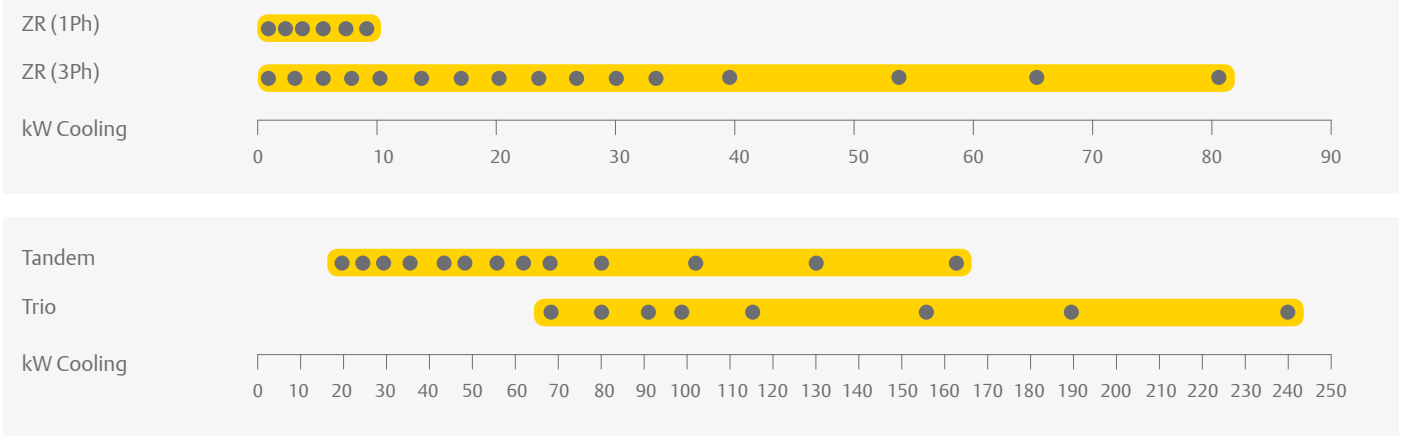
ZR Copeland Scroll compressors, for R407C and R134a, for comfort and process/precision cooling applications.

Applied in the air conditioning and comfort industry for water chillers, rooftops and close control unit applications, scroll compressors are now the most used compression technology replacing reciprocating and screw compressors due to its undeniable superiority. Several, fully Copeland™ qualified, multiple compressor assemblies (tandem and trio) are available to allow the use of Copeland Scroll compressors into large capacity systems (ex. up to 500kW air cooled chillers) able to deliver optimal comfort, low operating cost with higher seasonal efficiency (ESEER).

The range of products goes from the ZR18 (1.5hp) to the ZR380 (30hp)

ZR Scroll Compressor

ZR Scroll Compressor Line-up R407C



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

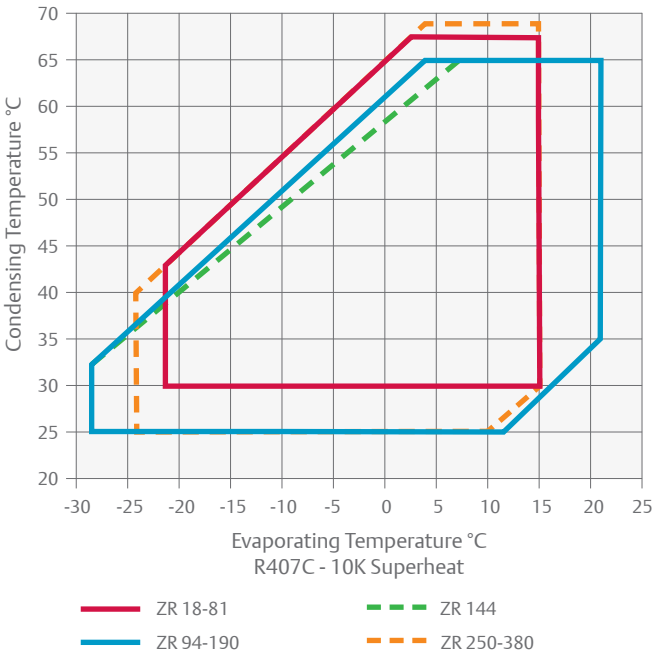
Features and Benefits

- Copeland Scroll axial and radial compliance for superior reliability and efficiency
- Wide scroll line-up for R407C and R134a
- Low TEWI (Total Equivalent Warming Impact)
- Low sound and vibration level
- Low oil circulation rate
- Copeland qualified tandem and trio configurations for superior seasonal efficiency (ESEER)

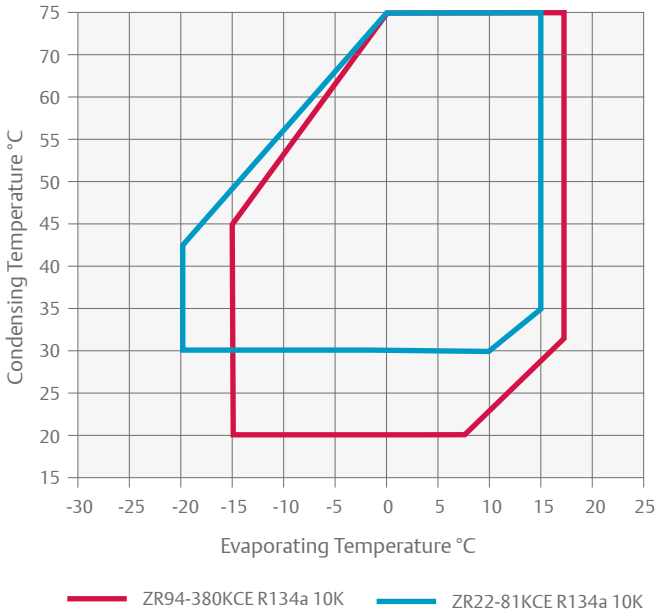
Maximum Allowable Pressure (PS)

- ZR18 to ZR81:
  Low side PS 20 bar(g) / High Side PS 29.5 bar(g)
- ZR94 to ZR380:
  Low side PS 20 bar(g) / High Side PS 32 bar(g)

Operating Envelope R407C



Operating Envelope R134a



Technical Overview

Models	Nominal hp	R407C Capacity (kW)	COP	Displacement (m^3/h)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @1 m - dB(A) ***
										1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
ZR18K5E	1.5	3.7	3.0	4.4	3/4	1/2	0.74	242/242/383	20	PFJ		10		35		54
ZR22K3E	2.0	4.5	2.9	5.3	3/4	1/2	1.00	242/242/363	22	PFJ	TFD	11	4	47	24	54
ZR28K3E	2.5	5.9	2.9	6.8	3/4	1/2	1.00	242/242/363	25	PFJ	TFD	15	5	61	32	54
ZR34K3E	2.8	7.0	3.0	8.0	3/4	1/2	1.10	242/242/386	26	PFJ	TFD	17	6	76	40	57
ZR40K3E	3.5	8.2	3.0	9.4	3/4	1/2	1.10	242/242/400	27	PFJ	TFD	23	7	100	v 46	57
ZR48K3E	4.0	10.1	3.1	11.4	7/8	1/2	1.36v	242/242/417	31	PFJ	TFD	23	10	114	50	57
ZR61KCE	5.0	12.5	3.1	14.4	7/8	1/2	1.66	241/247/438	43	PFJ	TFD	30	11	150	65	60
ZR61KSE	5.0	12.8	3.2	14.4	7/8	1/2	1.42	242/242/430	30	PFZ	TFM		11		59	61
ZR72KCE	6.0	14.8	3.2	17.1	7/8	1/2	1.77	242/242/438	39		TFD		13		74	61
ZR81KCE	6.8	16.7	3.2	18.7	7/8	3/4	1.77	242/242/443	39		TFD		15		101	61
ZR94KCE	8.0	20.6	3.3	22.1	1 1/8	7/8	2.65	264/285/476	57		TFD		16		t95	63
ZR108KCE	9.0	23.0	3.4	24.9	1 3/8	7/8	3.38	264/285/533	60		TFD		17		111	63
ZR125KCE	10.0	27.0	3.4	29.1	1 3/8	7/8	3.38	264/285/533	61		TFD		19		118	63
ZR144KCE	12.0	30.9	3.4	33.2	1 3/8	7/8	3.38	264/285/533	61		TFD		22		118	64
ZR160KCE	13.0	33.4	3.2	36.4	1 3/8	7/8	3.38	264/285/552	65		TFD		28		140	67
ZR190KCE	15.0	39.3	3.2	43.3	1 3/8	7/8	3.38	264/285/552	66		TFD		34		174	69
ZR250KCE	20.0	52.2	3.2	56.6	1 5/8	1 3/8	4.70	432/376/717	140		TWD		41		225	72
ZR310KCE	25.0	65.0	3.2	71.4	1 5/8	1 3/8	6.80	448/392/715	160		TWD		52		272	74
ZR380KCE	30.0	81.7	3.4	87.4	1 5/8	1 3/8	6.30	447/427/715	177		TWD		62		310	76

Conditions EN12900 : Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K
* 1 Ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

Condensing Temperature +40°C															
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-15	-10	-5	0	+5	+10	+15	Model	-15	-10	-5	0	+5	+10	+15
ZR22K3E	1.4	1.8	2.3	2.9	3.6	4.4	5.3	ZR22K3E	0.9	0.9	0.9	0.9	0.9	0.8	0.8
ZR28K3E	1.8	2.3	3.0	3.8	4.7	5.7	6.9	ZR28K3E	1.1	1.2	1.1	1.1	1.1	1.1	1.1
ZR34K3E	2.2	2.9	3.6	4.5	5.5	6.7	8.1	ZR34K3E	1.4	1.4	1.4	1.3	1.3	1.3	1.3
ZR40K3E	2.5	3.3	4.2	5.2	6.4	7.8	9.3	ZR40K3E	1.6	1.5	1.5	1.5	1.5	1.5	1.5
ZR48K3E	3.1	4.0	5.1	6.3	7.8	9.5	11.5	ZR48K3E	1.8	1.8	1.8	1.8	1.8	1.8	1.8
ZR61KCE	4.0	5.2	6.5	8.1	9.9	12.1	14.6	ZR61KCE	2.1	2.1	2.2	2.2	2.2	2.2	2.3
ZR72KCE	4.8	6.2	7.8	9.7	11.9	14.5	17.4	ZR72KCE	2.6	2.6	2.6	2.6	2.6	2.6	2.7
ZR81KCE	5.5	7.0	8.8	10.8	13.2	16.0	19.2	ZR81KCE	2.8	2.9	2.9	2.9	2.9	3.0	3.0
ZR94KCE	5.3	7.5	10.5	13.0	15.9	19.2	23.0	ZR94KCE	3.4	3.4	3.4	3.4	3.4	3.4	3.5
ZR108KCE	7.3	9.3	11.7	14.3	17.5	21.3	25.7	ZR108KCE	3.7	3.8	3.8	3.8	3.8	3.9	3.9
ZR125KCE	8.3	10.7	13.5	16.7	20.5	24.9	30.1	ZR125KCE	4.3	4.4	4.4	4.4	4.4	4.5	4.5
ZR144KCE	10.4	13.3	16.5	20.0	23.7	27.8	32.4	ZR144KCE	4.7	4.9	4.9	5.0	5.0	5.2	5.5
ZR160KCE	10.1	13.3	16.9	21.0	25.7	31.2	37.5	ZR160KCE	5.5	5.5	5.5	5.6	5.7	5.8	5.9
ZR190KCE	12.3	16.0	20.2	25.0	30.7	37.2	44.7	ZR190KCE	6.8	6.9	6.9	7.0	7.0	7.1	7.3
ZR250KCE	16.1	20.5	25.6	31.8	39.0	47.4	57.2	ZR250KCE	8.6	8.7	8.9	9.0	9.1	9.2	9.4
ZR310KCE	20.0	25.6	32.1	39.7	48.6	59.0	71.1	ZR310KCE	10.6	10.8	10.9	10.0	11.2	11.5	11.7
ZR380KCE	25.5	32.2	40.1	49.4	60.3	73.0	87.8	ZR380KCE	12.6	12.9	13.1	13.4	13.6	14.0	14.4

Conditions: Suction Superheat 10K / Subcooling 0K

Condensing Temperature +40°C															
R407C	Cooling Capacity (kW)							R407C	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-15	-10	-5	0	+5	+10	+15	Model	-15	-10	-5	0	+5	+10	+15
ZR18K5E	1.8	2.3	2.8	3.5	4.2	5.1	6.1	ZR18K5E	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ZR22K3E	2.1	2.7	3.4	4.2	5.2	6.3	7.5	ZR22K3E	1.2	1.2	1.2	1.2	1.2	1.2	1.1
ZR28K3E	2.7	3.5	4.4	5.5	6.7	8.1	9.6	ZR28K3E	1.6	1.6	1.6	1.5	1.5	1.5	1.5
ZR34K3E	3.2	4.1	5.2	6.5	7.9	9.6	11.5	ZR34K3E	1.8	1.8	1.8	1.8	1.8	1.8	1.7
ZR40K3E	3.8	4.9	6.1	7.6	9.4	11.3	13.5	ZR40K3E	2.2	2.2	2.2	2.1	2.1	2.1	2.0
ZR48K3E	4.8	6.1	7.6	9.4	11.5	13.8	16.6	ZR48K3E	2.6	2.6	2.6	2.6	2.6	2.5	2.5
ZR61KSE	6.5	8.1	9.9	11.9	14.4	17.2	20.6	ZR61KsE	3.0	3.0	3.1	3.2	3.2	3.1	2.9
ZR72KCE	7.0	9.0	11.3	13.9	16.9	20.3	24.2	ZR72KCE	3.6	3.7	3.7	3.7	3.7	3.7	3.8
ZR81KCE	7.8	10.1	12.7	15.6	19.1	23.0	27.7	ZR81KCE	4.1	4.1	4.1	4.1	4.2	4.2	4.3
ZR94KCE	9.8	12.6	15.8	19.3	23.3	27.9	33.1	ZR94KCE	4.9	5.0	5.0	5.0	5.0	4.9	4.9
ZR108KCE	11.3	14.2	17.6	21.5	26.2	31.5	37.6	ZR108KCE	5.4	5.4	5.5	5.5	5.5	5.6	5.7
ZR125KCE	13.1	16.6	20.5	25.2	30.5	36.7	43.7	ZR125KCE	6.3	6.3	6.4	6.4	6.4	6.5	6.6
ZR144KCE	14.5	18.7	23.4	28.9	35.0	42.0	50.1	ZR144KCE	7.1	7.1	7.2	7.2	7.3	7.3	7.4
ZR160KCE	14.9	19.5	24.9	31.3	38.7	47.3	57.1	ZR160KCE	8.0	8.1	8.2	8.2	8.3	8.4	8.5
ZR190KCE	18.5	23.8	29.8	36.7	44.7	53.8	64.2	ZR190KCE	9.7	9.7	9.8	9.8	9.9	10.1	10.4
ZR250KCE	25.7	32.2	39.9	48.9	59.3	71.3	85.0	ZR250KCE	12.5	12.6	12.7	12.9	13.0	13.0	13.0
ZR310KCE	31.2	39.7	49.7	61.4	75.0	90.7	108.5	ZR310KCE	15.6	15.7	15.9	16.1	16.3	16.6	17.0
ZR380KCE	38.1	49.1	61.7	76.2	93.1	113.0	136.5	ZR380KCE	18.6	18.8	19.0	19.2	19.4	19.8	20.3

Conditions: Suction Superheat 10K / Subcooling 0K

Tandem Model Overview

Model	Nominal hp	Cooling Capacity R407C (kW)	Even Tandem	Uneven Tandem
Tandem ZRT - Tandem Uneven ZRU				
ZRT 96 K3E	2 x 4	20	•	
ZRT 122 KSE	2 x 5	25	•	
ZRT 144 KCE	2 x 6	30	•	
ZRT 162 KCE	2 x 6.5	33	•	
ZRT 188 KCE	2 x 8	41	•	
ZRT 216 KCE	2 x 9	46	•	
ZRT 250 KCE	2 x 10	52	•	
ZRT 288 KCE	2 x 12	59	•	
ZRU 315 KCE*	10 + 15	66		•
ZRT 320 KCE	2 x 13	67	•	
ZRU 350 KCE*	13 + 15	73		•
ZRT 380 KCE	2 x 15	78	•	
ZRU 440 KCE*	15 + 20	92		•
ZRT 500 KCE*	2 x 20	104	•	
ZRU 500 KCE*	15 + 25	104		•
ZRU 560 KCE*	20 + 25	117		•
ZRT 620 KCE*	2 x 25	130	•	
ZRU 690 KCE*	25 + 30	147		•
ZRT 760 KCE*	2 x 30	163	•	

Conditions EN 12900: Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K

* Tandem Assemblies by System Manufacturers. Emerson Can Provide Full Technical Support.

ZP Copeland Scroll™ Compressor Range for R410A

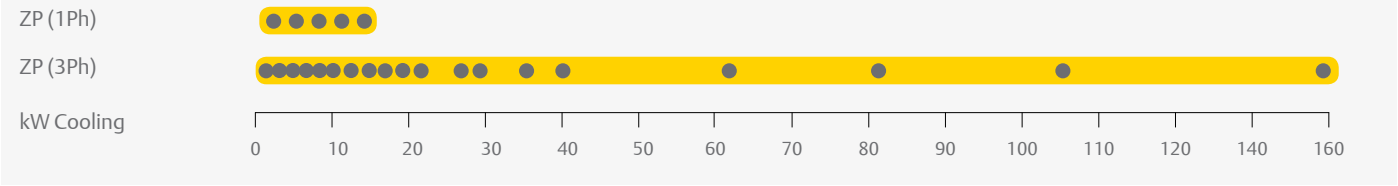
ZP Copeland Scroll compressors, for R410A, for comfort and process precision cooling applications. Emerson has been the pioneer in launching the first complete line-up of R410A commercial scroll compressors.

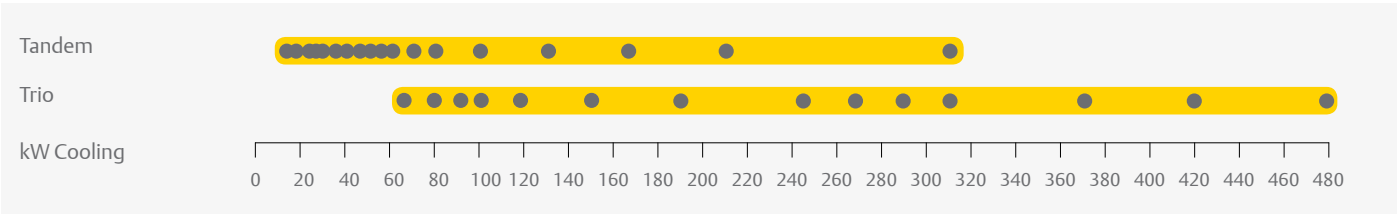
ZP Copeland Scroll compressors are perfectly suitable for air-cooled chiller systems up to 900kW (1100 kW if water-cooled) featuring high comfort and superior seasonal efficiency (ESEER). Whether used in stand-alone, tandem or trio configurations, the broad ZP Copeland Scroll line-up meets today's market requirements with unmatched flexibility, efficiency and proven reliability.

ZP104, ZP122 and ZP143KCE compressors for light commercial systems have a reduced footprint and weight for more compact systems. Their high efficiency helps to reduce operating costs.

ZP Scroll Compressor

ZP Scroll Compressor Line-up





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

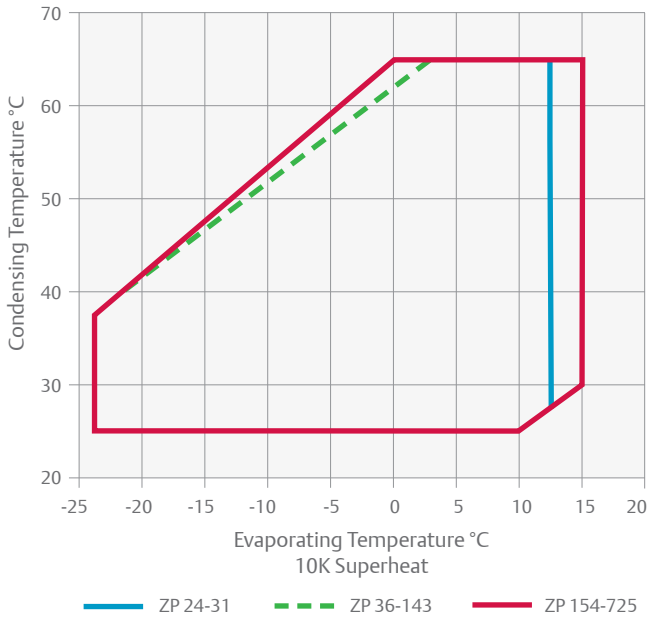
Features and Benefits

- Copeland qualified tandem and trio (now also uneven) configurations for superior seasonal efficiency (ESEER and EN14825: SEER and SCOP)
- Copeland Scroll axial and radial compliance for superior reliability and efficiency
- Extended 5K operating envelope suitable for heat pump applications
- Low TEWI (Total equivalent warming impact)
- Wide scroll line-up for R410A
- Low sound and vibration level
- Low oil circulation rate

Maximum Allowable Pressure (PS)

- ZP24 to ZP91:
  Low side PS 28 bar(g) / High side PS 43 bar(g)
- ZP104 to ZP725:
  Low side PS 29.5 bar(g) / High side PS 45 bar(g)

Operating Envelope R410A



Technical Overview

Models	Nominal hp	Capacity (kW)	COP	Displacement (m^3/h)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/ width/ height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @1 m - dB(A) ***
										1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
ZP24K5E	1.9	5.1	2.8	3.9	3/4	1/2	0.74	242/242/387	22	PFJ	TFD	13	5	60	28	55
ZP29K5E	2.2	6.1	2.9	4.8	3/4	1/2	0.74	242/242/387	23	PFJ	TFD	16	6	67	38	55
ZP31K5E	3.0	6.5	2.8	5.0	3/4	1/2	0.74	242/242/388	23	PFJ	TFD	17	6	67	38	55
ZP36K5E	2.6	7.9	3.0	6.0	7/8	1/2	1.25	242/242/418	30	PFJ	TFD	22	7	98	46	57
ZP42K5E	3.4	9.0	2.9	6.9	7/8	1/2	1.25	242/242/418	31	PFJ	TFD	26	8	128	43	57
ZP54K5E	4.6	11.6	3.0	8.9	7/8	1/2	1.24	242/242/418	34	PFJ	TFD	31	10	115	51	59
ZP61K5E	5.0	13.3	3.0	10.0	7/8	1/2	1.24	246/246/443	35		TFD		12		64	60
ZP72KCE	6.0	15.3	3.0	11.7	7/8	1/2	1.77	246/246/443	40		TFD		15		75	64
ZP83KCE	6.5	17.7	3.1	13.4	7/8	1/2	1.77	246/246/443	40		TFD		15		101	61
ZP91KCE	7.5	19.3	3.1	14.7	7/8	3/4	1.77	246/248/446	41		TFD		16		101	61
ZP104KCE	9.0	22.7	3.2	16.8	1 1/8	7/8	2.51	264/284/476	48		TFD		18		128	63
ZP122KCE	10.0	26.5	3.2	19.5	1 1/8	7/8	2.51	293/258/559	49		TFD		22		139	63
ZP143KCE	12.0	31.6	3.2	23.1	1 3/8	7/8	2.75	297/262/559	49		TFD		25		145	64
ZP154KCE	13.0	33.5	3.2	24.8	1 3/8	7/8	3.38	329/298/552	65		TFD		31		140	65
ZP182KCE	15.0	39.6	3.2	29.1	1 3/8	7/8	3.38	264/284/552	66		TFD		34		174	66
ZP385KCE	30.0	82.4	3.2	60.8	1 5/8	1 3/8	6.30	448/392/715	178		TWD		65		310	74
ZP485KCE	40.0	105.0	3.2	77.3	1 5/8	1 3/8	6.30	391/447/746	190		TWD		82		408	78
ZP725KCE	60.0	160.0	3.2	115	2 1/8	1 3/8	6.30	459/483/863	250		FED		124		567	78

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

* 1 Ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition
Preliminary Data

Capacity Data

Condensing Temperature +40°C														
R410A	Cooling Capacity (kW)							R410A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-15	-10	-5	0	+5	+10	+15	Model	-15	-10	-5	0	+5	+10	+15
ZP24K5E	2.2	3.0	3.9	4.9	5.9	7.1		ZP24K5E	1.5	1.5	1.4	1.4	1.4	1.3	
ZP29K5E	2.9	3.9	4.9	6.0	7.3	8.6		ZP29K5E	1.8	1.8	1.7	1.7	1.7	1.6	
ZP31K5E	3.2	4.1	5.2	6.3	7.6	9.1		ZP31K5E	1.9	1.9	1.9	1.8	1.8	1.8	
ZP36K5E	4.1	5.1	6.3	7.7	9.2	11.0		ZP36K5E	2.2	2.1	2.1	2.1	2.1	2.1	
ZP42K5E	4.4	5.7	7.1	8.7	10.5	12.5		ZP42K5E	2.4	2.4	2.4	2.4	2.3	2.3	
ZP54K5E	6.0	7.5	9.3	11.3	13.5	16.0		ZP54K5E	3.1	3.1	3.0	3.0	2.9	2.9	
ZP61K5E	6.9	8.6	10.6	12.9	15.5	18.4	21.4	ZP61K5E	3.5	3.5	3.4	3.4	3.4	3.4	3.4
ZP72KCE	8.2	10.1	12.3	14.8	17.7	20.9		ZP72KCE	4.0	4.0	4.0	4.0	4.1	4.1	
ZP83KCE	9.4	11.6	14.2	17.1	20.4	24.2		ZP83KCE	4.5	4.5	4.5	4.6	4.6	4.7	
ZP91KCE	10.2	12.6	15.4	18.6	22.2	26.3	31.0	ZP91KCE	4.9	4.9	4.9	5.0	5.0	5.0	5.3
ZP104KCE	12.0	14.9	18.1	21.9	26.1	31.0	36.5	ZP104KCE	5.7	5.7	5.7	5.7	5.8	5.8	5.9
ZP122KCE	14.1	17.4	21.2	25.5	30.4	36.1	42.4	ZP122KCE	6.6	6.6	6.7	6.7	6.7	6.8	6.9
ZP143KCE	15.9	20.3	25.2	30.5	36.1	41.9	47.8	ZP143KCE	7.5	7.7	7.8	7.9	8.1	8.4	8.8
ZP154KCE	18.2	22.3	27.1	32.6	38.9	46.1	54.3	ZP154KCE	8.1	8.2	8.2	8.3	8.3	8.5	8.8
ZP182KCE	21.4	26.3	32.0	38.4	45.6	53.9	63.3	ZP182KCE	9.5	9.7	9.9	10.0	10.1	10.1	10.0
ZP385KCE	43.7	53.9	65.8	79.5	95.2	113.0	133.5	ZP385KCE	20.3	20.4	20.5	20.7	20.9	21.3	21.7
ZP485KCE	57.5	70.0	84.7	101.6	121.0	143.0	168.0	ZP485KCE	24.9	25.3	25.8	26.3	27.0	27.8	28.8
ZP725KCE	88.0	107.0	129.0	154.0	182.0	215.0	252.0	ZP725KCE	39.0	39.6	40.0	40.0	40.7	41.3	41.1

Conditions: Suction Superheat 10K / Subcooling 0K
Preliminary Data

Tandem Model Overview

Model	Nominal hp	Cooling Capacity (kW)	Even Tandem	Uneven Tandem
Tandem ZPT - Tandem Uneven ZPU				
ZPT 72 K5E*	2 x 3	16	•	
ZPT 84 K5E*	2 x 3.5	18	•	
ZPT 108 K5E*	2 x 4	23	•	
ZPT 122 K5E*	2 x 5	26	•	
ZPT 144 KCE*	2 x 6	31	•	
ZPT 166 KCE*	2 x 6.5	35	•	
ZPT 182 KCE*	2 x 8	39	•	
ZPT 208 KCE*	2 x 9	45	•	
ZPT 244 KCE*	2 x 10	53	•	
ZPT 286KCE	2 x 12	63	•	
ZPT 308KCE*	2 x 13	67	•	
ZPU 336 KCE*	13 + 15	73		•
ZPT 364 KCE*	2 x 15	79	•	
ZPU 417 KCE*	15 + 20	90		•
ZPT 470 KCE*	2 x 20	101	•	
ZPU 477 KCE*	15 + 25	103		•
ZPU 530 KCE*	20 + 25	114		•
ZPT 590 KCE*	2 x 25	127	•	
ZPU 680 KCE*	25 + 30	146		•
ZPT 770 KCE*	2 x 30	165	•	
ZPU 870 KCE*	30 + 40	187		•
ZPT 970 KCE*	2 x 40	209	•	
ZPU 111 MCE*	30 + 60	240		•
ZPU 121 MCE*	40 + 60	262		•
ZPT 145 MCE*	60 + 60	317	•	

System using ZP235 or ZP295 (20 or 25 hp) shall use the new ZP232KZE and ZP292KZE (refer to next chapter)
Conditions EN 12900: Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K
* Tandem assemblies by system manufacturers. Emerson can provide full technical support.

ZP Copeland™ Scroll Air Conditioning Compressor Range, Optimized for Seasonal Performance

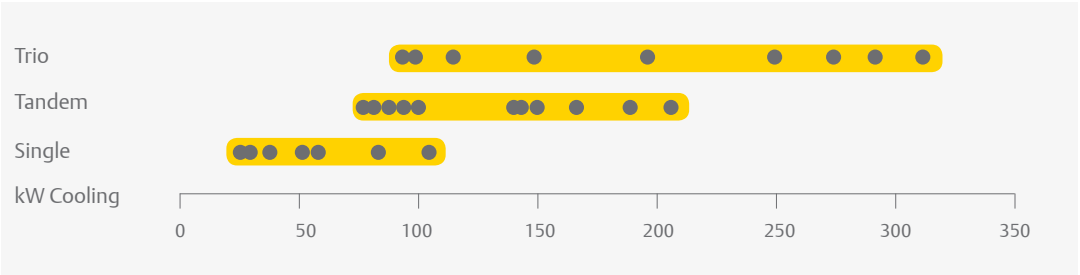
The new ZP*KZE and ZP*KPE scroll compressors for large chillers feature advanced monitoring capabilities and improved part-load cooling efficiency, thanks to VVR technology. This will help OEMs meet the minimum seasonal performance level required by the Ecodesign Directive.

The CoreSense Communications module they are equipped with ensures enhanced reliability, by providing real time compressor data to the system controller to provide temperature protection.

They are designed for reversible chillers, rooftop or air handling units with a cooling capacity between 30 and 400 kW.

ZP*KZE Scroll Compressor

ZP*KZE & ZP*KPE Compressor Line-up



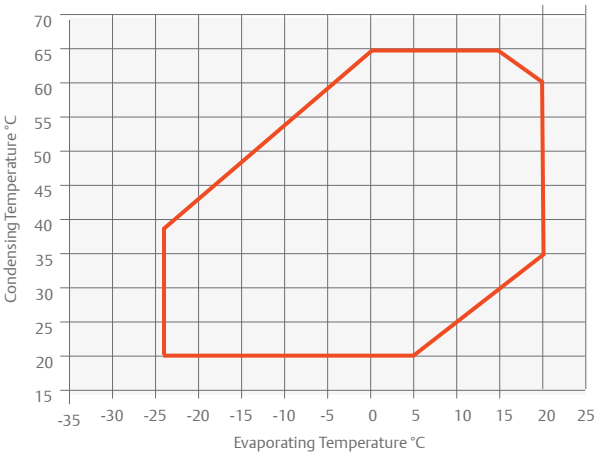
Multiple Copeland Scroll Nominal Cooling kW @(5/50) EN12900 - 1 Circuit

Features and Benefits

- High seasonal performance (SEER)
  5% improved SEER versus previous generation
- Flexibility & reduced complexity
  Wide range of even and uneven tandem and trio assemblies for a full system line-up with a reduced number of compressor models in stock.
- Enhanced reliability through electronics

The CoreSense Communications module provides realtime compressor data via RS485 Modbus that is used by the system controller to provide temperature protection.
This ensures greater reliability for demanding applications.

Operating Envelope R410A



Technical Overview

Models	Nominal hp	Capacity (kW)	COP	Displacement (m^3/h)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/ Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @1 m - dB(A) ***
										1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
ZP137KPE	12.0	29.0	3.2	22.1	1 3/8	7/8	3.3	264/285/552	65		TFD		25.0		118	65
ZP154KPE	13.0	33.0	3.1	24.9	1 3/8	7/8	3.3	264/285/552	65		TFD		31.0		140	65
ZP182KPE	15.0	39.0	3.1	29.1	1 3/8	7/8	3.3	326/295/552	66		TFD		34.0		174	66
ZP232KZE	20.0	50.6	3.3	36.6	1 5/8	1 1/8	4.4	344/292/661	90		TED		38.8		241	72
ZP292KZE	25.0	63.4	3.3	45.7	1 5/8	1 1/8	4.4	344/292/661	90		TED		48.6		287	73
ZP385KPE	30.0	82.9	3.2	60.8	1 5/8	1 3/8	6.3	447/427/724	177		TWD		65.4		310	74
ZP485KPE	40.0	105.0	3.2	77.3	1 5/8	1 3/8	6.3	368/345/756	190		TWD		82.6		408	78

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

** 3 Ph: 380-420V/ 50Hz

*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Preliminary Data

Capacity Data

Condensing Temperature +40°C															
R410A	Cooling Capacity (kW)							R410A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-15	-10	-5	0	+5	+10	+15	Model	-15	-10	-5	0	+5	+10	+15
ZP137KPE	15.4	19.2	23.4	28.1	33.6	39.9	47.1	ZP137KPE	7.4	7.4	7.4	7.4	7.4	7.4	7.5
ZP154KPE	17.6	21.8	26.7	32.2	38.5	45.6	53.6	ZP154KPE	8.7	8.6	8.6	8.4	8.4	8.4	8.5
ZP182KPE	21.0	26.1	31.7	38.1	45.3	53.4	62.6	ZP182KPE	10.2	10.1	10.1	10.0	10.0	9.9	9.8
ZP232KZE	27.2	33.5	40.6	48.8	58.1	68.6	89.5	ZP232KZE	12.1	12.2	12.2	12.3	12.3	12.3	12.4
ZP292KZE	34.6	42.4	51.3	61.3	72.5	85.0	98.8	ZP292KZE	15.6	15.6	15.7	15.7	15.7	15.7	15.7
ZP385KPE	45.5	55.6	67.3	80.8	96.3	113.8	133.7	ZP385KPE	20.5	20.5	20.5	20.6	20.8	21.1	21.5
ZP485KPE	58.5	71.1	85.6	102.3	121.3	142.9	167.4	ZP485KPE	25.8	25.8	25.9	26.1	26.4	26.7	27.2

Conditions: Suction Superheat 10K / Subcooling 0K

Preliminary Data

Tandem Model Overview

Model	Nominal hp	Cooling Capacity (kW)	Even Tandem	Uneven Tandem
Tandem ZPT - Tandem Uneven ZPU				
ZPT 274 K	2 x 12	58	•	
ZPT 308 K	2 x 13	67	•	
ZPU 336 K	13 + 15	72		•
ZPT 364 K	2 x 15	77	•	
ZPU 414 K	15 + 20	89		•
ZPT 464 K	2 x 20	101	•	
ZPU 474 K	15 + 25	102		•
ZPU 524 K	20 + 25	114		•
ZPT 584 K	2 x 25	125	•	
ZPU 677 K	25 + 30	146		•
ZPU 717 K	20 +40	155		•
ZPT 770 K	2 x 30	165	•	
ZPU 870 K	30 + 40	187		•
ZPT 970 K	2 x 40	209	•	

Conditions EN 12900: Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K

* Tandem assemblies by system manufacturers. Emerson can provide full technical support.

ZPD & ZRD Copeland Scroll Digital™ Compressor Ranges for R410A and R407C

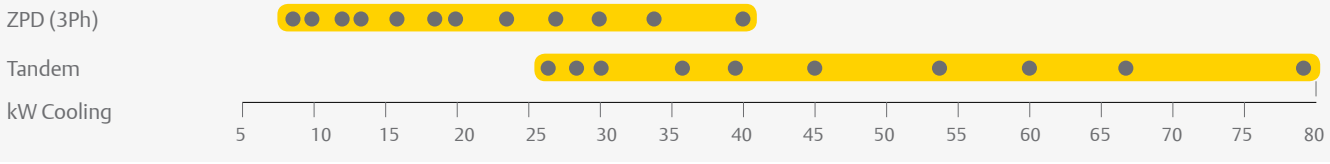
Stepless capacity modulation in air conditioning applications: flexible solution for R407C and R410A.

In many cooling and heating systems, the load and the operating conditions vary over a wide range thus requiring the use of capacity modulation. Digital Scroll assures stepless modulation down to 10% of the nominal capacity, enabling precise temperature control, superior comfort and energy saving.

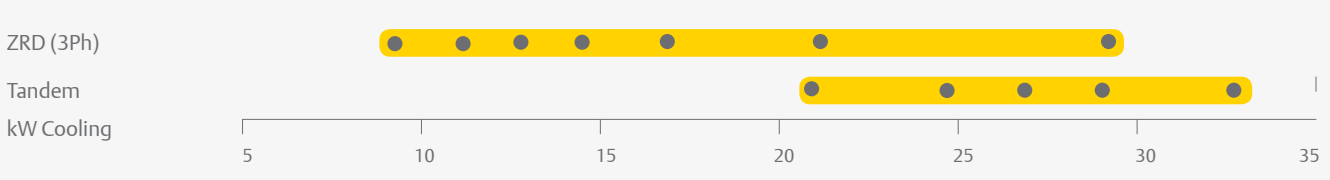
Digital Scroll compressors are the preferred choice for process cooling, refrigeration racks, refrigeration units, VRF, rooftop and air handling unit systems.

ZPD & ZRD Copeland Scroll Digital Compressor

ZPD & ZRD Digital Scroll Compressor Line-up R410A



ZPD & ZRD Digital Scroll Compressor Line-up R407C



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

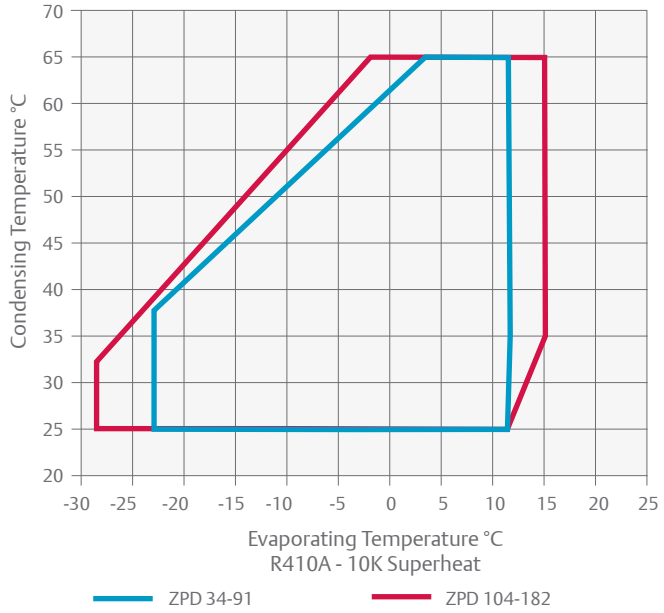
Features and Benefits

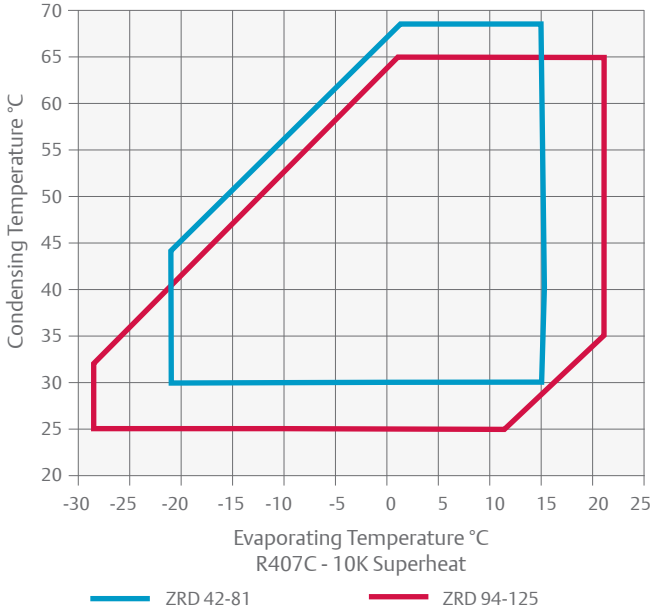
- Wide modulation range from 10% to 100% for immediate load adjustment, close temperature comfort, optimal comfort
- No complex electronics, a quasi-drop-in solution for fast time to market, no EMI/EMC problems, easy installation and maintenance
- No impact on system mechanical balance: no vibration and resonance phenomenon, no frame / piping redesign necessary

Maximum Allowable Pressure (PS)

- Digital ZRD42 to ZRD81:
  Low Side PS 20 bar(g) / High Side PS 29.5 bar(g)
- Digital ZRD94 to ZRD125:
  Low Side PS 20 bar(g) / High Side PS 32 bar(g)
- Digital ZPD34 to ZPD91:
  Low Side PS 28 bar(g) / High Side PS 43 bar(g)
- Digital ZPD103 to ZPD182:
  Low Side PS 29.5 bar(g) / High Side PS 45 bar(g)

Operating Envelope R410A/R407C





Technical Overview

Models	Nominal hp	Capacity (kW)	COP	Displacement (m^3/h)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/ Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Presure @1 m - dB(A) **
										3 Ph*	3 Ph*	3 Ph*	
ZPD34KSE	3.0	7.3	2.8	5.7	7/8	1/2	1.24	243/243/448	31	TFM	12	64	66
ZPD42KSE	3.5	9.1	3.0	6.9	7/8	1/2	1.24	243/243/464	31	TFM	8	52	66
ZPD54KSE	4.5	11.5	3.0	8.9	7/8	1/2	1.24	236/236/479	35	TFM	10	62	67
ZPD61KCE	5.0	13.2	2.9	10.1	7/8	1/2	1.89	241/246/484	41	TFD	12	64	63
ZPD72KCE	5.0	15.2	2.9	11.6	7/8	1/2	1.89	241/246/484	40	TFD	15	75	67
ZPD83KCE	6.0	17.7	3.0	13.4	7/8	1/2	1.77	246/253/481	40	TFD	16	101	64
ZPD91KCE	7.5	19.2	3.1	14.7	7/8	3/4	1.80	246/253/481	40	TFD	16	101	69
ZPD104KCE	9.0	22.7	3.1	16.7	1 1/8	7/8	3.25	270/262/605	61	TFD	18	128	63
ZPD122KCE	10.0	26.3	3.1	19.7	1 1/8	7/8	3.25	270/262/605	62	TFD	21	139	63
ZPD137KCE	12.0	29.5	3.1	22.1	1 3/8	7/8	3.25	293/285/533	62	TFD	25	118	63
ZPD154KCE	13.0	33.1	3.1	24.8	1 3/8	7/8	3.25	314/285/552	65	TFD	27	140	66
ZPD182KCE	15.0	39.0	3.1	29.0	1 3/8	7/8	3.25	314/285/552	67	TFD	34	173	68

Conditions EN12900 R410A: Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K

* 3 Ph: 380-420V/ 50Hz

** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Models	Nominal hp	Capacity (kW)	COP	Displacement (m^3/h)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/ Width/ Height (mm)	Net weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Presure @1 m - dB(A) **
										3 Ph*	3 Ph*	3 Ph*	
ZRD42KCE	3.5	8.9	2.9	9.9	3/4	1/2	1.24	241/241/462	31	TFD	7	46	60
ZRD48KCE	4.0	10.5	3.0	11.4	7/8	1/2	1.36	241/241/465	32	TFD	10	48	64
ZRD61KCE	5.0	12.5	3.0	14.3	7/8	1/2	1.89	241/246/481	38	TFD	9.6	64	65
ZRD72KCE	6.0	14.3	2.9	17.0	7/8	3/4	1.89	241/246/481	40	TFD	13	74	63
ZRD81KCE	6.0	17.0	3.1	18.7	7/8	3/4	1.89	241/246/481	41	TFD	15	100	67
ZRD94KCE	7.5	21.0	3.3	22.1	1 1/8	7/8	2.51	293/285/476	58	TFD	16	95	64
ZRD125KCE	10.0	27.7	3.3	28.8	1 3/8	7/8	3.25	293/285/533	61	TFD	20	118	64

Conditions EN12900 R410A: Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K

* 3 Ph: 380-420V/50Hz

**@1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

Condensing Temperature +40°C															
R410A	Cooling Capacity (kW)							R410A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-15	-10	-5	0	+5	+10	+15	Model	-15	-10	-5	0	+5	+10	+15
ZPD34KSE	3.9	5.0	6.2	7.6	9.2	11.0		ZPD34KSE	2.1	2.1	2.1	2.0	2.0	2.0	
ZPD42KSE	4.8	5.9	7.3	8.8	10.6	12.6		ZPD42KSE	2.3	2.3	2.4	2.4	2.4	2.3	
ZPD54KSE	6.5	7.9	9.5	11.4	13.5	16.0		ZPD54KSE	3.1	3.1	3.1	3.0	3.0	3.0	
ZPD61KCE	6.9	8.6	10.5	12.7	15.3	18.2		ZPD61KCE	3.3	3.4	3.5	3.5	3.6	3.6	
ZPD72KCE	8.2	10.1	12.3	14.8	17.6	20.9		ZPD72KCE	3.9	4.0	4.1	4.1	4.2	4.2	
ZPD83KCE	9.7	11.9	14.4	17.2	20.5	24.1		ZPD83KCE	4.5	4.6	4.7	4.7	4.8	4.9	
ZPD91KCE	10.1	12.6	15.3	18.5	22.1	26.2	30.9	ZPD91KCE	4.9	5.0	5.0	5.0	5.1	5.0	5.0
ZPD104KCE	12.3	15.1	18.3	21.9	26.1	30.8	36.2	ZPD104KCE	5.6	5.7	5.7	5.9	6.0	6.1	6.2
ZPD122KCE	14.2	17.5	21.2	25.4	30.3	35.8	42.0	ZPD122KCE	6.4	6.5	6.6	6.7	6.8	6.9	7.0
ZPD137KCE	15.5	19.4	23.7	28.7	34.2	40.3	47.2	ZPD137KCE	7.5	7.5	7.5	7.4	7.4	7.5	7.6
ZPD154KCE	17.8	22.0	26.6	31.9	38.0	45.0	53.0	ZPD154KCE	8.2	8.3	8.4	8.5	8.6	8.7	8.9
ZPD182KCE	22.3	26.8	32.0	37.9	44.6	52.5	61.6	ZPD182KCE	9.8	9.9	10.0	10.1	10.2	10.4	10.5

Conditions: Suction Superheat 10K / Subcooling 0K

Condensing Temperature +40°C															
R407C	Cooling Capacity (kW)							R407C	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-15	-10	-5	0	+5	+10	+15	Model	-15	-10	-5	0	+5	+10	+15
ZRD42KCE	4.3	5.4	6.7	8.3	10.1	12.2	14.6	ZRD42KCE	2.0	2.1	2.1	2.2	2.2	2.3	2.3
ZRD48KCE	4.9	6.4	8.0	10.0	12.3	15.0	18.1	ZRD48KCE	2.5	2.6	2.6	2.7	2.7	2.8	2.9
ZRD61KCE	6.1	7.7	9.5	11.7	14.2	17.3	21.0	ZRD61KCE	3.0	3.1	3.2	3.4	3.4	3.4	3.3
ZRD72KCE	3.5	6.0	8.9	12.3	16.2	20.6	25.6	ZRD72KCE	3.5	3.6	3.7	3.8	4.0	4.1	4.3
ZRD81KCE	8.0	10.2	12.8	15.8	19.2	23.2	27.7	ZRD81KCE	4.3	4.4	4.4	4.5	4.6	4.7	4.8
ZRD94KCE	10.0	12.7	16.0	19.8	24.1	28.9	34.5	ZRD94KCE	5.0	5.1	5.1	5.1	5.1	5.2	5.3
ZRD125KCE	13.2	16.9	21.3	26.3	31.7	37.6	43.7	ZRD125KCE	6.5	6.6	6.6	6.7	6.8	6.9	7.1

Conditions: Suction Superheat 10K / Subcooling 0K

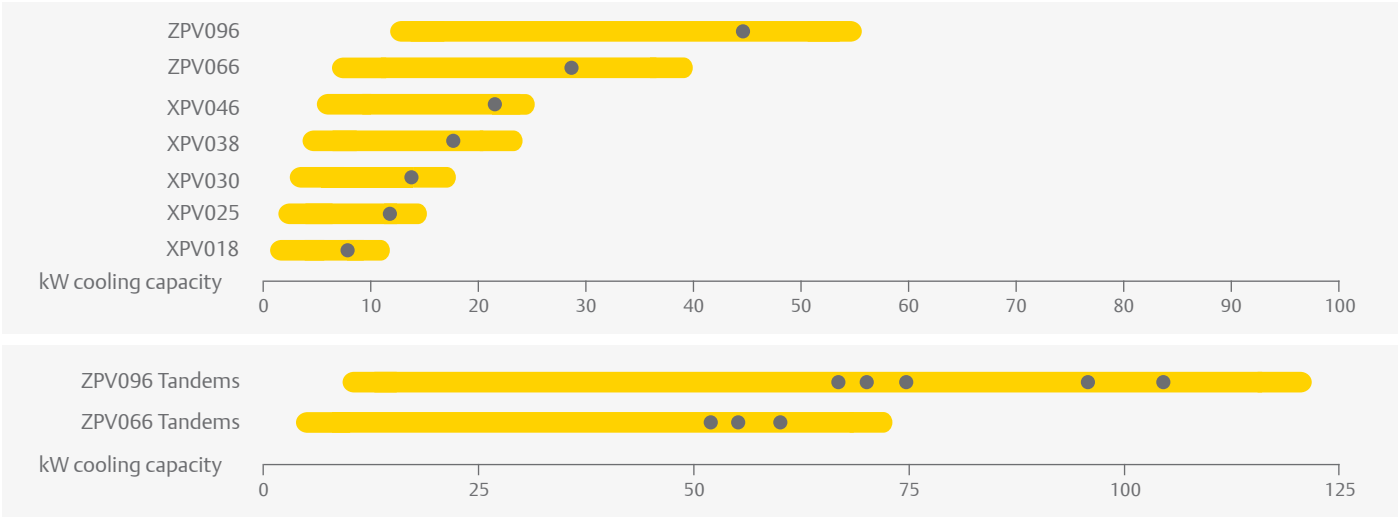
XPV & ZPV Copeland Scroll™ Variable Speed Compressor Ranges for R410A With Inverter Drive

Copeland Scroll™ XPV and ZPV 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 or rooftops.

In addition to Copeland market-proven robustness, the new XPV and ZPV ranges with their qualified inverter drive meet and exceed the level of reliability expected for these applications.

Copeland Scroll™ ZPV066 variable speed compressor and drive

XPV and ZPV Variable Speed Scroll Compressor Line-up



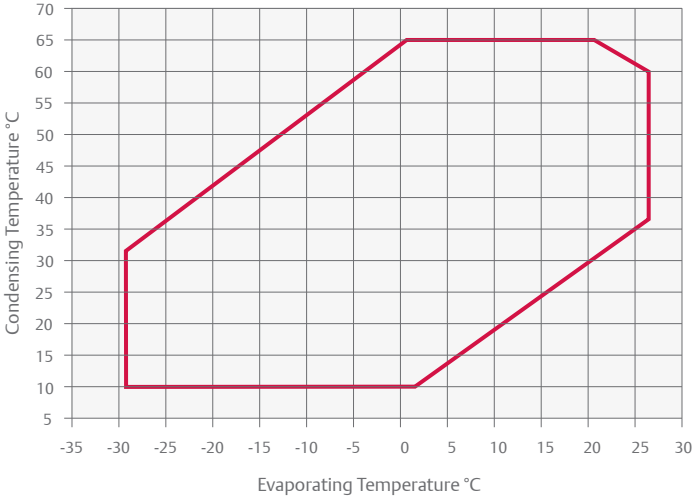
Features and Benefits

- Highest part load efficiency in its class enabling significant energy savings and standards compliance
- Wide speed range for enhanced part load efficiency and dehumidification: 900 -7,200 RPM (15-120Hz)
- Capability to be tandemized with fixed speed compressors for maximum flexibility in system design
- Both compressor and drive are Copeland™ approved for reduced design time, cost and speed to market
- BPM motor technology for highest efficiency
- Sound reduction technology for reversible chiller transition and defrost

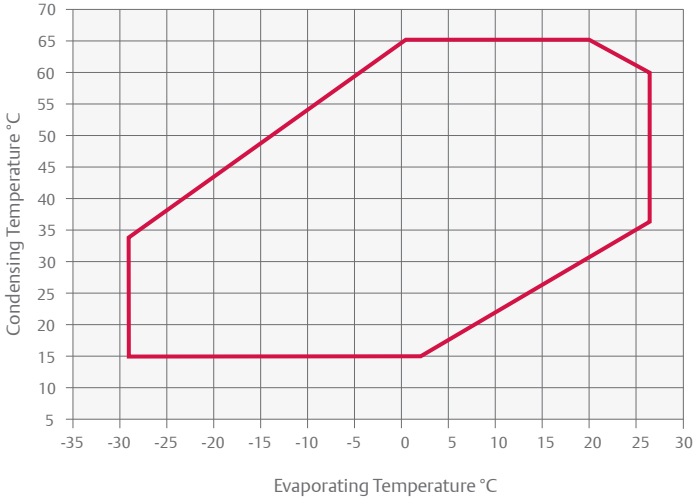
Maximum Allowable Pressure (PS)

- XPV018-046
  Low Side PS 29.5 bar(g) / High Side PS 45 bar(g)
- ZPV066 - 096
  Low Side PS 29.5 bar(g) / High Side PS 45 bar(g)

ZPV Operating Envelope R410A



XPV Operating Envelope R410A



Technical Overview

Compressor										
R410A	Cooling Capacity (kW)		EER*	Displacement (cm^3)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/Width/ Height (mm)	Net weight (kg)	Sound Pressure @1 m - dB(A)**
	Min	Max								
XPV0182E	2.0	10.4	3.1	18.0	3/4	1/2	0.7	194/216/335	16	n.a.
XPV0252E	2.7	14.5	3.1	25.0	3/4	1/2	0.7	194/216/335	16	n.a.
XPV0302E	3.3	17.4	3.1	30.0	3/4	1/2	0.7	194/216/335	18	n.a.
XPV0382E	4.3	22.5	3.2	38.0	3/4	1/2	1.2	194/216/335	21	n.a.
XPV0462E	6.4	24.0	3.2	46.0	3/4	1/2	1.2	219/198/388	22	n.a.
ZPV0662E	8.3	39.0	3.0	63.0	1 1/8	7/8	2.5	273/262/559	40	73
ZPV0962E	12.9	53.3	3.1	96.0	1 1/8	7/8	2.5	273/262/559	44	75

Conditions EN12900: Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K
*@ Nominal speed (90hz)
** @ 1m: sound pressure level at 1m distance from the compressor, free field condition
Preliminary Data

Inverter Drive												
Model	Matched Compressor **	Capacity (kW)	Amps (A)	Cooling	Frequency (Hz)		Net Weight (kg)	1ph 230V	3Ph 400V	3Ph 230V	3Ph 575V	Comm.	Depth/ Width/ Height (mm)*
		Nominal	Nominal		Min	Max							
ED3015A	XPV018	3.8	15	Horizontal / Flatplate	15	120	3.6	√				Modbus RTU and Analog board for 0-10V	205/240/143.5
ED3020A	XPV025	5.0	20		15	120		√					180.5/205/255
ED3018B	XPV025 / XPV030	5.0	18		15	120			√				180.5/205/255
ED3022B	XPV038/ XPV046	8.0	22	Fan / Horizontal / Vertical / Flatplate	15	120			√				154/233/316
EVC1150	ZPV066	15.0		Fan Cooled	17	120	7.4		√	√	√		202/143/391
EVC1185	ZPV096	18.5			20	120	14.0		√	√	√		227/210/391

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

Capacity Data

Condensing Temperature +50°C														
R410A		Cooling Capacity (kW)							R410A		Power Input (kW)				
		Evaporating Temperature (°C)									Evaporating Temperature (°C)				
Model		-15	-10	-5	0	+5	+10	+15	Model		-15	-10	+5	+10	+15
XPV0182E	Max	5.8	7.0	8.4	10.1	12.0	14.1	16.5	XPV0182E	Max	3.6	3.7	3.7	3.7	3.7
	Min	1.5	1.6	1.7	1.7	2.0	2.4	2.9		Min	1.0	1.0	0.8	0.8	0.8
XPV0252E	Max	7.2	8.8	10.8	13.2	15.8	18.8	22.2	XPV0252E	Max	4.8	4.9	5.2	5.2	5.2
	Min	2.2	2.4	2.4	2.4	2.9	3.4	4.1		Min	1.4	1.4	1.1	1.1	1.0
XPV0302E	Max	8.9	10.7	12.9	15.6	18.8	22.5	26.7	XPV0302E	Max	5.5	5.6	5.9	6.0	6.0
	Min	2.2	2.5	1.5	1.9	2.3	2.7	3.7		Min	1.8	1.6	1.0	1.0	1.0
XPV0382E	Max	11.3	13.6	16.4	19.8	23.8	28.5	33.8	XPV0382E	Max	7.0	7.1	7.5	7.5	7.6
	Min	2.8	3.2	1.9	2.4	2.9	3.4	4.6		Min	2.2	2.0	1.2	1.2	1.3
XPV0462E	Max	13.6	16.4	19.8	23.9	28.8	34.4	40.8	XPV0462E	Max	8.1	8.3	8.7	8.7	8.7
	Min	3.6	4.5	2.2	2.8	3.3	4.0	5.1		Min	2.7	2.6	1.4	1.4	1.4
ZPV0662E	Max	19.1	23.3	28.2	34.0	40.6	48.2	56.8	ZPV0662E	Max	13.2	13.5	14.3	14.5	14.7
	Min	6.2	4.9	6.0	7.1	8.3	9.8	11.5		Min	4.2	3.0	2.9	2.8	2.8
ZPV0962E	Max	28.0	34.3	41.7	50.4	60.4	71.8	84.6	ZPV0962E	Max	18.2	18.7	20.0	20.4	20.8
	Min	9.1	7.5	9.0	10.8	12.8	15.2	18.0		Min	5.7	4.1	4.1	4.1	4.0

Condition: Suction Superheat 5K, Subcooling 4K
Preliminary Data

ZH Copeland Scroll™ Fixed Speed Compressor Range for R410A and R407C

ZH Copeland Scroll Compressor Range

The ZH compressor range is optimized for reversible and heat pump applications. In addition to the existing R407C range, a complete new range optimized for R410A has been developed. Both ranges are based on three platform sizes and cover a capacity of 4kW to 38kW.

ZH heating compressors have been optimized for reversible heating systems, they deliver higher capacity and efficiency at low evaporating (heat source) temperatures and are therefore better adapted to heating requirements than standard air conditioning compressors. Due to their larger operating map they also require less additional heating (electrical or gas) to cover the full heating demand on the coldest days and therefore further improve the system seasonal efficiency.

ZH Scroll Compressor

ZH Scroll Compressors With Enhanced Vapor Injection

ZH heating compressors with Enhanced Vapor Injection have been further optimized to ensure best-in-class performances in dedicated heating applications. This technology allows replacement of traditional boilers in new building and retrofit applications, without the need of substituting existing heating elements in the building.

ZH Copeland Scroll heating compressors with Enhanced Vapor Injection have an additional port to inject vapor within the compression process. This improves system performances by increasing the heating capacity for a given compressor displacement. Additional benefits are the reduction of the gas discharge temperature and the extension of the operating envelope which enable the production of high temperature water at all working conditions.

ZHI heating compressors reach the same high standards of durability and reliability as other Copeland Scroll compressors. This includes the ability to handle relatively large amounts of liquid, which is known to damage or cause compressor failures. Fewer moving parts, robust running gear and low vibration due to balanced compression mechanism make the ZH range of Copeland Scroll compressors the most reliable solution available in the heat pump market.

ZH Nomenclature Guidelines

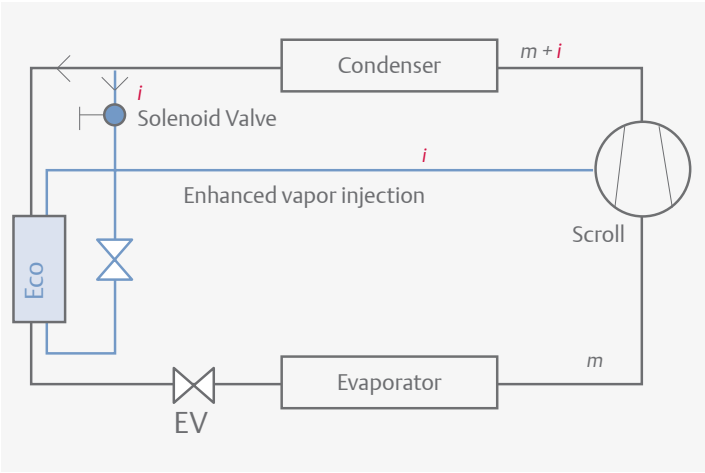
ZH**K4E
Qualified for R407C/R134a
without enhanced vapor injection - ** capacity in Btu/h

ZH**KVE
Qualified for R407C only
enhanced vapor injection – ** capacity in kW

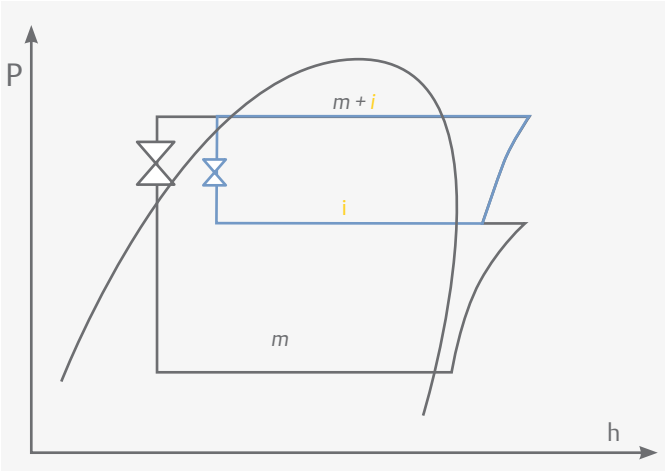
ZH**K1P
Qualified for R410A only
without enhanced vapor injection – ** capacity in kW

ZHI**K1P
Qualified for R410A only
enhanced vapor injection – ** capacity in kW

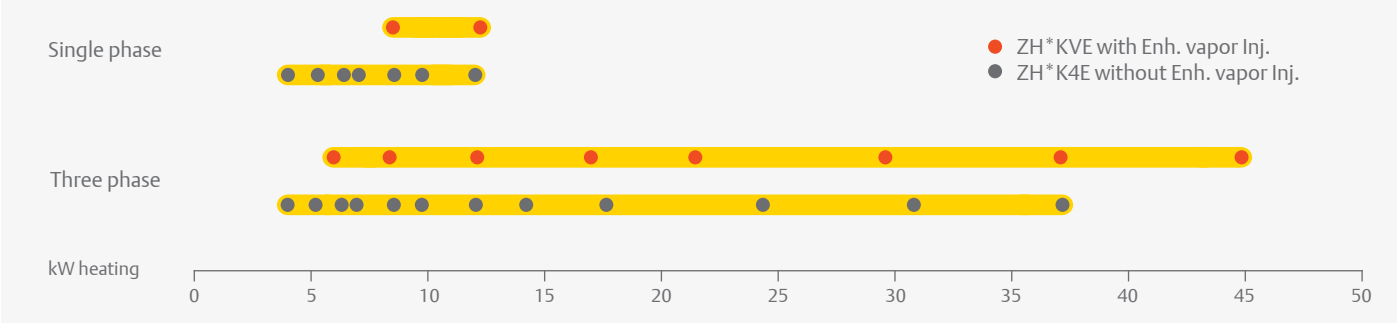
Enhanced Vapor Injection: System Design



Enhanced Vapor Injection: Enthalpy Diagram

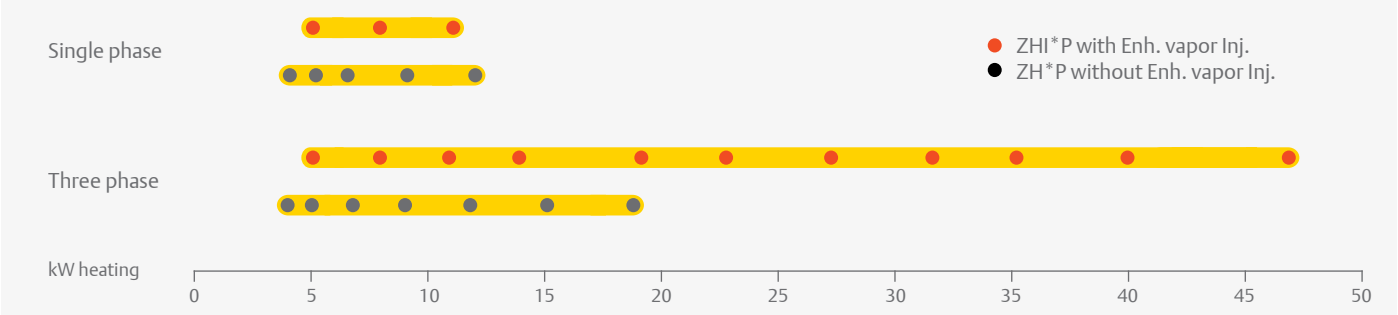


ZH*K4E / ZH*KVE Scroll Compressor Line-up R407C



Conditions: Evaporating -7°C, Condensing 50°C, 4K Subcooling, 5K Superheat

ZH*P / ZHI*P Scroll Compressor Line-up R410A



Conditions: Evaporating -7°C, Condensing 50°C, 4K Subcooling, 5K Superheat

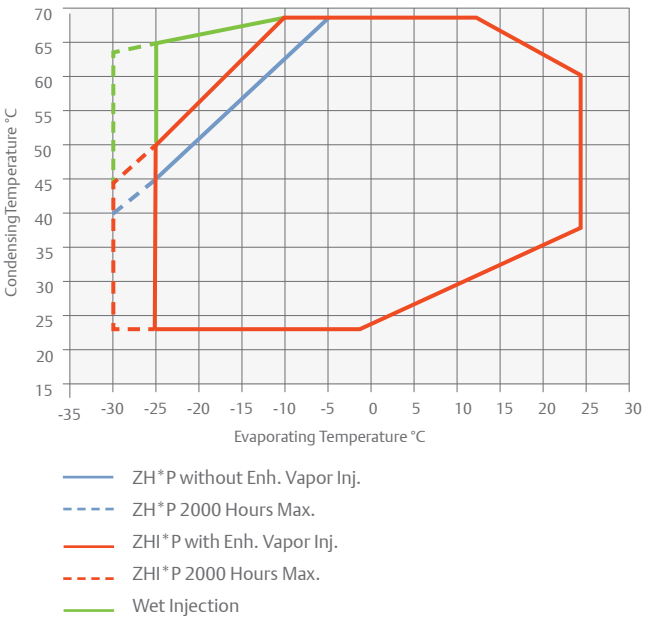
Features and Benefits

- Copeland Scroll axial and radial compliance for high reliability
- High efficiency and increased heating capacity
- High water temperature for all applications
- Low sound and low vibration level
- Tandem combination for superior seasonal efficiency
- Enhanced Vapor Injection technology for best seasonal efficiency

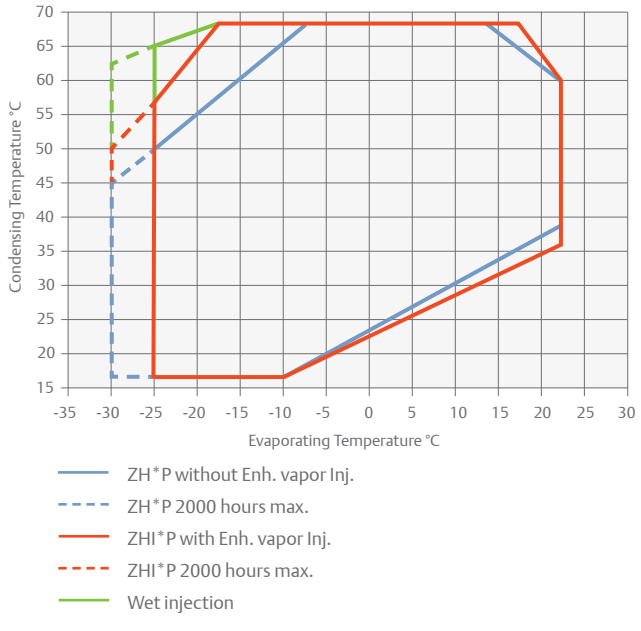
Maximum Allowable Pressure (PS)

- ZH(I)04K1P to ZH(I)23K1P:
  Low Side PS 28 bar(g) / High Side PS 45 bar(g)
- ZHI27K1P to ZHI46K1P:
  Low Side PS 29.5 bar(g) / High Side PS 53 bar(g)
- ZH12K4E to ZH45K4E:
  Low Side PS 20 bar(g) / High Side PS 32 bar(g)
- ZH56K4E to ZH11M4E:
  Low Side PS 22.6 bar(g) / High Side PS 32 bar(g)
- ZH09KVE to ZH18KVE:
  Low Side PS 20 bar(g) / High Side PS 32 bar(g)
- ZH24KVE to ZH48KVE:
  Low Side PS 22.6 bar(g) / High Side PS 32 bar(g)

Operating Envelope R410A Heating



Operating Envelope R407C Heating



Refer to Emerson's select selection software for individual model operating envelopes and other refrigerants.

Technical Overview

R410A	Nominal hp	Capacity (kW)	COP	Displacement (m^3/h)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/ Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @1 m - dB(A) ***
										1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
ZH04 K1P	1.8	4.2	2.8	3.4	3/4	1/2	0.7	229/198/388	22	PFZ	TFM	9	5	50	28	62
ZH05 K1P	2.0	5.0	2.8	4.0	3/4	1/2	0.7	229/198/388	22	PFZ	TFM	13	5	60	28	62
ZH06 K1P	2.7	6.6	2.9	5.1	7/8	1/2	1.2	242/242/418	31	PFZ	TFM	17	6	83	44	62
ZH09 K1P	3.5	9.0	3.1	6.9	7/8	1/2	1.2	242/242/418	33	PFZ	TFM	23	7	108	52	62
ZH12 K1P	4.5	11.4	3.0	8.9	7/8	1/2	1.2	242/242/418	35	PFZ	TFM	28	10	130	62	65
ZH15 K1P	5.0	15.1	3.1	11.7	7/8	1/2	1.9	245/249/442	39		TFM		13		75	67
ZH19 K1P	6.5	18.7	3.2	14.8	7/8	3/4	1.9	239/244/443	39		TFM		17			67
ZHI05 K1P	1.9	5.2	3.0	3.4	3/4	1/2	0.7	229/198/388	22	PFZ	TFM	14	4	60	28	63
ZHI08 K1P	2.8	8.2	3.1	5.1	7/8	1/2	1.2	242/242/418	31	PFZ	TFM	19	6	108	43	63
ZHI11 K1P	3.6	10.8	3.2	6.9	7/8	1/2	1.2	242/242/418	31	PFZ	TFM	25	9	130	52	65
ZHI14 K1P	4.6	13.9	3.3	8.9	7/8	1/2	1.2	242/242/418	34		TFM		11		70	65
ZHI18 K1P	5.0	17.9	3.4	11.7	7/8	1/2	1.9	249/245/443	41		TFM		15			67
ZHI23 K1P	6.5	22.8	3.4	14.8	7/8	3/4	1.9	239/244/443	41		TFM		19			67
ZHI27 K1P	9.0	27.0	3.3	16.8	1 3/8	7/8	3.3	280/280/533	63		TFD		21.0		118	77
ZHI32 K1P	10.0	31.7	3.2	19.8	1 3/8	7/8	3.3	280/280/533	63		TFD		26.0		140	75
ZHI35 K1P	12.0	35.6	3.2	22.1	1 3/8	7/8	3.3	280/284/568	63		TFD		32.5		174	76
ZHI40 K1P	13.0	39.7	3.3	24.9	1 3/8	7/8	3.3	284/280/568	64		TFD		33.0		174	76
ZHI46 K1P	15.0	46.6	3.3	29.1	1 3/8	7/8	3.4	284/280/568	64		TWD		37.4		168	78

Conditions: Evaporating -7°C, Condensing 50°C, Superheat 5K, Subcooling 4K
* 1 Ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

R407C	Nominal hp	Capacity (kW)	COP	Displacement (m^3/h)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/ Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @1 m - dB(A) ***
										1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
ZH12K4E	1.7	3.7	3.0	4.7	3/4	1/2	0.7	229/198/388	21	PFZ		10		44		53
ZH15K4E	2.0	4.6	3	5.8	3/4	1/2	1.3	243/242/364	23	PFJ	TFD	11.6	4.3	61	26	60
ZH21K4E	3.0	6.5	3.1	8.0	3/4	1/2	1.5	243/242/387	27	PFJ	TFD	16	5	76	32	59
ZH26K4E	3.5	8.2	3.1	10.0	3/4	1/2	3.1	243/242/400	28	PFJ	TFD	20	7	97	46	63
ZH30K4E	4.0	9.5	3.1	11.7	7/8	1/2	1.9	247/241/438	38	PFJ	TFD	25	8	108	52	62
ZH38K4E	5.0	11.7	3.2	14.4	7/8	1/2	1.9	247/241/438	38	PFZ	TFD	31	10	150	64	63
ZH45K4E	6.0	14.0	3.2	17.1	7/8	1/2	1.9	250/246/438	36		TFD		12		74	64
ZH56K4E	7.5	17.4	3.1	20.9	1 3/8	7/8	4.0	357/321/497	93		TWD		17		99	69
ZH75K4E	10.0	24.2	3.2	28.8	1 3/8	7/8	4.0	357/321/497	93		TWD		21		127	70
ZH92K4E	13.0	30.7	3.3	35.6	1 3/8	7/8	4.1	356/320/505	95		TWD		25		167	72
ZH11M4E	15.0	37.0	3.3	42.8	1 5/8	7/8	4.1	357/321/579	112		TWD		32		198	72
ZH06KVE	2.5	6.2	3.3	5.8	3/4	1/2	1.3	243/243/364	27.5		TFM		4.4		26	62
ZH09KVE	3.0	8.2	3.3	8.0	3/4	1/2	1.5	243/243/386	30	PFZ	TFD	21	7	97	40	62
ZH13KVE	4.0	11.8	3.4	11.7	7/8	1/2	1.9	244/241/438	38	PFZ	TFD	30	10	160	64	65
ZH18KVE	6.0	16.7	3.4	17.1	7/8	1/2	1.9	244/241/438	41		TFD		14		101	67
ZH24KVE	7.5	21.3	3.3	20.9	1 3/8	7/8	4.0	368/321/525	93		TWD		18		99	73
ZH33KVE	10.0	29.5	3.4	29.0	1 3/8	7/8	4.0	368/321/525	93		TWD		24		127	73
ZH40KVE	13.0	37.0	3.4	35.5	1 3/8	7/8	4.1	368/321/532	103		TWD		30		167	73
ZH48KVE	15.0	44.7	3.4	42.8	1 5/8	7/8	4.1	368/323/579	112		TWD		36		198	76

Conditions: Evaporating -7°C, Condensing 50°C, Superheat 5K, Subcooling 4K
* 1 Ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

Condensing Temperature +50°C														
R410A	Heating Capacity (kW)							R410A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-30	-15	-10	-5	0	+5	+15	Model	-30	-15	-10	-5	0	+5	+15
ZH04 K1P	n.a.	3.3	3.9	4.5	5.2	6.0	7.6	ZH04 K1P	n.a.	1.4	1.5	1.5	1.5	1.5	1.5
ZH09 K1P	n.a.	7.1	8.2	9.5	10.9	12.5	16.4	ZH09 K1P	n.a.	2.8	2.9	3.0	3.0	3.0	3.0
ZH12 K1P	n.a.	9.2	10.5	12.1	13.9	15.9	21.0	ZH12 K1P	n.a.	3.7	3.7	3.8	3.8	3.8	3.8
ZH15 K1P	n.a.	12.0	13.8	15.9	18.4	21.1	27.7	ZH15 K1P	n.a.	4.7	4.9	5.0	5.1	5.2	5.2
ZH19 K1P	n.a.	15.2	17.5	20.2	23.2	26.7	35.1	ZH19 K1P	n.a.	6.0	6.2	6.3	6.4	6.5	6.5
Models With Enhanced Vapor Injection															
Model	-30	-15	-10	-5	0	+5	+15	Model	-30	-15	-10	-5	0	+5	+15
ZHI05 K1P	2.6	4.2	4.8	5.4	6.1	6.9	8.6	ZHI05 K1P	1.7	1.7	1.7	1.8	1.8	1.8	1.7
ZHI08 K1P	5.0	6.7	7.6	8.4	9.4	10.5	13.1	ZHI08 K1P	2.5	2.6	2.6	2.6	2.6	2.6	2.4
ZHI11 K1P	6.4	9.0	10.1	11.3	12.6	14.0	17.2	ZHI11 K1P	3.2	3.3	3.3	3.3	3.3	3.3	3.1
ZHI14 K1P	8.5	11.6	13.0	14.5	16.2	18.1	22.3	ZHI14 K1P	3.9	4.1	4.2	4.2	4.2	4.2	4.0
ZHI18 K1P	10.8	14.9	16.7	18.7	20.9	23.2	28.7	ZHI18 K1P	5.1	5.3	5.4	5.4	5.4	5.3	5.2
ZHI23 K1P	13.8	19.0	21.3	23.9	26.6	29.7	36.7	ZHI23 K1P	6.6	6.8	6.9	6.9	6.9	6.8	6.6
ZHI27 K1P	14.2	22.1	25.1	28.4	31.8	35.5	43.8	ZHI27 K1P	7.9	8.2	8.2	8.1	8.1	7.9	7.5
ZHI32 K1P	16.4	26.1	29.5	33.2	37.1	41.4	51.1	ZHI32 K1P	8.7	9.7	9.8	9.8	9.7	9.6	9.4
ZHI35 K1P	19.5	29.2	33.1	37.3	41.9	46.7	57.4	ZHI35 K1P	11.0	10.8	10.9	11.0	11.1	11.2	11.1
ZHI40 K1P	21.7	32.5	36.9	41.7	47.0	52.7	65.6	ZHI40 K1P	12.0	12.0	12.1	12.1	12.2	12.2	12.3
ZHI46 K1P	26.1	38.7	43.5	48.7	54.3	60.4	74.0	ZHI46 K1P	13.2	14.0	14.1	14.1	14.1	14.1	14.0

Conditions: Suction Superheat 5K / Subcooling 4K

Condensing Temperature +50°C														
R407C	Heating Capacity (kW)							R407C	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-30	-15	-10	-5	0	+5	+15	Model	-30	-15	-10	-5	0	+5	+15
ZH12K4E	n.a.	2.8	3.3	3.9	4.6	5.4	7.5	ZH12K4E	n.a.	1.2	1.2	1.3	1.3	1.3	1.4
ZH15K4E	n.a.	3.6	4.3	5.0	5.8	6.8	9.2	ZH15K4E	n.a.	1.5	1.5	1.6	1.6	1.6	1.9
ZH21K4E	n.a.	5.1	5.9	6.9	8.1	9.6	13.2	ZH21K4E	n.a.	2.0	2.1	2.1	2.2	2.3	2.4
ZH26K4E	n.a.	6.3	7.4	8.7	10.3	12.1	16.5	ZH26K4E	n.a.	2.5	2.6	2.7	2.7	2.8	3.0
ZH30K4E	n.a.	7.3	8.6	10.1	11.9	14.0	19.2	ZH30K4E	n.a.	2.9	3.0	3.1	3.2	3.3	3.4
ZH38K4E	n.a.	9.0	10.6	12.5	14.6	17.2	23.4	ZH38K4E	n.a.	3.5	3.6	3.8	3.9	4.0	4.2
ZH45K4E	n.a.	10.8	12.7	14.9	17.4	20.3	27.2	ZH45K4E	n.a.	4.2	4.3	4.5	4.6	4.7	5.1
ZH56K4E	n.a.	13.4	15.8	18.6	21.8	25.5	34.1	ZH56K4E	n.a.	5.3	5.5	5.7	6.0	6.2	6.8
ZH75K4E	n.a.	18.5	21.9	25.8	30.3	35.5	47.6	ZH75K4E	n.a.	7.0	7.4	7.7	8.0	8.2	8.5
ZH92K4E	n.a.	23.4	27.8	32.8	38.5	45.1	60.3	ZH92K4E	n.a.	8.5	9.0	9.5	10.0	10.4	11.2
ZH11M4E	n.a.	28.4	33.6	39.5	46.3	54.3	72.7	ZH11M4E	n.a.	10.3	10.9	11.5	11.9	12.5	13.4
Models With Enhanced Vapor Injection															
Model	-30	-15	-10	-5	0	+5	+15	Model	-30	-15	-10	-5	0	+5	+15
ZH06KVE	3.3	4.9	5.7	6.5	7.4	8.4	10.8	ZH06KVE	1.7	1.8	1.9	1.9	2.0	2.0	2.1
ZH09KVE	4.1	6.6	7.6	8.7	9.9	11.2	14.3	ZH09KVE	2.1	2.4	2.4	2.5	2.6	2.6	2.6
ZH13KVE	5.7	9.5	10.9	12.5	14.3	16.2	20.7	ZH13KVE	3.0	3.4	3.5	3.5	3.6	3.6	3.7
ZH18KVE	8.0	13.5	15.4	17.6	20.0	22.6	28.7	ZH18KVE	4.2	4.8	4.9	5.0	5.1	5.1	5.2
ZH24KVE	9.7	17.0	19.6	22.5	25.5	28.9	36.7	ZH24KVE	5.2	6.2	6.4	6.6	6.7	6.8	7.0
ZH33KVE	14.3	23.7	27.2	31.1	35.3	40.0	50.7	ZH33KVE	7.0	8.2	8.5	8.8	9.1	9.3	9.6
ZH40KVE	18.1	29.6	34.1	39.1	44.7	50.9	65.5	ZH40KVE	8.9	10.2	10.6	11.0	11.3	11.7	12.4
ZH48KVE	21.1	35.6	41.1	47.2	54.1	61.8	80.4	ZH48KVE	10.0	12.2	12.7	13.2	13.5	14.0	15.1

Conditions: Suction Superheat 5K / Subcooling 4K

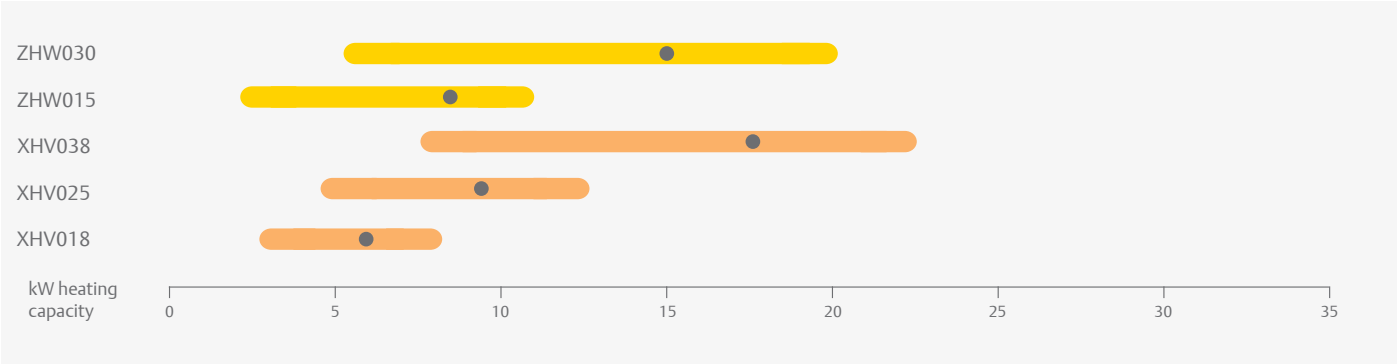
XHV & ZHW Copeland Scroll™ Variable Speed Compressor Ranges for R410A With Inverter Drive

XHV and ZHW Variable Speed scroll compressors for R410A, for outstanding performance for cooling and heating applications.

The new Emerson solution for variable speed applications with capacity modulated compressors. XHV and ZHW compressors deliver outstanding performances, both in new building and retrofit applications. Variable Speed Copeland Scroll compressors feature a state-of-the-art brushless permanent magnet motor matched with a highly efficient drive and vapor injection technology (ZHW only). In addition to Copeland market-proven robustness, XHV and ZHW compressors with the qualified inverter drive meet and exceed the level of reliability expected for these demanding applications.

ZHW Copeland Scroll Variable Speed Compressor and Drive

XHV & ZHW Variable Speed Scroll Compressor Line-Up

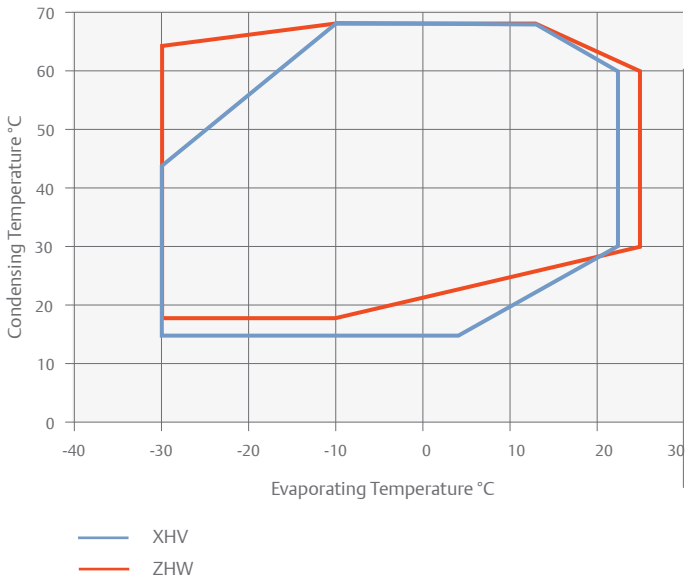


Conditions: Cooling kW evaporating 5°C, Condensing 50°C, cuperheat 10K, Subcooling 0K
Heating kW evaporating -7°C, Condensing 50°C, 4K Subcooling, 5K Superheat

Features and Benefits

- Highest efficiency throughout the operating envelope and speed range
- Envelope and speed management information for the system controller (real-time communication via Modbus RS485)
- Enhanced Vapor Injection technology for best seasonal efficiency (ZHW)
- High water temperature for all applications
- Compliance with electromagnetic-compatibility (EMC) and electromagnetic-interference (EMI) requirements for residential applications
- VDE certification for ZHW compressor matched with Emerson inverter drive
- Wide speed range 15-120Hz
- Mutually optimized and qualified scroll and drive

Operating Envelope R410A



Maximum Allowable Pressure (PS)

- ZHW:
  Low side PS 28 bar(g) / High side PS 45 bar(g)
- XHV:
  Low side PS 28 bar(g) / High side PS 45 bar(g)

Technical Overview

Compressor										
R410A	Heating Capacity (kW)		COP*	Displacement (cm^3)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/ Width/ Height (mm)	Net Weight (kg)	Sound Pressure @1 m - dB(A)**
	Min	Max								
ZHW0152P	2.7	10.4	2.9	15.0	3/4	1/2	1.7	229/198/394	21	68
ZHW0302P	5.5	19.8	3.2	30.0	3/4	1/2	1.7	229/198/394	22	68
XHV0181P	2.9	8.2	2.9	18.0	3/4	1/2	0.7	218/198/334	14	n.a.
XHV0251P	3.9	12.4	2.9	25.0	3/4	1/2	0.7	218/198/334	15	n.a.
XHV0381P	5.5	22.9	3.1	38.0	3/4	1/2	1.2	218/198/414	21	n.a.

Conditions: Heating kW (-7/50)
*@ Nominal Speed (90Hz)
** @ 1m: sound pressure level at 1m distance from the compressor, free field condition
Preliminary Data

Inverter Drive										
Model	Matched Compressor	Power Input (kW)	Amps (A)	Cooling	Frequency (Hz)		Net Weight (kg)	1Ph 230V	3Ph 400V	Comm.	Length/Width/ Height (mm)*
		Nominal	Nominal		Min	Max					
EV2033M	ZHW015	3.3		Air / Liquid	15	120	3.6	√	n.a.	Modbus	228/260/156
EV2037M	ZHW015	3.7			15	120	3.6	√	n.a.		228/260/119
EV2055M	ZHW015-30	5.5			15	120	3.6	√	√		
EV2080M	ZHW030	8.0			15	120	5.1	√	√		228/260/156
ED3011A	XHV018	2.6	11		15	120	2.8	√	n.a.		205/240/143.5
ED3015A	XHV018-25	3.8	15		15	120	3.6	√	n.a.		205/240/143.5
ED3020A	XHV025-38	5.0	20		15	120	3.6	√	n.a.		205/250/180.5
ED3013B	XHV018-25	3.8	13		15	120	3.6	n.a.	√		205/250/183.5
ED3018B	XHV025-38	5.0	18		15	120	3.6	n.a.	√		205/250/183.5
ED3022B	XHV038	8.0	22		15	120	5.1	n.a.	√		n.a.

Conditions: Suction Superheat 5K, Subcooling 4K
*Air Cooled Version Including Fins
Preliminary Data

Capacity Data

Condensing Temperature +50°C															
R410A		Heating Capacity (kW)							R410A		Power Input (kW)						
		Evaporating Temperature (°C)									Evaporating Temperature (°C)						
Model		-30	-15	-10	-5	0	+5	+15	Model		-30	-15	-10	-5	0	+5	+15
ZHW0152P	Max	6.0	8.6	9.7	11.0	12.0	12.0	12.4	ZHW0152P	Max	3.1	3.3	3.3	3.4	3.2	2.9	2.4
	Min	2.0	2.6	2.8	2.9	3.1	3.1	3.8		Min	1.3	1.1	1.1	1.0	0.9	0.9	0.9
ZHW0302P	Max	11.3	16.3	18.5	20.8	22.6	22.6	23.7	ZHW0302P	Max	5.7	6.0	6.1	6.1	5.7	5.4	4.4
	Min	4.2	5.2	5.8	5.9	6.6	6.6	8.1		Min	2.4	2.0	2.0	1.9	1.7	1.7	1.7

Condition: Suction Superheat 10K, Subcooling 4K

Condensing Temperature +50°C															
R410A		Heating Capacity (kW)							R410A		Power Input (kW)						
		Evaporating Temperature (°C)									Evaporating Temperature (°C)						
Model		-20	-15	-10	-5	0	+5	+15	Model		-20	-15	-10	-5	0	+5	+15
XHV0181P	Max	5.6	6.3	7.3	8.3	9.5	10.9	11.7	XHV0181P	Max	2.7	2.7	2.7	2.8	2.8	2.9	2.8
	Min	1.9	2.0	2.3	1.2	1.3	1.3	1.7		Min	1.2	1.1	0.9	0.5	0.4	0.4	0.5
XHV0251P	Max	9.3	10.5	12.0	13.8	15.8	18.1	19.6	XHV0251P	Max	4.3	4.4	4.4	4.5	4.6	4.6	4.6
	Min	3.0	3.3	3.8	1.9	2.1	2.2	2.9		Min	1.8	1.6	1.5	0.7	0.7	0.7	0.7
XHV0381P	Max	16.0	17.9	20.4	23.3	26.8	30.8	34.0	XHV0381P	Max	6.8	7.0	7.1	7.3	7.4	7.5	7.5
	Min	4.6	5.5	6.5	2.8	3.3	3.7	4.9		Min	2.5	2.4	2.4	1.1	1.1	1.1	1.1

Condition: Suction Superheat 5K, Subcooling 4K
Preliminary Data

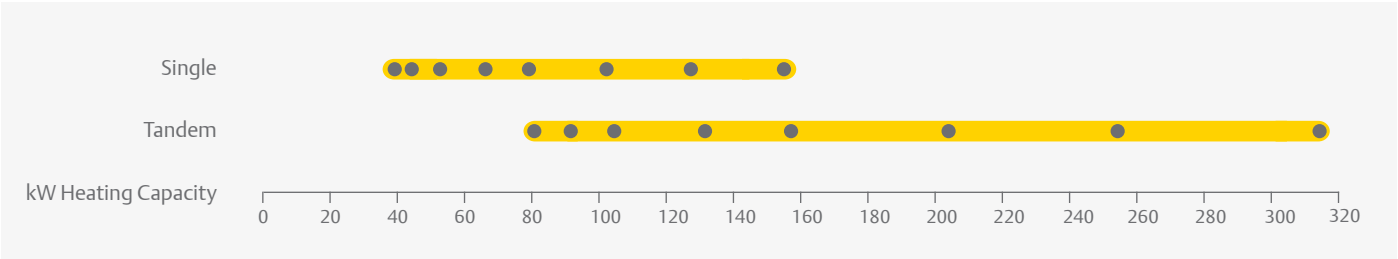
ZH Copeland Scroll™ for Heat Recovery and High Condensing Applications for R134a

ZH*KCE R134a Copeland Scroll compressors were developed for the recovery and reuse of available heat. For example, the heat generated by processes or machining cooling equipment can be recovered and not wasted. This contributes to reducing the total energy cost of installations. On a water-cooled chiller, heat recovery on the condensing water loop can be used to produce high temperature water for sanitary or premise heating. With a typical evaporating temperature between 20°C and 40°C and condensing up to 85°C, ZH*KCE scrolls offer many opportunities of heat recovery.

The range of products goes from the ZH40KCE (7.5hp) to the ZH150 (30hp) which can be tandemized.

ZH*KCE Scroll Compressor for Heat Recovery

ZH*KCE Scroll Compressor Line-Up R134a



Conditions: Evaporating 40°C, Condensing 85°C, Superheat 10K, Subcooling 5K

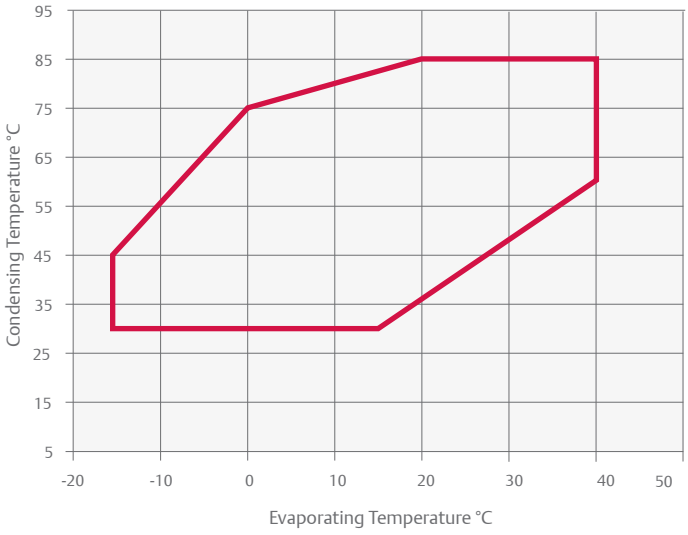
Features and Benefits

- Copeland Scroll axial and radial compliance for superior reliability and efficiency
- Wide scroll line-up R134a with 8 models and tandem
- Low sound and vibration level
- Low oil circulation rate
- Copeland qualified tandem

Typical Applications

- Heat recovery on the dry cooler water circuit of a water-cooled chiller to produce sanitary water or other heating
- Re-inject energy to district heating network and avoid wasting it
- Process industry where the water returning from the machinery comes back between 20 and 40°C
- Food industry where one areas needs cooling and another heating at the same time
- Air-to-water heat pump, even during the warm season
- Exhaust air heat recovery system
- Heat recovery on Fluegas

Operating Envelope R134a



Maximum Allowable Pressure (PS)

Low side PS 20 bar(g) / High side PS 32 bar(g)

Technical Overview

Models	Nominal hp	Heating Capacity (kW)	COP	Displacement (m^3/h)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/Width/ Height (mm)	Net Weight (kg)	Motor Version / Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @1 m - dB(A)**
										3 Ph*	3 Ph*	3 Ph*	
ZH40KCE	7.5	39.0	4.3	22.1	1 1/8	7/8	2.7	264 / 285 / 476	57	TFD	19.2	95	63
ZH45KCE	9.0	44.0	4.6	24.9	1 3/8	7/8	3.4	264 / 285 / 533	60	TFD	21.1	111	63
ZH50KCE	10.0	50.9	4.5	29.1	1 3/8	7/8	3.4	264 / 285 / 533	61	TFD	23.6	118	63
ZH64KCE	13.0	63.7	4.3	36.4	1 3/8	7/8	3.4	264 / 285 / 552	65	TFD	27.1	140	68
ZH75KCE	15.0	76.0	4.2	43.4	1 3/8	7/8	3.4	264 / 285 / 552	66	TFD	35.3	174	71
ZH100KCE	20.0	96.1	4.0	56.6	1 5/8	1 3/8	4.7	432 / 376 / 694	140	TWD	42.7	225	72
ZH125KCE	25.0	120.0	4.1	71.4	1 5/8	1 3/8	6.8	447 / 392 / 717	160	TWD	53.4	272	74
ZH150KCE	30.0	148.8	4.2	87.5	1 5/8	1 3/8	6.3	447 / 427 / 717	177	TWD	67.6	310	76

Conditions Evaporating 40°C - Condensing 85°C - Superheat 5K - Subcooling 4K
* 3 Ph: 380-420V/ 50Hz
** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

Condensing Temperature +80°C														
R134a	Heating Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Models	+10	+15	+20	+25	+30	+35	+40	Models	+10	+15	+20	+25	+30	+35	+40
ZH40KCE	16.9	19.7	22.9	26.5	30.7	35.6	41.1	ZH40KCE	8.3	8.3	8.2	8.1	8.1	8.1	8.1
ZH45KCE	20.2	23.2	26.5	30.5	35.0	40.3	46.5	ZH45KCE	8.7	8.7	8.7	8.7	8.7	8.7	8.7
ZH50KCE	23.1	26.6	30.6	35.2	40.5	46.7	53.8	ZH50KCE	10.2	10.2	10.2	10.2	10.2	10.2	10.2
ZH64KCE	28.7	33.1	38.1	43.9	50.7	58.4	67.3	ZH64KCE	13.5	13.5	13.4	13.4	13.5	13.5	13.6
ZH75KCE	34.8	39.9	45.8	52.6	60.5	69.7	80.3	ZH75KCE	16.2	16.2	16.2	16.2	16.3	16.4	16.7
ZH100KCE	46.4	52.6	59.9	68.3	77.9	88.9	101.5	ZH100KCE	21.1	21.3	21.4	21.5	21.5	21.5	21.6
ZH125KCE	57.6	65.4	74.4	84.8	96.9	111.0	127.0	ZH125KCE	27.6	26.6	26.6	26.5	26.4	26.3	26.3
ZH150KCE	71.0	80.7	91.9	105.0	120.0	137.0	157.0	ZH150KCE	30.7	31.2	31.5	31.8	32.0	32.3	32.5

Conditions: Suction Superheat 5K / Subcooling 4K

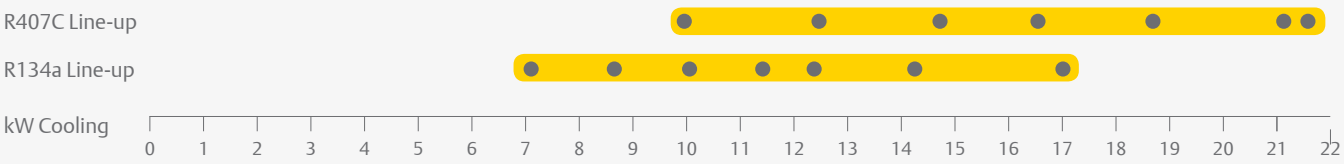
ZRH & ZRHV Copeland Scroll™ Horizontal Compressor Ranges for R407C and R134a, for the specific needs of transport air conditioning

Air conditioning for passenger comfort is a pre-requisite in today's public transport vehicles. At the same time, maximization of passenger space and streamlining of high speed trains increasingly impose limitations on height.

ZRH compressors are based on the unique Copeland Scroll design and provide the same reliability as a standard Copeland Scroll. The addition of an oil pump covers the specific needs of transport air conditioning and of horizontal compressor arrangement in general. The low profile design and modulation capabilities of the ZRH compressor range are the ideal response to these market needs.

Horizontal Scroll Compressor

ZRH Scroll Compressors Line-up R407C and R134a



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

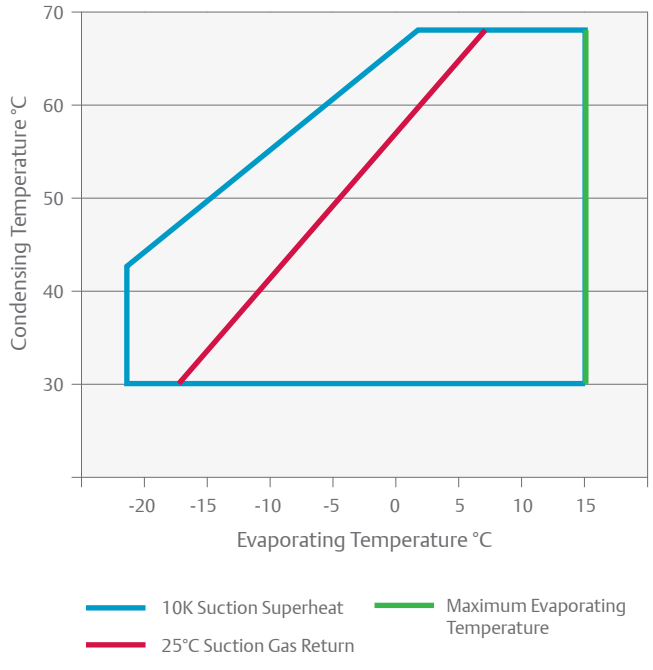
Features and Benefits

- Compactness and low weight
- Horizontal design with less than 250mm height
- Copeland Scroll compliance for superior reliability and efficiency
- Additional oil-pump
- Reduction of potential risk of refrigerant leakage through the drive shaft sealing
- Capacity modulation from 70% to 150% for Quest models ZRHV

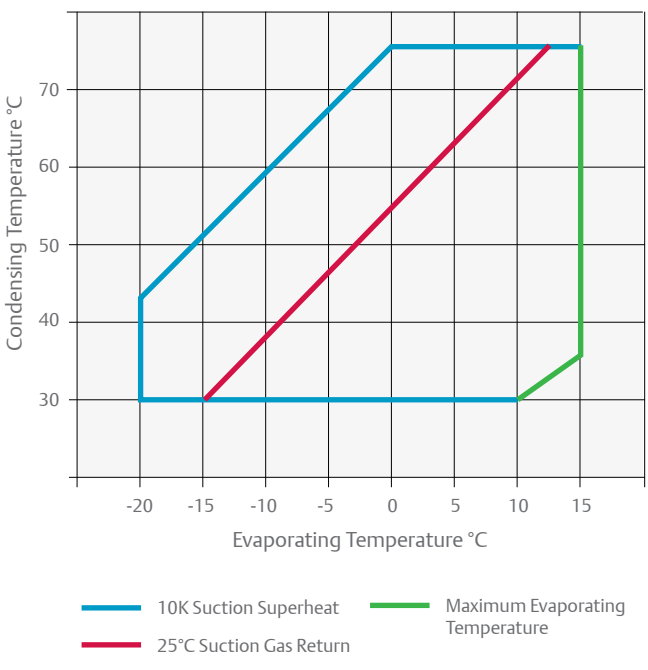
Maximum Allowable Pressure (PS)

Low Side PS 21 bar(g) / High Side PS 28.8 bar(g)

Operating Envelope R407C



Operating Envelope R134a



Technical Overview - Fixed Speed Models

Models	Nominal hp	Capacity (kW)	COP	Displacement (m^3/h)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/ Width/Height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @1 m - dB(A)**
										3 Ph*	3 Ph*	3 Ph*	
ZRH49KJE	4.0	10.4	2.9	11.8	7/8	1/2	1.8	487/290/231	52	TFD	9	52	66
ZRH61KJE	5.0	13.2	3.1	14.5	7/8	1/2	1.8	487/290/231	53	TFD	12	64	67
ZRH72KJE	6.0	15.2	3.1	17.1	7/8	1/2	1.8	487/290/231	54	TFD	12	74	68
ZRH78KTE	7.0	16.7	3.0	19.8	1 3/8	7/8	1.6	585/313/250	60	TFD	14	100	74
ZRH87KTE	7.5	18.8	3.0	22.1	1 3/8	7/8	1.6	585/313/250	60	TFD	16	95	74
ZRH100KTE	9.0	21.5	3.1	24.9	1 3/8	7/8	1.6	585/313/250	63	TFD	18	111	74
ZRH116KTE	10.0	25.1	3.1	29.1	1 3/8	7/8	1.6	585/313/250	64	TFD	20	118	74

Conditions: EN12900 R407C - HT: Evaporating +5°C, Condensing +50°C, suction Superheat 10K, Subcooling 0K
*TFD: 3Ph 380-420V/50Hz - 460/60Hz; TF5 200-220V/50Hz, 200-230V/60Hz
** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Technical Overview - Variable Speed Models

Models	Capacity (kw)		COP	Displacement (m^3/h)	Stub Suction (inch)	Stub discharge (inch)	Oil Quantity (l)	Length/ Width/Height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound pressure @1 m - db(a)**
	Min	Max								3 Ph*	3 Ph*	3 Ph*	
ZRHV72KJE	13.3	22.0	2.8	17.1	7/8	1/2	1.8	487/290/231	53	TFD	15	100	66
ZRHV94KJE	18.6	32.9	2.8	23.9	1 3/8	7/8	1.6	584/305/230	60	TFD	21	140	73

Conditions: EN12900 R407C - HT: Evaporating +5°C, Condensing +50°C, Suction Superheat 10K,Subcooling 0K
*TFD: 3Ph 380-420V/50Hz - 460/60Hz; TF5 200-220V/50Hz, 200-230V/60Hz
** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data - Fixed Speed Models

Condensing Temperature +50°C														
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-15	-10	-5	0	+5	+10	+15	Model	-15	-10	-5	0	+5	+10	+15
ZRH49KJE	2.8	3.7	4.7	5.9	7.3	8.9	10.7	ZRH49KJE	2.0	1.1	2.2	2.3	2.4	2.5	2.6
ZRH61KJE	3.6	4.6	5.9	7.3	8.9	10.9	13.1	ZRH61KJE	2.3	2.5	2.6	2.7	2.8	2.9	3.1
ZRH72KJE	4.3	5.6	7.0	8.6	10.5	12.6	15.0	ZRH72KJE	2.6	2.8	3.0	3.1	3.0	3.4	3.5
ZRH78KTE	4.2	5.5	7.1	9.0	11.3	13.9	17.0	ZRH78KTE	3.5	3.6	3.7	3.8	3.8	3.9	4.0
ZRH87KTE	4.3	5.8	7.6	9.8	13.3	15.2	18.7	ZRH87KTE	3.9	4.0	4.0	4.1	4.1	4.1	4.0
ZRH100KTE	4.8	6.6	8.7	11.2	14.2	17.6	21.7	ZRH100KTE	4.2	4.4	4.4	4.5	4.4	4.5	4.5
ZRH116KTE	6.4	8.4	10.8	13.6	16.9	10.8	25.3	ZRH116KTE	5.5	5.6	5.6	5.6	5.5	5.5	5.5

Conditions: Suction Superheat 10K / Subcooling 0K
Preliminary Data

Condensing Temperature +50°C														
R407C	Cooling Capacity (kW)							R407C	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-15	-10	-5	0	+5	+10	+15	Model	-15	-10	-5	0	+5	+10	+15
ZRH49KJE		5.6	6.9	8.5	10.4	12.6	15.0	ZRH49KJE		3.1	3.3	3.4	3.5	3.6	3.8
ZRH61KJE		7.2	8.8	10.8	13.2	15.9	19.0	ZRH61KJE		3.8	4.0	4.2	4.3	4.5	4.6
ZRH72KJE		8.1	10.1	12.4	15.2	18.4	22.2	ZRH72KJE		4.3	4.5	4.7	4.9	5.0	5.1
ZRH78KTE			10.3	13.4	16.7	20.5		ZRH78KTE			5.4	5.5	5.5	5.5	
ZRH87KTE			15.6	14.8	18.8	23.5		ZRH87KTE			6.1	6.2	6.2	6.2	
ZRH100KTE			13.8	17.4	21.5	26.3		ZRH100KTE			6.7	6.8	6.9	6.9	
ZRH116KTE			16.1	20.2	25.1	30.8		ZRH116KTE			7.9	8.0	8.0	8.1	

Conditions: Suction Superheat 10K / Subcooling 0K

Capacity Data - Variable Speed Models

Condensing Temperature +50°C																
R134a		Cooling Capacity (kW)							R134a		Power Input (kW)						
		Evaporating Temperature (°C)									Evaporating Temperature (°C)						
Model		-15	-10	-5	0	+5	+10	+15	Model		-15	-10	-5	0	+5	+10	+15
ZRHV72KJE	Max		8.5	10.6	13.0	15.8	18.9	22.3	ZRH49KJE	Max		4.8	5.1	5.4	5.7	6.0	6.3
	Min		5.1	6.3	7.8	9.5	11.3	13.4		Min		2.9	3.1	3.2	3.4	3.6	3.8
ZRHV94KJE	Max			12.4	15.2	18.5	22.2	26.2	ZRH61KJE	Max		0.0	6.0	6.3	6.7	7.0	
	Min			8.9	10.9	13.3	15.9	18.7		Min		0.0	4.3	4.5	4.8	5.0	

Conditions: Suction Superheat 10K / Subcooling 0K
Preliminary Data

Condensing Temperature +50°C																
R407C		Cooling Capacity (kW)							R407C		Power Input (kW)						
		Evaporating Temperature (°C)									Evaporating Temperature (°C)						
Model		-15	-10	-5	0	+5	+10	+15	Model		-15	-10	-5	0	+5	+10	+15
ZRHV72KJE	Max		11.8	14.8	18.2	22.1	26.5	31.2	ZRH49KJE	Max		6.8	7.2	7.5	7.9	8.4	8.9
	Min		7.1	8.9	10.9	13.3	15.9	18.7		Min		4.1	4.3	4.5	4.8	5.0	5.3
ZRHV94KJE	Max			17.3	21.3	25.9	31.0	36.7	ZRH61KJE	Max			8.4	8.8	9.3	9.8	10.4
	Min			12.4	15.3	18.6	22.2	26.2		Min			6.0	6.3	6.7	7.0	7.5

Conditions: Suction Superheat 10K / Subcooling 0K

Refrigeration Applications

Refrigeration Applications

Emerson offers a wide range of solutions for commercial refrigeration applications. With its long-lasting expertise in semi- hermetic reciprocating compressor technology as well as in scroll technology, we can meet the requirements for most applications - at the small end just like at the large end of commercial refrigeration.

Completed by the various offerings in the segment of refrigeration units, Emerson is able to offer the best solution and performance, whether you are looking for applications in foodservice or processing, supermarkets, hypermarkets, petrol stations or refrigerated warehousing.

Emerson prime focus for its semi-hermetic reciprocating technology is at the large end of commercial refrigeration. Here aspects such as reliability, serviceability and capacity modulation are of importance and they are perfectly provided by Emerson semi-hermetic reciprocating compressors. Innovations like the Discus™ and Stream technologies, digital modulation and CoreSense™ Diagnostics for advanced protection and preventive maintenance keep semi-hermetic at the forefront of compressor technology.

Especially when compact equipment, energy efficiency and reliability are musts, the scroll technology is the preferred choice for refrigeration applications. With developments such as vapor injection and digital modulation, scroll has become the leading technology and is widely recognized in the refrigeration market.

CoreSense™ Diagnostics is now also available as an option for the new scroll Summit series for medium and low temperature applications.

Whatever the chosen technology and product solution, Emerson's range meets the specific refrigeration needs covering the entire spectrum of medium and low temperature applications whether using standard HFCs, low GWP or natural refrigerants.

ZS*KA Copeland Scroll™ Small Compressor Range for Medium Applications

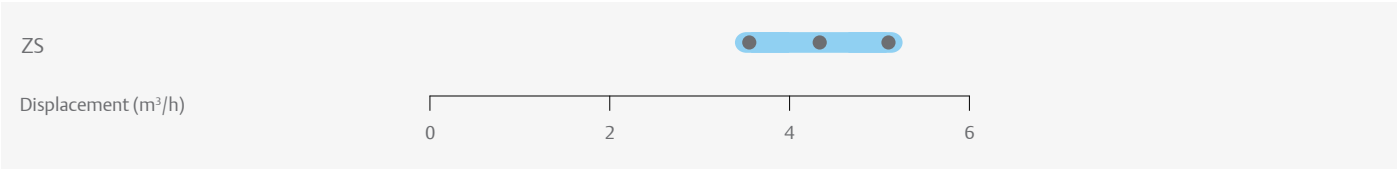
As an extension to the existing ZB*KCE scroll range, the new Copeland Scroll ZS*KA compressor range represents the latest innovation in scroll technology for refrigeration equipment covering a small size displacement range of 4 m^3/h to 5 m^3/h. As with other existing Copeland Scroll compressors scrolls, ZS*KA scrolls feature a scroll compliance mechanism which makes them particularly robust and reliable under severe conditions including liquid slugging.

ZS*KA models are intended for medium temperature refrigeration type systems, and are ideally suited for applications such as walk-ins, reach-ins, cold rooms, display cases, and milk tank units. They are multi-refrigerant capable and feature low sound and low vibration particularly important in the retail and food service sector and recommended for supermarket, restaurant, convenience store, and milk cooling operations.

The ZS*KA range from 1.3hp to 1.8hp is designed to provide seasonal efficiencies up to 28% higher than the equivalent hermetic reciprocating compressors. These compressors are qualified for today's HFC as well as new low GWP refrigerants and HFO blends.

ZS*KA Copeland Scroll™ Compressor Range for Medium Temperature Refrigeration Applications

ZS*KA Compressor Line-up



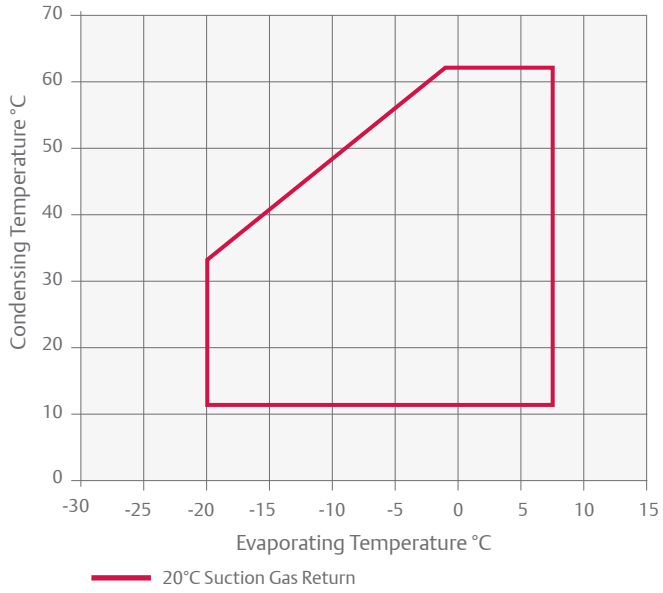
Features and Benefits

- Copeland Scroll axial and radial compliance for superior reliability and efficiency
- High seasonal efficiencies as scrolls are designed at the condition where equipment runs most of the time
- Up to 15% efficiency advantage over hermetic reciprocating compressors at rating conditions, and up to 28% improvement at lower condensing temperatures
- Availability of optional sound shell on all models providing up to 10 dBA additional sound attenuation for silent operation
- Wide operating range from -25°C to 10°C covering a minimum condensing limit of 10°C
- Qualified for R407A/F/C, R448A, R449A, R404A and R134a refrigerants

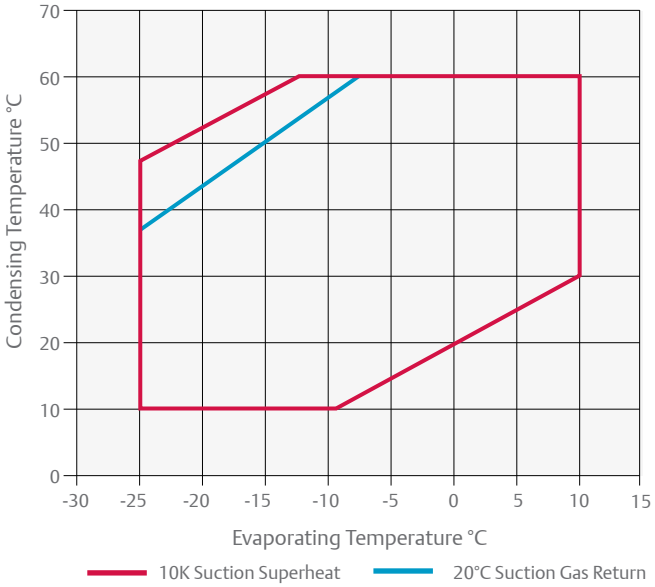
Maximum Allowable Pressure (PS)

- ZS09 to ZS13KA:
  Low Side PS 21.6 bar(g) / High Side PS 31.9 bar(g)

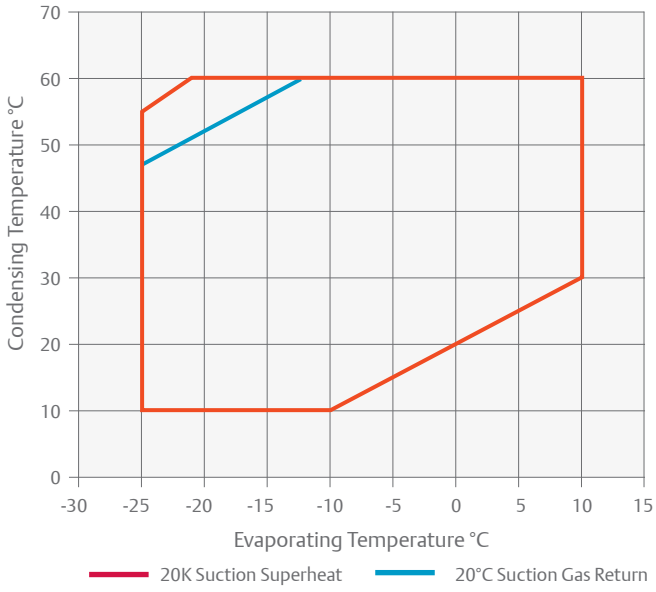
Operating Envelope ZS*KA R134a



Operating Envelope ZS*KA R448A/R449A



Operating Envelope ZS*KA R404A



For individual model details please refer to select software

Technical Overview

Models	Nominal hp	Displacement (m³/h)	Rotalock Suction (inch)	Rotalock Discharge (inch)	Oil Quantity (l)	Length/Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @1 m - dB(A)***
								1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
Medium Temperature														
ZS09KAE	1.3	3.7	3/4	1/2	0.7	246/246/387	22.2	PFJ	TFD	7.2	3.0	45.0	27.0	58.0
ZS11KAE	1.5	4.4	3/4	1/2	0.7	246/246/387	22.4	PFJ	TFD	8.7	3.3	45.0	27.0	58.0
ZS13KAE	1.8	5.0	3/4	1/2	0.7	246/246/387	21.4	PFJ	TFD	9.9	4.0	54.0	29.0	59.0

* 1Ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

Condensing Temperature 40°C														
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
Medium Temperature															
ZS09KAE				0.9	1.1	1.4	1.7	ZS09KAE				0.5	0.6	0.6	0.6
ZS11KAE				1.1	1.3	1.7	2.0	ZS11KAE				0.6	0.7	0.7	0.7
ZS13KAE				1.2	1.5	1.9	2.3	ZS13KAE				0.7	0.8	0.8	0.8

Conditions: Suction Gas Return 20°C / Subcooling 0K

Condensing Temperature 40°C														
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
Medium Temperature															
ZS09KAE			1.2*	1.5	1.9	2.3	2.7	ZS09KAE			0.8*	0.8	0.9	0.9	0.9
ZS11KAE			1.4*	1.8	2.2	2.7	3.3	ZS11KAE			1.0*	1.0	1.1	1.1	1.1
ZS13KAE			1.6*	2.1	2.6	3.1	3.7	ZS13KAE			1.1*	1.2	1.2	1.2	1.3

Conditions: Suction Gas Return 20°C / Subcooling 0K
*Conditions: Suction Superheat 10K, Subcooling 0K
Preliminary Data

Capacity Data

Condensing Temperature 40°C															
R448A/ R449A	Cooling Capacity (kW)							R448A/ R449A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
Medium Temperature															
ZS09KAE			1.0*	1.5	1.9	2.3	2.7	ZS09KAE			0.8*	0.8	0.9	0.9	0.9
ZS11KAE			1.2*	1.8	2.2	2.7	3.3	ZS11KAE			1.0*	1.0	1.1	1.1	1.1
ZS13KAE			1.4*	2.1	2.6	3.1	3.7	ZS13KAE			1.1*	1.2	1.2	1.2	1.3

Conditions: Suction Gas Return 20°C / Subcooling 0K
*Conditions: Suction Superheat 10K, Subcooling 0K

Condensing Temperature 40°C															
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
Medium Temperature															
ZS09KAE			1.1*	1.5	1.9	2.3	2.8	ZS09KAE			0.9*	0.9	1.0	1.0	1.0
ZS11KAE			1.3*	1.9	2.3	2.8	3.3	ZS11KAE			1.0*	1.1	1.1	1.2	1.2
ZS13KAE			1.5*	2.1	2.6	3.1	3.8	ZS13KAE			1.2*	1.3	1.3	1.4	1.4

Conditions: Suction Gas Return 20°C / Subcooling 0K
*Conditions: Suction Superheat 10K, Subcooling 0K

Condensing Temperature 40°C															
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
Medium Temperature															
ZS09KAE			0.9	1.1	1.4	1.7	2.8	ZS09KAE			0.5	0.6	0.6	0.6	1.0
ZS11KAE			1.1	1.3	1.7	2.0	3.3	ZS11KAE			0.6	0.7	0.7	0.7	1.2
ZS13KAE			1.2	1.5	1.9	2.3	3.8	ZS13KAE			0.7	0.8	0.8	0.8	1.4

Conditions: Suction Gas Return 20°C / Subcooling 0K

ZB Copeland Scroll™ Compressor Ranges for Medium Temperature Refrigeration Using R407A/F/C, R448A/R449A, R404A, R134a, R450A and R513A

Emerson offers ZB compressors with a wide displacement rage from 5.9 m³/h to 87.5 m³/h. It includes digital compressor models that offers continuous capacity modulation technology.

Copeland Scroll compressors have 3 times less moving parts than reciprocating compressors and feature a scroll compliance mechanism which makes them particularly robust and reliable under severe conditions including liquid slugging.

They have the advantage of light weight and compactness, making them ideal for the usage in refrigeration units, compact refrigeration systems or special process units.

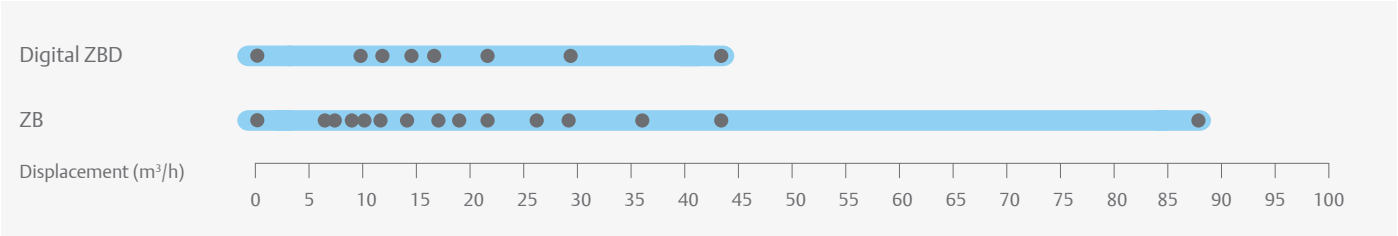
The Summit Series from 7 to 15 hp is designed to provide seasonal efficiencies 15% higher than traditional semi-hermetic compressors. These compressors are extremely quiet and can be fitted with an external sound shell for an additional 10 dBA sound reduction, which makes them best choice for refrigeration applications in urban and domestic areas.

The ZB range also features ZB220 (30hp), the largest refrigeration scroll available on the market. These compressors are qualified for R407A/F/C, R448A, R449A, R404A and R134a. CoreSense™ Diagnostics is now available as an option for the ZB Scroll Summit series (ZB66K5E, ZB76K5E, ZB95K5E and ZB114K5E) as well as for Summit Digital ZBD*K5E Series.

ZB Compressor for Medium Temperature Refrigeration With and Without Sound Shell

For more details on digital models please refer to page 58 in the catalogue.

ZB and ZBD Compressor Line-up



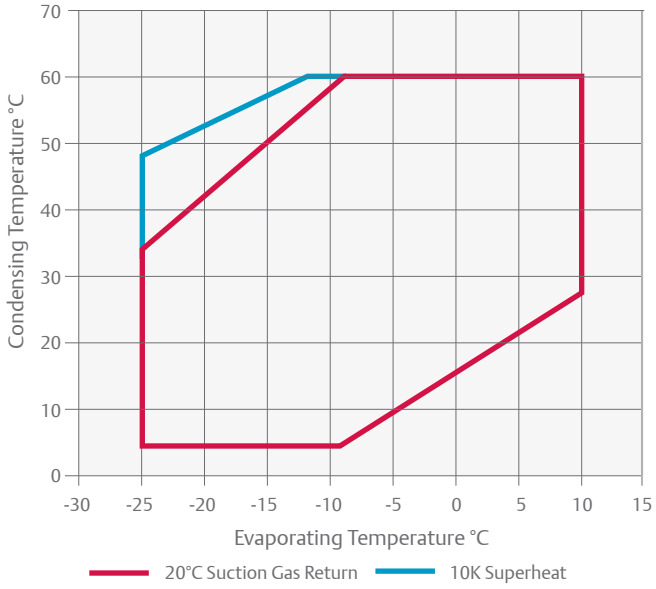
Features and Benefits

- Copeland Scroll axial and radial compliance for superior reliability and efficiency
- Wide operating envelope with 10°C condensing limit and fast pull-down capabilities
- High seasonal efficiencies as scrolls are designed at the condition where equipment runs most of the time
- Light weight and compactness, up to half the weight of equivalent semi-hermetic compressors
- Availability of optional sound shell on all models providing an additional 10 dBA sound attenuation for silent operation
- Includes 12 Digital Scroll compressor models for simple, stepless 10 to 100% capacity modulation
- One model for multiple refrigerants R407A/F/C, R448A/ R449A, R404A, R134a, R450A and R513A

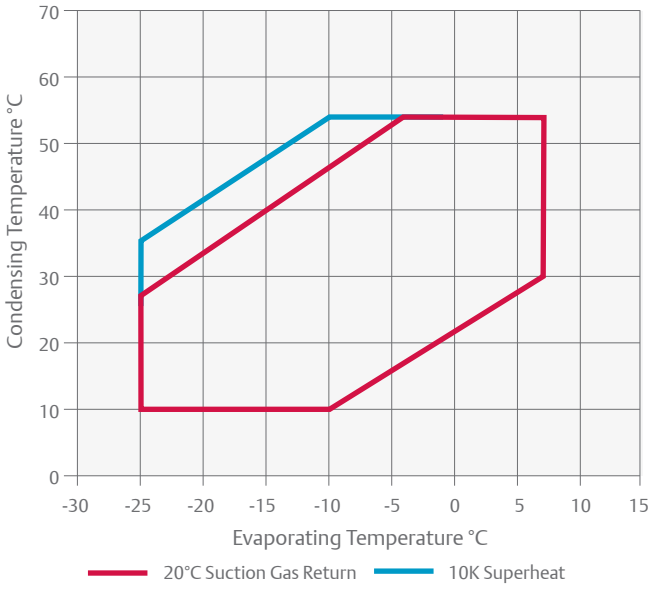
Maximum Allowable Pressure (PS)

- ZB15 to ZB45:
  Low Side PS 21 bar(g) / High Side PS 32 bar(g)
- ZB50 to ZB220:
  Low Side PS 22.6 bar(g) / High Side PS 32 bar(g)
- Digital ZBD:
  Low Side PS 21 bar(g) / High Side PS 28.8 bar(g)
- Summit ZBD:
  Low Side PS 22.6 bar(g) / High Side PS 32 bar (g)

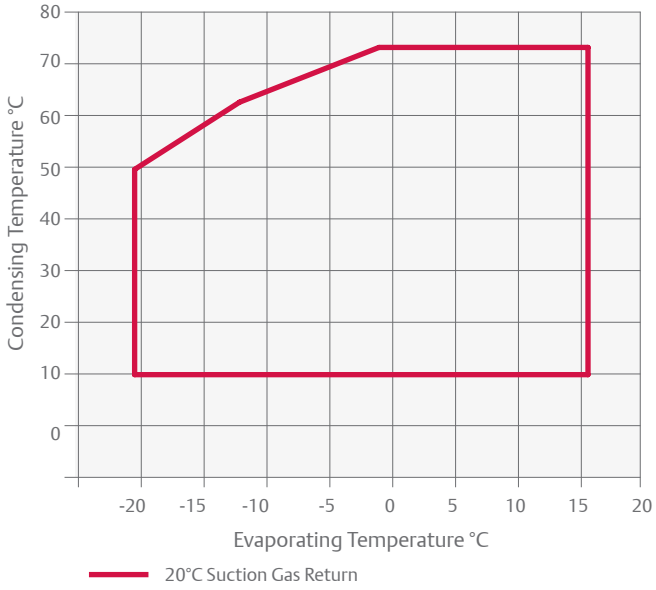
Operating Envelope R448A/R449A



Operating Envelope R407A



Operating Envelope R134a - for ZBD Digital Models



For individual model details please refer to select software.

Technical Overview

Models	Nominal hp	Displacement (m^3/h)	Rotalock suction (inch)	Rotalock Discharge (inch)	Oil Quantity (l)	Length/Width/ Height (mm)	Net Weight (kg)	Motor Version/Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @1 m - dB(A)***
								1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
ZB15KCE	2.0	5.9	1 1/4	1	1.3	241/241/369	25.4	PFJ	TFD	12.8	4.9	58.0	26.0	55.0
ZB19KCE	2.5	6.8	1 1/4	1	1.5	242/242/369	27.2	PFJ	TFD	12.8	6.5	61.0	32.0	55.0
ZB21KCE	3.0	8.6	1 1/4	1	1.2	243/244/391	29.0	PFJ	TFD	16.4	7.2	82.0	40.0	58.0
ZB26KCE	3.5	10.0	1 1/4	1	1.5	243/244/405	28.0	PFJ	TFD	18.0	8.9	97.0	46.0	60.0
ZB29KCE	4.0	11.4	1 1/4	1	1.5	246/246/423	28.6		TFD		10.0		50.0	58.0
ZB38KCE	5.0	14.4	1 1/4	1	1.9	242/242/438	37.4	PFJ	TFD	32.3	12.8	142.0	65.5	61.0
ZB42KCE	5.5	16.2	1 1/4	1	1.9	251/246/438	43.0	PFJ		35.7		150.0		62.0
ZB45KCE	6.0	17.1	1 1/4	1	1.9	242/242/438	39.5		TFD		13.1		74.0	61.0
ZB48KCE	6.5	18.8	1 1/4	1 1/4	1.8	246/250/442	39.0		TFD		14.0		101.0	62.0
ZB57KCE		21.4	1 1/4	1 1/4	1.9	246/256/442	39.5		TFD		15.9		102.0	68.0
ZB220KCE	30.0	87.5	2 3/4	1 3/4	6.3	448/392/715	176.0		TWM		69.0		310.0	78.0
ZB Summit Models														
ZB66K5E	10.0	25.7	1 3/4	1 1/4	3.4	280/280/534	59.9		TFD		17.5		111.0	66.0
ZB76K5E	12.0	28.8	1 3/4	1 1/4	3.4	280/280/534	61.2		TFD		20.4		118.0	67.0
ZB95K5E	13.0	36.4	1 3/4	1 1/4	3.4	280/280/552	64.9		TFD		28.2		140.0	69.0
ZB114K5E	15.0	43.4	1 3/4	1 1/4	3.4	280/280/552	66.2		TFD		33.5		174.0	72.0

* 1Ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

Condensing Temperature 40°C															
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
ZB15KCE				2.1*	2.8	3.5	4.2	ZB15KCE				1.5*	1.5	1.5	1.5
ZB19KCE				2.6*	3.4	4.2	5.2	ZB19KCE				1.7*	1.8	1.8	1.8
ZB21KCE				3.0*	4.0	5.1	6.3	ZB21KCE				2.0*	2.0	2.0	2.1
ZB26KCE				3.6*	4.7	5.8	7.1	ZB26KCE				2.3*	2.3	2.3	2.4
ZB29KCE				4.2*	5.6	7.0	8.6	ZB29KCE				2.6*	2.6	2.6	2.6
ZB38KCE				5.4*	7.2	8.9	11.0	ZB38KCE				3.2*	3.3	3.3	3.4
ZB42KCE**				6.1*	7.9	9.8	12.0	ZB42KCE**				3.9*	3.9	3.9	3.9
ZB45KCE				6.3*	8.2	10.2	12.4	ZB45KCE				3.9*	4.0	4.0	4.0
ZB48KCE				7.3*	9.5	11.7	14.3	ZB48KCE				4.5*	4.5	4.6	4.5
ZB57KCE				8.4*	11.1	13.8	17.0	ZB57KCE				5.2*	5.2	5.3	5.3
ZB Summit Models															
ZB66K5E				9.2*	12.4	15.6	19.3	ZB66K5E				5.5*	5.5	5.7	5.8
ZB76K5E				10.6*	14.2	18.1	22.4	ZB76K5E				6.5*	6.5	6.7	6.9
ZB95K5E				12.9*	17.7	22.5	27.8	ZB95K5E				8.3*	8.3	8.5	8.7
ZB114K5E				14.8*	20.5	26.3	32.8	ZB114K5E				10.2*	10.2	10.3	10.5

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K
** Single Phase Only
Preliminary Data

Condensing Temperature 40°C															
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
ZB15KCE					2.6*	3.4	4.2	ZB15KCE					1.6*	1.6	1.6
ZB19KCE					3.2*	4.2	5.1	ZB19KCE					1.9*	1.9	1.9
ZB21KCE					3.9*	5.0	6.2	ZB21KCE					2.2*	2.2	2.3
ZB26KCE					4.5*	5.8	7.2	ZB26KCE					2.6*	2.6	2.6
ZB29KCE					5.4*	7.0	8.7	ZB29KCE					2.8*	2.9	2.8
ZB38KCE				5.2*	6.9*	8.9	11.0	ZB38KCE				3.7*	3.7*	3.7	3.7
ZB42KCE**				5.9*	7.8*	10.1	12.5	ZB42KCE**				4.0*	4.0*	4.0	4.0
ZB45KCE				6.0*	8.1*	10.5	13.0	ZB45KCE				4.1*	4.2*	4.3	4.2
ZB48KCE				7.0*	9.3*	12.1	15.0	ZB48KCE				4.7*	4.8*	4.9	4.9
ZB57KCE				7.9*	10.6*	13.7	16.8	ZB57KCE				4.7*	5.0*	5.3	5.5
ZB Summit Models															
ZB66K5E				9.5*	13.0*	16.9	20.9	ZB66K5E				5.8*	5.8*	5.9	6.1
ZB76K5E				10.9*	15.0*	19.6	24.2	ZB76K5E				6.9*	6.8*	7.0	7.2
ZB95K5E				13.3*	18.6*	24.4	30.1	ZB95K5E				8.8*	8.8*	8.9	9.1
ZB114K5E				15.3*	21.5*	28.5	35.4	ZB114K5E				10.7*	10.7*	10.8	11.0

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K
** Single Phase Only
Preliminary Data

Capacity Data

Condensing Temperature 40°C														
R448A/ R449A	Cooling Capacity (kW)							R448A/ R449A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
ZB15KCE			1.5*	2.2	2.8	3.5	4.3	ZB15KCE			1.6*	1.5	1.5	1.4	1.4
ZB19KCE			1.9*	2.6	3.2	4.0	4.9	ZB19KCE			1.7*	1.7	1.7	1.7	1.7
ZB21KCE			2.5*	3.3	4.2	5.2	6.4	ZB21KCE			2.0*	2.0	2.0	2.0	2.0
ZB26KCE			2.9*	3.9	4.9	6.0	7.4	ZB26KCE			2.3*	2.4	2.4	2.4	2.4
ZB29KCE			3.3*	4.4	5.5	6.8	8.2	ZB29KCE			2.6*	2.6	2.6	2.7	2.7
ZB38KCE			3.9*	5.7	7.2	8.9	10.9	ZB38KCE			3.4*	3.4	3.4	3.4	3.4
ZB42KCE**			4.4*	6.4	8.1	10.1	12.3	ZB42KCE**			3.9*	3.9	3.9	3.9	3.9
ZB45KCE			4.5*	6.6	8.4	10.5	12.8	ZB45KCE			3.9*	3.9	3.9	3.9	3.9
ZB48KCE			5.3*	7.6	9.7	12.1	14.7	ZB48KCE			4.5*	4.5	4.5	4.5	4.5
ZB57KCE			6.0*	8.7	11.0	13.6	16.5	ZB57KCE			4.3*	4.5	4.7	4.9	5.1
ZB220KCE				32.4*	43.1	53.7	65.7	ZB220KCE				20.3*	20.3	20.4	20.6
ZB Summit Models															
ZB66K5E			6.8*	9.4*	12.7	15.8	19.3	ZB66K5E			5.8*	5.8*	5.8	5.8	5.8
ZB76K5E			8.0*	11.1*	14.9	18.6	22.7	ZB76K5E			6.5*	6.6*	6.6	6.6	6.7
ZB95K5E			8.8*	13.2*	18.2	22.8	27.8	ZB95K5E			8.7*	8.6*	8.6	8.6	8.7
ZB114K5E			10.6*	15.6*	21.5	27.3	33.7	ZB114K5E			10.5*	10.3*	10.3	10.3	10.4

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
** Single Phase Only
Preliminary Data

Capacity Data

Condensing Temperature 40°C														
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
ZB15KCE			1.9	2.4	3.0	3.7	4.5	ZB15KCE			1.7	1.7	1.6	1.6	1.5
ZB19KCE			2.3	2.9	3.5	4.2	5.1	ZB19KCE			1.9	1.9	1.9	1.9	1.9
ZB21KCE			3.0	3.7	4.5	5.5	6.6	ZB21KCE			2.2	2.2	2.2	2.2	2.2
ZB26KCE			3.5	4.3	5.3	6.4	7.6	ZB26KCE			2.6	2.6	2.6	2.6	2.6
ZB29KCE			4.0	4.9	6.0	7.2	8.6	ZB29KCE			2.9	2.9	2.9	2.9	2.9
ZB38KCE			5.1	6.3	7.7	9.3	11.2	ZB38KCE			3.8	3.8	3.8	3.8	3.8
ZB42KCE**			5.7	7.1	8.7	10.6	12.7	ZB42KCE**			4.2	4.2	4.2	4.2	4.2
ZB45KCE			6.0	7.4	9.1	11.0	13.2	ZB45KCE			4.3	4.3	4.3	4.3	4.3
ZB48KCE			6.9	8.6	10.5	12.7	15.2	ZB48KCE			4.9	4.9	4.9	4.9	4.9
ZB57KCE			7.9	9.7	11.9	14.3	17.1	ZB57KCE			4.7	4.9	5.2	5.4	5.5
ZB220KCE			28.5*	39.2	47.7	57.5	68.9	ZB220KCE			21.4*	21.8	22.0	22.2	22.4
ZB Summit Models															
ZB66K5E			9.1	11.4	13.9	16.8	20.1	ZB66K5E			6.2	6.2	6.2	6.3	6.4
ZB76K5E			10.5	13.1	16.2	19.7	23.6	ZB76K5E			7.2	7.2	7.3	7.4	7.5
ZB95K5E			10.7*	16.0	20.1	24.5	29.3	ZB95K5E			9.3*	9.2	9.3	9.3	9.4
ZB114K5E			12.5*	18.7	23.4	28.7	34.7	ZB114K5E			11.3*	11.3	11.3	11.4	11.4

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
** Single Phase Only

Condensing Temperature 40°C														
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
ZB15KCE				1.4	1.7	2.2	2.7	ZB15KCE				0.9	0.9	0.9	0.9
ZB19KCE				1.6	2.0	2.5	3.1	ZB19KCE				1.1	1.1	1.1	1.1
ZB21KCE				2.0	2.5	3.2	4.0	ZB21KCE				1.3	1.3	1.3	1.3
ZB26KCE				2.3	2.9	3.7	4.6	ZB26KCE				1.5	1.5	1.5	1.5
ZB29KCE				2.5	3.2	4.0	5.0	ZB29KCE				1.7	1.7	1.7	1.7
ZB38KCE				3.2	4.2	5.4	6.7	ZB38KCE				2.1	2.1	2.1	2.2
ZB42KCE**				3.8	4.8	6.0	7.5	ZB42KCE**				2.5	2.5	2.5	2.4
ZB45KCE				4.0	5.1	6.4	8.0	ZB45KCE				2.4	2.4	2.5	2.5
ZB48KCE				4.8	6.0	7.5	9.1	ZB48KCE				2.8	2.8	2.9	2.9
ZB57KCE				5.0	6.4	8.1	10.1	ZB57KCE				3.4	3.4	3.4	3.5
ZB220KCE					27.3	34.1	42.1	ZB220KCE					13.0	13.2	13.5
ZB Summit Models															
ZB66K5E				6.0	7.5	9.5	11.8	ZB66K5E				3.8	3.7	3.8	3.8
ZB76K5E				6.9	8.6	10.8	13.5	ZB76K5E				4.4	4.4	4.4	4.5
ZB95K5E				8.2	10.8	13.8	17.1	ZB95K5E				5.4	5.5	5.5	5.6
ZB114K5E				9.6	12.7	16.3	20.4	ZB114K5E				6.6	6.6	6.7	6.7

Suction Gas Return 20°C / Subcooling 0K
** Single Phase Only

ZF Copeland Scroll™ Compressor Ranges for Low Temperature Refrigeration Using R407A/F, R448A/R449A and R404A

Emerson developed the ZF range to provide the best performance in low temperature. The range has a wide application envelope as it can operate from -40°C evaporating temperature to +7°C. They have been optimized in their design to perfectly fit frozen food application requirements. Thanks to their scroll compliance mechanism, these scroll compressors feature particularly high tolerance to liquid slugging.

The range consists of:

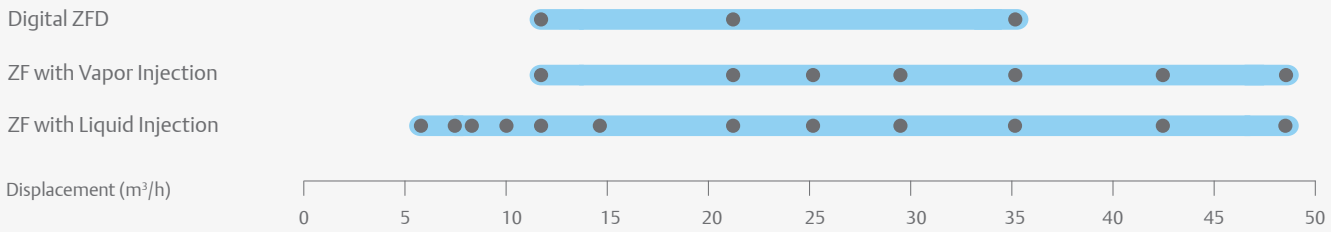
- The ZF*K4E models that operate with liquid injection in order to control discharge temperature and increase the operating envelope.
- The ZF*KVE models that are optimized for vapor injection with use of a sub-cooler. This boosts refrigeration system's cooling capacity and efficiency.
- The Summit ZF* K5E models that operate both with liquid injection or vapor injection.

These compressors are qualified for R407A/F, R448A/R449A, R404A and R134a for certain models. For more details on Digital Scroll models please refer to page 58 in the catalogue.

CoreSense™ Diagnostics is now available as an option for the ZF Scroll Summit series (ZF34K5E-ZF54K5E) as well as for Summit Digital ZFD41K5E.

ZF Compressor for Low Temperature Refrigeration With and Without Sound Shell

ZF and ZFD Compressor Line-Up



Features and Benefits

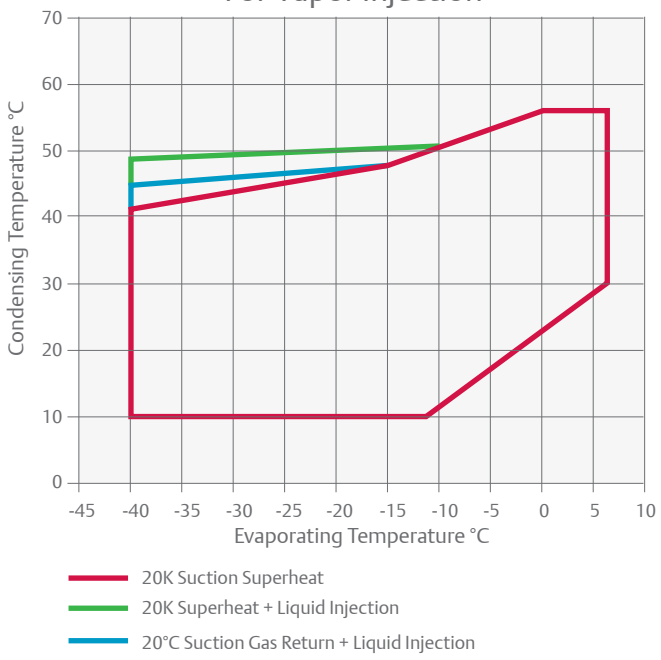
- Wide operating envelope with 10°C low condensing temperature to minimize energy consumption
- One model for multiple refrigerants
- Light weight and compactness, up to half the weight of equivalent semi-hermetic compressor
- Optional Sound Shell allowing up to 10 dBA sound attenuation
- ZF models with liquid injection
  - Easy, efficient and reliable injection via Discharge Temperature Control Valve (DTC)
- ZF models with enhanced vapor injection
  - Seasonal efficiencies compared to Emerson's best semi-hermetic compressors
  - Improved system capacity and efficiency by 40% and 25% respectively, making them the most efficient compressors on the market.
  - Possibility to reduce the equipment and component sizes by using smaller compressors

Maximum Allowable Pressure (PS)

- ZF06 to ZF18 (K4E/KVE):
  Low Side PS 21 bar(g) / High Side PS 32 bar(g)
- ZF25 to ZF54 (K5E):
  Low Side PS 22.6 bar(g) / High Side PS 32 bar(g)
- Digital ZFD:
  Low Side PS 22.6 bar(g) / High Side PS 32 bar(g)

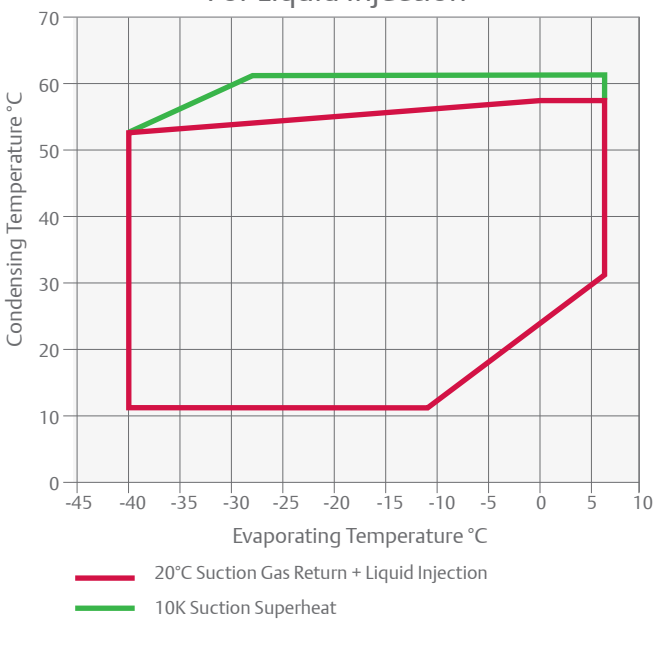
Operating Envelope R407A

For Vapor Injection



20K Suction Superheat
20K Superheat + Liquid Injection
20°C Suction Gas Return + Liquid Injection

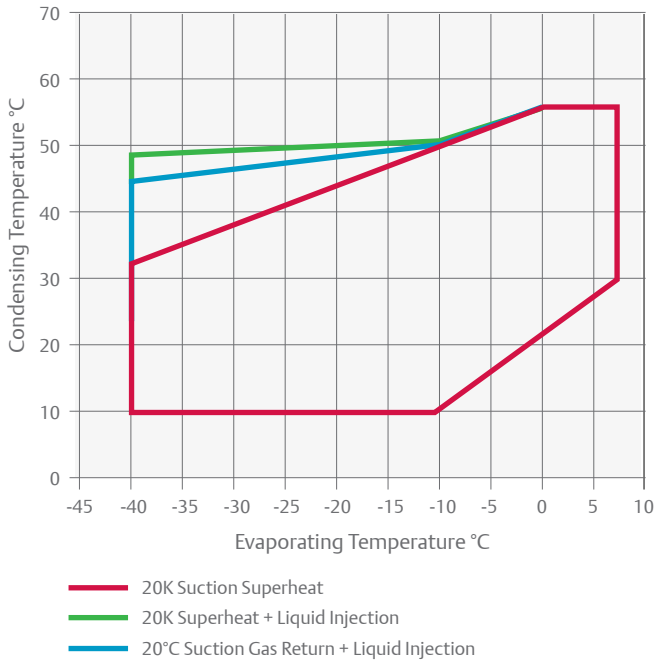
For Liquid Injection



20°C Suction Gas Return + Liquid Injection
10K Suction Superheat

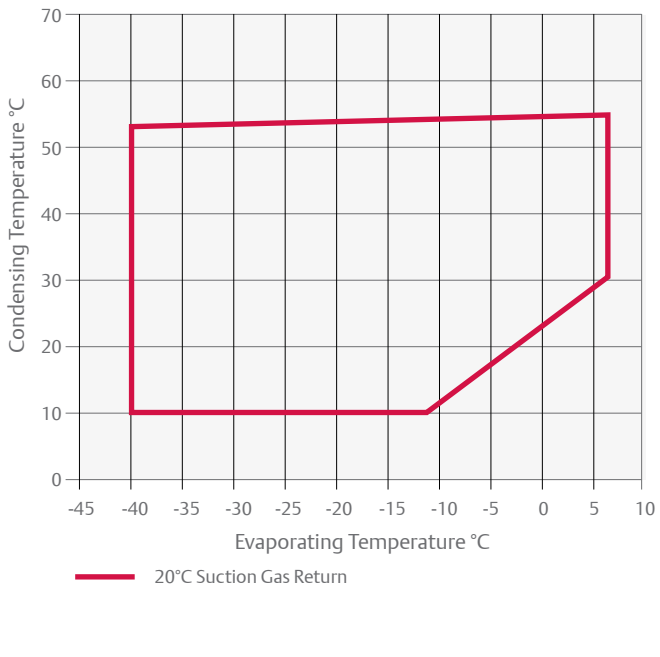
Operating Envelope R407F

For Vapor Injection



20K Suction Superheat
20K Superheat + Liquid Injection
20°C Suction Gas Return + Liquid Injection

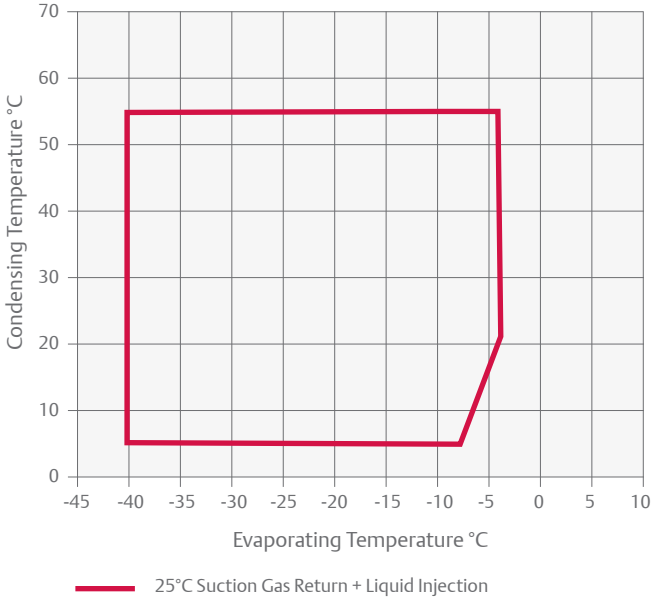
For Liquid Injection



20°C Suction Gas Return

Operating Envelope R448A/R449A

For Liquid Injection



For individual model details please refer to Select Software.

Technical Overview

Models	Nominal hp	Displacement (m^3/h)	Rotalock Suction (inch)	Rotalock Discharge (inch)	Oil Quantity (l)	Length/Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @1 m - db(A)***
								3 Ph**	3 Ph**	3 Ph**	
Models with Liquid Injection											
ZF06K4E	2.0	5.9	1 1/4	1	1.3	243/245/369	25.4	TFD	5.0	26.0	57.0
ZF08K4E	2.5	7.3	1 1/4	1	1.5	243/245/391	27.2	TFD	6.0	32.0	59.0
ZF09K4E	2.8	8.0	1 1/4	1	1.5	243/244/391	27.0	TFD	6.0	40.0	62.0
ZF11K4E	3.5	9.9	1 1/4	1	1.5	243/244/405	28.0	TFD	7.1	46.0	63.0
ZF13K4E	4.0	11.8	1 1/4	1	1.9	246/251/442	38.0	TFD	8.0	51.5	65.0
ZF15K4E	5.0	14.5	1 1/4	1	1.9	246/251/442	39.0	TFD	10.0	64.0	65.0
ZF18K4E	6.0	17.1	1 1/4	1	1.9	246/251/442	41.0	TFD	12.5	74.0	67.0
ZF Summit Models with Liquid Injection											
ZF25K5E	7.5	21.4	1 1/4	1 1/4	1.9	246/257/452	39.5	TFD	16.0	102.0	70.0
ZF34K5E	10.0	29.1	1 3/4	1 1/4	3.4	280/280/534	63.1	TFD	25.0	100.0	68.0
ZF41K5E	13.0	35.3	1 3/4	1 1/4	3.4	280/280/534	63.1	TFD	29.0	118.0	69.0
ZF49K5E	15.0	42.4	1 3/4	1 1/4	3.4	280/280/552	66.2	TFD	30.0	139.0	72.0
ZF54K5E	17.0	48.3	1 3/4	1 1/4	3.4	363/312/552	66.2	TFD	31.0	168.0	78.0
Models with Enhanced Vapor Injection											
ZF13KVE EVI	4.0	11.7	1 1/4	1	1.9	246/251/442	38.0	TFD	9.0	64.0	63.0
ZF18KVE EVI	6.0	17.1	1 1/4	1	1.9	246/251/442	39.5	TFD	13.7	74.0	67.0

** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

Condensing Temperature 40°C														
Models with Liquid Injection														
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
ZF06K4E	1.2	1.5	1.9	2.3	2.8	3.5	4.2	ZF06K4E	1.2	1.2	1.2	1.3	1.4	1.4	1.5
ZF08K4E	1.4	1.9	2.4	3.0	3.6	4.4	5.3	ZF08K4E	1.4	1.4	1.5	1.6	1.6	1.7	1.8
ZF09K4E	1.6	2.0	2.6	3.2	3.9	4.8	5.9	ZF09K4E	1.5	1.5	1.6	1.6	1.7	1.8	1.9
ZF11K4E	2.0	2.6	3.2	4.0	4.9	6.0	7.3	ZF11K4E	1.9	1.9	1.9	2.0	2.0	2.2	2.3
ZF13K4E	2.2	2.9	3.6	4.5	5.6	6.8	8.3	ZF13K4E	2.3	2.3	2.4	2.5	2.5	2.6	2.8
ZF15K4E	2.7	3.5	4.4	5.5	6.8	8.4	10.2	ZF15K4E	2.7	2.8	2.9	3.1	3.2	3.4	3.6
ZF18K4E	3.3	4.3	5.4	6.7	8.3	10.2	12.4	ZF18K4E	3.3	3.4	3.5	3.6	3.8	3.9	4.1
Models with Enhanced Vapor Injection															
ZF13KVE EVI	3.1	4.0	4.9	6.0	7.3	8.7	10.4	ZF13KVE EVI	2.3	2.3	2.4	2.5	2.6	2.7	2.7
ZF18KVE EVI	4.9	6.0	7.3	8.8	10.8	13.3	16.4	ZF18KVE EVI	3.4	3.5	3.6	3.7	3.9	4.1	4.4
ZF Summit Models - with Liquid Injection															
ZF25K5E	4.3	5.5	6.9	8.6	10.7	13.2	16.0	ZF25K5E	4.0	4.2	4.5	4.7	4.9	5.2	5.4
ZF34K5E	5.9	7.6	9.6	12.1	15.0	18.3	22.3	ZF34K5E	5.1	5.5	5.9	6.2	6.6	6.9	7.3
ZF41K5E	7.3	9.3	11.7	14.5	17.9	21.8	26.4	ZF41K5E	6.2	6.7	7.1	7.6	8.0	8.4	8.9
ZF49K5E	8.6	11.2	14.1	17.7	21.9	26.8	32.5	ZF49K5E	7.6	8.2	8.7	9.2	9.7	10.2	10.7
ZF54K5E	9.4	12.0	15.0	18.6	22.7			ZF54K5E	7.3	7.9	8.4	9.0	9.6		
ZF Summit Models - with Enhanced Vapor Injection															
ZF25K5E EVI	6.1	7.7	9.4	11.4	13.5	15.8	18.2	ZF25K5E EVI	4.3	4.4	4.6	4.8	5.0	5.3	5.5
ZF34K5E EVI	8.0	9.9	12.1	14.6	17.4	20.7	24.2	ZF34K5E EVI	5.3	5.5	5.7	5.9	6.1	6.3	6.4
ZF41K5E EVI	10.1	12.6	15.5	18.7	22.1	25.8	29.7	ZF41K5E EVI	6.7	6.9	7.2	7.4	7.6	7.8	8.0
ZF49K5E EVI	12.1	15.1	18.4	22.3	26.8			ZF49K5E EVI	8.0	8.3	8.5	8.8	9.1		

Suction Gas Return 20°C / Subcooling 0K

Preliminary Data

Capacity Data

Condensing Temperature 40°C															
Models with Liquid Injection															
R407F	**Cooling Capacity (kW)**							**R407F**	**Power Input (kW)**						
	Evaporating Temperature (°C)								**Evaporating Temperature (°C)**						
Model	**-35**	**-30**	**-25**	**-20**	**-15**	**-10**	**-5**	**Model**	**-35**	**-30**	**-25**	**-20**	**-15**	**-10**	**-5**
ZF06K4E	1.2	1.6	2.0	2.4	3.0	3.6	4.4	ZF06K4E	1.3	1.3	1.3	1.4	1.4	1.5	1.6
ZF08K4E	1.5	2.0	2.5	3.1	3.8	4.6	5.5	ZF08K4E	1.5	1.5	1.6	1.6	1.7	1.8	1.9
ZF09K4E	1.7	2.1	2.7	3.4	4.2	5.1	6.2	ZF09K4E	1.6	1.6	1.6	1.7	1.8	1.9	2.0
ZF11K4E	2.1	2.7	3.4	4.2	5.2	6.3	7.7	ZF11K4E	1.9	2.0	2.0	2.1	2.2	2.3	2.4
ZF13K4E	2.4	3.0	3.8	4.7	5.9	7.2	8.7	ZF13K4E	2.4	2.4	2.5	2.6	2.7	2.8	2.9
ZF15K4E	2.9	3.7	4.7	5.8	7.2	8.8	10.8	ZF15K4E	2.8	3.0	3.1	3.2	3.4	3.5	3.8
ZF18K4E	3.5	4.5	5.7	7.0	8.7	10.7	13.0	ZF18K4E	3.5	3.6	3.7	3.8	4.0	4.1	4.3
Models with Enhanced Vapor Injection															
ZF13KVE EVI	3.3	4.3	5.4	6.7	8.1	9.7	11.5	ZF13KVE EVI	2.8	2.9	3.0	3.0	3.1	3.2	3.3
ZF18KVE EVI	4.9	6.1	7.6	9.3	11.3	13.5	16.0	ZF18KVE EVI	3.8	4.0	4.1	4.2	4.4	4.5	4.7
ZF Summit Models - with Liquid Injection															
ZF25K5E	4.5	5.8	7.3	9.1	11.3	13.8	16.8	ZF25K5E	4.2	4.4	4.7	4.9	5.2	5.4	5.7
ZF34K5E	6.2	8.0	10.1	12.7	15.7	19.3	23.4	ZF34K5E	5.4	5.8	6.1	6.5	6.9	7.3	7.6
ZF41K5E	7.6	9.7	12.3	15.2	18.8	22.9	27.7	ZF41K5E	6.5	7.0	7.5	8.0	8.4	8.9	9.3
ZF49K5E	9.1	11.7	14.8	18.6	23.0	28.1	34.2	ZF49K5E	8.0	8.6	9.1	9.6	10.2	10.7	11.2
ZF54K5E	9.9	12.6	15.8	19.5	23.9			ZF54K5E	7.7	8.2	8.8	9.4	10.1		
ZF Summit Models - with Enhanced Vapor Injection															
ZF25K5E EVI	6.4	8.0	9.9	11.9	14.2	16.6	19.1	ZF25K5E EVI	4.5	4.7	4.9	5.1	5.3	5.5	5.8
ZF34K5E EVI	8.3	10.4	12.7	15.4	18.4	21.7	25.4	ZF34K5E EVI	5.6	5.8	6.0	6.2	6.4	6.6	6.8
ZF41K5E EVI	10.6	13.3	16.3	19.6	23.2	27.1	31.2	ZF41K5E EVI	7.0	7.3	7.5	7.7	8.0	8.2	8.4
ZF49K5E EVI	14.1	17.1	20.5	24.5	28.9			ZF49K5E EVI	9.1	9.7	10.3	10.8	11.3		

Suction Gas Return 20°C / Subcooling 0K
Preliminary Data

Capacity Data

Condensing Temperature 40°C														
Models with Liquid Injection														
R448A/ R449A	**Cooling Capacity (kW)**							**R448A/ R449A**	**Power Input (kW)**						
	Evaporating Temperature (°C)								**Evaporating Temperature (°C)**						
Model	**-35**	**-30**	**-25**	**-20**	**-15**	**-10**	**-5**	**Model**	**-35**	**-30**	**-25**	**-20**	**-15**	**-10**	**-5**
ZF06K4E	1.3	1.6	2.0	2.5	3.0	3.6	4.4	ZF06K4E	1.4	1.4	1.4	1.4	1.5	1.5	1.6
ZF08K4E	1.6	2.0	2.6	3.2	3.9	4.7	5.5	ZF08K4E	1.6	1.6	1.7	1.7	1.8	1.9	2.0
ZF09K4E	1.8	2.2	2.8	3.4	4.2	5.1	6.1	ZF09K4E	1.8	1.8	1.8	1.8	1.9	1.9	2.0
ZF11K4E	2.2	2.8	3.5	4.3	5.2	6.3	7.6	ZF11K4E	2.2	2.1	2.1	2.2	2.3	2.4	2.5
ZF13K4E	2.5	3.2	4.0	5.0	6.1	7.4	8.9	ZF13K4E	2.3	2.3	2.4	2.4	2.5	2.6	2.7
ZF15K4E	3.1	3.9	4.9	6.1	7.5	9.1	10.9	ZF15K4E	3.0	3.1	3.1	3.2	3.4	3.5	3.7
ZF18K4E	3.6	4.7	5.9	7.2	8.8	10.7	12.9	ZF18K4E	3.6	3.6	3.6	3.6	3.7	3.9	4.0
Models with Enhanced Vapor Injection															
ZF13KVE EVI	3.2	4.0	5.0	6.2	7.5	9.0	10.7	ZF13KVE EVI	2.5	2.6	2.7	2.8	2.8	2.9	3.0
ZF18KVE EVI	4.5	5.7	7.0	8.4	10.1	12.1	14.2	ZF18KVE EVI	3.1	3.3	3.6	3.8	4.0	4.2	4.3
ZF Summit Models - with Liquid Injection															
ZF25K5E	4.9	6.1	7.6	9.4	11.4	13.8	16.6	ZF25K5E	3.8	3.9	4.1	4.3	4.5	4.8	5.0
ZF34K5E	6.1	7.8	9.8	12.1	14.9	18.1	21.7	ZF34K5E	5.1	5.3	5.4	5.7	6.0	6.3	6.7
ZF41K5E	7.6	9.7	12.1	15.0	18.4	22.5	27.1	ZF41K5E	6.4	6.6	6.9	7.2	7.6	8.0	8.4
ZF49K5E	9.1	11.6	14.6	18.1	22.2	27.0	32.5	ZF49K5E	7.7	7.8	8.0	8.4	8.9	9.4	10.0
ZF54K5E	15.2	18.6	22.7	27.4	33.0			ZF54K5E	10.2	10.5	10.9	1.2	11.6		
ZF Summit Models - with Enhanced Vapor Injection															
ZF25K5E EVI	6.2	7.7	9.5	11.4	13.5	15.7	18.1	ZF25K5E EVI	3.9	4.2	4.5	4.8	5.1	5.3	5.5
ZF34K5E EVI	8.1	10.3	12.8	15.6	18.8	22.2	26.2	ZF34K5E EVI	5.6	6.0	6.4	6.8	7.3	7.9	8.5
ZF41K5E EVI	9.9	12.6	15.6	19.0	22.8	27.1	31.9	ZF41K5E EVI	6.8	7.3	7.8	8.4	9.0	9.7	10.4
ZF49K5E EVI	11.9	14.9	18.3	22.2	26.8			ZF49K5E EVI	8.4	8.9	9.4	10.0	10.6		

Suction Gas Return 20°C / Subcooling 0K
Preliminary Data

Capacity Data

Condensing Temperature 40°C														
Models with Liquid Injection														
R404A	**Cooling Capacity (kW)**							**R404A**	**Power Input (kW)**						
	Evaporating Temperature (°C)								**Evaporating Temperature (°C)**						
Model	**-35**	**-30**	**-25**	**-20**	**-15**	**-10**	**-5**	**Model**	**-35**	**-30**	**-25**	**-20**	**-15**	**-10**	**-5**
ZF06K4E	1.4	1.8	2.2	2.6	3.1	3.8	4.5	ZF06K4E	1.4	1.4	1.5	1.5	1.6	1.7	1.8
ZF08K4E	1.8	2.2	2.8	3.4	4.0	4.8	5.7	ZF08K4E	1.6	1.7	1.8	1.9	1.9	2.1	2.2
ZF09K4E	1.9	2.4	3.0	3.6	4.4	5.2	6.3	ZF09K4E	1.8	1.8	1.9	1.9	2.0	2.1	2.2
ZF11K4E	2.5	3.0	3.7	4.5	5.4	6.5	7.8	ZF11K4E	2.2	2.2	2.3	2.4	2.5	2.6	2.7
ZF13K4E	2.8	3.5	4.3	5.3	6.4	7.7	9.1	ZF13K4E	2.3	2.4	2.5	2.6	2.7	2.8	3.0
ZF15K4E	3.4	4.3	5.3	6.4	7.8	9.4	11.2	ZF15K4E	3.0	3.2	3.3	3.5	3.6	3.8	4.1
ZF18K4E	4.0	5.1	6.3	7.6	9.2	11.1	13.2	ZF18K4E	3.6	3.7	3.8	3.9	4.0	4.2	4.4
Models with Enhanced Vapor Injection														
ZF13KVE EVI	4.0	4.9	6.0	7.2	8.5	10.0	11.7	ZF13KVE EVI	2.8	2.9	3.0	3.0	3.1	3.2	3.3
ZF18KVE EVI	6.1	7.3	8.7	10.4	12.3	14.4	16.9	ZF18KVE EVI	3.8	4.0	4.1	4.2	4.4	4.5	4.7
ZF Summit Models - with Liquid Injection														
ZF25K5E	5.1	6.4	7.9	9.6	11.7	14.1	16.8	ZF25K5E	3.8	4.1	4.4	4.6	4.9	5.2	5.5
ZF34K5E	6.8	8.5	10.5	12.8	15.5	18.6	22.2	ZF34K5E	5.1	5.4	5.8	6.1	6.5	6.8	7.2
ZF41K5E	8.4	10.5	13.0	15.8	19.2	23.1	27.7	ZF41K5E	6.4	6.8	7.3	7.7	8.2	8.7	9.1
ZF49K5E	10.1	12.7	15.6	19.1	23.1	27.8	33.2	ZF49K5E	7.7	8.1	8.5	9.0	9.6	10.2	10.9
ZF54K5E	11.2	13.9	17.1	20.8	25.2			ZF54K5E	8.7	9.1	9.7	10.2	10.9		
ZF Summit Models - with Enhanced Vapor Injection														
ZF25K5E EVI	7.7	9.3	11.2	13.2	15.3	17.5	19.7	ZF25K5E EVI	4.8	5.1	5.4	5.7	6.0	6.3	5.8
ZF34K5E EVI	10.4	12.5	14.9	17.7	20.8	24.4	28.4	ZF34K5E EVI	6.4	6.8	7.2	7.6	7.9	8.3	6.8
ZF41K5E EVI	12.5	15.1	18.1	21.5	25.5	30.0	35.2	ZF41K5E EVI	7.9	8.3	8.8	9.2	9.7	10.1	8.4
ZF49K5E EVI	14.1	17.1	20.5	24.5	28.9			ZF49K5E EVI	9.1	9.7	10.3	10.8	11.3		

Suction Gas Return 20°C / Subcooling 0K
Preliminary Data

For capacity data of ZF28K5E please refer to Select Software.

ZFD & ZBD Copeland Scroll Digital™ Compressor Range for Medium and Low Temperature Refrigeration

Copeland Scroll Digital ZBD and ZFD compressors provide stepless continuous capacity modulation in medium and low temperature refrigeration applications.

Based on the unique Copeland Compliant Scroll™ design, the Digital modulation operates on a simple mechanism. Capacity control is achieved by separating the scroll sets axially over a small period of time. It is a simple mechanical solution allowing precise temperature control and system efficiency.

Digital Scroll technology is a simple modulation solution that can easily and quickly be implemented into any existing system design as no other components are required.

Digital Scroll technology provides continuous, stepless modulation from 10% to 100% with no operating envelope restriction. As a result, system pressures and temperatures are tightly controlled. These compressors provide optimum performance for refrigeration units, refrigeration packs, process and agricultural units.

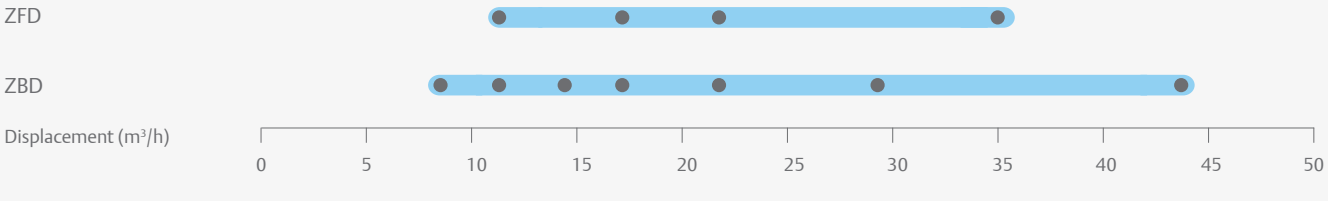
The Digital Scroll range consists of:
- ZBD models dedicated to medium temperature applications
- ZFD models with vapor injection for low temperature applications
- ZOD model designed for use in R744 (CO_2) - see page 66

Copeland Scroll Digital for Low and Medium Temperature Refrigeration With and Without Sound Shell

CoreSense™ Diagnostics is now available as an option for the ZBD Scroll Summit series (ZBD76K5E and ZBD114K5E) as well as for ZFD41K5E.

These compressors are qualified for R407A/F/C, R448A/R449A and R404A for all digital models and R134a, R450A and R513 for ZBD only.

Digital Scroll Compressor Line-Up



Features and Benefits

- Continuous modulation from 10% to 100% ensuring a perfect match of capacity and power to the desired load
- An economical and reliable alternative to variable speed drive
- Precise suction pressure control with associated energy savings
- Food quality is maintained by stable evaporating temperatures in the refrigerated areas
- Longer lasting refrigeration equipment due to fewer compressor cycling
- Quick and easy integration into refrigeration equipment, similar to any other scroll compressor
- Availability of optional sound shell on all models providing up to 10 dBA additional sound attenuation for silent operation
- Availability of Emerson's series of controllers that operate the Digital Scroll compressor
- Possibility of digital and liquid injection control via optional CoreSense technology

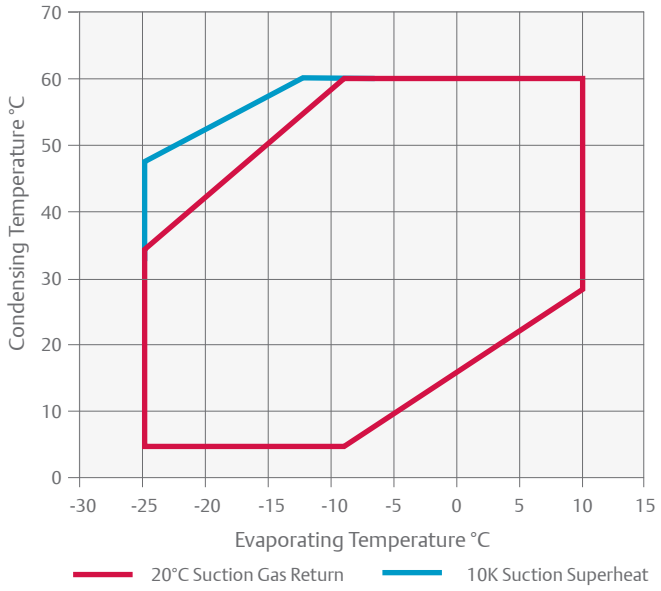
Maximum Allowable Pressure (PS)

- Digital ZBD:
  Low Side PS 22.6 bar(g) / High Side PS 32 bar(g)
- Digital ZFD:

  Low Side PS 22.6 bar(g) / High Side PS 32 bar(g)

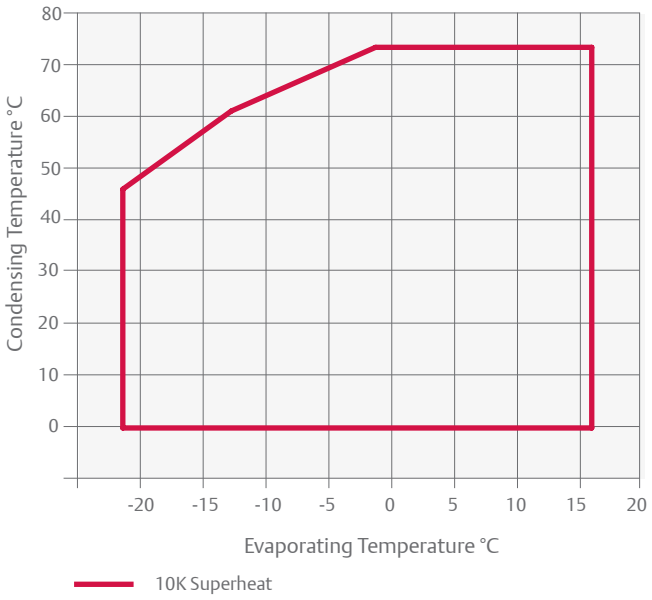
Operating Envelope R448A/R449A

For ZBD Digital Models



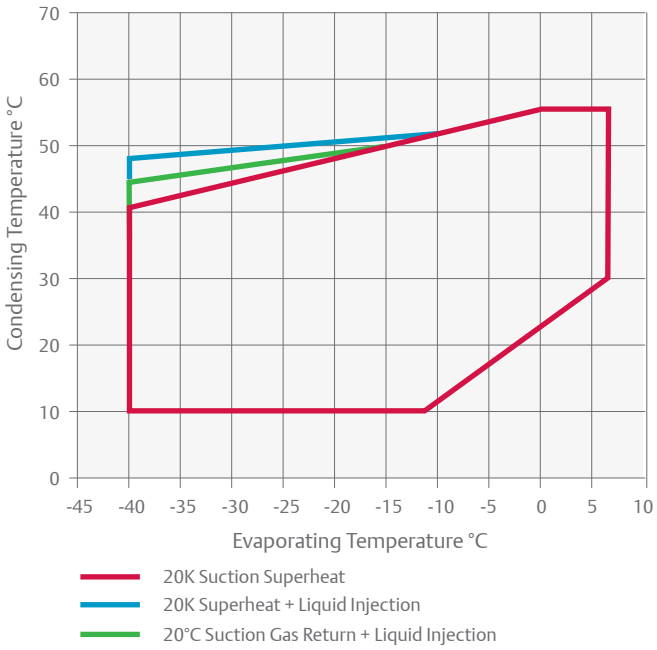
Operating Envelope R134a

For ZBD Digital Models



Operating Envelope R448A/R449A

For ZFD Digital Models



For individual model details please refer to select software.

Technical Overview

Models	Nominal hp	Displacement (m^3/h)	Rotalock Suction (inch)	Rotalock Discharge (inch)	Oil Quantity (l)	Length/Width/ Height (mm)	Net weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @1 m - db(A)**
								1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
Medium Temperature														
ZBD21KCE	3.0	8.3	1 1/4	1	1.2	243/243/432	30.2	PFJ	TFD	16.5	6.7	97.0	40.0	62.0
ZBD29KCE	4.0	11.4	1 1/4	1	1.4	245/243/463	32.7		TFD		7.9		48.0	58.0
ZBD38KCE	5.0	14.4	1 1/4	1	1.9	246/250/481	38.1		TFD		11.3		64.0	67.0
ZBD45KCE	6.0	17.1	1 1/4	1	1.9	241/246/481	39.9		TFD		12.3		74.0	61.0
ZBD57KCE	7.5	21.4	1 1/4	1 1/4	1.9	246/257/481	43.1		TFD		15.9		102.0	68.0
ZBD76K5E	10.0	28.8	1 3/4	1 1/4	3.4	299/280/534	61.2		TFD		24.0		118.0	66.0
ZBD114K5E	15.0	43.3	1 3/4	1 1/4	3.4	299/280/552	68.9		TFD		33.0		174.0	71.0
Low Temperature														
ZFD13KVE EVI	4.0	11.7	1 1/4	1	1.9	246/250/481	38.6		TFD		9.0		64.0	65.0
ZFD18KVE EVI	6.0	17.1	1 1/4	1	1.9	300/299/481	43.1		TFD		13.8		74.0	67.0
ZFD25KVE EVI	7.5	21.4	1 1/4	1 1/4	1.9	246/250/481	43.1		TFD		16.0		102.0	70.0
ZFD41K5E	10.0	35.3	1 3/4	1 1/4	3.4	310/280/534	66.2		TFD		20.4		118.0	73.0
ZFD41K5E EVI	13.0	35.3	1 1/4	1 3/4	3.4	310/280/534	66.2		TFD		20.4		118.0	72.0

* 1ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

For capacity data of ZFD54K5E please refer to select software.

Capacity Data

Condensing Temperature 40°C															
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
Medium Temperature															
ZBD21KCE				3.4*	4.3	5.2	6.3	ZBD21KCE				1.8*	1.9	1.9	2.0
ZBD29KCE				4.2*	5.5	6.8	8.4	ZBD29KCE				2.6*	2.6	2.6	2.6
ZBD38KCE				5.5*	7.3	9.1	11.2	ZBD38KCE				3.4*	3.4	3.4	3.5
ZBD45KCE				6.1*	8.1	10.1	12.5	ZBD45KCE				3.8*	3.8	3.8	3.9
ZBD57KCE				8.4*	11.1	13.8	17.0	ZBD57KCE				5.2*	5.2	5.3	5.3
ZBD76K5E			8.2*	11.3	14.5	18.4	22.8	ZBD76K5E			7.5*	7.1	7.1	7.3	7.5
ZBD114K5E			10.8*	15.6	20.5	26.3	32.8	ZBD114K5E			10.3*	10.2	10.2	10.3	10.5
Low Temperature with Enhanced Vapor Injection															
ZFD13KVE EVI	3.1	4.1	5.2	6.4	7.7	9.2	10.9	ZFD13KVE EVI	2.7	2.8	2.8	2.9	2.9	3.0	3.1
ZFD18KVE EVI	4.9	6.0	7.3	8.8	10.8	13.3	16.4	ZFD18KVE EVI	3.4	3.5	3.6	3.7	3.9	4.1	4.4
ZFD25KVE EVI	6.1	7.7	9.4	11.4	13.5	15.8	18.2	ZFD25KVE EVI	4.3	4.4	4.6	4.8	5.0	5.3	5.5
ZFD41K5E	7.3	9.3	11.8	14.6				ZFD41K5E	6.2	6.7	7.2	7.5			
ZFD41K5E EVI	10.1	12.6	15.5	18.7	22.1	25.8	23.7	ZFD41K5E EVI	6.7	6.9	7.2	7.4	7.6	7.8	8.0

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
Preliminary Data

Condensing Temperature 40°C															
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
Medium Temperature															
ZBD21KCE						5.1	6.3	ZBD21KCE						2.0	2.0
ZBD29KCE					5.8*	7.3	8.9	ZBD29KCE					2.9*	2.9	2.9
ZBD38KCE				5.7*	7.1*	8.9	10.8	ZBD38KCE				3.0*	3.3*	3.5	3.6
ZBD45KCE				6.4*	8.4*	10.8	13.2	ZBD45KCE				3.7*	3.9*	4.1	4.3
ZBD57KCE				8.5*	10.8*	13.8	17.0	ZBD57KCE				5.2*	5.2*	5.3	5.3
ZBD76K5E				11.5*	15.2	19.3	23.9	ZBD76K5E				7.5*	7.4	7.6	7.9
ZBD114K5E				15.8*	21.5	27.6	34.4	ZBD114K5E				10.7*	10.7	10.8	11.0
Low Temperature with Enhanced Vapor Injection															
ZFD13KVE EVI	3.3	4.3	5.4	6.7	8.1	9.7	11.4	ZFD13KVE EVI	2.8	2.9	3.0	3.0	3.1	3.1	3.2
ZFD18KVE EVI	4.9	6.1	7.6	9.3	11.3	13.5	16.0	ZFD18KVE EVI	3.8	4.0	4.1	4.2	4.4	4.5	4.7
ZFD25KVE EVI	6.4	8.0	9.9	11.9	14.2	16.6	19.1	ZFD25KVE EVI	4.5	4.7	4.9	5.1	5.3	5.5	5.8
ZFD41K5E	7.3	9.3	11.8	14.6				ZFD41K5E	6.2	6.7	7.2	7.5			
ZFD41K5E EVI	23.5	29.8	37.2	45.9				ZFD41K5E KVE	6.4	6.6	6.8	7.1			

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
Preliminary Data

Capacity Data

Condensing Temperature 40°C															
R448A/ R449A	Cooling Capacity (kW)							R448A/ R449A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
Medium temperature															
ZBD21KCE			2.5*	3.3	4.2	5.2	6.4	ZBD21KCE			2.0*	2.0	2.0	2.0	2.0
ZBD38KCE			3.9*	5.7	7.2	8.9	10.9	ZBD38KCE			3.4*	3.4	3.4	3.4	3.4
ZBD45KCE			4.5*	6.6	8.4	10.5	12.8	ZBD45KCE			3.9*	3.9	3.9	3.9	3.9
ZBD57KCE			6.0*	8.7	11.0	13.6	16.5	ZBD57KCE			4.3*	4.5	4.7	4.9	5.1
ZBD76K5E					15.1	18.8	23.0	ZBD76K5E					6.9	6.9	7.0
ZBD114K5E					21.8	27.7	34.2	ZBD114K5E					10.7	10.8	10.9
Low Temperature with Enhanced Vapor Injection															
ZFD13KVE EVI	3.3	4.2	5.2	6.3	7.6	9.0	10.6	ZFD13KVE EVI	2.3	2.3	2.4	2.5	2.7	2.8	2.8
ZFD18KVE EVI	4.8	6.0	7.4	9.0	10.8	12.9	15.2	ZFD18KVE EVI	3.4	3.6	3.8	4.0	4.3	4.5	4.7
ZFD25KVE EVI	6.2	7.7	9.5	11.4	13.5	15.7	18.1	ZFD25KVE EVI	3.9	4.2	4.5	4.8	5.1	5.3	5.5
ZFD41K5E	7.4	9.4	11.8	14.6	17.9	21.7	26.2	ZFD41K5E	5.4	5.8	6.2	6.8	7.4	8.1	8.9
ZFD41K5E EVI	9.9	12.5	15.6	19.0	22.8	27.9	31.9	ZFD41K5E EVI	6.8	7.3	7.8	8.4	9.0	9.7	10.4

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
Preliminary Data

Condensing Temperature 40°C															
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
Medium Temperature															
ZBD21KCE			3.0	3.7	4.5	5.5	6.6	ZBD21KCE			1.9	1.9	2.0	2.1	2.1
ZBD29KCE			4.1	5.1	6.2	7.4	8.9	ZBD29KCE			2.5	2.6	2.7	2.8	2.8
ZBD38KCE			5.2	6.3	7.7	9.3	11.1	ZBD38KCE			3.1	3.2	3.4	3.5	3.6
ZBD45KCE			6.1	7.5	9.2	11.2	13.4	ZBD45KCE			3.7	3.8	4.0	4.2	4.4
ZBD57KCE			7.9	9.7	11.9	14.3	17.1	ZBD57KCE			4.7	4.9	5.2	5.4	5.5
ZBD76K5E			10.6	13.3	16.4	20.0	23.9	ZBD76K5E			7.5	7.5	7.6	7.7	7.8
ZBD114K5E			14.2	18.6	23.4	28.7	34.7	ZBD114K5E			11.3	11.3	11.3	11.4	11.4
Low Temperature with Enhanced Vapor Injection															
ZFD13KVE EVI	4.0	4.9	6.0	7.2	8.5	10.0	11.7	ZFD13KVE EVI	2.9	3.0	3.1	3.2	3.3	3.4	3.5
ZFD18KVE EVI	6.1	7.3	8.7	10.4	12.3	14.4	16.9	ZFD18KVE EVI	4.0	4.3	4.5	4.6	4.8	5.0	5.1
ZFD25KVE EVI	7.7	9.3	11.2	13.2	15.3	17.5	19.7	ZFD25KVE EVI	4.8	5.1	5.4	5.7	6.0	6.3	6.6
ZFD41K5E EVI	12.5	15.0	18.1	21.5	25.4	29.5	33.9	ZFD41K5E EVI	7.9	8.4	8.8	9.3	9.7	10.1	10.6
ZFD41K5E	8.6	10.6	13.0	15.7	18.9	22.6	27.0	ZFD41K5E	6.3	6.7	7.1	7.5	7.9	8.4	8.8

Suction Gas Return 20°C / Subcooling 0K
Preliminary Data

Capacity Data

Condensing Temperature 40°C															
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
Medium Temperature															
ZBD21KCE				2.0*	2.7	3.3	4.0	ZBD21KCE				1.2*	1.3	1.4	1.4
ZBD29KCE				2.5*	3.3	4.2	5.2	ZBD29KCE				1.7*	1.7	1.7	1.7
ZBD38KCE				3.2*	4.4	5.5	6.8	ZBD38KCE				1.9*	2.1	2.2	2.3
ZBD45KCE				3.8*	5.1	6.4	7.9	ZBD45KCE				2.3*	2.4	2.5	2.6
ZBD57KCE				4.7*	6.4	8.1	10.1	ZBD57KCE				3.4*	3.4	3.4	3.5
ZBD76K5E*				6.2	7.9	10.0	12.6	ZBD76K5E				5.3	5.3	5.4	5.4
ZBD114K5E*				8.1	11.1	14.6	18.7	ZBD114K5E				7.4	7.4	7.4	7.5

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
Preliminary Data

Emerson Coresense™ Diagnostics for Refrigeration Scrolls

The CoreSense Diagnostics module is a breakthrough innovation for troubleshooting refrigeration system faults and is installed in the electrical box of all 8 - 17 hp Copeland Scroll K5 refrigeration compressors. By monitoring and analyzing data from the compressors (via module power, discharge line thermistor and the current transducer), the CoreSense module accurately detects the cause of electrical and system related issues and guides the service technician more quickly and accurately to the root cause of a problem via flashing LED indicators visible on the CoreSense box. Supermarket operators hence benefit from increased system uptime as well as reduced food losses and maintenance costs.

Coresense™ Diagnostics for Refrigeration Scrolls

Technical Specification

- Power supply 110-230V AC
- Front end: multi-color LEDs
- Communication protocol: Modbus®RTU
- Bus to system controller: RS485, 3-wire, (+,GND)
- Discharge temperature sensor
- Current sensor
- EEPROM memory
- Alarm reset button

Benefits

- Facilitate predictive maintenance & advanced diagnostics
- Reduce applied system costs
- Manage on-site compressor data
- Reduce maintenance costs
- Increase system uptime / reduce food loss
- Digital and liquid injection control through CoreSense
- Remote trouble shooting

Functions

- Current sensing based diagnostics
- Discharge temperature protection
- Phase monitor protection
- Liquid injection control
- Scroll Digital control
- Open circuit identification
- System trip protection
- Low voltage protection
- Locked rotor protection
- Alarm and operating history
- Asset information
- LED visual indication of alerts
- Modbus communication

ZO & ZOD Copeland Scroll™ Compressor Ranges for R744-Subcritical Refrigeration

ZO Copeland Scroll Compressors have been designed for use in R744 (CO_2) low temperature refrigeration systems. These compressors are suitable for usage in CO_2-subcritical cascade and booster systems.

Increasing environmental concerns about potential direct emissions from HFC-based refrigeration systems into the atmosphere have led to the revival of R744 in the European refrigeration market. Regionally, this trend is reinforced by legislation and taxation schemes which favor the usage of refrigerant R744.

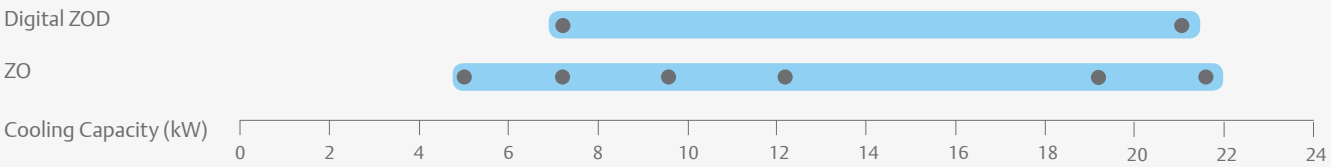
In comparison with HFC refrigerants, the specific properties of R744 require changes in the design of the refrigeration system. The ZO range of Copeland Scroll compressors has been particularly designed to exploit the characteristics of the R744 refrigeration system. Efficiency, reliability and liquid handling advantages of the Copeland Scroll technology equally apply.

The optimized design of ZO compressors effectively address the challenges of R744 systems i.e., high pressure levels, higher mass flow for a given displacement while securing proper lubrication.

The range consists of 6 models including 2 digital models for 10 to 100% continuous cooling capacity modulation.

ZO Compressor for Low Temperature Refrigeration

ZO and ZOD Compressor Line-up



Conditions EN12900 R744: Evaporating -35°C, Refrigeration -5°C ,Suction Superheat 10K, subcooling 0K

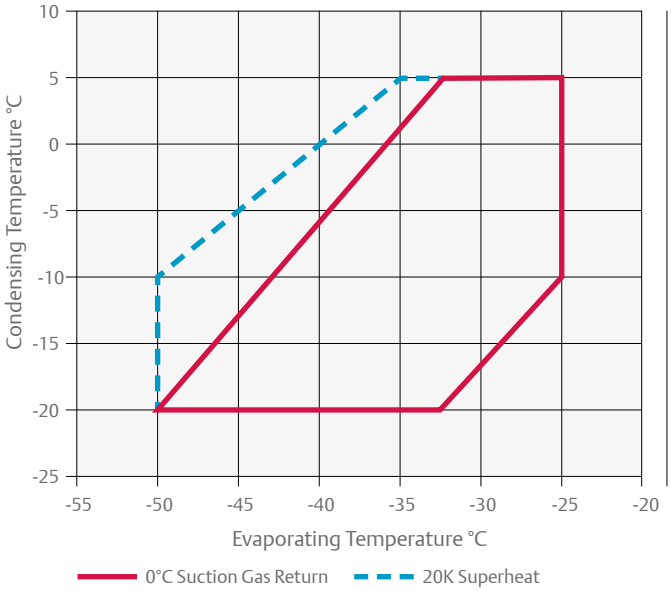
Features and Benefits

- Optimized for high efficiency in CO_2-subcritical cascade and booster systems
- High condensing temperature limit allowing for optimized overall system design
- Compact design minimizing required machine room space
- Half the weight of equivalent semi-hermetic compressors
- Optional Sound Shell allowing 10 dBA sound attenuation
- High bearing reliability and lubrication of all critical parts under all conditions including liquid slugging
- Availability of a digital model offering simple, stepless 10 to 100% capacity modulation

Maximum Allowable Pressure (PS)

- ZO:
  Low Side PS 30 bar(g) / High Side PS 52 bar(g)
- Digital ZOD:
  Low Side PS 30 bar(g) / High Side PS 45 bar(g)

Operating Envelope R744



For individual model details please refer to Select Software.

Technical Overview

Models	Nominal hp	Displacement (m^3/h)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/ Width/height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @1 m - dB(A)***
								3 Ph**	3 Ph**	3 Ph**	
ZO21K5E	1.5	2.6	11/4	1	1.0	228/228/388	22.2	TFD	3.6	27	52
ZO34K3E	2	4.1	11/4	1	1.4	242/242/381	30	TFD	5.5	26	54
ZO45K3E	2.5	5.4	11/4	1	1.4	242/242/403	31	TFD	6.2	35	56
ZO58K3E	3.5	6.9	11/4	1	1.4	242/242/417	32.5	TFD	8	48	56
ZO88KCE	5	10.1	11/4	1	1.9	245/249/440	40.3	TFD	11.8	64	60
ZO104KCE	6	11.7	11/4	1	1.9	242/242/461	40	TFD	15	74	61
Digital Models											
ZOD34K3E	2	4.07	11/4	1	1.4	242/242/377	30	TFD	5.5	26	55
ZOD104KCE	6	11.7	11/4	1	1.9	241/246/484	41	TFD	15	75	67

Capacity Data

Condensing Temperature: -10°C									
R744	Cooling Capacity (kW)				R744	Power Input (kW)			
	Evaporating Temperature (°C)					Evaporating Temperature (°C)			
Model	-45	-40	-35	-30	Model	-45	-40	-35	-30
ZO21K5E	3.2	4.1	5.1	6.2	ZO21K5E	1.2	1.2	1.2	1.1
ZO34K3E	4.8	6.2	7.8	9.7	ZO34K3E	1.8	1.8	1.8	1.7
ZO45K3E	7.0	8.8	10.9	13.3	ZO45K3E	2.3	2.3	2.3	2.2
ZO58K3E	8.9	11.2	13.9	17.0	ZO58K3E	3.0	3.0	2.9	2.8
ZO88KCE	13.3	17.0	21.0	25.4	ZO88KCE	4.5	4.5	4.4	4.2
ZO104KCE	15.9	19.7	24.1	29.2	ZO104KCE	4.9	5.0	5.1	5.2
Digital Models									
ZOD34K3E	5.1	6.4	7.9	9.7	ZOD34K3E	1.8	1.8	1.8	1.7
ZOD104KCE	15.6	19.1	23.2	27.9	ZOD104KCE	5.0	5.0	5.1	5.3

10 K Superheat
Preliminary Data

Sound Shell for Copeland Scroll™ Compressors
Quiet Operation in Sound Critical Environment

Environmental noise has become a serious problem that can lead to potential contentious situations. It is particularly true for refrigeration applications where kitchen equipment or compressor packs are often source of disturbing noise in domestic areas. Emerson put sound minimisation at the centre of any of its new compressor development along reliability, seasonal efficiency, size and weight reduction.

A large portion of equipment acoustic emissions come from condensers and compressors and in some critical sound sensitive applications the refrigeration installations need to be acoustically insulated. Simple solutions are now available to contain sound emissions. Emerson Climate Technologies has developed a dedicated Sound Shell for all Copeland Scroll compressors from 2–15 hp. It completely encapsulates the compressor, minimizing sound leaks while cooling performance remains uncompromised.

Groundbreaking design techniques and materials, derived from the automotive industry, were utilized to design the Sound Shell. The use of low pressure reaction injection moulded parts (top cap cover, terminal box cover and compressor base plate) allows a 10–12 dBA sound attenuation.

It is a significant improvement over conventional sound jackets available from other suppliers that reduce sound by 3–6 dBA depending on the application. Particular attention was also paid in the design stage to ensure ease of mounting in retrofit, service and new installation situations.

Sound Shell for Copeland Scroll

1.3 to 2 hp Scroll

2 to 4 hp Scroll

4 to 6 hp Scroll

4 to 6 hp Scroll ZF with DTC

4 to 6 hp Digital Scroll

Summit Series 7 to 15 hp scroll

Summit Series Digital Scroll

Technical Overview

	Small Scroll	Summit Scroll			Summit Digital Scroll	
	All Sizes	Small Size	Medium Size	Large Size	Small Size	Medium Size
Technical Data						
Sound Attenuation	10 - 12 dBA					
Total weight (kg)	3.4	4.8	4.9	5.1	5.3	5.6
Mantle thickness	25mm					
Flammability	Conforms to IEC 60335-1 §30					
Material						
Mantle	Green felt layer (cotton + binder 1.2 kg/m²)					
	Heavy layer (PVC 4.5 kg/m²)					
	Closure by use of Velcro fastening - High frequency welded on PVC layer					
Base Plate	PU SRIM - Low pressure reaction injection moulding technology					
Top cap cover	PU SRIM - Low pressure reaction injection moulding technology					
	Inside insulation green felt and aluminium film					
	High temperature insulation ring					
Terminal box cover	PU SRIM - Low pressure reaction injection moulding technology					

Semi-Hermetic Reciprocating Compressors

Emerson offers different ranges of semi-hermetic reciprocating compressors with distinct levels of performance and technical characteristics depending on the application requirements.

The Stream Series:

Emerson has introduced Stream, a line of semi-hermetic 4 and 6 cylinder compressors. The series provides best in class performance for today's HFC-based and uprising natural and low GWP refrigerants, significantly reducing cost of operation and environmental impact compared to competing products.

The range consists of 4 and 6 cylinder models, available with both inverter and continuous capacity modulation options. The compressors can be fitted with a dedicated sound shell for sound sensitive applications.

The new Emerson line-up of 4 cylinder compressors for CO_2-transcritical applications is the ideal solution for R744 medium temperature cascade and booster systems. It is characterised by a design pressure of 135 bar. Refrigerant flow and heat transfer have been optimized for best performance. In combination with the CO_2-subcritical scroll for the low temperature refrigeration side, Emerson offers the most energy efficient package available on the market today.

With advanced protection and diagnostics features for system reliabilty, reduced service costs and increased equipment uptime, the Stream series is built to last in today's modern and changing world.

Stream 4 Cylinder

Stream 6 Cylinder

Stream 4 Cylinder for R744

Stream Digital 4 Cylinder

Stream Digital 6 Cylinder

Sound Shell for Stream

The S-Series:

Its design is based on traditional “reed” valve plates similar to what is used in reciprocating compressors offered by other manufacturers. The performance of such compressors meets basic market requirements but cannot compete with Discus compressors in terms of efficiency. The S-Series ranges from 1.5 to 70 hp and is composed of K and L presented in this catalogue.

S-Series

The Discus Range:

It is broadly recognized as the most efficient compressor whatever the running condition. This range is mainly used in medium and low temperature refrigeration applications where system efficiency is a priority for the end-user. The key difference between Discus and other reciprocating compressors lies in its valve plate design. Traditional “reed” valves are replaced by ‘puck” type valves that are integrated in the valve plate. This special design eliminates the dead volume at the end of the compression and allows for the highest compressor efficiency. To date, no other reciprocating compressor is able to match Discus in terms of performance. Available from 4 to 60 hp, they are referred to as 2D, 3D and 8D in this catalogue.

Discus 2 Cylinder

Emerson CoreSense™ Diagnostics for Copeland™ Stream Refrigeration Compressors

Emerson CoreSense Diagnostics is an innovative technology for Copeland Stream refrigeration compressors. It goes beyond compressor protection by assisting in system diagnosis and optimization. Providing service engineers with detailed information at the right time, system-related problems can be diagnosed faster or even before they occur. Supermarket operators benefit from increased system uptime, reduction in food loss and reduced maintenance costs.

Emerson CoreSense Diagnostics for Copeland™ Stream refrigeration compressors. ensuring best performance over full lifetime.

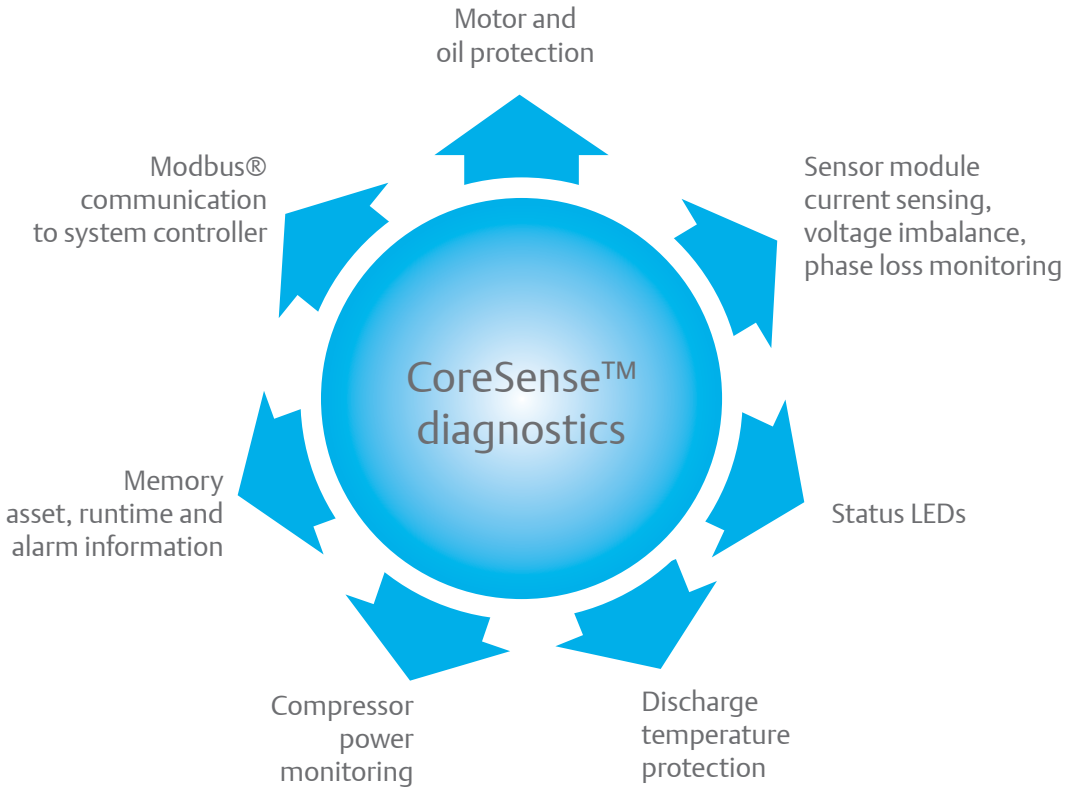
Technical Specification

- Power supply 120/240V AC, 24V AC
- Front end: 2 x LED, green/red, yellow
- Communication protocol (Modbus®RTU)
- Bus to system controller: RS 485, 3-wire, (+ ,GND,-)
- Discharge temperature sensor
- Current sensor and sensor module
- Flash memory
- Alarm reset button
- IP 54

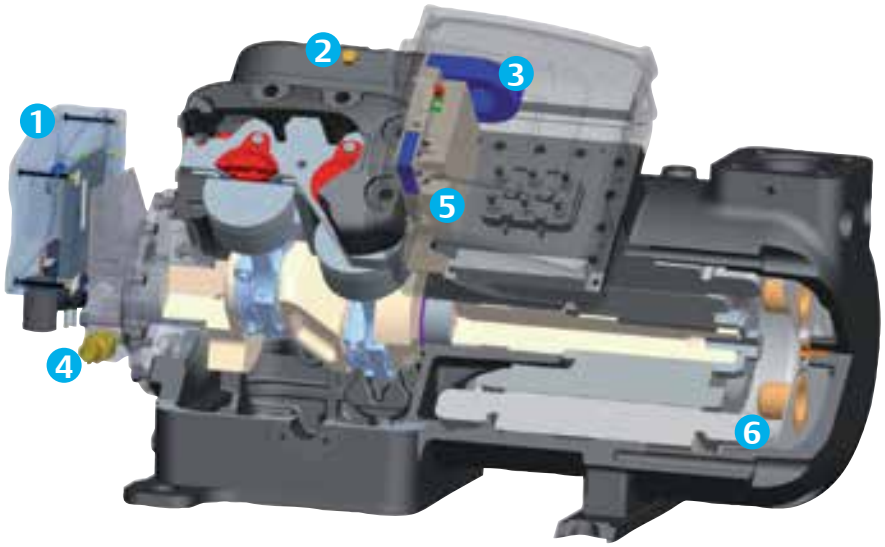
Benefits

- Reduce applied system costs
- Manage on-site compressor data
- Facilitate predictive maintenance & advanced diagnostics
- Reduce maintenance costs
- Increase system uptime / reduce food loss
- Power consumption monitoring

Functions



Scope of Supply



1. CoreSense™ Diagnostics Control Module
2. Discharge Temperature Sensor
3. Current Sensor
4. Oil Pressure Sensor
5. Sensor Module
6. Motor Temperature Sensor

K and L Reciprocating Compressor Range

Small 2-cylinder semi-hermetic reciprocating compressors for medium and low temperature refrigeration applications and transport refrigeration.

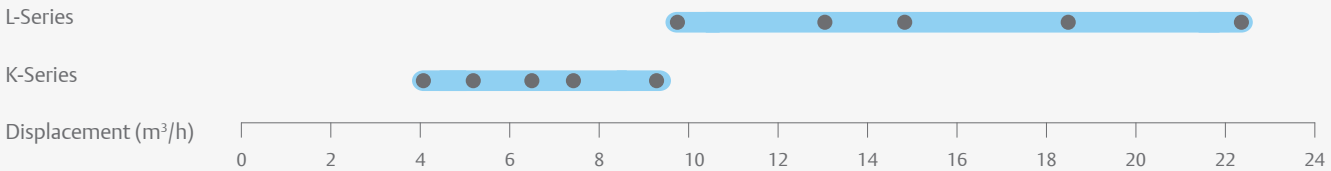
Designed on the principle of standard reed valve type technology, these compressors feature an internal oil pump that guarantees optimum reliability in all operating conditions.

The K-series ranges from 0.5 to 2 hp and the L-series from 2 to 5 hp with a displacement of 4 to 22.5 m^3/h.

These compressors are qualified for R407A/F/C, R448A/R449A, R404A and R134a.

K-Series Compressor

K & L Compressor Line-Up



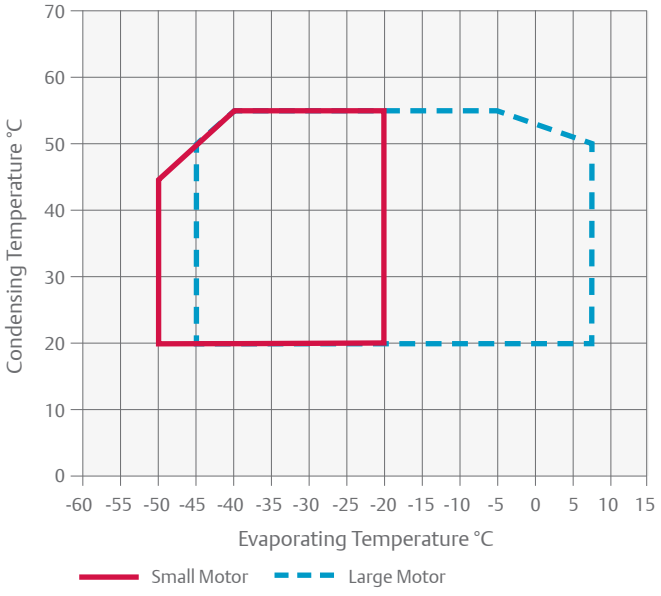
Features and Benefits

- Large operating envelope from 5°C to -45°C evaporating and up to 55°C condensing
- Two motor sizes per displacement, optimized for different applications
- Compact and light compressors
- Ideal for refrigeration unit or transport applications
- Integrated oil pump for maximum reliability

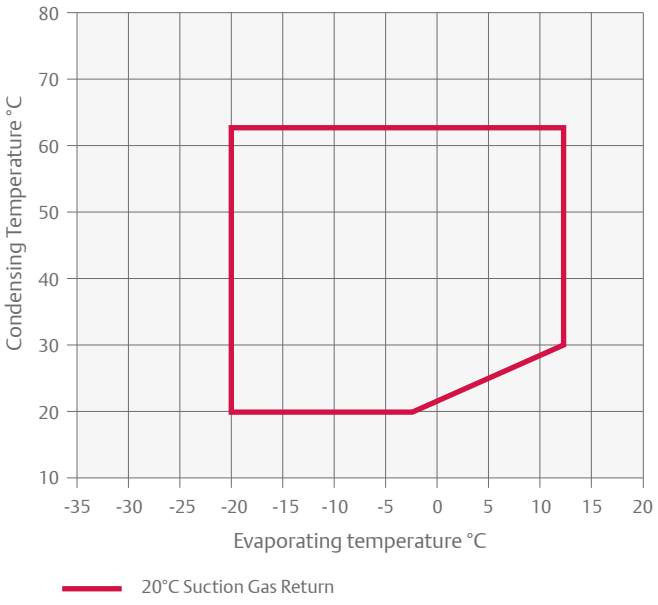
Maximum Allowable Pressure (PS)

- Low Side PS 22.5 bar (g)/ High Side PS 28 bar (g)

Operating Envelope R404A

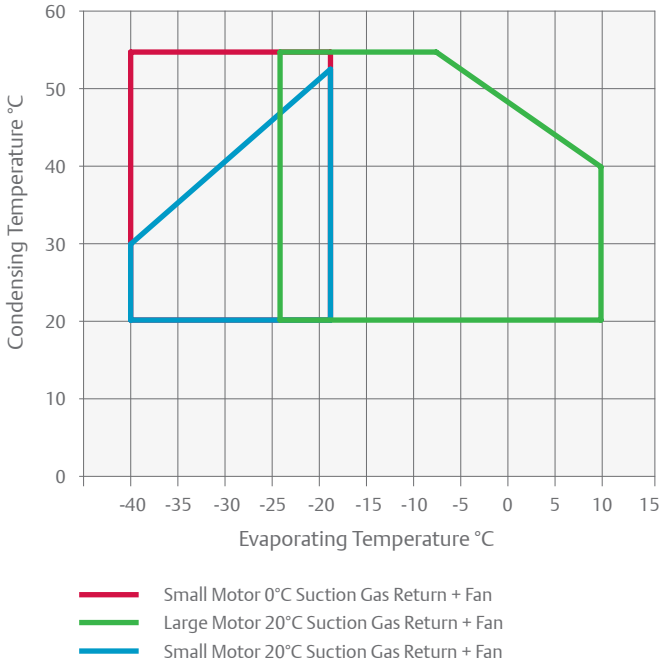


Operating Envelope R134a



For individual model details please refer to select software.

Operating Envelope R448A/R449A



Technical Overview

Models	Nominal hp	Displacement (m^3/h)	Oil quantity (l)	Length/Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @1 m - dB(A) ***
						1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
KM-5X	0.5	4.0	0.7	365/235/280	39.0	CAG	EWL	4.8	1.8	24.0	12.2	45.0
KM-7X	0.8	4.0	0.7	365/235/280	39.0	CAG	EWL	6.0	2.4	34.5	12.2	45.0
KJ-7X	0.8	5.1	0.7	365/235/280	39.0	CAG	EWL	5.8	2.3	34.5	12.2	45.0
KJ-10X	1.0	5.1	0.7	365/235/280	39.0	CAG	EWL	7.1	3.2	32.4	15.5	45.0
KSJ-10X	1.0	6.3	0.7	365/235/280	40.0	CAG	EWL	6.7	2.7	32.4	15.5	50.0
KSJ-15X	1.5	6.3	0.7	365/235/280	40.0	CAG	EWL	9.0	3.4	43.0	19.1	53.0
KL-15X	1.5	7.4	0.7	365/235/280	39.0	CAG	EWL	8.4	3.4	43.0	19.1	47.0
KL-20X	2.0	7.4	0.7	365/235/280	39.0		EWL		3.8		20.4	
KSL-20X	2.0	9.1	0.7	365/235/280	40.0		EWL		4.7		20.4	
LE-20X	2.0	9.9	2.0	470/330/385	78.0		EWL		5.7		37.6	51.0
LF-20X	2.0	12.9	2.0	470/330/385	80.0		EWL		5.5		37.6	51.0
LF-30X	3.0	12.9	2.0	470/330/385	80.0		EWL		7.2		53.0	51.0
LJ-20X	2.0	14.5	2.0	470/330/385	78.0		EWL		5.6		37.6	52.0
LJ-30X	3.0	14.5	2.0	470/330/385	83.0		EWL		8.1		53.0	52.0
LL-30X	3.0	18.2	2.0	470/330/385	85.0		EWL		7.3		50.6	52.0
LL-40X	4.0	18.2	2.0	470/330/385	87.0		EWL		9.5		58.9	63.0
LSG-40X	4.0	22.5	2.0	470/330/385	77.0		EWL		8.9		58.9	63.0

* 1 Ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

Condensing Temperature: 40°C														
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
KM-5X	0.2°	0.6°	0.8°	1.3°				KM-5X	0.3°	0.5°	0.6°	0.7°			
KM-7X	0.2°	0.5°	0.8°	1.3°	2.0°	2.5°	3.6°	KM-7X	0.3°	0.5°	0.6°	0.8°	0.9°	1.0°	1.0°
KJ-7X	0.4°	0.8°	1.1°	1.8°				KJ-7X	0.5°	0.7°	0.8°	1.0°			
KJ-10X	0.3°	0.8°	1.0°	1.8°	2.8°	3.4°	4.9°	KJ-10X	0.4°	0.7°	0.8°	1.0°	1.2°	1.3°	1.4°
KSJ-10X	0.5°	1.0°	1.4°	2.3°				KSJ-10X	0.7°	0.9°	1.1°	1.3°			
KSJ-15X	0.5°	1.0°	1.4°	2.3°	3.5°	4.2°	6.1°	KSJ-15X	0.6°	0.9°	1.0°	1.3°	1.6°	1.7°	1.8°
KL-15X	0.6°	1.2°	1.6°	2.6°				KL-15X	0.8°	1.0°	1.2°	1.5°			
KL-20X	0.5°	1.1°	1.5°	2.6°	4.1°	5.0°		KL-20X	0.6°	0.9°	1.1°	1.4°	1.7°	1.8°	
KSL-20X	0.8°	1.5°	2.0°	3.3°	5.1°	6.1°		KSL-20X	0.8°	1.2°	1.4°	1.9°	2.3°	2.5°	
LE-20X		1.1°	1.7°	3.2°	5.1°	6.4°	9.4°	LE-20X		1.0°	1.2°	1.6°	2.0°	2.2°	2.5°
LF-20X		1.8°	2.3°	4.0°				LF-20X		1.4°	1.7°	2.2°			
LF-30X	0.7°	1.9°	2.6°	4.6°	7.2°	8.8°	12.8°	LF-30X	1.0°	1.6°	1.9°	2.4°	2.9°	3.1°	3.4°
LJ-20X		1.9°	2.8°	5.0°				LJ-20X		1.6°	1.9°	2.6°			
LJ-30X	0.8°	2.1°	2.9°	5.1°	8.0°	9.8°	14.2°	LJ-30X	1.1°	1.8°	2.1°	2.8°	3.3°	3.6°	3.9°
LL-30X	0.9°	2.6°	3.7°	6.5°				LL-30X	1.1°	2.0°	2.4°	3.3°			
LL-40X	1.1°	2.7°	3.7°	6.4°	10.2°	12.6°	18.4°	LL-40X	1.4°	2.2°	2.6°	3.3°	4.0°	4.3°	4.9°
LSG-40X	1.4°	3.5°	4.8°	8.2°				LSG-40X	1.6°	2.6°	3.1°	4.1°			

Suction Gas Return 20°C / Subcooling 0K
° High Discharge Temp - Additional Cooling Required

Condensing Temperature: 40°C														
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
KM-5X				0.7°	1.2°	1.5°	2.3°	KM-5X				0.5°	0.6°	0.6°	0.7°
KJ-7X				0.9°	1.6°	2.0°	3.0°	KJ-7X				0.6°	0.7°	0.8°	0.8°
KSJ-10X				1.2°	2.0°	2.5°	3.8°	KSJ-10X				0.7°	0.8°	0.9°	1.0°
KL-15X				1.4°	2.2°	2.8°	4.3°	KL-15X				0.8°	1.0°	1.1°	1.3°
KSL-15X				1.7°	2.8°	3.5°	5.3°	KSL-15X				1.0°	1.3°	1.4°	1.6°
KSL-20X				1.7°	2.9°	3.7°	5.6°	KSL-20X				1.0°	1.2°	1.4°	1.6°
LE-20X				1.5°	2.8°	3.6°	5.6°	LE-20X				1.0°	1.3°	1.4°	1.5°
LF-20X				2.2°	3.8°	4.9°	7.5°	LF-20X				1.2°	1.6°	1.7°	1.9°
LJ-20X				2.6°	4.3°	5.4°	8.3°	LJ-20X				1.6°	1.9°	2.1°	2.4°
LL-30X				3.2°	5.5°	7.0°	10.9°	LL-30X				1.9°	2.4°	2.6°	3.0°
LSG-40X				4.3°	7.2°	9.0°	13.7°	LSG-40X				2.3°	2.9°	3.2°	3.7°

Suction Gas Return 20°C / Subcooling 0K
° High Discharge Temp - Additional Cooling Required

For more details about other refrigerants please refer to select software.

Capacity Data

Condensing Temperature 40°C														
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	+5	+10	+15	Model	-30	-20	-10	-5	+5	+10	+15
KM-5X	0.5°	1.1°	1.8°	2.3°				KM-5X	0.5°	0.7°	0.8°	0.9°			
KM-7X		1.0°	1.7°	2.2°	3.5°	4.2°		KM-7X		0.7°	0.8°	0.9°	1.0°	1.0°	
KJ-7X	0.8°	1.5°	2.4°	3.0°				KJ-7X	0.7°	0.9°	1.1°	1.2°			
KJ-10X		1.5°	2.5°	3.2°	4.8°	5.8°		KJ-10X		0.9°	1.1°	1.2°	1.4°	1.4°	
KSJ-10X	1.1°	1.9°	3.1°	3.8°				KSJ-10X	0.9°	1.1°	1.4°	1.5°			
KSJ-15X		1.9°	3.2°	4.0°	6.0°	7.2°		KSJ-15X		1.2°	1.5°	1.6°	1.8°	1.8°	
KL-15X	1.2°	2.2°	3.6°	4.5°				KL-15X	0.9°	1.2°	1.6°	1.7°			
KL-20X		2.5°	3.9°	4.8°	7.0°	8.4°		KL-20X		1.3°	1.6°	1.7°	1.9°	2.0°	
KSL-20X		2.9°	4.5°	5.6°	8.3°	10.1°		KSL-20X		1.6°	1.9°	2.1°	2.4°	2.4°	
LE-20X	1.5°	2.8°	4.8°	6.0°	9.0°	10.9°		LE-20X	1.2°	1.6°	2.1°	2.3°	2.6°	2.7°	
LF-20X	2.1°	3.9°	6.4°	8.0°				LF-20X	1.6°	2.2°	2.7°	2.9°			
LF-30X		4.2°	6.7°	8.2°	12.2°	14.7°		LF-30X		2.3°	2.8°	3.0°	3.5°	3.6°	
LJ-20X	2.5°	4.7°	7.7°	9.6°				LJ-20X	1.9°	2.5°	3.1°	3.4°			
LJ-30X		5.0°	7.8°	9.5°	13.9°	16.6°		LJ-30X		2.6°	3.1°	3.4°	3.8°	4.0°	
LL-30X	2.9°	5.5°	9.1°	11.4°				LL-30X	2.1°	2.9°	3.6°	4.0°			
LL-40X		5.5°	9.1°	11.4°	16.9°	20.4°		LL-40X		2.8°	3.5°	3.8°	4.4°	4.6°	
LSG-40X	3.9°	7.0°	11.3°	14.0°				LSG-40X	2.7°	3.7°	4.7°	5.2°			

Conditions: Suction Gas Return 20°C / Subcooling 0K
Preliminary Data
° High Discharge Temp - Additional Cooling Required

Condensing Temperature 40°C														
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	+5	+10	+15	Model	-30	-20	-10	-5	+5	+10	+15
KM-5X	0.6°	1.1°	1.9°					KM-5X	0.5°	0.7°	0.9°				
KM-7X		1.1°	1.9°	2.4°	3.8°	4.6°		KM-7X		0.7°	0.9°	0.9°	1.1°	1.1°	
KJ-7X	0.9°	1.6°	2.6°	3.2°				KJ-7X	0.7°	0.9°	1.2°	1.3°			
KJ-10X		1.6°	2.7°	3.4°	5.1°	6.2°		KJ-10X		1.0°	1.2°	1.3°	1.5°	1.5°	
KSJ-10X	1.2°	2.1°	3.3°	4.1°				KSJ-10X	0.9°	1.2°	1.5°	1.6°			
KSJ-15X		2.0°	3.4°	4.2°	6.3°	7.5°		KSJ-15X		1.2°	1.5°	1.7°	1.9°	1.9°	
KL-15X	1.3°	2.4°	3.9°	4.9°				KL-15X	1.0°	1.3°	1.7°	1.8°			
KL-20X		2.6°	4.1°	5.1°	7.5°	8.9°		KL-20X		1.4°	1.7°	1.8°	2.0°	2.1°	
KSL-20X		3.1°	4.9°	6.0°	8.9°	10.7°		KSL-20X		1.7°	2.1°	2.2°	2.5°	2.6°	
LE-20X	1.6°	3.1°	5.2°	6.4°	9.6°	11.6°		LE-20X	1.3°	1.8°	2.2°	2.4°	2.7°	2.9°	
LF-20X	2.3°	4.2°	6.9°	8.6°				LF-20X	1.7°	2.3°	2.8°	3.1°			
LF-30X		4.6°	7.2°	8.9°	13.0°	15.6°		LF-30X		2.4°	2.9°	3.1°	3.5°	3.7°	
LJ-20X	2.7°	5.1°	8.3°	10.4°				LJ-20X	2.0°	2.7°	3.3°	3.6°			
LJ-30X		5.3°	8.3°	10.2°	14.8°	17.7°		LJ-30X		2.8°	3.4°	3.6°	4.1°	4.3°	
LL-30X	3.2°	5.8°	9.5°	11.9°				LL-30X	2.3°	3.1°	4.0°	4.4°			
LL-40X		5.9°	9.7°	12.1°	18.0°	21.7°		LL-40X		3.0°	3.7°	4.1°	4.7°	4.9°	
LSG-40X	4.3°	7.6°	12.2°					LSG-40X	2.9°	4.0°	5.0°				

Conditions: Suction Gas Return 20°C / Subcooling 0K
Preliminary Data
° High Discharge Temp - Additional Cooling Required

Capacity Data

Condensing Temperature 40°C														
R448A/ R449	Cooling Capacity (kW)							R448A/ R449	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	+5	+10	+15	Model	-30	-20	-10	-5	+5	+10	+15
KM-5X	0.7°	1.2°						KM-5X	0.5°	0.6°					
KM-7X		1.2°	1.9°	2.4°	3.5°	4.3°		KM-7X		0.7°	0.8°	0.9°	1.0°	1.0°	
KJ-7X	0.9°	1.6°						KJ-7X	0.7°	0.9°					
KJ-10X		1.6°	2.6°	3.2°	4.8°	5.7°		KJ-10X		1.0°	1.1°	1.2°	1.3°	1.4°	
KSJ-10X	1.3°	2.1°						KSJ-10X	1.0°	1.2°					
KSJ-15X		2.1°	3.3°	4.1°	6.0°	7.1°		KSJ-15X		1.2°	1.5°	1.6°	1.7°	1.7°	
KL-15X	1.5°	2.4°						KL-15X	1.0°	1.3°					
LE-20X		3.0°	5.0°	6.2°	5.3°	11.3°		LE-20X		1.5°	1.9°	2.0°	2.3°	2.4°	
LF-30X		4.4°	6.9°	8.4°	12.4°	14.8°		LF-30X		2.4°	2.9°	3.1°	3.5°	3.6°	
LF-20X	2.1°	3.8°						LF-20X	1.5°	2.0°					
LJ-20X	2.6°	4.7°						LJ-20X	1.7°	2.3°					
LJ-30X		4.7°	7.6°	9.4°	13.9°	16.6°		LJ-30X		2.5°	3.1°	3.3°	3.6°	3.7°	
LL-30X		6.1°						LL-30X	2.1°	3.0°					
LL-40X		5.9°	9.7°	12.0°	18.0°	21.7°		LL-40X		3.0°	3.6°	4.0°	4.5°	4.8°	
LSG-40X	4.4°	7.6°						LSG-40X	2.7°	3.7°					

Conditions: Suction Gas Return 20°C / Subcooling 0K
Preliminary Data
° High Discharge Temp - Additional Cooling Required

Discus™ Reciprocating Compressor Range

From 2, 3 and 8 cylinder semi-hermetic reciprocating compressors for medium/low temperature refrigeration and high temperature applications like process cooling or air-conditioning.

The key difference between Discus and traditional reciprocating technologies lies in the valve plate design. The Discus valve plate allows gas to flow into the cylinders with a minimum heat gain, while suction cavities are designed to smoothly route the gas to minimize losses. These effects lead to:

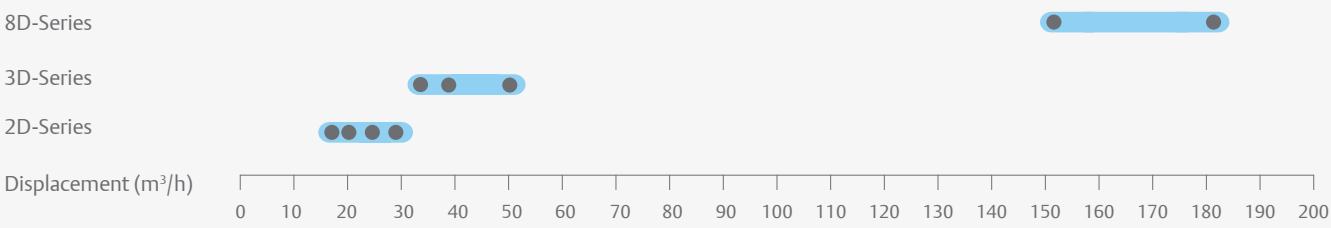
- Superior cooling capacity due to no re-expansion volume
- Up to 10% higher efficiency compared to conventional "cost-effective" reed type compressors
- Lower operating costs for the end-user

Discus Compressor

The Discus ranges from 5 to 60 hp with a displacement of 16.8 to 181. These compressors are qualified for R407A/F/C, R448A/R449A, R404A, R134a, R450A and R513A. All Discus compressors are designed to deliver maximum performance and reliability:

- Discus "puck" valve integrated into the valve plate for highest performance whatever the operating condition
- Positive displacement high flow oil pump guarantees high oil feeding pressure for good lubrication and bearings' cooling
- PTFE-coated bearings for especially low friction and good protection at start-up
- Electronic motor protection module
- Availability of two motor sizes per displacement. The small motor covers all refrigeration applications while the large motor can be used in comfort, process cooling or inverter applications

Discus Compressor Line-Up



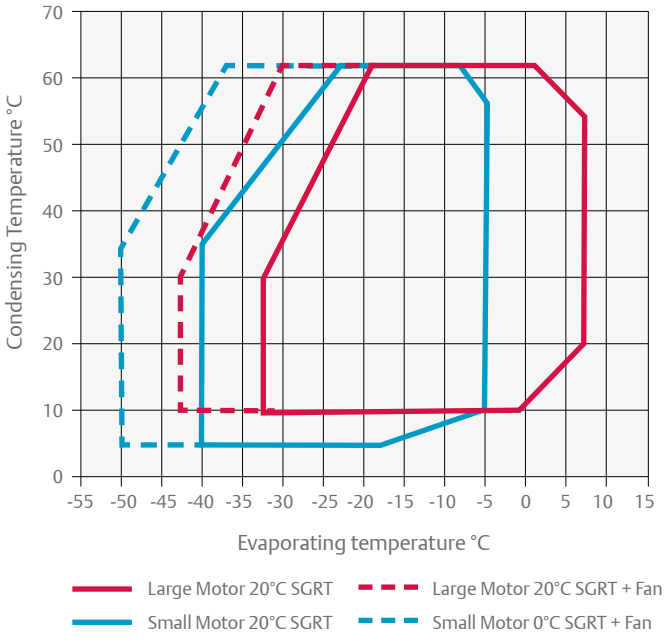
Features and Benefits

- Highest level of efficiency available on the market, whatever the refrigerant and operating condition
- Integrated oil pump and Electronic Oil Pressure Switch OPS2 for maximum reliability
- Two motor sizes per displacement, optimized for different applications
- Large operating envelope that allows medium and low temperature applications to be covered by one single model with condensing limit as low as 5°C
- Provide cooling capacity modulation either by cylinder head blocked suction or with use of frequency inverters from 25 to 60Hz
- Multi-refrigerant compressor range – one model to cover all standard refrigerants
- Option to use 2 and 3 cylinder models with additional Demand Cooling function in order to achieve extended low temperature operating envelope without any superheat restriction for new refrigerants R407A/F, R448A and R449A

Maximum Allowable Pressure (PS)

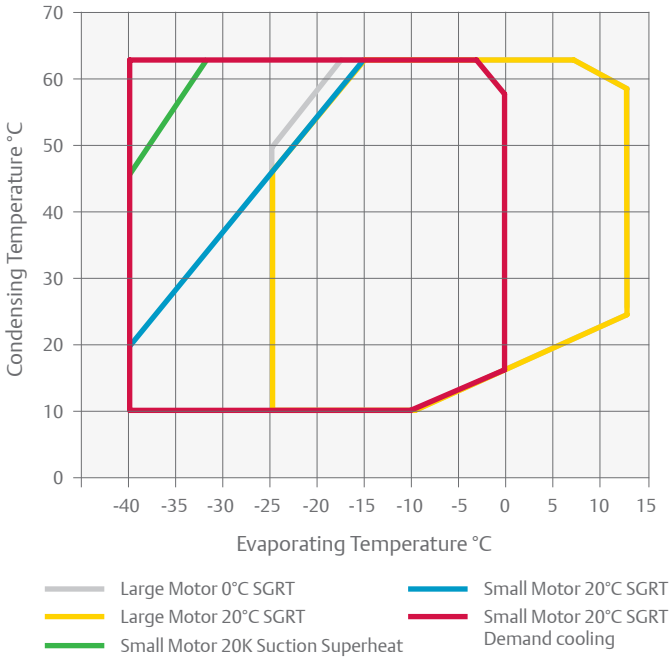
- Low Side PS 22.5 bar (g)/ High Side PS 28 bar (g)

Operating Envelope R404A



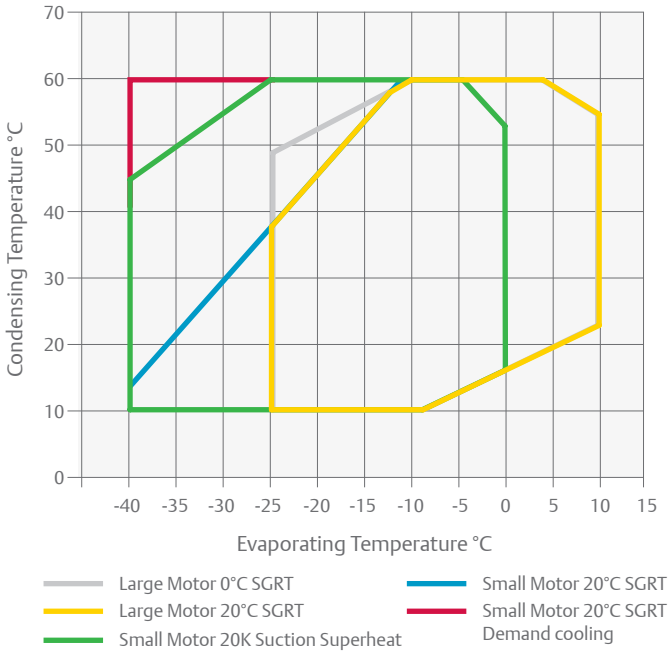
For individual model details please refer to select software.

Operating Envelope R407A



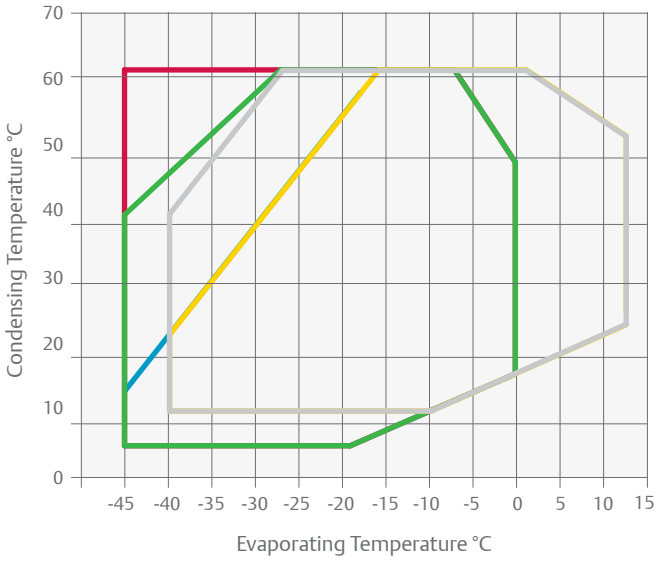
Large Motor 0°C SGRT
Large Motor 20°C SGRT
Small Motor 20K Suction Superheat
Small Motor 20°C SGRT
Small Motor 20°C SGRT Demand cooling

Operating Envelope R407F



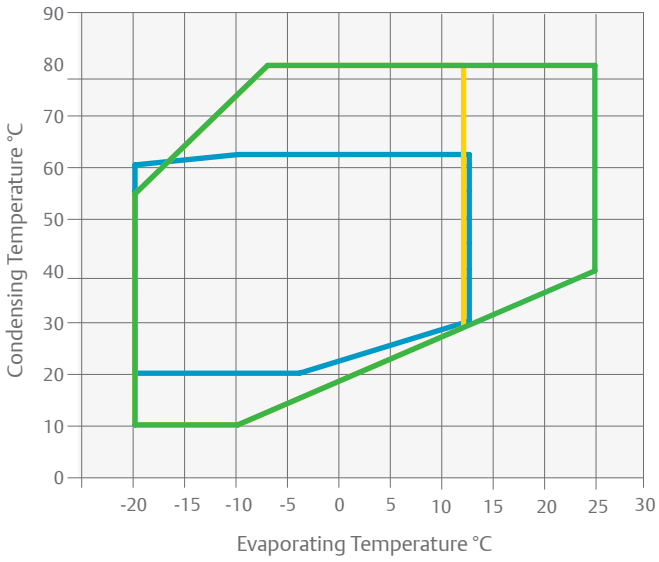
Large Motor 0°C SGRT
Large Motor 20°C SGRT
Small Motor 20K Suction Superheat
Small Motor 20°C SGRT
Small Motor 20°C SGRT Demand cooling

Operating Envelope R448A/R449A



Large Motor 20K Superheat
Large Motor 20°C SGRT
Small Motor 20K Suction Superheat
Small Motor 20°C SGRT
Small Motor 20°C SGRT Demand cooling

Operating Envelope R134a



Large Motor 20°C SGRT
Small Motor 25°C SGRT
Large Motor 20K Superheat

Technical Overview

Models	Nominal hp	Displacement (m^3/h)	Oil Quantity (l)	Length/Width/Height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @1 m - dB(A)***
						3 Ph**	3 Ph**	3 Ph**	
2DC-50X	5	16.8	2.3	590/330/470	132	AWM	9	55	65
2DD-50X	5	19.3	2.3	590/330/470	132	AWM	10.3	55	65
2DL-40X	4	23.7	2.3	590/330/470	131	AWM	11.1	55	64
2DL-75X	7.5	23.7	2.3	590/330/470	136	AWM	13.8	70	66
2DB-50X	5	28	2.3	590/330/470	131	AWM	13.4	55	64
2DB-75X	7.5	28	2.3	590/330/470	136	AWM	16.1	70	66
3DA-50X	5	32.2	3.7	655/370/480	146	AWM	15.9	55	69
3DA-75X	7.5	32.2	3.7	680/370/480	152	AWM	17.5	106	69
3DC-75X	7.5	38	3.7	655/370/480	150	AWM	18.3	70	71
3DC-100X	10	38	3.7	680/370/480	164	AWM	20.5	121	70
3DS-100X	10	49.9	3.7	680/370/480	162	AWM	24.4	121	70
3DS-150X	15	49.9	3.7	710/370/490	166	AWM	29	125.7	70
8DH-500X	50	151	7.6	835/475/610	330	AWM	88.2	458	79
8DL-370X	37	151	7.6	835/475/610	323	AWM	74.3	349	76
8DJ-600X	60	181	7.6	835/475/610	331	AWM	108	476	79
8DT-450X	45	181	7.6	835/475/610	335	AWM	90.7	441	78

** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

Condensing Temperature: 40°C														
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
2DC-50X		1.7	2.4	4.5	7.8	10.0	15.5	2DC-50X		1.4	1.7	2.3	2.9	3.2	3.6
2DD-50X		2.1	3.1	5.8	9.5	12.0	18.1	2DD-50X		1.7	2.1	2.7	3.4	3.7	4.1
2DL-40X		2.5*	3.7*	7.4	11.9	14.8		2DL-40X		2.3*	2.7*	3.5	4.3	4.6	
2DL-75X				7.2	11.9	14.8	22.1	2DL-75X				3.5	4.2	4.5	4.8
2DB-50X		3.3*	4.6*	9.0	14.4	17.8		2DB-50X		2.8*	3.3*	4.3	5.2	5.6	
2DB-75X				9.0	14.3	17.7	26.1	2DB-75X				4.4	5.3	5.7	6.1
3DA-50X		3.8*	5.4*	10.4	16.4	20.2		3DA-50X		3.2*	3.8*	5.0	6.1	6.5	
3DA-75X				10.3	16.7	20.7	30.8	3DA-75X				5.0	6.0	6.4	6.9
3DC-75X		4.7*	6.5*	12.4	19.6	24.2		3DC-75X		3.9*	4.6*	6.0	7.2	7.8	
3DC-100X				12.6	20.3	25.1	37.0	3DC-100X				5.8	7.1	7.6	8.1
3DS-100X		6.4*	9.1*	16.9	26.3	32.1		3DS-100X		5.2*	6.1*	7.9	9.6	10.3	
3DS-150X				16.8	26.6	32.7	48.0	3DS-150X				7.9	9.6	10.2	11.1
8DH-500X				49.1	78.8	97.7	146.0	8DH-500X				24.1	28.8	31.0	33.9
8DL-370X		20.7*	28.8*	53.6	85.3	105.5		8DL-370X		17.4*	19.8*	25.2	30.5	33.0	
8DJ-600X				60.3	95.5	118.0	174.5	8DJ-600X				28.9	35.1	37.9	42.2
8DT-450X		24.0*	32.6*	59.6	93.3	114.5		8DT-450X		20.1*	23.2*	29.5	35.8	38.6	

Suction Gas Return 20°C / Subcooling 0K
* 10K Border

Capacity Data

R407F	Cooling Capacity (kW)						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
2DC-50X		1.1*	1.9*	4.7	8.0	10.1	15.4
2DD-50X		1.6*	2.6*	5.9	9.7	12.1	18.1
2DL-40X		2.6*	3.9*	7.7	12.4	15.3	
2DL-75X				7.6	12.5	15.6	23.4
2DB-50X		3.9*	5.4*	9.8	15.3	18.8	
2DB-75X				9.6	15.3	18.9	27.9
3DA-50X		4.3*	6.1*	11.3	17.9	22.1	
3DA-75X				11.4	18.4	22.8	33.8
3DC-75X		5.4*	7.5*	13.8	21.6	26.6	
3DC-100X				14.0	22.1	27.3	40.2
3DS-100X		7.3*	10.2*	18.4	28.8	35.3	
3DS-150X				18.8	29.7	36.4	53.2
8DL-370X		20.8*	28.9*	53.6	85.3	105.5	
8DH-500X				53.0	84.6	105.0	156.5
8DJ-600X				63.7	101.0	125.0	187.5
8DT-450X		26.8*	35.9*	64.1	100.5	123.5	

R407F	Power Input (kW)						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
2DC-50X		1.4*	1.7*	2.4	3.1	3.3	3.6
2DD-50X		1.7*	2.1*	2.9	3.6	3.8	4.1
2DL-40X		2.4*	2.8*	3.7	4.5	4.9	
2DL-75X				3.7	4.4	4.6	5.0
2DB-50X		2.9*	3.4*	4.5	5.4	5.8	
2DB-75X				4.6	5.6	6.0	6.3
3DA-50X		3.4*	4.0*	5.2	6.4	6.8	
3DA-75X				5.2	6.3	6.8	7.2
3DC-75X		4.2*	4.8*	6.2	7.5	8.1	
3DC-100X				6.1	7.4	7.9	8.5
3DS-100X		5.5*	6.4*	8.3	10.0	10.8	
3DS-150X				8.2	10.1	10.8	11.8
8DL-370X		17.4*	19.8*	25.2	30.5	33.0	
8DH-500X				25.8	30.5	32.2	34.9
8DJ-600X				30.6	36.9	39.8	43.9
8DT-450X		21.8*	24.7*	31.2	37.7	40.7	

Suction Gas Return 20°C / Subcooling 0K
* 10K Border

Condensing Temperature 40°C							
R448A/ R449	Cooling Capacity (kW)						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
2DC-50X		1.4*	2.4*	5.1	8.4	10.6	15.9
2DD-50X		1.7*	2.7*	5.8	9.7	12.1	18.2
2DL-40X	1.0*	2.7*	3.9*	7.5	12.2	15.2	
2DL-75X		2.5*	3.7*	7.3	12.1	15.2	23.2
2DB-50X	1.4*	3.6*	5.0*	9.2	14.7	18.2	
2DB-75X		3.8*	5.2*	9.4	15.0	18.6	27.6
3DA-50X	1.9*	4.1*	5.6*	10.2	16.1	19.8	
3DA-75X		3.9*	5.8*	11.0	17.6	21.8	32.3
3DC-75X	2.7*	5.1*	6.9*	12.4	19.4	23.8	
3DC-100X		4.4*	6.9*	13.3	21.1	25.9	37.7
3DC-75X DC	2.6	5.4	7.3	12.4	19.5	23.9	
3DS-100X	3.8*	7.1*	9.5*	16.9	26.5	32.5	
3DS-150X		7.5*	10.2*	17.8	27.6	33.7	49.1
8DH-500X		18.7*	27.4*	51.0	80.6	99.2	145.0
8DL-370X	7.4*	18.4*	26.2*	49.3	79.0	97.6	
8DJ-600X		24.2*	34.0*	61.7	96.9	119.0	174.5
8DT-450X	12.2*	25.4*	34.7*	62.0	97.7	120.0	

R448A/ R449	Power Input (kW)						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
2DC-50X		1.4*	1.7*	2.4	3.0	3.3	3.5
2DD-50X		1.6*	2.0*	2.8	3.5	3.8	4.1
2DL-40X	1.5*	2.3*	2.7*	3.5	4.4	4.9	
2DL-75X		2.3*	2.7*	3.5	4.3	4.6	5.1
2DB-50X	2.0*	2.8*	3.3*	4.4	5.4	5.8	
2DB-75X		3.0*	3.5*	4.4	5.3	5.7	6.2
3DA-50X	2.3*	3.3*	3.9*	5.0	6.2	6.6	
3DA-75X		3.3*	4.0*	5.2	6.1	6.5	6.8
3DC-75X	2.9*	4.0*	4.6*	6.0	7.3	7.8	
3DC-100X		3.6*	4.4*	6.0	7.2	7.6	8.1
3DC-75X DC	2.9	4.0	4.6	6.0	7.3	7.8	
3DS-100X	4.0*	5.4*	6.2*	8.1	9.8	10.6	
3DS-150X		5.6*	6.4*	8.2	9.8	10.5	11.5
8DH-500X		15.9*	18.8*	24.4	29.3	31.3	34.0
8DL-370X	11.5*	16.6*	19.3*	24.6	29.3	31.4	
8DJ-600X		19.3*	22.5*	29.2	35.6	38.4	42.9
8DT-450X	14.9*	20.1*	23.2*	29.6	36.0	38.8	

Conditions: Suction Gas Return 20°C / Subcooling 0K
*Conditions: Suction Superheat 10K, Subcooling 0K
Preliminary Data

Capacity Data

Condensing Temperature: 40°C														
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
2DC-50X		2.1°	3.0°	5.4	8.8	11.0	16.5	2DC-50X		1.7°	2.1°	2.7	3.3	3.6	3.8
2DD-50X		2.8°	3.9°	6.8	10.8	13.2	19.3	2DD-50X		2.2°	2.5°	3.3	3.9	4.1	4.3
2DL-40X	1.2*	3.8	5.1	8.5	13.2	16.2		2DL-40X	1.8*	2.7	3.2	4.1	4.9	5.3	
2DL-75X		3.6°	4.9°	8.4	13.4	16.5	24.1	2DL-75X		2.7°	3.1°	4.0	4.8	5.1	5.5
2DB-50X	1.7*	4.6	6.2	10.4	16.0	19.4		2DB-50X	2.2*	3.2	3.8	4.9	5.9	6.3	
2DB-75X		4.9°	6.4°	10.5	16.2	19.8	28.6	2DB-75X		3.5°	4.0°	5.1	6.1	6.5	7.0
3DA-50X	2.0*	5.7	7.4	11.9	17.9	21.7		3DA-50X	2.7*	4.0	4.7	5.9	6.9	7.3	
3DA-75X		5.2°	7.2°	12.2	18.9	23.1	33.4	3DA-75X		3.9°	4.6°	5.9	6.9	7.3	7.6
3DC-75X	2.8*	7.0	9.1	14.4	21.6	26.1		3DC-75X	3.4*	4.9	5.6	7.0	8.2	8.7	
3DC-100X		6.6°	8.9°	14.9	22.7	27.5	39.3	3DC-100X		4.6°	5.4°	6.9	8.1	8.5	8.9
3DS-100X	4.0*	9.6	12.5	19.8	29.5	35.5		3DS-100X	4.7*	6.5	7.5	9.4	11.1	11.7	
3DS-150X		9.1°	12.2°	19.9	30.2	36.5	51.9	3DS-150X		6.3°	7.4°	9.4	11.1	11.6	12.0
8DH-500X		26.3°	35.7°	58.8	89.3	108.0	153.5	8DH-500X		19.1°	22.1°	27.9	32.8	34.7	37.3
8DL-370X	10.8*	28.0	36.9	59.3	88.8	106.5		8DL-370X	13.2*	19.5	22.4	27.9	32.7	34.7	
8DJ-600X		32.7°	44.0°	71.3	107.0	128.5	181.0	8DJ-600X		23.0°	26.8°	33.7	39.5	41.9	45.5
8DT-450X	14.2*	34.7	44.9	70.6	105.0	125.5		8DT-450X	16.9*	23.7	27.2	34.0	40.2	42.8	

Suction Gas Return 20°C / Subcooling 0K
° High Discharge Temp - Additional Cooling Required
* 10K Border

Condensing Temperature: 40°C														
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
2DC-50X				2.4*	4.7*	6.3*	10.3	2DC-50X				1.5*	2.0*	2.1*	2.3
2DD-50X				3.1*	5.8*	7.6*	12.2	2DD-50X				1.9*	2.3*	2.5*	2.7
2DL-40X				4.0	7.2	9.2	14.4	2DL-40X				2.3	2.8	3.1	3.4
2DL-75X				3.6*	6.8*	8.9*	14.3	2DL-75X				2.1*	2.7*	3.0*	3.3
2DB-50X				5.2	9.1	11.6	17.9	2DB-50X				2.6	3.3	3.6	4.0
2DB-75X				4.5*	8.2*	10.6*	17.0	2DB-75X				2.6*	3.3*	3.5*	3.9
3DA-50X				6.0	10.2	12.9	19.8	3DA-50X				3.0	3.7	4.0	4.4
3DA-75X				5.1*	9.6*	12.5*	20.1	3DA-75X				3.1*	3.8*	4.1*	4.5
3DC-75X				7.4	12.5	15.7	23.9	3DC-75X				3.6	4.5	4.8	5.3
3DC-100X				6.8*	12.0*	15.3*	24.2	3DC-100X				3.7*	4.5*	4.8*	5.2
3DS-100X				9.7	16.2	20.4	31.0	3DS-100X				4.7	5.9	6.4	7.2
3DS-150X				9.7*	16.3*	20.6*	31.7	3DS-150X				5.0	6.2*	6.6*	7.3
8DH-500X				28.6*	47.9*	60.9*	95.6	8DH-500X				15.5*	18.8*	20.2*	22.2
8DJ-600X				34.4*	57.5*	72.9*	114.0	8DJ-600X				18.1*	22.2*	24.0*	26.8
8DL-370X				31.4	51.6	64.5	97.3	8DL-370X				15.1	18.5	19.9	22.2
8DT-450X				38.7	62.1	77.1	115.0	8DT-450X				18.4	22.5	24.4	27.5

Suction Gas Return 20°C / Subcooling 0K
* 10K Border

Discus™ Digital (3Cylinder) Reciprocating Compressor With Continuous Capacity Modulation

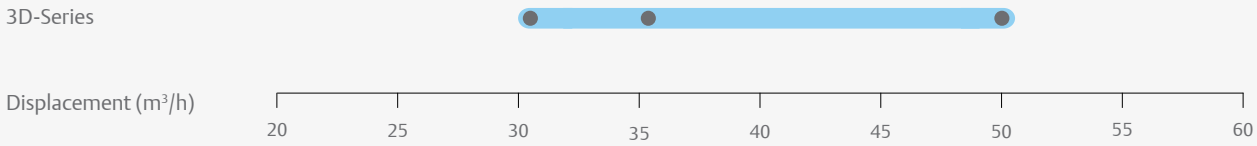
Discus Digital series with 3 cylinder compressors provide an alternative means of continuous modulation to inverter. Digital modulation is the most simple and precise method of capacity control and helps to contain applied costs associated with modulation.

Digital technology is based on controlling a high-cycle solenoid valve fitted on one of the cylinder heads based on cycle time. The valve actuates a piston that controls the flow of gas into the suction area of the Discus valve plate.

The compressor always run at constant speed which resolves the challenges related to oil return, mechanical and electrical stress on the system.

Discus Digital 3 Cylinder Compressor

Discus Digital Compressor Line-up

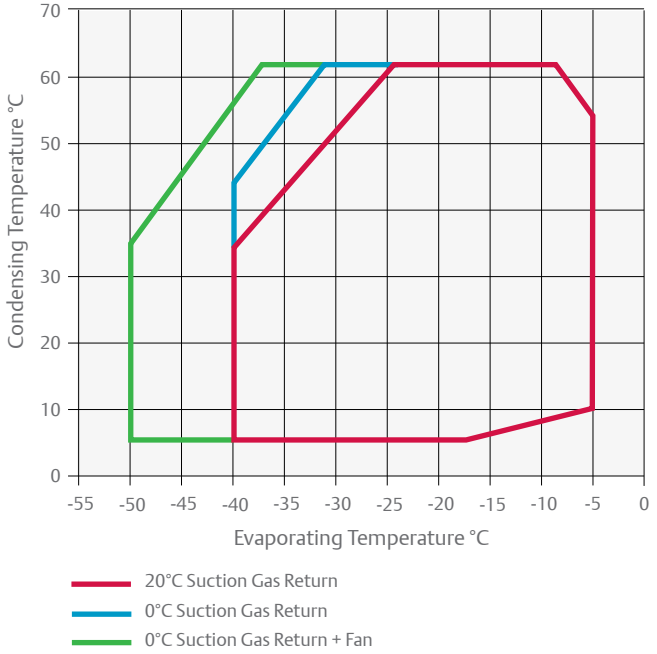


Features and Benefits

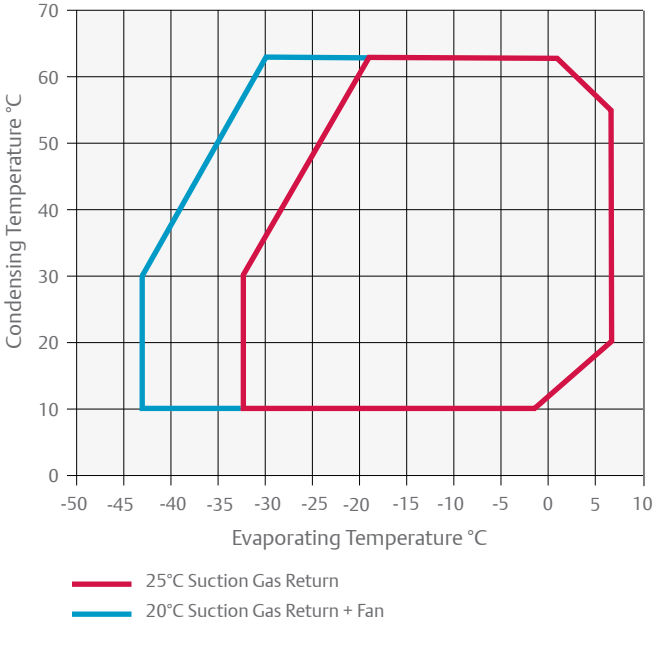
- Range of 6 models from 32 to 50 m³/h
- Compatible with R407A/F/C, R448A/ R449A, R404A, R134a, R450A and R513A.
- Continuous modulation from 10–100% ensuring a perfect match of capacity and power to refrigeration load
- Economical and reliable alternative to frequency inverters
- Precise suction pressure control with associated energy savings and stable evaporating temperatures
- Quick and easy integration into refrigeration equipment, similar to any other standard compressor
- Possibility to easily retrofit existing installations with digital cylinder head kit
- No vibrations or mechanical stress on system piping and compressor parts
- Reduced compressor cycling for longer contactor and compressor life

Operating Envelope R404A

With Small Motor

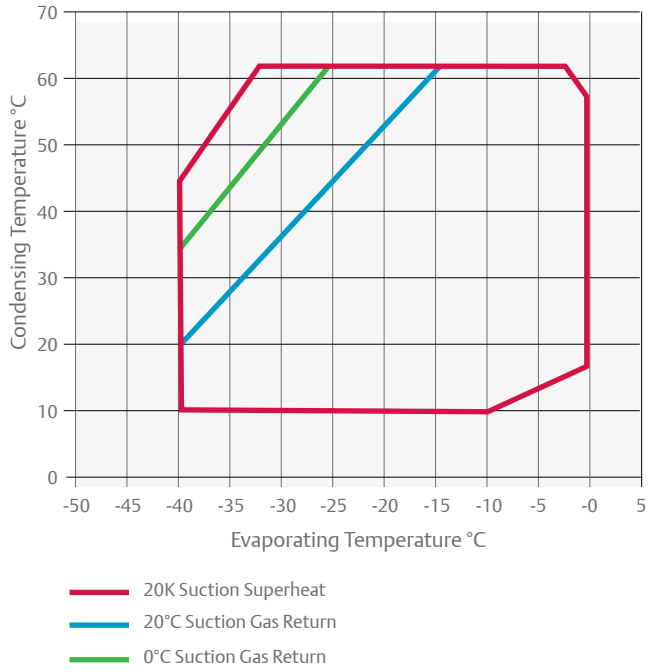


With Large Motor



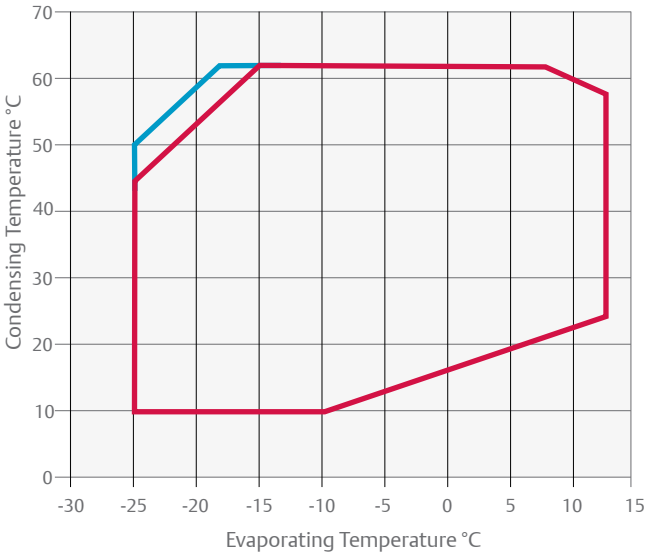
Operating Envelope R407A

With Small Motor



20K Suction Superheat
20°C Suction Gas Return
0°C Suction Gas Return

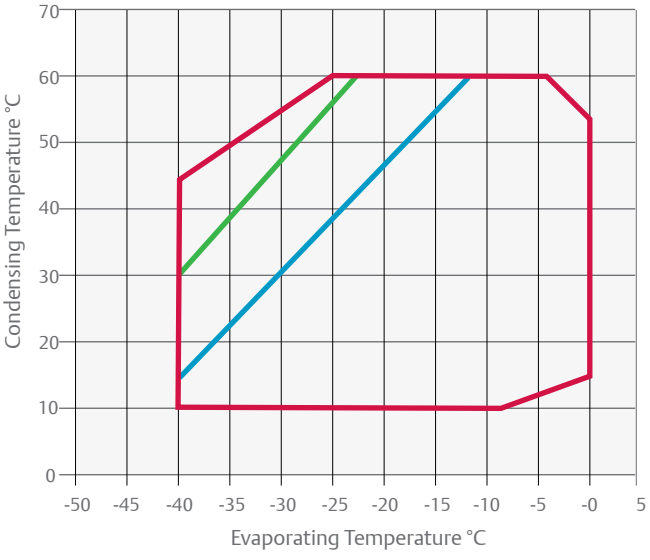
With Large Motor



20°C Suction Gas Return
0°C Suction Gas Return

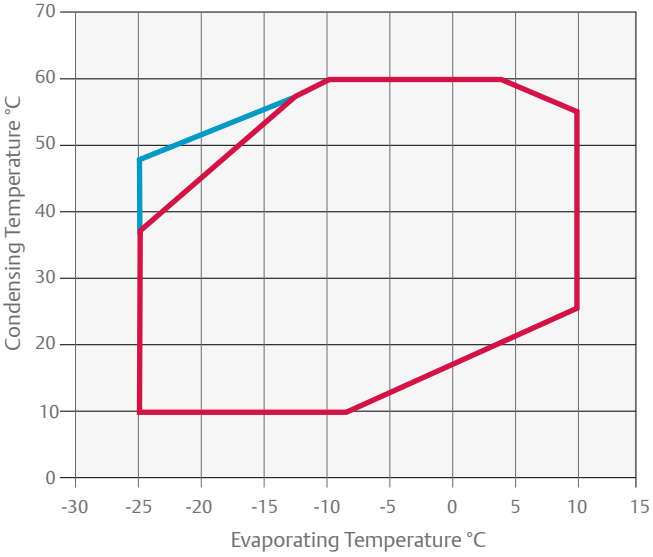
Operating Envelope R407F

With Small Motor



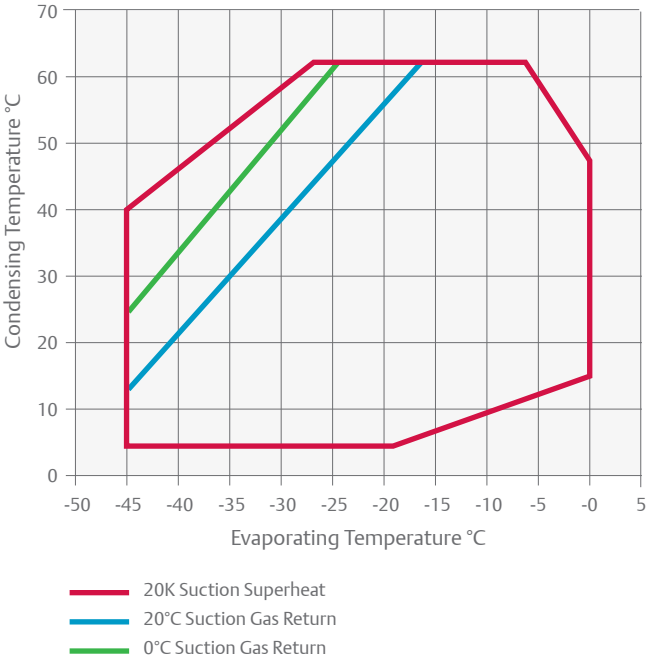
20K Suction Superheat
20°C Suction Gas Return
0°C Suction Gas Return

With Large Motor

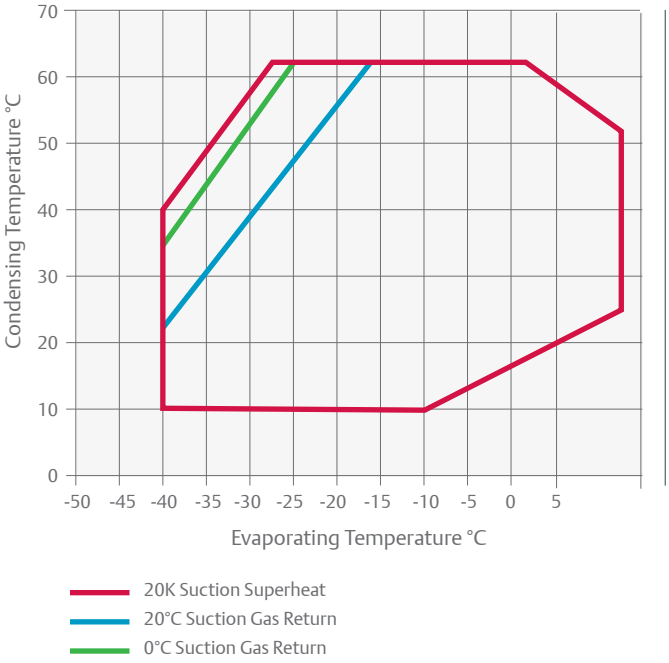


20°C Suction Gas Return
0°C Suction Gas Return

Operating Envelope R448A/R449A



20K Suction Superheat
20°C Suction Gas Return
0°C Suction Gas Return



20K Suction Superheat
20°C Suction Gas Return
0°C Suction Gas Return

Technical Overview

Models	Nominal hp	Displacement (m^3/h)	Oil Quantity (l)	Length/Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @1 m - dB(A)***
						3 Ph**	3 Ph**	3 Ph**	
3DAD-50X	5.0	32.2	3.7	655/370/480	146.0	AWM	15.7	55.0	65.0
3DAD-75X	7.5	32.2	3.7	680/370/480	152.0	AWM	18.6	106.0	67.0
3DCD-75X	7.5	38.0	3.7	655/370/480	150.0	AWM	18.5	70.0	67.0
3DCD-100X	10.0	38.0	3.7	680/370/480	164.0	AWM	21.6	121.0	68.0
3DSD-100X	10.0	49.9	3.7	680/370/480	162.0	AWM	24.4	121.0	69.0
3DSD-150X	15.0	49.9	3.7	710/370/490	166.0	AWM	29.7	129.0	69.0

** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

R407A	Cooling Capacity (kW)						
	Condensing Temperature 40°C						
	Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	5	10	15
3DAD-50X	5.3*	10.3	16.2	19.9			
3DAD-75X		10.2	16.4	20.4	30.4	36.5	
3DCD-100X		12.4	20.0	24.7	36.6	43.9	
3DCD-75X	6.4*	12.3	19.4	23.8			
3DSD-100X	8.9*	16.7	25.9	31.6			
3DSD-150X		16.5	26.2	32.2	47.6	57.0	

R407A	Power Input (kW)						
	Condensing Temperature 40°C						
	Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	5	10	15
3DAD-50X	3.8*	5.0	6.1	6.5			
3DAD-75X		5.0	6.0	6.4	6.9	6.9	
3DCD-100X		5.8	7.1	7.6	8.3	8.3	
3DCD-75X	4.6*	6.0	7.2	7.8			
3DSD-100X	6.1*	7.9	9.6	10.3			
3DSD-150X		7.8	9.6	10.3	11.2	11.3	

Suction Gas Return 20°C / Subcooling 0K, 100% Loaded
*Suction Superheat 10K, Subcooling 0K

R407F	Cooling Capacity (kW)						
	Condensing Temperature 40°C						
	Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	5	10	15
3DAD-50X	6.0*	11.2	17.8	21.9			
3DAD-75X		11.3	18.2	22.6	33.6	40.4	
3DCD-75X	7.4*	13.7	21.5	26.4			
3DCD-100X		13.9	21.9	27.0	39.8	47.8	
3DSD-100X	10.0*	18.2	28.5	35.0			
3DSD-150X		18.4	29.2	36.0	53.0	63.4	

R407F	Power Input (kW)						
	Condensing Temperature 40°C						
	Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	5	10	15
3DAD-50X	4.0*	5.2	6.4	6.8			
3DAD-75X		5.2	6.3	6.8	7.2	7.2	
3DCD-75X	4.8*	6.2	7.5	8.1			
3DCD-100X		6.0	7.3	7.9	8.6	8.6	
3DSD-100X	6.3*	8.3	10.1	10.8			
3DSD-150X		8.2	10.1	10.9	11.9	12.0	

Suction Gas Return 20°C / Subcooling 0K, 100% Loaded
*Suction Superheat 10K, Subcooling 0K

Capacity Data

R448A/ R449A	Cooling Capacity (kW)						
	Condensing Temperature 40°C						
	Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	5	10	15
3DAD-50X	5.6*	10.2	16.1	19.8			
3DAD-75X	6.7*	11.9	18.3	22.2	31.8	37.6	
3DCD-75X	6.9*	12.4	19.4	23.8			
3DCD-100X	7.3*	13.4	21.1	26.0	38.0	45.4	
3DSD-150X	10.2*	17.8	27.6	33.7	49.1	58.4	
3DSD-100X	9.5*	16.9	26.5	32.5			

R448A/ R449A	Power Input (kW)						
	Condensing Temperature 40°C						
	Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	5	10	15
3DAD-50X	3.9*	5.0	6.2	6.6			
3DAD-75X	4.4*	5.7	6.8	7.2	7.5	7.4	
3DCD-75X	4.6*	6.0	7.3	7.8			
3DCD-100X	4.7*	6.1	7.2	7.6	8.0	7.9	
3DSD-150X	6.4*	8.2	9.8	10.5	11.5	11.8	
3DSD-100X	6.2*	8.1	9.8	10.6			

Suction Gas Return 20°C / Subcooling 0K, 100% Loaded
*Suction Superheat 10K, Subcooling 0K
Preliminary Data

R404A	Cooling Capacity (kW)						
	Condensing Temperature 40°C						
	Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	5	10	15
3DAD-75X	7.1	11.9	18.3	22.2	31.8		
3DAD-50X	7.3	11.8	17.8	21.5			
3DCD-75X	8.8	14.1	21.2	25.6			
3DCD-100X	8.6	14.3	21.8	26.5	37.9		
3DSD-150X	12.1	19.1	28.6	34.6	49.3		
3DSD-100X	11.9	18.9	28.3	34.1			

R404A	Power Input (kW)						
	Condensing Temperature 40°C						
	Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	5	10	15
3DAD-75X	4.4	5.7	6.8	7.2	7.5		
3DAD-50X	4.6	5.9	6.9	7.3			
3DCD-75X	5.5	7.0	8.2	8.6			
3DCD-100X	5.3	6.8	8.0	8.4	8.9		
3DSD-150X	7.3	9.2	11.0	11.6	12.3		
3DSD-100X	7.4	9.3	10.9	11.6			

Suction Gas Return 20°C / Subcooling 0K, 100% Loaded
High Discharge Temp - Additional Cooling Required

R134a	Cooling Capacity (kW)						
	Condensing Temperature 40°C						
	Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	5	10	15
3DAD-50X		6.3	10.4	13.0	19.8	24.1	
3DAD-75X		5.5*	9.8*	12.6*	20.0	24.5	29.6
3DCD-75X		7.5	12.4	15.6	23.5	28.5	
3DCD-100X		6.8*	11.9*	15.2*	23.8	29.0	34.9
3DSD-100X		10.2	16.6	20.6	31.0	37.5	
3DSD-150X		9.1*	15.7*	19.9*	31.0	37.5	44.9

R134a	Power Input (kW)						
	Condensing Temperature 40°C						
	Evaporating Temperature (°C)						
Model	-30	-20	-10	-5	5	10	15
3DAD-50X		3.0	3.8	4.1	4.5	4.6	
3DAD-75X		3.1*	3.8*	4.1*	4.5	4.5	4.5
3DCD-75X		3.6	4.5	4.9	5.4	5.5	
3DCD-100X		3.7*	4.5*	4.8*	5.2	5.3	5.3
3DSD-100X		4.8	6.0	6.4	7.1	7.3	
3DSD-150X		4.8*	6.0*	6.6*	7.3	7.4	7.3

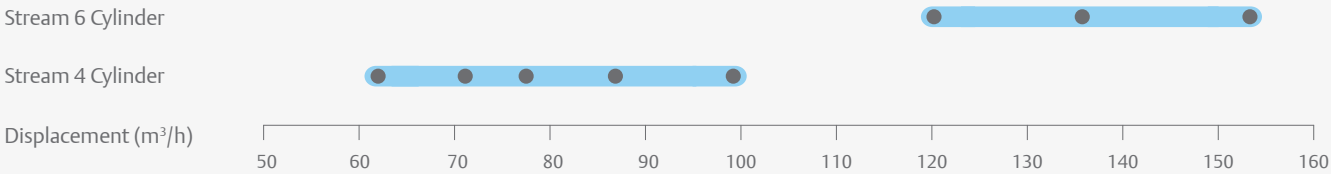
Suction Gas Return 20°C / Subcooling 0K, 100% Loaded
*Suction Superheat 10K, Subcooling 0K

Copeland™ Stream With CoreSense™ Diagnostics, Semi-Hermetic Reciprocating Compressors for HFC / HFO Blends

Stream series 4 and 6 cylinder compressors provide best-in-class performance, thereby significantly reducing cost of operation and environmental impact compared to competing products. With advanced protection and diagnostics features for system reliabilty, reduced service costs and increased equipment uptime, Stream series is built to last in today's modern changing world.

Copeland Stream Compressor
Designed to Deliver Best-in-Class Performance

Stream Compressor Line-Up



Features and Benefits

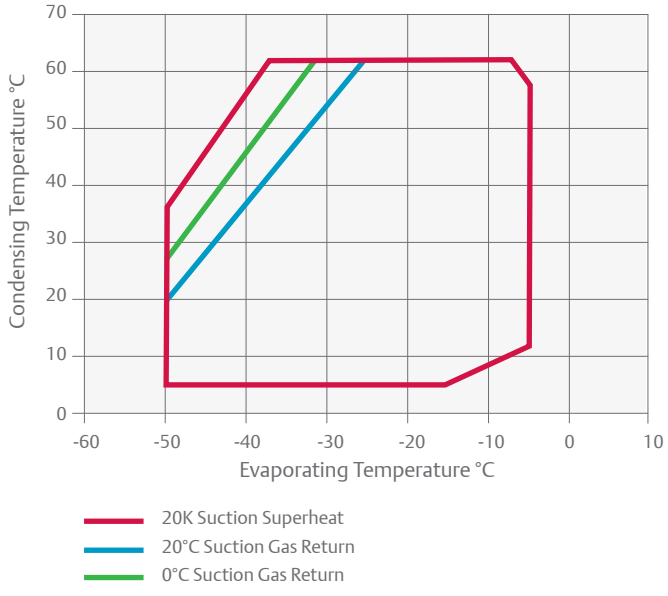
- Range of 16 models from 62 to 153m³/h
- Best-in-class seasonal efficiencies, up to 15% higher than market standard
- Multi-refrigerant compressor as it is compatible with R407A/ F/C, R448A/ R449A, R404A, R134a, R450A and R513A
- Stepless capacity modulation by means of inverter or Digital modulation
- Wide operating envelope covering low- and medium-temperature refrigeration without cooling fan
- Reduced sound level, dimensions and weight by up to 45 kg
- CoreSense protection available as option
- Option to use compressors with additional Demand Cooling function in order to achieve extended low temperature operating envelope without any superheat restriction for new refrigerants R407A/F, R448A and R449A

CoreSense Diagnostics Features

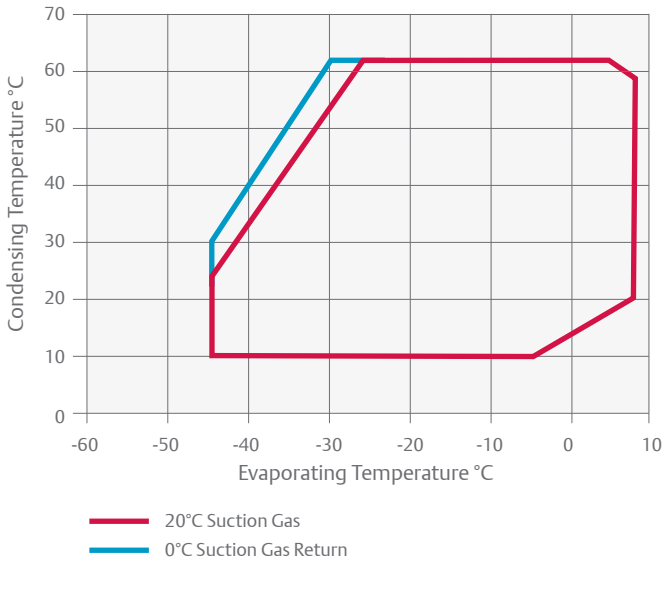
- Motor and oil protection
- Storage of compressor asset and advanced runtime information
- Runtime/alarm signalling using multi-colour LED flash-codes
- Communication to system controller via Modbus®
- Individual compressor power monitoring

Operating Envelope R404A

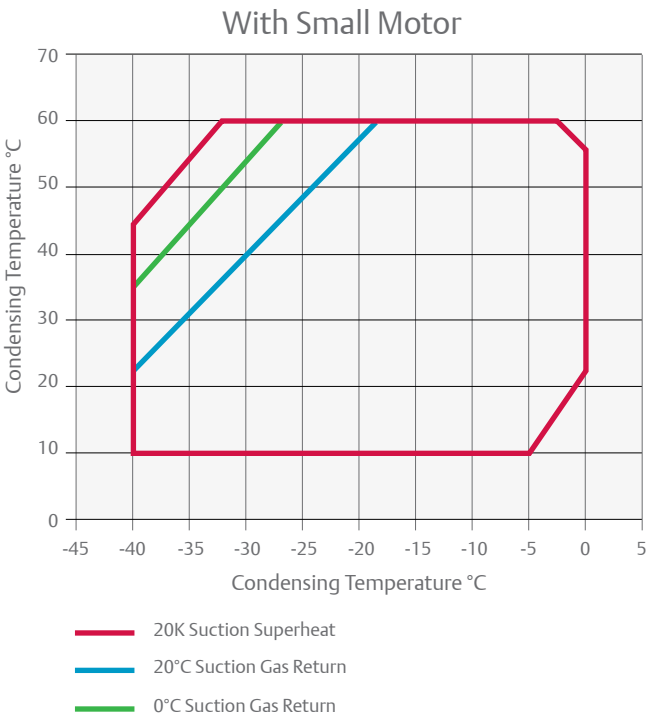
With Small Motor

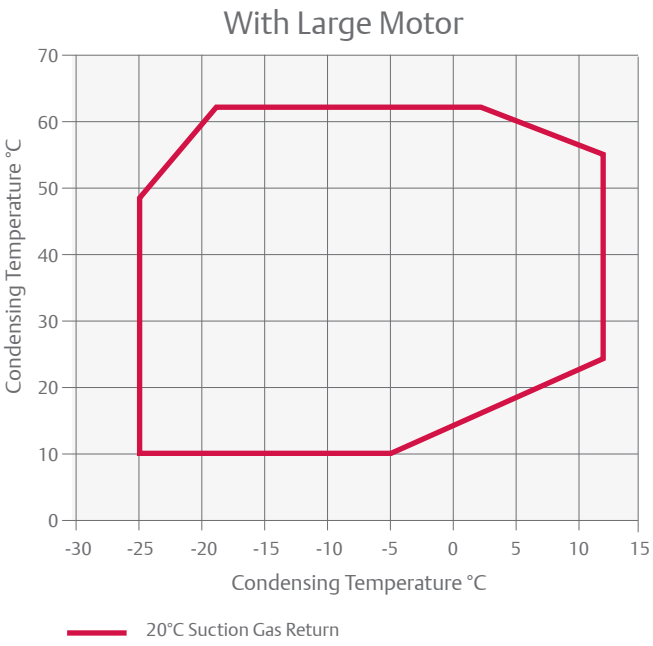


With Large Motor

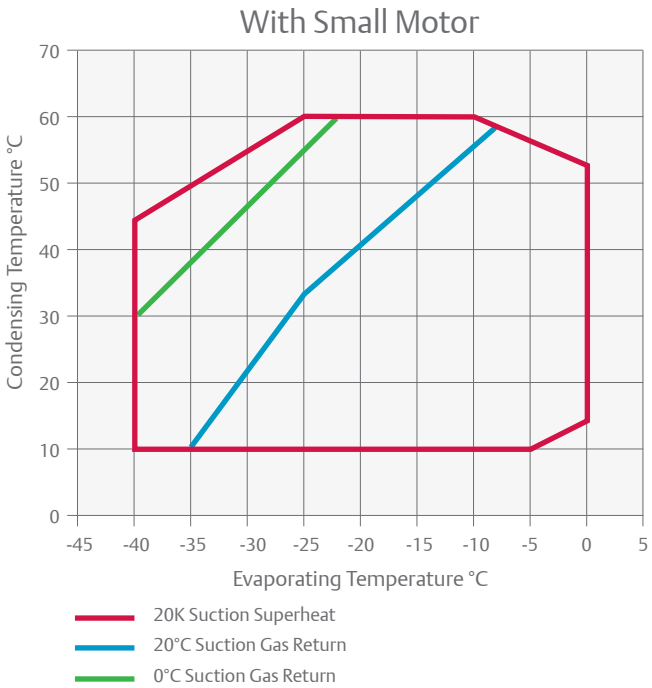


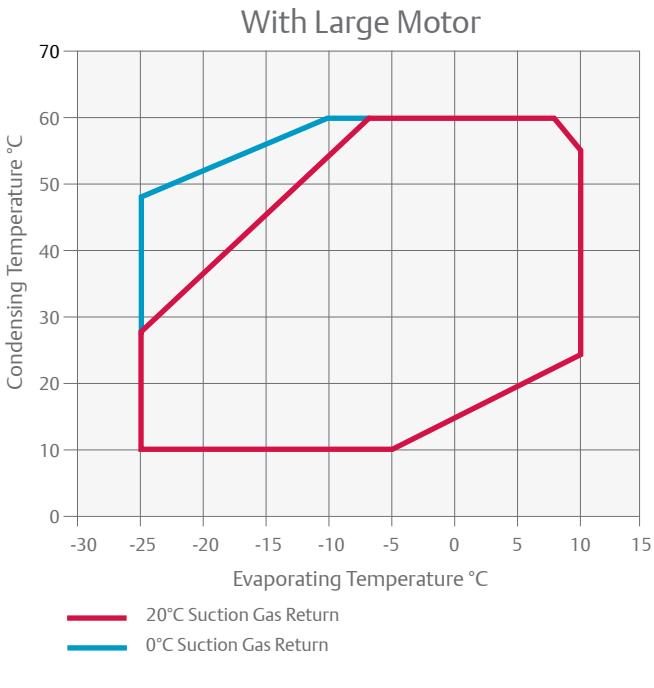
Operating Envelope R407A





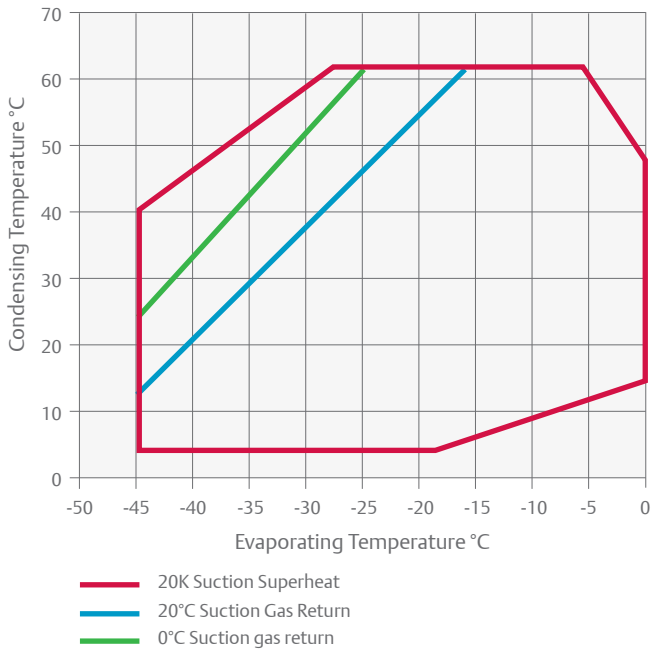
Operating Envelope R407F



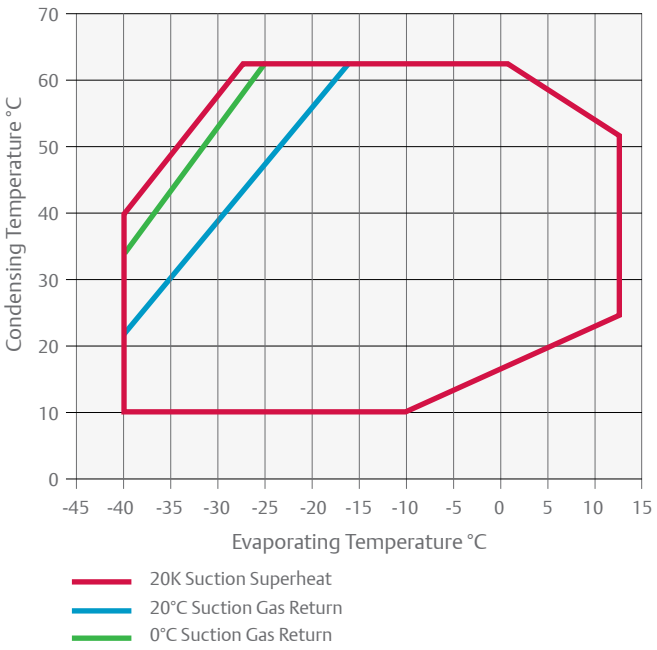


Operating Envelope R448A/R449A

With Small Motor

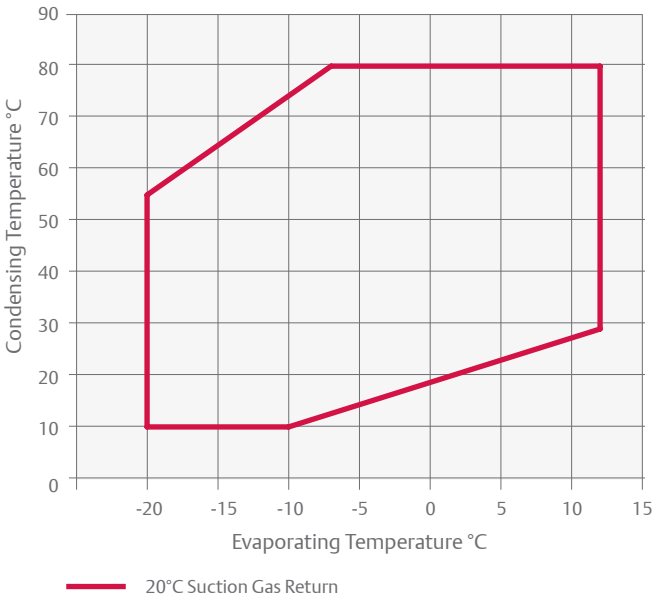


With Large Motor

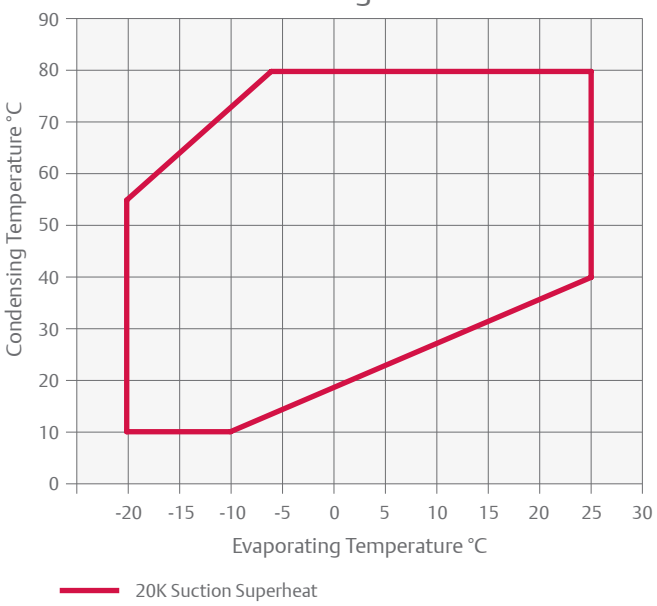


Operating Envelope R134a

With Small Motor



With Large Motor



For individual model details please refer to select software.

Technical Overview

Models	Nominal hp	Displacement (m^3/h)	Oil Quantity (l)	Length/width/height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @1 m - dB(A) ***
						3 Ph**	3 Ph**	3 Ph**	
4MF-13X	13	61.7	3.3	638/501/452	177	AWM	30.8	105	70
4MA-22X	22	61.7	3.3	638/501/452	177	AWM	36.3	175	75
4ML-15X	15	71.4	3.3	638/501/452	180	AWM	35.4	156	71
4MH-25X	25	71.4	3.3	657/501/452	187	AWM	41.6	199	75
4MM-20X	17	78.2	3.3	657/501/452	182	AWM	39	175	71
4MI-30X	27	78.2	3.3	657/501/452	188	AWM	46.6	221	75
4MT-22X	22	87.7	3.3	657/501/452	183	AWM	44.5	175	73
4MJ-33X	33	87.7	3.3	657/501/452	190	AWM	52.9	221	74
4MU-25X	25	99.4	3.3	657/501/452	186	AWM	51.9	199	72
4MK-35X	32	99.4	3.3	688/501/452	202	AWM	61.1	255	74
6MM-30X	27	120.5	3.3	695/547/450	215	AWM	59.7	255	78
6MI-40X	35	120.5	3.3	695/547/450	219	AWM	71.4	304	78
6MT-35X	32	135	3.3	725/547/450	221	AWM	67.3	255	77
6MJ-45X	40	135	3.3	725/547/450	223	AWM	81.5	304	79
6MU-40X	40	153	3.3	757/547/450	225	AWM	75.8	306	78
6MK-50X	50	153	3.3	773/547/450	230	AWM	92.9	393	80

** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

Condensing Temperature: 40°C														
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
4MF-13X		7.1*	10.3*	19.9	31.2	38.3		4MF-13X		6.1*	7.3*	9.7	11.8	12.7	
4MA-22X				20.3	32.6	40.3	59.9	4MA-22X				9.5	11.7	12.6	14
4ML-15X		9.2*	13.0*	24.3	38	46.6		4ML-15X		7.4*	8.8*	11.4	13.8	14.9	
4MH-25X				23.8	37.8	46.7	69.2	4MH-25X				11.4	13.7	14.6	15.9
4MM-20X		10.4*	14.5*	26.7	41.6	51		4MM-20X		8.3*	9.7*	12.7	15.3	16.5	
4MI-30X				26.7	42.1	51.9	76.5	4MI-30X				12.6	15	16.1	17.8
4MT-22X		11.2*	15.5*	28.7	44.7	54.8		4MT-22X		9.4*	11.1*	14.5	17.5	18.9	
4MJ-33X				29.7	46.8	57.7	85.1	4MJ-33X				14.2	17	18.2	20.1
4MU-25X		12.3*	17.3*	32.6	50.9	62.4		4MU-25X		10.6*	12.4*	16.2	19.9	21.6	
4MK-35X				33.5	52.6	64.7	95.1	4MK-35X				16.2	19.5	20.9	23.4
6MM-30X		15.1*	21.2*	39.7	61.9	75.8		6MM-30X		12.6*	14.9*	19.4	23.6	25.5	
6MI-40X				40.8	64.2	79	116.5	6MI-40X				19.3	23.3	25	27.6
6MT-35X		18.4*	25.1*	45.7	71	86.9		6MT-35X		14.5*	16.8*	21.9	26.9	29.1	
6MJ-45X				45.4	71.4	87.9	129.5	6MJ-45X				21.5	26.1	28	31
6MU-40X		20.9*	27.8*	50.3	78.7	96.7		6MU-40X		16.6*	19.0*	24.4	30.1	32.8	
6MK-50X				50.6	79.4	97.6	143.5	6MK-50X				24.4	29.8	32.3	36.4

Suction Gas Return 20°C, Subcooling 0K
* Suction Superheat 10K, Subcooling 0K

Capacity Data

Condensing Temperature: 40°C															
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
4MF-13X		7.8*	11.1*	19.7*	32.5	39.9		4MF-13X		6.5*	7.7*	10.2*	12.4	13.3	
4MA-22X				20.7*	34.8	43	63.8	4MA-22X				10.2*	12.4	13.2	14.4
4MH-25X				24.2*	40.4	49.9	73.8	4MH-25X				11.9*	14.4	15.4	16.8
4ML-15X		9.9*	13.8*	24.2*	39.8	48.9		4ML-15X		7.8*	9.2*	12.0*	14.6	15.7	
4MM-20X		11.0*	15.3*	26.6*	43.5	53.4		4MM-20X		8.7*	10.3*	13.3*	16.0	17.2	
4MI-30X				26.9*	44.4	54.8	80.7	4MI-30X				13.1*	15.8	17.0	18.6
4MT-22X		12.7*	17.4*	29.9*	48.5	59.5		4MT-22X		10.0*	11.7*	15.1*	18.3	19.7	
4MJ-33X				30.2*	49.5	60.9	89.8	4MJ-33X				14.8*	17.8	19.2	21.1
4MU-25X		14.0*	19.3*	33.3*	54.6	66.9		4MU-25X		11.2*	13.2*	17.2*	21.0	22.8	
4MK-35X				33.7*	55.3	68.3	101	4MK-35X				16.8*	20.4	22.1	24.4
6MM-30X		17.2*	23.7*	40.7*	66	80.7		6MM-30X		13.6*	15.8*	20.4*	24.8	26.7	
6MI-40X				41.2*	67.9	83.5	122.5	6MI-40X				20.2*	24.4	26.2	28.9
6MT-35X		19.8*	27.0*	45.8*	74.1	90.4		6MT-35X		15.3*	18.0*	23.1*	28.0	30.3	
6MJ-45X				45.8*	75.2	92.6	136	6MJ-45X				22.9*	27.6	29.7	32.8
6MU-40X		20.1*	27.7*	48.5*	82.7	101.5		6MU-40X		16.9*	19.8*	25.9*	31.7	34.4	
6MK-50X				51.3*	84.5	104	153.5	6MK-50X				25.8*	31.3	33.7	37.5

Suction Gas Return 20°C, Subcooling 0K
* Suction Superheat 10K, Subcooling 0K

Condensing Temperature 40°C															
R448A/ R449A	Cooling Capacity (kW)							R448A/ R449A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	5	Model	-45	-35	-30	-20	-10	-5	5
4MA-22X		7.8*	11.3*	21.2	34.3	42.7	63.5	4MA-22X		6.2*	7.4*	9.8	11.8	12.6	13.7
4MF-13X	3.8*	8.2*	11.1*	19.6	30.4	37.3		4MF-13X	4.5*	6.3*	7.4*	9.8	12.2	13.1	
4MH-25X		9.4*	13.5*	24.7	39.1	48.0	70.3	4MH-25X		7.6*	8.9*	11.6	14.1	15.1	16.7
4ML-15X	4.3*	10.5*	14.3*	25.2	38.7	47.1		4ML-15X	5.2*	7.6*	8.9*	11.6	14.2	15.4	
4MI-30X		10.8*	15.4*	28.1	44.1	54.0	78.6	4MI-30X		8.2*	9.8*	13.0	15.6	16.7	18.2
4MM-20X	4.9*	11.8*	16.0*	27.8	42.5	51.5		4MM-20X	5.8*	8.5*	9.9*	12.9	15.6	16.9	
4MJ-33X		12.1*	17.0*	30.9	48.7	59.8	87.6	4MJ-33X		9.2*	11.0*	14.5	17.6	18.9	20.6
4MT-22X	5.9*	13.5*	18.2*	31.3	47.7	57.8		4MT-22X	6.6*	9.7*	11.3*	14.6	17.8	19.2	
4MK-35X		13.7*	19.2*	34.7	54.8	67.5	98.9	4MK-35X		10.7*	12.7*	16.7	20.4	22.0	24.4
4MU-25X	6.5*	14.3*	19.5*	34.2	53.2	65.1		4MU-25X	7.4*	10.8*	12.7*	16.6	20.5	22.4	
6MI-40X		17.1*	23.9*	42.8	66.6	81.4	118.0	6MI-40X		13.0*	15.3*	19.6	23.5	25.2	28.0
6MM-30X	6.6*	17.6*	24.1*	41.8	63.2	76.3		6MM-30X	8.8*	13.1*	15.4*	19.9	23.9	25.6	
6MT-35X	7.5*	19.8*	26.9*	46.5	70.0	84.3		6MT-35X	9.7*	14.6*	17.2*	22.2	26.9	29.0	
6MJ-45X		19.5*	27.2*	48.1	74.5	91.0	132.0	6MJ-45X		14.3*	17.0*	22.2	26.9	28.8	31.7
6MK-50X		21.1*	29.4*	52.7	82.2	101.0	147.0	6MK-50X		16.4*	19.2*	25.0	30.3	32.7	36.7
6MU-40X	8.3*	22.2*	30.5*	53.4	81.8	99.4		6MU-40X	10.9*	16.3*	19.1*	24.6	29.8	32.1	

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
Preliminary Data

Capacity Data

Condensing Temperature: 40°C														
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
4MA-22X		10.5	14.3	23.6	36.0	43.5	62.0	4MA-22X		7.3	8.6	11.0	13.0	13.7	14.7
4MF-13X	3.6*	10.7	14.0	22.8	34.8	42.2		4MF-13X	5.0*	7.4	8.7	11.0	13.0	13.9	
4MH-25X		12.4	16.7	27.5	42.2	51.3	73.6	4MH-25X		8.6	10.1	13.0	15.4	16.3	17.5
4ML-15X	4.8*	13.3	17.4	27.9	42.0	50.8		4ML-15X	6.3*	9.0	10.5	13.3	15.8	16.7	
4MI-30X		14.4	19.4	31.2	46.8	56.3	79.5	4MI-30X		9.8	11.5	14.5	17.0	18	19.5
4MM-20X	5.7*	15.1	19.6	30.9	46.1	55.4		4MM-20X	7.1*	10.1	11.6	14.6	17.0	18.2	
4MJ-33X		16.2	21.4	34.6	52.4	63.4	90.4	4MJ-33X		10.9	12.6	16.0	19.0	20.2	21.8
4MT-22X	6.7*	17.0	21.9	34.7	52.0	62.7		4MT-22X	8.0*	11.5	13.2	16.6	19.5	20.7	
4MK-35X		18.3	24.0	38.8	58.9	71.3	102.0	4MK-35X		12.6	14.6	18.5	22.0	23.5	25.7
4MU-25X	7.2*	18.6	24.1	38.5	58.1	70.2		4MU-25X	9.0*	12.9	14.9	18.8	22.3	23.7	
6MI-40X		21.9	28.9	46.7	70.8	85.8	122.5	6MI-40X		15.2	17.6	22.2	26.1	27.7	30.1
6MM-30X	8.9*	22.7	29.3	46.5	70.2	85.1		6MM-30X	11.0*	15.7	18.0	22.5	26.3	27.8	
6MJ-45X		24.3	32.3	52.5	79.5	96.1	136.5	6MJ-45X		16.8	19.6	24.9	29.5	31.4	33.9
6MT-35X	10.3*	25.6	33	52.5	79.3	95.9		6MT-35X	12.3*	17.5	20.1	25.3	29.7	31.5	
6MK-50X		27.3	36.3	58.7	88.6	107.0	152.0	6MK-50X		19.4	22.5	28.3	33.5	35.9	39.9
6MU-40X	11.0*	28.4	36.8	58.7	89.0	108.0		6MU-40X	13.8*	19.7	22.7	28.5	33.6	35.8	

Suction Gas Return 20°C, Subcooling 0K
* Suction superheat 10K, Subcooling 0K

Condensing Temperature: 40°C														
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Models	-45	-35	-30	-20	-10	-5	+5	Models	-45	-35	-30	-20	-10	-5	+5
4MA-22X				13.1	21.3	26.6	40.1	4MA-22X				5.9	7.3	7.9	8.7
4MF-13X				12.2	20.4	25.6	38.9	4MF-13X				5.8	7.2	7.8	8.7
4MH-25X				15.0	24.6	30.7	46.4	4MH-25X				7.0	8.7	9.4	10.4
4ML-15X				15.0	24.5	30.5	46.0	4ML-15X				6.9	8.5	9.3	10.4
4MI-30X				16.8	27.1	33.7	50.7	4MI-30X				7.6	9.4	10.3	11.4
4MM-20X				16.6	27.0	33.6	50.3	4MM-20X				7.7	9.4	10.2	11.4
4MJ-33X				18.9	30.3	37.6	56.4	4MJ-33X				8.7	10.7	11.5	12.8
4MT-22X				19.0	30.6	38.1	57.2	4MT-22X				8.7	10.8	11.7	13.0
4MK-35X				21.0	34.0	42.2	63.3	4MK-35X				9.7	12.2	13.3	14.9
4MU-25X				20.7	33.9	42.3	63.8	4MU-25X				9.8	12.2	13.3	15.0
6MI-40X				24.8	40.2	50.2	76.0	6MI-40X				12.0	14.6	15.8	17.8
6MM-30X				25.2	40.7	50.7	76.1	6MM-30X				11.7	14.6	15.8	17.7
6MJ-45X				28.5	45.6	56.7	85.3	6MJ-45X				13.0	16.2	17.8	20.3
6MT-35X				28.5	46.0	57.1	85.2	6MT-35X				13.3	16.5	17.9	20.0
6MK-50X				29.8	49.1	61.7	94.3	6MK-50X				15.2	18.8	20.5	23.3
6MU-40X				31.5	50.6	62.9	94.5	6MU-40X				14.6	18.4	20.1	23.0

Suction Gas Return 20°C, Subcooling 0K
* Suction Superheat 10K, Subcooling 0K

Copeland™ Stream Digital With CoreSense™ Diagnostics for Continuous Capacity Modulation

Stream Digital series 4 and 6 cylinder compressors provide an alternative means of continuous modulation to inverter. Digital modulation is the most simple and precise method of capacity control and helps to contain applied costs associated with modulation.

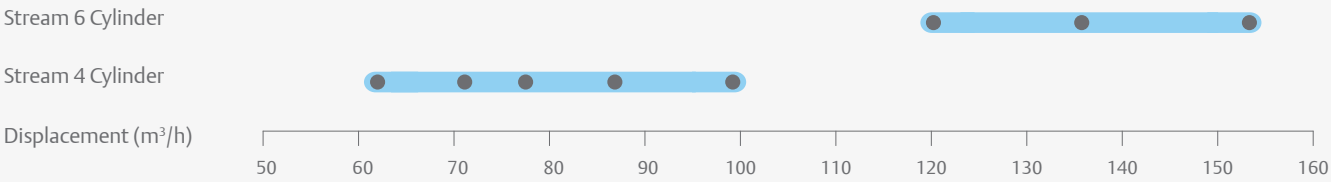
Digital technology is based on controlling a high-cycle solenoid valve fitted on one of the cylinder heads based on cycle time. The valve actuates a piston that controls the flow of gas into the suction area of the Stream valve plate.

The compressor always run at constant speed which resolves the challenges related to oil return, mechanical and electrical stress on the system.

All compressors are equipped with CoreSense technology and offer the possibility to diagnose system-related problems faster or even before they occur.

Copeland Stream Digital Compressor

Stream Digital Line-Up

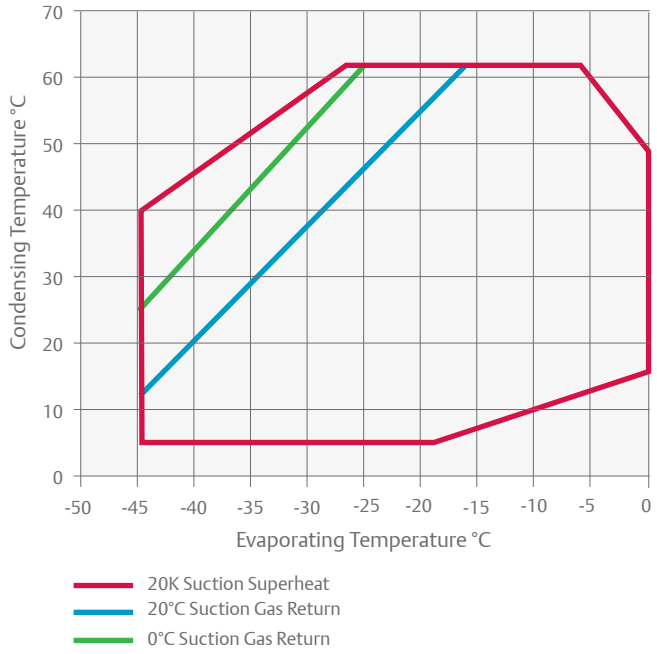


Features and Benefits

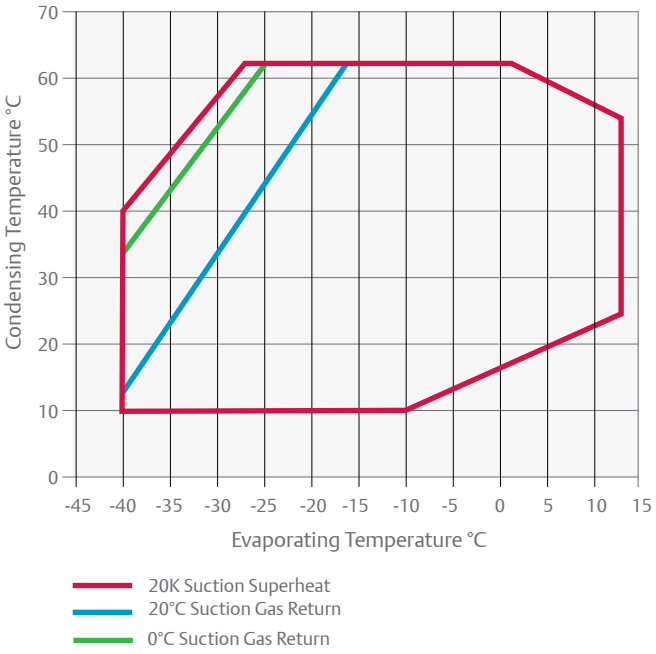
- Range of 16 Models from 62 to 153 m³/h
- Multi-refrigerant compressor as it is compatible with R407A/ F/C, R448A/ R449A, R404A, R134a, R450A and R513A
- Continuous modulation from 50–100% (4-cylinder) and 33–100% (6-cylinder) ensuring a perfect match of capacity and power to refrigeration load
- Economical and reliable alternative to frequency inverters
- Precise suction pressure control with associated energy savings and stable evaporating temperatures
- Quick and easy integration into refrigeration equipment, similar to any other standard compressor
- Possibility to easily retrofit existing installations with digital cylinder head kit
- No vibrations or mechanical stress on system piping and compressor parts
- Reduced compressor cycling for longer contactor and compressor life
- Emerson CoreSense Diagnostics technology providing advanced protection, diagnostics and preventive maintenance
- CoreSense Protection available as option

Operating Envelope R448A/R449A

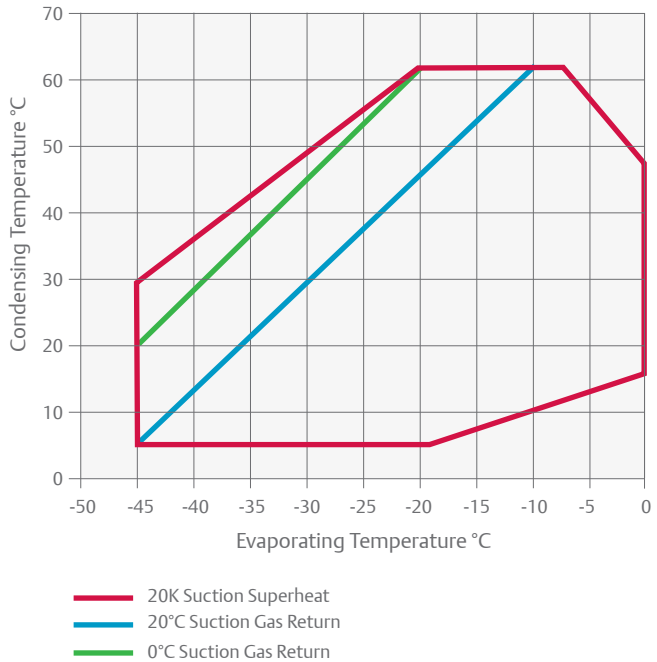
With 4 Cylinder Small Motor - 100% Modulation



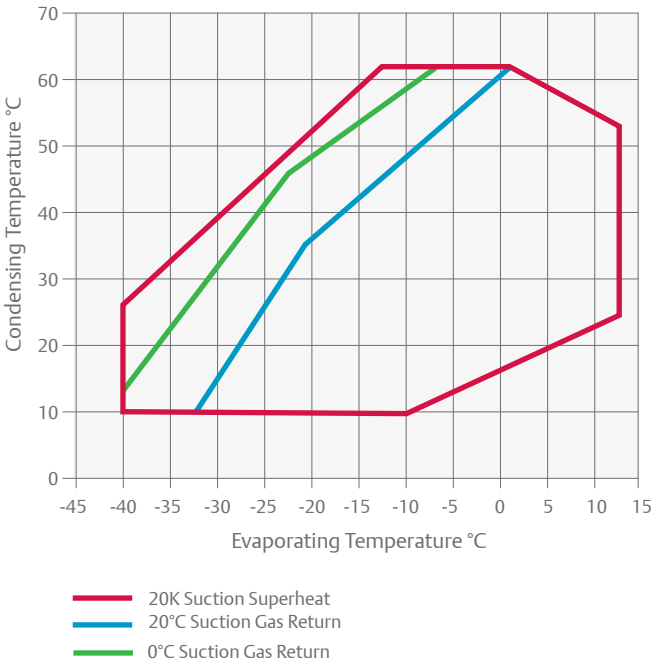
With 6 Cylinder Large Motor - 100% Modulation



With 4 Cylinder Small Motor - 50% Modulation



With 6 Cylinder Large Motor - 33% Modulation



All other refrigerant envelopes are available as 'Dynamic Envelopes' and can be accessed through select software.

Technical Overview

Models	Nominal hp	Displacement (m^3/h)	Oil Quantity (l)	Length/Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @1 m - dB(A) ***
						3 Ph**	3 Ph**	3 Ph**	
4MFD-13X	13	61.7	3.3	638/501/452	183	AWM	30.8	105	70
4MAD-22X	22	61.7	3.3	638/501/452	183	AWM	36.3	175	75
4MLD-15X	15	71.4	3.3	638/501/452	186	AWM	35.4	156	71
4MHD-25X	25	71.4	3.3	657/501/452	193	AWM	41.6	199	75
4MMD-20X	17	78.2	3.3	657/501/452	188	AWM	39.0	175	71
4MID-30X	27	78.2	3.3	657/501/452	194	AWM	46.6	221	75
4MTD-22X	22	87.7	3.3	657/501/452	189	AWM	44.5	175	73
4MJD-33X	33	87.7	3.3	657/501/452	196	AWM	52.9	221	74
4MUD-25X	25	99.4	3.3	657/501/452	192	AWM	51.9	199	72
4MKD-35X	32	99.4	3.3	688/501/452	202	AWM	61.1	255	74
6MMD-30X	27	120.5	3.3	695/547/450	221	AWM	59.7	255	78
6MID-40X	35	120.5	3.3	695/547/450	225	AWM	71.4	304	78
6MTD-35X	32	135.0	3.3	725/547/450	227	AWM	67.3	255	77
6MJD-45X	40	135.0	3.3	725/547/450	229	AWM	81.5	304	79
6MUD-40X	40	153.0	3.3	757/547/450	231	AWM	75.8	304	78
6MKD-50X	50	153.0	3.3	773/547/450	236	AWM	92.9	393	80

** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

Condensing Temperature: 40°C															
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
4MFD-13X				18.3*	30.9	37.9		4MFD-13X				9.7*	11.8	12.7	
4MAD-22X					32.2	39.9	59.3	4MAD-22X					11.7	12.6	14.0
4MLD-15X				22.7*	37.7	46.1		4MLD-15X				11.4*	13.8	14.9	
4MHD-25X					37.4	46.2	68.5	4MHD-25X					13.7	14.6	15.9
4MMD-20X				24.9*	41.2	50.5		4MMD-20X				12.7*	15.3	16.5	
4MID-30X				21.6*	37.4	46.2	68.5	4MID-30X				11.4*	13.7	14.6	15.9
4MTD-22X				26.5*	44.2	54.2		4MTD-22X				14.5*	17.5	18.9	
4MJD-33X					41.7	51.4	75.7	4MJD-33X					15.1	16.1	17.8
4MUD-25X				30.1*	50.4	61.8		4MUD-25X				16.2*	19.9	21.6	
4MKD-35X					52.1	64.1	94.2	4MKD-35X					19.5	20.9	23.4
6MMD-30X			20.9*	39.3	61.3	75.0		6MMD-30X			14.9*	19.4	23.6	25.5	
6MID-40X				40.4	63.6	78.3	115.5	6MID-40X				19.3	23.3	25.0	27.6
6MTD-35X			24.8*	45.3	70.3	86.0		6MTD-35X			16.8*	21.9	26.9	29.1	
6MJD-45X				45.0	70.7	87.0	128.0	6MJD-45X				21.5	26.1	28.0	31.0
6MUD-40X				50.4	78.7	96.7		6MUD-40X				24.4	30.1	32.8	
6MKD-50X				50.1	78.6	96.6	142.0	6MKD-50X				24.4	29.8	32.3	36.4

Suction Gas Return 20°C, Subcooling 0K, 100% Loaded
* Suction Superheat 10K, Subcooling 0K

Condensing Temperature: 40°C															
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Models	-45	-35	-30	-20	-10	-5	+5
4MAD-22X				20.5*	34.4	42.6	63.1	4MAD-22X				10.2*	12.4	13.2	14.4
4MFD-13X				19.5*	32.2	39.5		4MFD-13X				10.2*	12.4	13.3	
4MHD-25X				23.9*	40.0	49.4	73.1	4MHD-25X				11.9*	14.4	15.4	16.8
4MLD-15X				23.9*	39.4	48.4		4MLD-15X				12.0*	14.6	15.7	
4MID-30X				26.6*	44.0	54.2	79.9	4MID-30X				13.1*	15.8	17.0	18.6
4MMD-20X				26.3*	43.0	52.9		4MMD-20X				13.3*	16.0	17.2	
4MJD-33X				29.8*	49.0	60.3	88.9	4MJD-33X				14.8*	17.8	19.2	21.1
4MTD-22X				29.5*	48.0	58.9		4MTD-22X				15.1*	18.3	19.7	
4MKD-35X				33.3*	54.8	67.6	100.0	4MKD-35X				16.8*	20.4	22.0	24.4
4MUD-25X				32.9*	54.0	66.3		4MUD-25X				17.1*	21.0	22.8	
6MID-40X				40.7*	67.2	82.6	121.5	6MID-40X				20.2*	24.4	26.2	28.9
6MMD-30X				40.2*	65.4	79.9		6MMD-30X				20.4*	24.8	26.7	
6MJD-45X				45.3*	74.5	91.6	135.0	6MJD-45X				22.9*	27.6	29.7	32.8
6MTD-35X				45.3*	73.3	89.5		6MTD-35X				23.1*	28.0	30.3	
6MKD-50X				50.7*	83.7	103.0	151.5	6MKD-50X				25.8*	31.3	33.7	37.5
6MUD-40X				47.9*	81.9	100.5		6MUD-40X				25.9*	31.7	34.4	

Suction Gas Return 20°C, Subcooling 0K, 100% Loaded
* Suction Superheat 10K, Subcooling 0K
Preliminary Data

Capacity Data

Condensing Temperature: 40°C														
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
4MAD-22X		8.1*	11.7*	23.4	35.6	43.1	61.3	4MAD-22X		7.3*	8.6*	11.0	13.0	13.7	14.7
4MFD-13X		8.3*	11.5*	22.6	34.5	41.8		4MFD-13X		7.4*	8.7*	11.0	13.1	13.9	
4MHD-25X		9.6*	13.7*	27.2	41.7	50.7	72.9	4MHD-25X		8.6*	10.1*	13.0	15.4	16.3	17.5
4MLD-15X		10.6*	14.5*	27.6	41.6	50.2		4MLD-15X		9.0*	10.5*	13.3	15.8	16.7	
4MID-30X		11.4*	16.2*	30.9	46.3	55.7	78.7	4MID-30X		9.8*	11.5*	14.5	17.0	18.0	19.5
4MMD-20X		12.2*	16.4*	30.6	45.6	54.8		4MMD-20X		10.1*	11.6*	14.6	17.1	18.2	
4MJD-33X		12.9*	17.8*	34.2	51.9	62.7	89.5	4MJD-33X		10.9*	12.6*	16.1	19.0	20.2	21.8
4MTD-22X		13.7*	18.4*	34.3	51.5	62.1		4MTD-22X		11.5*	13.2*	16.6	19.5	20.7	
4MKD-35X		14.5*	20.0*	38.4	58.3	70.6	101.0	4MKD-35X		12.6*	14.6*	18.5	22.0	23.5	25.7
4MUD-25X		14.9*	20.1*	38.1	57.5	69.5		4MUD-25X		12.9*	14.9*	18.8	22.3	23.7	
6MID-40X		17.3*	28.6°	46.2	70.1	84.9	121.5	6MID-40X		15.2*	17.6°	22.2	26.1	27.7	30.1
6MMD-30X		18.2*	29.0°	46.0	69.5	84.3		6MMD-30X		15.7*	18.1°	22.5	26.3	27.8	
6MJD-45X		19.2*	32.0°	51.9	78.7	95.1	135.0	6MJD-45X		16.8*	19.6°	24.9	29.5	31.4	33.9
6MTD-35X		20.5*	32.7°	52.0	78.5	94.9		6MTD-35X		17.5*	20.1°	25.3	29.7	31.5	
6MKD-50X		21.4*	36.0°	58.1	87.7	106.0	150.5	6MKD-50X		19.4*	22.5°	28.3	33.5	35.9	39.9
6MUD-40X		22.6*	36.5°	58.1	88.1	107.0		6MUD-40X		19.7*	22.7°	28.5	33.6	35.8	

Suction Gas Return 20°C, Subcooling 0K, 100% Loaded
* Suction Superheat 10K, Subcooling 0K
° Additional Cooling Required

Condensing Temperature: 40°C														
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
4MAD-22X		4.0*	6.2*	11.8*	20.0*	25.4*	39.7	4MAD-22X		3.7*	4.4*	5.9*	7.3*	7.9*	8.7
4MFD-13X				12.1	20.2	25.4	38.5	4MFD-13X				5.8	7.2	7.8	8.7
4MHD-25X		4.4*	6.9*	13.5*	23.1*	29.3*	45.9	4MHD-25X		4.7*	5.4*	7.1*	8.7*	9.4*	10.4
4MLD-15X				14.8	24.2	30.2	45.5	4MLD-15X				6.9	8.5	9.3	10.4
4MID-30X		5.2*	8.0*	15.1*	25.4*	32.2*	50.2	4MID-30X		4.9*	5.8*	7.6*	9.4*	10.3*	11.4
4MMD-20X				16.5	26.7	33.3	49.8	4MMD-20X				7.7	9.4	10.2	11.4
4MJD-33X		6.0*	9.1*	17.0*	28.5*	35.9*	55.9	4MJD-33X		5.6*	6.6*	8.7*	10.7*	11.5*	12.8
4MTD-22X				18.9	30.3	37.7	56.7	4MTD-22X				8.7	10.8	11.7	13.1
4MKD-35X		7.0*	10.4*	19.1*	31.9*	40.3*	62.7	4MKD-35X		7.1*	7.7*	9.7*	12.2*	13.3*	14.9
4MUD-25X				20.5	33.5	41.9	63.2	4MUD-25X				9.8	12.2	13.3	15.1
6MID-40X				22.2*	37.6*	47.8*	75.3	6MID-40X				12.0*	14.6*	15.8*	17.8
6MMD-30X				24.9	40.3	50.2	75.3	6MMD-30X				11.7	14.6	15.8	17.7
6MJD-45X				25.6*	42.7*	54.0*	84.5	6MJD-45X				13.0*	16.2*	17.8*	20.3
6MTD-35X				28.2	45.5	56.5	84.4	6MTD-35X				13.3	16.5	17.9	20.0
6MKD-50X				26.2*	45.7*	58.6*	93.4	6MKD-50X				15.2*	18.8*	20.5*	23.3
6MUD-40X				31.2	50.1	62.3	93.6	6MUD-40X				14.6	18.4	20.1	23.0

Suction Gas Return 20°C, Subcooling 0K, 100% Loaded
* Suction Superheat 10K, Subcooling 0K

Capacity Data

Condensing Temperature: 40°C														
R448A / R449A	Cooling Capacity (kW)							R448A / R449A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
4MAD-22X		7.7*	11.1*	21.0	34.0	42.2	62.9	4MAD-22X		6.2*	7.4*	9.8	11.8	12.6	13.7
4MFD-13X	3.7*	8.1*	10.9*	19.4	30.1	36.9		4MFD-13X	4.5*	6.3*	7.4*	9.8	12.2	13.1	
4MLD-15X	4.2*	10.3*	14.2*	24.9	38.3	46.6		4MLD-15X	5.2*	7.6*	8.9*	11.6	14.2	15.4	
4MHD-25X		9.3*	13.3*	24.5	38.7	47.6	69.6	4MHD-25X		7.6*	8.9*	11.6	14.1	15.1	16.7
4MMD-20X	4.9*	11.6*	15.8*	27.5	42.0	51.0		4MMD-20X	5.8*	8.5*	9.9*	12.9	15.6	16.9	
4MID-30X		10.6*	15.3*	27.8	43.6	53.5	77.8	4MID-30X		8.2*	9.8*	13.0	15.6	16.7	18.2
4MJD-33X		11.9*	16.8*	30.6	48.2	59.2	86.7	4MJD-33X		9.2*	11.0*	14.5	17.6	18.9	20.6
4MTD-22X	5.8*	13.3*	17.9*	31.0	47.2	57.2		4MTD-22X	6.6*	9.7*	11.3*	14.6	17.8	19.2	
4MKD-35X		13.6*	19.0*	34.4	54.3	66.8	97.9	4MKD-35X		10.7*	12.7*	16.7	20.4	22.0	24.4
4MUD-25X	6.4*	14.2*	19.2*	33.9	52.7	64.4		4MUD-25X	7.4*	10.8*	12.7*	16.6	20.5	22.4	
6MID-40X		16.9*	23.7*	42.4	65.9	80.6	116.5	6MID-40X		13.0*	15.3*	19.6	23.5	25.2	28.0
6MMD-30X	6.5*	17.4*	23.8*	41.4	62.6	75.5		6MMD-30X	8.8*	13.1*	15.4*	19.9	23.9	25.6	
6MTD-35X	7.4*	19.5*	26.6*	46.0	69.3	83.5		6MTD-35X	9.7*	14.6*	17.2*	22.2	26.9	29.0	
6MJD-45X		19.3*	26.9*	47.6	73.7	90.1	131.0	6MJD-45X		14.3*	17.0*	22.2	26.9	28.8	31.7
6MKD-50X		20.8*	29.1*	52.2	81.4	99.8	145.5	6MKD-50X		16.4*	19.2*	25.0	30.3	32.7	36.7
6MUD-40X	8.2*	21.9*	30.2*	52.9	81.0	98.4		6MUD-40X	10.9*	16.3*	19.1*	24.6	29.8	32.1	

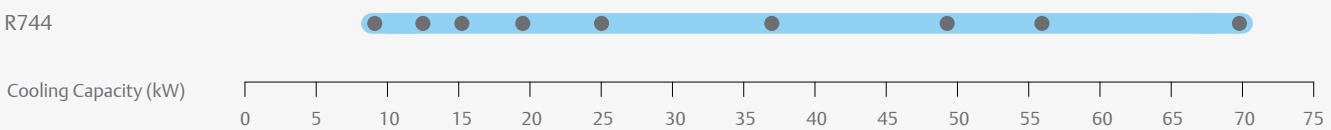
Conditions: Suction Gas Return 20°C / Subcooling 0K, 100% Loaded
*Conditions: Suction Superheat 10K, Subcooling 0K
Preliminary Data

Copeland™ Stream Compressors With CoreSense™ Diagnostics for R744-Transcritical Applications

Stream series of 4 cylinder CO_2 compressors is the ideal solution for R744 booster systems. It is characterized by a design pressure of 135 bar. Refrigerant flow and heat transfer have been optimized for best performance. All compressors are equipped with CoreSense technology and offer the possibility to diagnose system-related problems faster or even before they occur.

Copeland Stream Compressors for R744
Refrigeration Designed for Durability and Best-in-Class Performance in R744-Transcritical Applications

Stream Compressor Line-up



Conditions: EN12900 R744: Evaporating -10°C, gas cooler exit: 35°C/ 90 bar, superheat: 10K

Features and Benefits

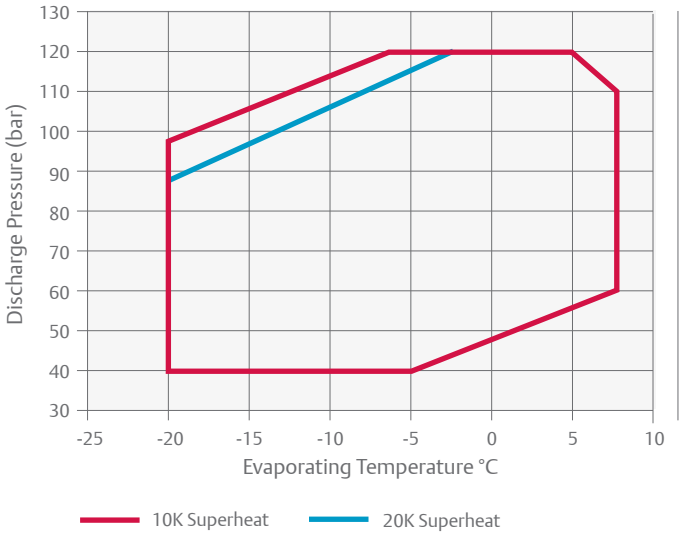
Stream provides for flexibility in pack design and operation:

- Compact dimensions
- Integrated low pressure relief valve
- Discharge temperature protection
- Service valve 360° rotation for ease of piping design
- 2 sight glasses for mounting of oil management control and visual inspection
- One oil port for oil equalization in parallel system
- Oil splasher system ensuring lubrication at constant and variable speed

Designed for durability and performance in R744 applications:

- Low sound, low vibration and large discharge chamber to eliminate pulsation
- High design pressures of 135 bar (high side) and 90 bar (low side)
- Burst pressures in excess of safety factor 3
- Cylinder head and discharge plenum design minimizing heat transfer to suction side
- Stepless capacity modulation via inverter from 25 to 70Hz
- CoreSense™ Diagnostics
- Individual compressor power consumption monitoring
- CoreSense Protection available as option

Operating Envelope R744



Technical Overview

Model	Nominal hp	Displacement (m^3/h)	Capacity (kw)	COP	Oil Quantity (l)	Length/Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @1 m - dB(A)***
								3 Ph**	3 Ph**	3 Ph**	
4MTL-05X	5.0	4.6	9.3	1.6	1.5	630/425/410	123.0	EWL	13.3	80.5	59.0
4MTL-07X	7.0	6.2	12.5	1.6	1.5	630/425/410	124.0	EWL	17.5	81.2	62.0
4MTL-09X	9.0	7.4	15.3	1.6	1.5	630/425/410	123.0	EWL	21.0	93.5	63.0
4MTL-12X	12.0	9.5	19.2	1.7	1.8	697/444/423	170.0	AWM	26.5	145.0	67.4
4MTL-15X	15.0	12.5	25.2	1.8	1.8	697/445/422	170.0	AWM	34.8	156.0	71.3
4MTL-30X	30.0	18.0	37.0	1.8	1.8	697/445/422	175.0	AWM	50.0	221.0	75.1
4MTL-35X	35.0	22.7	49.0	1.79	2.5	842/ 468/ 467	257.9	AWM	67.1	304	75.1
4MTL-40X	40.0	26.6	56.0	1.84	2.5	842/ 468/ 467	264.0	AWM	72.6	306	75.1
4MTL-50X	50.0	32.0	70.0	1.81	2.5	842/ 468/ 467	269.4	AWM	90.3	393	75.1

** 3 Ph: 380-420V/ 50Hz
*** @ 1m: Sound Pressure Level at 1m Distance from the Compressor, Free Field Condition
Preliminary Data

Capacity Data

Model		Temperature (°C)	Pressure (bar)	Cooling Capacity (kW)					Power Input (kW)				
				Evaporating Temperature (°C)					Evaporating Temperature (°C)				
				-20	-15	-10	-5	0	-20	-15	-10	-5	0
				Equivalent Evaporation Pressure (bar)					Equivalent Evaporation Pressure (bar)				
				19.7	22.9	26.5	30.5	34.9	19.7	22.9	26.5	30.5	34.9
4MTL-05X	Condensing	10	45	10.9	13.4	16.3	19.5		3.1	3.0	2.8	2.5	
		15	50	9.8	12.1	14.8	17.8	21.2	3.4	3.4	3.2	3.0	2.6
		20	57	8.8	10.8	13.2	16.0	19.1	3.8	3.8	3.7	3.5	3.2
		25	64	7.6	9.4	11.5	14.0	16.7	4.1	4.2	4.2	4.0	3.8
		30	75	6.0	7.4	9.2	11.2	13.4	4.5	4.6	4.6	4.6	4.4
	Cool gas	35	90		7.0	8.7	10.7	12.9		5.4	5.6	5.7	5.7
		40	100			7.5	9.3	11.3			6.0	6.2	6.3
		40	110				9.6	11.7				6.6	6.8
4MTL-07X	Condensing	10	45	14.9	18.2	22.1	26.5		3.9	3.7	3.4	3.0	
		15	50	13.5	16.5	20.1	24.1	28.7	4.3	4.3	4.0	3.7	3.2
		20	57	12.0	14.7	17.9	21.7	25.8	4.8	4.8	4.7	4.4	4.0
		25	64	10.4	12.8	15.6	18.9	22.5	5.3	5.4	5.3	5.2	4.9
		30	75	8.2	10.2	12.5	15.1	18.1	5.8	6.0	6.0	5.9	5.7
	Cool gas	35	90		9.5	11.8	14.5	17.4		7.0	7.3	7.4	7.5
		40	100			10.2	12.5	15.1			7.9	8.2	8.3
		40	110				12.9	15.6				8.8	9.0
4MTL-09X	Condensing	10	45	18.3	22.3	27.0	32.4		4.6	4.5	4.1	3.6	
		15	50	16.6	20.3	24.6	29.5	35.0	5.2	5.1	4.9	4.5	3.9
		20	57	14.8	18.2	22.1	26.5	31.5	5.8	5.8	5.6	5.3	4.9
		25	64	12.9	15.8	19.3	23.2	27.6	6.4	6.5	6.4	6.2	5.9
		30	75	10.3	12.6	15.4	18.6	22.1	6.9	7.1	7.2	7.1	6.9
	Cool gas	35	90		11.9	14.7	17.8	21.4		8.5	8.8	9.0	9.0
		40	100			12.7	15.5	18.6			9.5	9.8	10.0
		40	110				16.0	19.3				10.6	10.9
4MTL-12X	Condensing	10	45	24.1	29.1	35.0	41.7		6.1	5.9	5.5	4.9	
		15	50	21.8	26.4	31.9	38.1	45.0	6.8	6.8	6.5	6.0	5.3
		20	57	19.5	23.7	28.6	34.3	40.6	7.6	7.6	7.4	7.0	6.5
		25	64	16.9	20.6	25.0	30.0	35.6	8.3	8.4	8.4	8.2	7.7
		30	75	13.5	16.4	20.0	24.1	28.6	9.0	9.3	9.4	9.3	9.0
	Cool gas	35	90	12.8	15.7	19.3	23.3	27.9	10.2	10.9	11.3	11.6	11.6
		40	100		13.6	16.8	20.4	24.4		11.5	12.2	12.6	12.8
		40	110			17.4	21.2	25.5			12.8	13.5	13.9
4MTL-15X	Condensing	10	45	31.2	37.9	45.6	54.4		7.9	7.6	7.1	6.3	
		15	50	28.3	34.5	41.6	49.7	58.7	8.8	8.7	8.4	7.8	6.9
		20	57	25.3	30.9	37.4	44.8	53.0	9.7	9.7	9.6	9.2	8.6
		25	64	22.0	26.9	32.7	39.3	46.6	10.5	10.8	10.8	10.7	10.2
		30	75	17.5	21.5	26.2	31.6	37.5	11.4	11.8	12.0	12.1	11.8
	Cool gas	35	90	16.5	20.5	25.2	30.5	36.5	13.1	13.8	14.4	14.8	15.0
		40	100		17.7	21.8	26.6	31.8		14.8	15.5	16.1	16.4
		40	110			22.5	27.5	33.1			16.6	17.3	17.9
4MTL-30X	Condensing	10	45	45.6	54.9	65.9	78.3		11.4	11.0	10.4	9.3	
		15	50	41.5	50.2	60.3	71.7	84.4	12.6	12.5	12.1	11.4	10.2
		20	57	37.2	45.1	54.3	64.7	76.3	13.9	14.0	13.9	13.4	12.5
		25	64	32.4	39.4	47.6	56.9	67.2	15.2	15.5	15.6	15.4	14.8
		30	75	25.9	31.6	38.3	45.8	54.2	16.4	16.9	17.3	17.4	17.1
	Cool gas	35	90	24.7	30.3	37.0	44.6	53.1	18.8	19.8	20.6	21.2	21.5
		40	100		26.3	32.2	39.0	46.5		21.2	22.2	23.0	23.6
		40	110			33.4	40.5	48.5			23.8	24.8	25.6

Suction Superheat 10K / Subcooling 0K

Preliminary Data

Capacity Data

Model		Temperature (°C)	Pressure (bar)	Cooling Capacity (kW)					Power Input (kW)				
				Evaporating Temperature (°C)					Evaporating Temperature (°C)				
				-20	-15	-10	-5	0	-20	-15	-10	-5	0
				Equivalent Evaporation Pressure (bar)					Equivalent Evaporation Pressure (bar)				
				19.7	22.9	26.5	30.5	34.9	19.7	22.9	26.5	30.5	34.9
4MTL-35X	Condensing	10	45	57.9	69.9	84.2	100.5		14.3	13.7	12.6	11.2	
		15	50	52.6	63.7	76.8	91.9	109.0	15.9	15.6	14.8	13.6	12.0
		20	57	47.1	57.1	69.1	82.8	98.2	17.6	17.6	17.1	16.2	14.9
		25	64	41.1	49.9	60.5	72.6	86.2	19.3	19.6	19.4	18.8	17.8
		30	75	32.8	40.0	48.5	58.4	69.4	20.9	21.5	21.7	21.5	20.8
	Cool gas	35	90	31.5	38.4	46.9	56.7	67.7	23.6	25.1	26.1	26.7	26.9
		40	100		33.5	40.9	49.5	59.3		26.5	28.0	29.1	29.7
		40	110			42.5	51.6	61.9			29.5	31.1	32.1
4MTL-40X	Condensing	10	45	69.0	83.1	99.7	118.5		16.5	15.9	14.7	13.0	
		15	50	62.8	75.8	91.1	108.5	128.0	18.5	18.2	17.4	16.1	14.1
		20	57	56.4	68.1	81.9	97.9	115.5	20.4	20.4	20.0	19.1	17.6
		25	64	49.3	59.6	71.8	85.9	101.5	22.4	22.7	22.6	22.1	21.1
		30	75	39.5	47.8	57.7	69.1	81.9	24.3	25.0	25.3	25.2	24.6
	Cool gas	35	90	38.1	46.2	55.9	67.2	79.9	28.2	29.4	30.4	31.1	31.4
		40	100		40.3	48.8	58.8	70.0		31.8	33.0	34.1	34.8
		40	110			50.8	61.2	73.1			35.6	36.9	37.9
4MTL-50X	Condensing	10	45	82.8	99.7	119.5	142.0		20.2	19.6	18.4	16.7	
		15	50	75.6	91.1	109.5	130.5	153.5	22.6	22.3	21.5	20.0	18.0
		20	57	67.9	82.0	98.6	117.5	139.0	24.9	25.1	24.6	23.5	21.9
		25	64	59.5	71.9	86.5	103.5	122.0	27.3	27.8	27.8	27.2	25.9
		30	75	47.7	57.8	69.7	83.4	98.6	29.6	30.6	31.1	30.9	30.1
	Cool gas	35	90	46.2	56.0	67.8	81.4	96.7	33.9	35.9	37.4	38.3	38.6
		40	100		49.0	59.3	71.3	84.8		38.2	40.3	41.8	42.6
		40	110			61.9	74.5	88.8			42.6	44.7	46.2

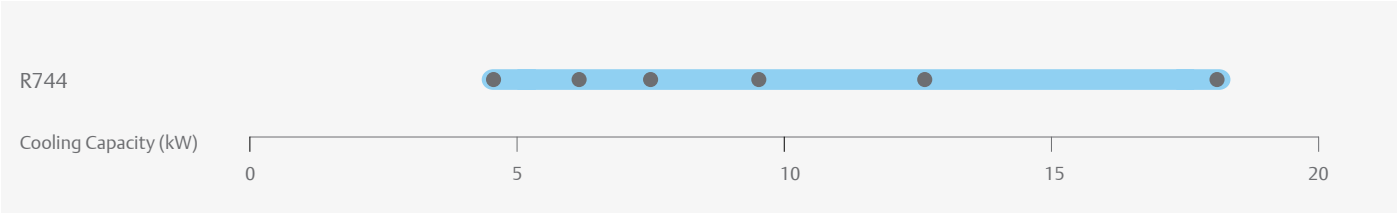
Copeland™ Stream Compressors With CoreSense™ Diagnostics for R744-Subcritical Applications Requiring High Standstill Pressures (90bar)

Stream series of 4 cylinder CO_2 compressors is the ideal solution for R744 low temperature cascade and booster systems requiring high standstill pressure of up to 90 bar suction. The use of transcritical compressors in medium / transcritical side as well as on the low temperature / subcritical side ensures that in case of power outage, the refrigeration system features full resilience and no operation disruption.

Stream is characterized by a design pressure of 135 bar. Refrigerant flow and heat transfer have been optimized for best performance. All compressors are equipped with CoreSense technology and offer the possibility to diagnose system-related problems faster or even before they occur.

Copeland Stream compressors for Low Temperature Applications with R744 Designed for durability and best-in-class performance in R744 subcritical applications

Stream Compressor Line-up



Conditions: EN12900 R744: Evaporating -35°C, condensing -5°C, superheat 10K, subcooling 0K

Features and Benefits

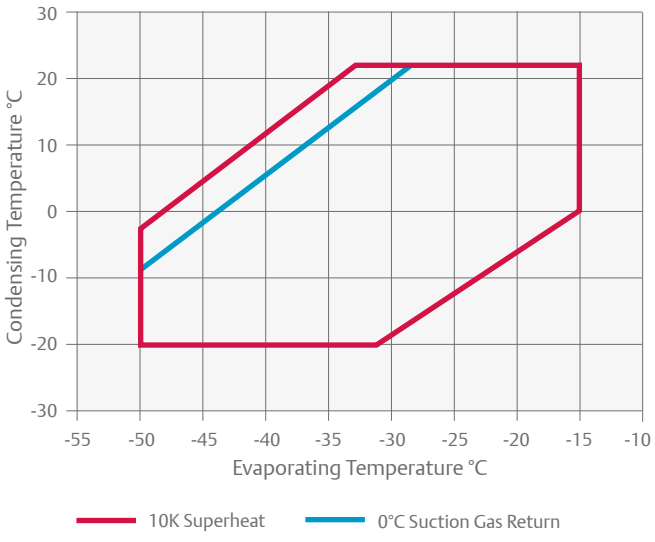
Stream provides for flexibility in pack design and operation:

- Compressor Max. Pressures (Suction/Discharge): 90 bar / 135 bar
- Compact dimensions
- Integrated low pressure relief valve
- Discharge temperature protection
- Service valve 360° rotation for ease of piping design
- 2 sight glasses for mounting of oil management control and visual inspection
- One oil port for oil equalization in parallel system
- Oil splasher system ensuring lubrication at constant and variable speed

Designed for durability and performance in R744 applications:

- Low sound, low vibration and large discharge chamber to eliminate pulsation
- Optimized motor selection for low temperature running conditions
- Burst pressures in excess of safety factor 3
- Cylinder head and discharge plenum design minimizing heat transfer to suction side
- Stepless capacity modulation via inverter from 25 to 70Hz
- CoreSense Diagnostics for advanced protection, diagnostics, communication
- Individual compressor power consumption monitoring
- CoreSense Protection available as option

Operating Envelope R744



Technical Overview

R744	Nominal hp	Displacement (m^3/h)	Capacity (kw)	COP	Oil Quantity (l)	Length/Width/ Height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @1 m - dB(A)***
								3 Ph**	3 Ph**	3 Ph**	
4MSL-03X	3.0	4.6	7.2	3.2	1.5	697/444/423		EWL			76.0
4MSL-04X	4.0	6.2	9.9	3.6	1.5	697/444/423		EWL			76.0
4MSL-06X	5.0	7.4	12.4	3.7	1.5	697/444/423		EWL			76.0
4MSL-08X	8.0	9.5	15.9	3.6	1.8	697/444/423	170.0	AWM	13.9	87.4	76.0
4MSL-12X	12.0	12.5	21.0	3.7	1.8	697/445/422	170.0	AWM	18.7	145.0	76.0
4MSL-15X	15.0	17.9	31.0	3.8	1.8	697/445/422	170.0	AWM	25.7	156.0	76.0

** 3 Ph: 380-420V/ 50Hz
*** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Capacity Data

R744	Cooling Capacity (kW)				R744	Power Input (kW)			
	Condensing Temperature -10°C					Condensing Temperature -10°C			
	Evaporating Temperature (°C)					Evaporating Temperature (°C)			
Model	-45	-40	-35	-30	Model	-45	-40	-35	-30
4MSL-03X	4.8*	6.3*	8.2*	10.5*	4MSL-03X	1.9*	2.0*	2.0*	1.9*
4MSL-04X	6.7*	8.8*	11.3*	14.2*	4MSL-04X	2.5*	2.6*	2.5*	2.4*
4MSL-06X	8.0*	10.5*	13.5*	16.9*	4MSL-06X	2.9*	3.0*	2.9*	2.7*
4MSL-08X	10.3*	13.5*	17.2*	21.5*	4MSL-08X	3.8*	4.0*	3.9*	3.7*
4MSL-12X	13.8*	17.9*	22.7*	28.4*	4MSL-12X	4.9*	5.0*	5.0*	4.8*
4MSL-15X	20.3*	26.3*	33.4*	41.5*	4MSL-15X	7.0*	7.2*	7.2*	7.0*

Conditions: Suction Gas Return 20°C / Subcooling 0K
*Conditions: Suction Superheat 10K, Subcooling 0K
Preliminary Data

Service Compressors for 4 and 6 Cylinder S-Series and Discus Reciprocating Compressors

With the successful launch of Stream with CoreSense™ Diagnostics 4M and 6M compressors, Emerson has decided to consolidate product families to allow our customers to reduce product proliferation and cost of operation. As a result, Emerson will in the future only produce the most efficient semi-hermetic reciprocating compressor platforms out of its current portfolio.

With a large number of 4 and 6 cylinder S-Series and Discus compressors operating in applications around the world, Emerson recognizes the importance of providing worry-free drop-in replacement models. The range of service compressors offers easy replacement ("like for like") without the need of system adaptations.

More detailed information is available with our "Guidelines for replacement of S-Series and Discus compressors" available from your Emerson sales office or as download under www.emersonclimate.eu

For your product selection in case of replacement needs, please refer to the cross-reference table below. In addition, our local Application Engineering and Sales team is ready to support you.

Service Compressor*

Discus Replacements

D4DF-100X	→	4MFS1-13X
D4DA-100X	→	4MFS1-13X
D4DA-200X	→	4MAS1-22X
D4DL-150X	→	4MLS1-15X
D4DH-150X	→	4MLS1-15X
D4DH-250X	→	4MHS1-25X
D4DT-220X	→	4MMS1-20X
D4DJ-200X	→	4MMS1-20X
D4DJ-300X	→	4MIS1-30X
D6DL-270X	→	6MLS1-27X
D6DH-200X	→	6MLS1-27X
D6DH-350X	→	6MHS1-35X
D6DT-320X	→	6MMS1-30X
D6DJ-300X	→	6MMS1-30X
D6DJ-400X	→	6MIS1-40X

*Valves are available as optional accessories.

Refrigeration Units

Refrigeration Units

Emerson offers the broadest and most reliable refrigeration unit product line-up. Leveraging the latest compressor technology, each platform provides you the option to select the refrigerant, capacity and application temperature combinations that meet your requirements. A huge variety of Copeland™ indoor and outdoor refrigeration units offer the right solution for applications in food retail and food service, commercial and industrial refrigeration.

Copeland EazyCool™ Scroll Outdoor Refrigeration Units are designed and fully equipped for a quick and easy installation and ideal to integrate into urban environments. The latest scroll technology is combined with high-quality Alco components and covered by a weatherproof housing in a unique design.

The Copeland EazyCool Refrigeration Unit ZX Series offers the highest energy efficiency available in a standard unit to lower operators' utility bills. Ranging in size from 2 to 7.5 hp, the ZX units are perfectly suited for typical food service and retail applications. The key benefits of compactness, silence and efficiency in the standard models will be enhanced by the capability of continuous capacity modulation of the ZX Digital models. This makes ZX Digital refrigeration units the perfect fit for applications with wide load variations.

Copeland Scroll™ indoor refrigeration units are equipped with the latest refrigeration scroll compressors and constitute the widest range of their kind. The modular line concept offers base units which can be adapted to the target application by various options including weather housings and fan speed controls.

Copeland Scroll Digital Receiver Units HLR are an innovative offering for food service and retail businesses. Their compact design and the power of Digital Scroll continuous capacity modulation enable optimized environmental integration with highest system efficiency.

Semi-hermetic refrigeration units: robust, reliable and efficient air-cooled refrigeration unitplatforms featuring semi-hermetic reciprocating compressor technology are for use in high-medium- and low-temperature applications. Emerson has expanded its semi-hermetic product range by the innovative Stream Indoor Refrigeration Units. There with we can offer a product range from 0.8 - 40 hp with dedicated refrigerant approvals for R407A/F, R448A/ R449A, R404A, R134a, R450A and R513A.

Copeland EazyCool™ Outdoor Refrigeration Units With Scroll Compressors

Copeland™ air-cooled outdoor refrigeration units for medium-temperature and low-temperature applications.

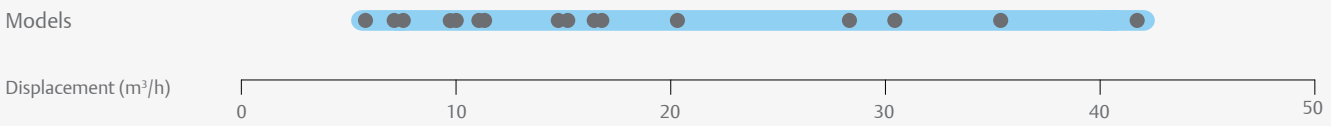
Emerson has developed this series of refrigeration units especially for outdoor use. The latest Scroll technology is combined with high-quality components and covered by an absolutely weather-resistant synthetic resin housing in a unique design.

The EazyCool line-up offers state-of-the-art technology and models featuring stepless capacity control, vapor injection and fan speed control. This makes it the first choice for target applications in food retail and food service:

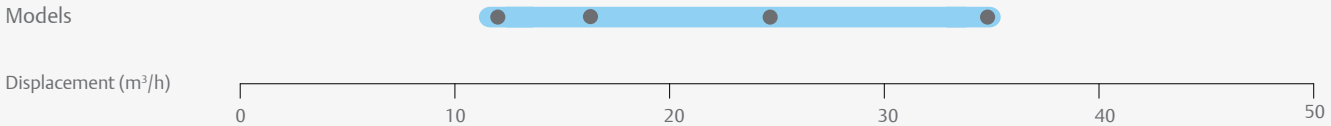
- Proximity and convenience stores
- Mini markets and supermarkets
- Bars, restaurants and kitchens
- Beer cellars and beverage coolers

Copeland EazyCool Outdoor Refrigeration Units with Scroll Compressors

EazyCool OLQ/OMQ Line-up



EazyCool Digital Line-up



Features and Benefits

- Standard equipment: Scroll compressor(s), crankcase heater(s), condenser with thermally protected fan(s), fan speed control, HP and LP switch, liquid receiver, filter drier & sight glass, weather-resistant housing
- Suitable for multiple refrigerants: R407A/F, R448A/ R449A, R404A, R134a, R450A and R513A.
- Wide range of quality accessories
- Excellent efficiency
- Filter drier, liquid sight glass and solenoid valve in liquid line

Maximum Allowable Pressure (PS)

- Low Side PS 22.5 bar (g)
- High Side PS 28 bar (g)

Technical Overview

Models	Displacement (m^3/h)	Receiver Capacity (l)	Number of Fans	Total Fan Motor Power (W)	Suction Line Diameter (inch)	Liquid line Diameter (inch)	Width/Depth/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @10m - dB(A)***
									1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
Medium Temperature Models															
OMQ-56	11.5	17.7	2	290	1 3/8	5/8	2100/670/950	224.0		TWD		15		99	44.0
OMTQ-60	13.1	17.7	2	290	1 3/8	5/8	2100/670/950	209.0		TFD		2x10		2x49	42.0
OMTQ-76	15.1	17.7	2	290	1 3/8	5/8	2100/670/950	211.0		TFD		2x13		2x66	43.0
OMQ-75	15.3	17.7	2	290	1 3/8	5/8	2100/670/950	224.0		TWD		22		127	44.0
OMTQ-90	19.9	17.7	2	550	1 3/8	5/8	2100/670/950	225.0		TFD		2x13		2x74	45.0
OMQ-92	20.5	17.7	2	550	1 3/8	5/8	2100/670/950	246.0		TWD		25		167	46.0
OMQ-110	23.7	17.7	2	550	1 5/8	5/8	2100/670/950	255.0		TWD		29		198	47.0
Digital Medium Temperature Models															
OMQ-30D	6.2	8.1	1	145	7/8	1/2	1050/630/720	98.0		TFD		8		52	36.0
OMQ-45D	9.4	8.1	1	145	7/8	1/2	1250/642/720	118.0		TFD		12		74	39.0
OMTQ-60D	13.2	17.7	2	290	1 3/8	5/8	2100/670/950	209.0		TFD		8+10			42.0
OMTQ-90D	20.0	17.7	2	550	1 3/8	5/8	2100/670/950	225.0		TFD		12+13			45.0
Low Temperature Models															
OLQ-24V	7.2	17.7	2	290	1 3/8	5/8	2100/670/950	228.0		TWD		16		99	44.0
OLTQ-26V	8.2	17.7	2	550	1 3/8	5/8	2100/670/950	221.0		TFD		2x9		2x52	42.0
OLQ-33V	9.8	17.7	2	550	1 3/8	5/8	2100/670/950	228.0		TWD		21		127	44.0
OLQ-40V	11.8	17.7	2	550	1 3/8	5/8	2100/670/950	238.0		TWD		27		167	46.0
OLTQ-36V	12.1	17.7	2	550	1 3/8	5/8	2100/670/950	235.0		TFD		2x14		2x74	45.0
OLQ-48V	14.7	17.7	2	550	1 3/8	5/8	2100/670/950	259.0		TWD		31		198	47.0
Digital Low Temperature Models															
OLQ-18DV	6.1	17.7	2	290	7/8	5/8	2100/670/950	200.0		TFD		14		74	39.0
OLTQ-36DV	12.1	17.7	2	550	1 3/8	5/8	2100/670/950	235.0		TFD		14+14		2x74	45.0

* 1ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
*** @ 10m: sound pressure level at 10m distance from the compressor, free field condition

Capacity Data

Ambient Temperature: 32°C														
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
OMQ-56				7.2*	11.1	13.2	17.8	OMQ-56				5.5*	6.1	6.4	7.0
OMQ-75				10.1*	14.6*	17.6	23.2	OMQ-75				7.2*	8.3*	9.1	10.3
OMQ-92				13.1*	19.8	23.3	31.3	OMQ-92				9.0*	10.3	10.9	12.3
OMQ-110				15.2*	22.3*	27.0	36.1	OMQ-110				11.2*	12.8*	13.8	15.6
OMTQ-60				8.3*	13.0	15.5	21.0	OMTQ-60				6.1*	6.8	7.2	8.2
OMTQ-76				9.8*	15.2	17.9		OMTQ-76				7.8*	8.8	9.4	
OMTQ-90				12.4*	19.0	22.5	30.6	OMTQ-90				8.0*	9.3	9.9	11.1
Low Temperature Models															
OLQ-24V		5.8	7.2	10.4	14.3	16.4	21.0	OLQ-24V		4.9	5.3	6.3	8.0	9.2	13.0
OLQ-33V		7.7	9.8	14.5	18.7	20.1	20.4	OLQ-33V		6.4	6.8	7.8	9.3	10.5	13.9
OLQ-40V		10.2	12.6	18.3	24.7	28.0	34.5	OLQ-40V		7.6	8.2	9.8	12.2	13.8	18.1
OLTQ-36V		10.2*	12.2*	17.4*	25.2*	30.6*		OLTQ-36V		8.0*	8.3*	9.1*	10.7*	12.2*	
Digital Medium Temperature Models															
OMQ-30D					5.9*	7.0*		OMQ-30D					3.8*	4.1*	
OMQ-45D					8.6*	10.6		OMQ-45D					4.8*	5.2	
OMTQ-60D				8.3*	13.0	15.5	20.9	OMTQ-60D				6.2*	6.9	7.3	8.3
OMTQ-90D				12.6	18.7	22.3	30.5	OMTQ-90D				8.7	9.5	10.0	11.0
Digital Low Temperature Models															
OLTQ-36DV		10.0*	12.1*	17.3*	25.4*	30.8*		OLTQ-36DV		7.8*	8.1*	9.0*	10.8*	12.3*	

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

Ambient Temperature: 32°C														
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
OMTQ-60					12.4*	15.2		OMTQ-60					7.3*	7.7	
OMTQ-76					14.3*	17.2*		OMTQ-76					9.7*	10.3*	
OMTQ-90				11.7*	18.6*	22.9	31.8	OMTQ-90				9.1*	10.3*	10.9	12.2
Digital Medium Temperature Models															
OMQ-30D					6.1*	7.2*		OMQ-30D					3.5*	3.9*	
OMQ-45D					9.1*	11.1		OMQ-45D					5.0*	5.5	
OMTQ-60D					12.6*	15.4		OMTQ-60D					7.0*	7.5	
OMTQ-90D				11.8*	18.9*	23.2	31.7	OMTQ-90D				8.6*	10.0*	10.8	12.4

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

Capacity Data

Ambient Temperature: 32°C														
R448A	Cooling Capacity (kW)							R448A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Low Temperature Models															
OLQ-24V		5.7*	7.1*	10.5*	14.8*	17.3*		OLQ-24V		4.8*	5.2*	5.9*	6.6*	7.0*	
OLQ-33V		7.9*	9.8*	14.6*	20.6*	24.1*	32.3	OLQ-33V		6.4*	6.9*	7.7*	8.6*	9.0*	9.9
OLQ-40V		9.5*	12.4*	18.6*	25.7*	29.7*		OLQ-40V		7.6*	8.7*	10.6*	11.9*	12.6*	
Digital Medium Temperature Models															
OMQ-30D				4.1*	6.2	7.3		OMQ-30D				2.9*	3.5	3.9	
OMQ-45D				6.1*	9.5	11.2	14.9	OMQ-45D				3.8*	4.7	5.2	6.2

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

Ambient Temperature: 32°C														
R449A	Cooling Capacity (kW)							R449A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Low Temperature Models															
OLQ-24V		5.7*	7.1*	10.5*	14.8*	17.3*		OLQ-24V		4.8*	5.2*	5.9*	6.7*	7.0*	
OLQ-33V		7.9*	9.8*	14.6*	20.6*	24.1*	32.3	OLQ-33V		6.4*	6.9*	7.8*	8.6*	9.0*	9.9
OLQ-40V		9.5*	12.4*	18.6*	25.7*	29.6*		OLQ-40V		7.6*	8.7*	10.6*	12.0*	12.6*	
Digital Medium Temperature Models															
OMQ-30D				4.1*	6.2	7.3		OMQ-30D				2.9*	3.5	3.9	
OMQ-45D				6.1*	9.5	11.2	14.9	OMQ-45D				3.8*	4.7	5.2	6.2

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

Capacity Data

Ambient Temperature: 32°C														
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
OMQ-56				8.3	11.5	13.4	17.4	OMQ-56				6.2	6.7	6.9	7.5
OMQ-75				11.3	15.3	17.4	22.1	OMQ-75				8.2	9.3	9.8	10.9
OMQ-92				14.9	20.5	23.7	30.7	OMQ-92				10.2	11.2	11.8	13.1
OMQ-110				17.3	23.7	27.3	35.1	OMQ-110				12.7	14.1	14.8	16.4
OMTQ-60				9.4	13.1	15.1	19.6	OMTQ-60				7.0	7.5	7.8	8.4
OMTQ-76				11.1	15.1	17.3		OMTQ-76				9.3	10.1	10.6	
OMTQ-90				14.2	19.9	23.1	30.2	OMTQ-90				9.6	10.3	10.7	11.5
Low Temperature Models															
OLQ-18V		6.0	7.1	9.7	13.1	15.0		OLQ-18V		4.6	5.0	6.0	7.1	7.8	
OLQ-24V		7.2	8.7	12.3	16.4	18.6	23.3	OLQ-24V		5.6	6.0	6.8	7.9	8.5	10.1
OLQ-33V		9.8	11.9	16.8	22.8	26.1	33.7	OLQ-33V		7.4	7.9	8.8	10.0	10.7	12.2
OLQ-40V		11.8	14.9	21.4	28.4	32.0	39.3	OLQ-40V		8.7	9.8	12.0	14.0	15.1	17.4
OLQ-48V		14.7	17.6	24.0	30.9	34.3		OLQ-48V		11.1	12.2	14.7	18.1	20.2	
OLTQ-26V		8.2	9.9	14.3	19.8	23.1	31.1	OLTQ-26V		6.4	6.7	7.4	8.2	8.7	9.6
OLTQ-36V		12.1	14.4	20.0	27.1	31.4		OLTQ-36V		8.9	9.6	11.1	12.8	13.8	
Digital Medium Temperature Models															
OMQ-30D				4.6	6.2	7.0	8.8	OMQ-30D				3.2	3.7	3.9	4.5
OMQ-45D				6.9	9.4	10.8	13.7	OMQ-45D				4.4	5.2	5.6	6.4
OMTQ-60D				9.5	13.2	15.2	19.7	OMTQ-60D				6.5	7.2	7.5	8.3
OMTQ-90D				13.9	20.0	23.5	31.5	OMTQ-90D				9.6	10.4	10.9	12.1
Digital Low Temperature Models															
OLQ-18DV		6.1	7.3	10.2	13.9	16.1	21.3	OLQ-18DV		4.3	4.7	5.3	6.0	6.5	7.4
OLTQ-36DV		12.1	14.4	20.0	27.1	31.4		OLTQ-36DV		8.9	9.6	11.1	12.8	13.8	

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

Ambient Temperature: 32°C														
R407C	Cooling Capacity (kW)							R407C	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
OMQ-56				6.9*	10.4*	12.7	17.4	OMQ-56				5.3*	5.8*	6.1	6.6
OMQ-75				9.3*	13.7*	16.2*	22.2	OMQ-75				6.7*	7.7*	8.2*	9.4
OMQ-92				12.0*	17.8*	21.7	29.6	OMQ-92				8.4*	9.4*	10.0	11.1
OMQ-110				14.2*	21.1*	25.6	34.7	OMQ-110				10.6*	12.0*	12.8	14.4
OMTQ-60				7.2*	11.3*	13.9	19.3	OMTQ-60				5.6*	6.2*	6.6	7.4
OMTQ-76				8.1*	12.9*	15.7*	22.3	OMTQ-76				6.8*	7.8*	8.4*	9.8
OMTQ-90				10.6*	17.0*	21.0	29.3	OMTQ-90				7.8*	8.6*	9.1	10.1

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K

Capacity Data

Ambient Temperature: 32°C														
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
OMQ-56				4.6*	7.3*	9.1	13.0	OMQ-56				3.3*	3.6*	3.7	4.0
OMQ-75				6.4*	9.8*	12.3	17.2	OMQ-75				4.0*	4.6*	4.9	5.6
OMQ-92				8.1*	12.6*	15.7	22.2	OMQ-92				5.4*	5.9*	6.2	6.8
OMTQ-60				5.1*	8.3*	10.5	15.1	OMTQ-60				3.8*	4.0*	4.2	4.5
OMTQ-76				6.1*	10.0*	12.6	18.0	OMTQ-76				4.4*	4.9*	5.1	5.7
OMTQ-90				7.7*	12.3*	15.6	22.5	OMTQ-90				5.5*	5.7*	5.9	6.4
OMQ-110				9.9*	15.2*	19.0	26.6	OMQ-110				6.6*	7.3*	7.8	8.6
Digital Medium Temperature Models															
OMQ-30D					4.3	5.1	7.1	OMQ-30D					2.0	2.2	2.5
OMQ-45D					6.2	7.6	10.7	OMQ-45D					2.8	3.0	3.4
OMTQ-60D				5.3*	8.7	10.5	14.9	OMTQ-60D				3.5*	3.9	4.1	4.6
OMTQ-90D				8.3	12.8	15.6	22.4	OMTQ-90D				5.1	5.6	5.9	6.5

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

Ambient Temperature: 32°C														
R450A	Cooling Capacity (kW)							R450A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Digital Medium Temperature Models															
OMQ-30D				2.3*	3.8	4.6	6.6	OMQ-30D				1.5*	1.7	1.8	2.0
OMQ-45D				3.6	5.7	6.9	10.0	OMQ-45D				2.1	2.4	2.5	2.9

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

Ambient Temperature: 32°C														
R513A	Cooling Capacity (kW)							R513A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Digital Medium Temperature Models															
OMQ-30D				2.7*	4.4	5.3	7.4	OMQ-30D				1.8*	2.0	2.1	2.4
OMQ-45D				4.0*	6.6	8.0	11.2	OMQ-45D				2.5*	2.8	3.0	3.5

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

Copeland EazyCool™ ZX Outdoor Refrigeration Units With Scroll Compressors

Copeland™ compact outdoor refrigeration units are for medium-temperature and low-temperature applications.

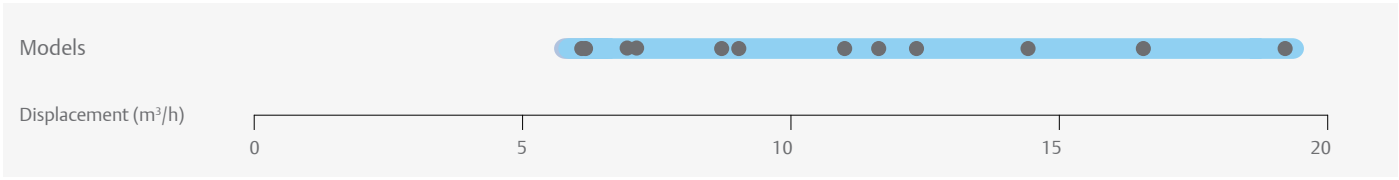
With this new range of outdoor refrigeration units, Emerson Climate Technologies offers a solution for refrigeration applications with space and noise constraints which responds to the increasing demand for energy-efficient refrigeration solutions units.

Copeland EazyCool ZX outdoor refrigeration units feature the most complete and unique equipment. Their advanced electronic controller enables precise parameter control and displays the system status. Vapor injection and liquid injection technology significantly increase system efficiency and operation map. Electronic protection functions, oil separator and suction accumulator guarantee optimum system safety.

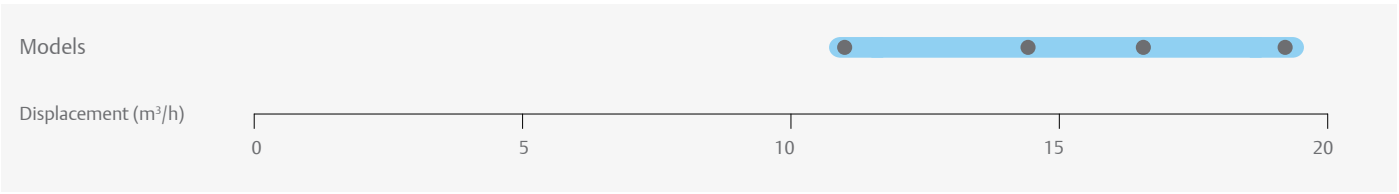
Lowest life cycle costs and comprehensive safety features make Copeland EazyCool ZX a cost efficient and reliable choice for:
- Convenience stores
- Cold rooms
- Fast food stores, bars and restaurants
- Beverage coolers

Copeland EazyCool ZX Outdoor Refrigeration Units with Scroll Compressors

Copeland EazyCool ZX Line-up



Copeland EazyCool ZX Digital Line-up



Features and Benefits

- Standard equipment: Copeland Scroll™ compressor, crankcase heater, electronic controller, fan(s) with speed control, liquid receiver, safety switches, filter drier and sight glass, oil separator and suction accumulator (LT models only)
- Copeland EazyCool ZX Digital models allow for 10% to 100% continuous capacity modulation
- Diagnostic capabilities protect the unit from over-current, phase loss and phase imbalance
- LED display shows real time system status
- Precise electronic suction pressure control
- Energy and operation cost saving due to excellent energy efficiency
- Noise attenuation due to low speed fan motors with sickle blades, fan speed control and sound jacket
- High capacity vapor injection technology for LT models
- Space saving due to compact dimensions
- Easy and quick installation
- Multiple refrigerant approvals incl. R407A/F, R448A/R449A, R404A, R134a, R450A and R513A

Maximum Allowable Pressures (PS)

- Low Side PS 22.5 bar (g)
- High Side PS 28.8 bar (g)

Technical Overview

Model	Displacement (m^3/h)	Receiver Capacity (l)	Number of fans	Total Fan Motor Power (W)	Suction Line Diameter (inch)	Liquid Line Diameter (inch)	Width/Depth/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @10m - dB(A) ***
									1 Ph *	3 Ph **	1 Ph *	3 Ph **	1 Ph *	3 Ph **	
Medium Temperature Models															
ZXME020E	5.9	4.4	1	116	3/4	1/2	1029/424/840	76.0	PFJ	TFD	13	5	58	26	39.0
ZXME025E	6.8	4.4	1	116	3/4	1/2	1029/424/840	79.0	PFJ	TFD	12	5	61	38	40.0
ZXME030E	8.6	4.4	1	116	3/4	1/2	1029/424/840	79.0	PFJ	TFD	16	7	82	40	40.0
ZXME040E	11.7	4.4	1	116	7/8	1/2	1029/424/840	91.0	PFJ	TFD	24	10	114	49	40.0
ZXME040E	14.4	4.4	1	116	7/8	1/2	1029/424/840	91.0		TFD		10		49	40.0
ZXME050E	17.1	6.3	2	246	7/8	1/2	1029/424/1242	108.0		TFD		13		66	41.0
ZXME060E	18.8	6.3	2	246	7/8	1/2	1029/424/1242	112.0		TFD		13		74	41.0
ZXME075E	11.9	6.3	2	246	7/8	1/2	1029/424/1242	118.0		TFD		14		101	42.0
Digital Medium Temperature Models															
ZXDE-040E	11.4	6.3	2	246	7/8	1/2	1029/424/1242	104.0		TFD		8		48	40.0
ZXDE-050E	14.4	6.3	2	246	7/8	1/2	1029/424/1242	108.0		TFD		11		64	41.0
ZXDE-060E	17.1	6.3	2	246	7/8	1/2	1029/424/1242	112.0		TFD		11		74	41.0
ZXDE-075E	18.8	6.3	2	246	7/8	1/2	1029/424/1242	118.0		TFD		14		100	42.0
Low Temperature Models															
ZXLE020E	6.1	4.4	1	116	3/4	1/2	1029/424/840	79.0	PFJ	TFD	14	6	57	39	39.0
ZXLE025E	7.1	4.4	1	116	3/4	1/2	1029/424/840	79.0	PFJ	TFD	16	6	74	39	39.0
ZXLE030E	8.0	4.4	1	116	3/4	1/2	1029/424/840	81.0	PFJ	TFD	18	7	82	36	40.0
ZXLE040E	12.7	4.4	1	116	7/8	1/2	1029/424/840	93.0		TFD		9		52	40.0
ZXLE050E	14.4	6.3	2	246	7/8	1/2	1029/424/1242	106.0		TFD		12		52	41.0
ZXLE060E	17.1	6.3	2	246	7/8	1/2	1029/424/1242	116.0		TFD		14		74	41.0
ZXLE075E	18.8	6.3	2	246	7/8	1/2	1029/424/1242	121.0		TFD		15		101	41.0

* 1ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
*** @ 10m: sound pressure level at 10m distance from the compressor, free field condition

Capacity Data

Ambient Temperature: 32°C															
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
ZXME020E					3.5	4.1	5.6	ZXME020E					1.7	1.7	1.7
ZXME025E**					3.9	4.7	6.6	ZXME025E**					1.7	1.8	1.9
ZXME030E					4.9	5.9	8.3	ZXME030E					2.3	2.4	2.6
ZXME040E**					6.0	7.1	9.9	ZXME040E**					3.0	3.1	3.5
ZXME040E					6.3	7.5	10.3	ZXME040E					3.2	3.4	3.8
ZXME050E					8.7	10.4	14.4	ZXME050E					3.7	3.9	4.3
ZXME060E					9.8	11.8	16.4	ZXME060E					4.3	4.5	5.0
ZXME075E					11.3	13.6	18.9	ZXME075E					4.9	5.1	5.6
Low Temperature Models															
ZXLE020E		1.5	1.9	3.0	4.3	5.1	6.7	ZXLE020E		1.4	1.5	1.6	1.8	1.8	2.0
ZXLE025E		1.8	2.2	3.4	5.0	5.9	7.9	ZXLE025E		1.6	1.7	1.8	2.0	2.0	2.3
ZXLE030E		2.0	2.5	3.9	5.6	6.6	8.7	ZXLE030E		1.8	1.9	2.0	2.2	2.3	2.5
ZXLE040E		3.1	3.9	5.9	8.3	9.6		ZXLE040E		2.7	2.9	3.4	4.0	4.4	
ZXLE050E		3.6	4.5	6.8	9.7	11.4	14.8	ZXLE050E		3.1	3.2	3.7	4.3	4.7	5.4
ZXLE060E		4.2	5.3	7.9	11.3	13.1		ZXLE060E		3.7	3.9	4.5	5.3	5.8	
ZXLE075E		4.8	5.9	9.0	13.0	15.2	19.9	ZXLE075E		3.9	4.1	4.6	5.4	5.8	6.7
Digital Medium Temperature Models															
ZXDE-040E				4.7	7.3	8.8	12.5	ZXDE-040E				2.7	2.8	2.9	3.1
ZXDE-050E				5.8	8.7	10.4	14.4	ZXDE-050E				3.5	3.7	3.9	4.3
ZXDE-060E				6.4	9.8	11.8	16.4	ZXDE-060E				4.0	4.3	4.5	5.0
ZXDE-075E				7.4	11.3	13.6	18.9	ZXDE-075E				4.5	4.9	5.1	5.6

Suction Gas Return 20°C / Subcooling 0K
** Single Phase Only
Preliminary Data

Capacity Data

Ambient Temperature: 32°C															
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
ZXME020E					3.4	4.0	5.7	ZXME020E					1.6	1.6	1.7
ZXME025E**				3.3	5.0	6.0	8.4	ZXME025E**				2.1	2.3	2.5	2.7
ZXME030E					4.9	5.9	8.3	ZXME030E					2.3	2.4	2.6
ZXME040E**				4.0	6.0	7.1	9.9	ZXME040E**				2.8	3.0	3.1	3.5
ZXME040E					6.5*	8.0	10.9	ZXME040E					3.3*	3.5	4.0
ZXME050E				5.7*	8.6	10.4	14.4	ZXME050E				3.5*	3.7	3.9	4.3
ZXME060E				6.2*	9.7	11.8	16.4	ZXME060E				4.0*	4.3	4.5	5.0
ZXME075E				7.1*	11.2	13.6	18.9	ZXME075E				4.5*	4.9	5.1	5.6
Low Temperature Models															
ZXLE020E		1.6	2.0	3.1	4.5	5.3	7.0	ZXLE020E		1.5	1.6	1.7	1.9	1.9	2.2
ZXLE025E		1.8	2.3	3.6	5.3	6.2	8.2	ZXLE025E		1.7	1.8	1.9	2.1	2.2	2.4
ZXLE030E		2.1	2.6	4.0	5.9	6.9	9.1	ZXLE030E		1.9	2.0	2.1	2.3	2.4	2.7
ZXLE040E		3.3	4.1	6.1	8.6*	10.0*		ZXLE040E		2.9	3.1	3.6	4.3*	4.7*	
ZXLE050E		3.8	4.7	7.1	10.2	11.9	15.4	ZXLE050E		3.2	3.4	3.9	4.6	5.0	5.8
ZXLE060E		4.4	5.5	8.3	11.8	13.7		ZXLE060E		3.9	4.1	4.8	5.7	6.2	
ZXLE075E		5.0	6.2	9.4	13.6	15.9	20.8	ZXLE075E		4.1	4.3	4.9	5.7	6.2	7.2
Digital Medium Temperature Models															
ZXDE-040E				4.7	7.2	8.8	12.4	ZXDE-040E				2.8	2.9	3.0	3.2
ZXDE-050E				5.7	8.6	10.5	14.6	ZXDE-050E				3.6	3.9	4.1	4.5
ZXDE-060E				5.9	9.0	10.9	15.1	ZXDE-060E				3.9	4.2	4.4	4.8
ZXDE-075E				6.7	10.2	12.3	17.2	ZXDE-075E				4.3	4.6	4.8	5.2

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
** Single Phase Only
Preliminary Data

Capacity Data

Ambient Temperature: 32°C														
R448A	Cooling Capacity (kW)							R448A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
ZXME020E				2.2	3.4	4.1	5.8	ZXME020E				1.6	1.6	1.6	1.8
ZXME025E**				2.6	4.0	4.8	6.8	ZXME025E**				1.7	1.8	1.9	2.0
ZXME030E				3.4	5.0	6.1	8.4	ZXME030E				2.1	2.3	2.4	2.6
ZXME040E				4.3	6.6	7.8	10.7	ZXME040E				3.0	3.3	3.5	3.9
ZXME050E				5.8	8.8	10.5	14.6	ZXME050E				3.6	3.8	3.9	4.3
ZXME060E				6.6	10.1	12.0	16.7	ZXME060E				4.1	4.4	4.6	5.0
ZXME075E				7.6	11.6	13.9	19.2	ZXME075E				4.7	5.1	5.3	5.8
Low Temperature Models															
ZXLE020E		1.6	2.0	3.1	4.4	5.2	7.0	ZXLE020E		1.4	1.5	1.7	1.8	1.8	1.9
ZXLE025E		1.8	2.3	3.6	5.2	6.2	8.3	ZXLE025E		1.6	1.7	1.9	2.0	2.0	2.1
ZXLE030E		2.1	2.6	4.0	5.7	6.8	9.3	ZXLE030E		1.8	1.9	2.0	2.1	2.2	2.3
ZXLE040E		3.2	4.0	6.0	8.3	9.7		ZXLE040E		2.6	2.9	3.3	3.7	3.9	
ZXLE050E		4.0	5.0	7.3	10.4	12.1	16.3	ZXLE050E		3.1	3.4	3.9	4.3	4.5	4.9
ZXLE060E		4.7	5.8	8.5	12.0	14.0		ZXLE060E		3.7	4.1	4.7	5.3	5.6	
ZXLE075E		5.2	6.5	9.7	13.7	16.2	21.8	ZXLE075E		3.9	4.2	4.8	5.3	5.6	6.1
Digital Medium Temperature Models															
ZXDE-040E				4.8	7.2	8.7	12.3	ZXDE-040E				2.5	2.7	2.8	3.1
ZXDE-050E				5.8	8.7	10.4	14.4	ZXDE-050E				3.2	3.7	3.9	4.4
ZXDE-060E				6.8	10.1	12.0	16.6	ZXDE-060E				3.9	4.5	4.8	5.5
ZXDE-075E				7.7	11.4	13.6	18.8	ZXDE-075E				4.2	4.8	5.1	5.8

Suction Gas Return 20°C / Subcooling 0K
** Single Phase Only
Preliminary Data

Capacity Data

Ambient Temperature: 32°C															
R449A	Cooling Capacity (kW)							R449A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
ZXME020E				2.2	3.4	4.1	5.8	ZXME020E				1.6	1.6	1.6	1.8
ZXME025E**				2.6	4.0	4.8	6.8	ZXME025E**				1.7	1.8	1.9	2.0
ZXME030E				3.4	5.0	6.1	8.4	ZXME030E				2.1	2.3	2.4	2.6
ZXME040E				4.3	6.6	7.8	10.7	ZXME040E				3.0	3.3	3.5	3.9
ZXME050E				5.8	8.8	10.5	14.6	ZXME050E				3.6	3.8	3.9	4.3
ZXME060E				6.6	10.1	12.0	16.7	ZXME060E				4.1	4.4	4.6	5.0
ZXME075E				7.6	11.6	13.9	19.2	ZXME075E				4.7	5.1	5.3	5.8
Low Temperature Models															
ZXLE020E		1.6	2.0	3.1	4.4	5.2	7.0	ZXLE020E		1.4	1.5	1.7	1.8	1.8	1.9
ZXLE025E		1.8	2.3	3.6	5.2	6.2	8.3	ZXLE025E		1.6	1.7	1.9	2.0	2.0	2.1
ZXLE030E		2.1	2.6	4.0	5.7	6.8	9.3	ZXLE030E		1.8	1.9	2.0	2.1	2.2	2.3
ZXLE040E		3.2	4.0	6.0	8.3	9.7		ZXLE040E		2.6	2.9	3.3	3.7	3.9	
ZXLE050E		4.0	5.0	7.3	10.4	12.1	16.3	ZXLE050E		3.1	3.4	3.9	4.3	4.5	4.9
ZXLE060E		4.7	5.8	8.5	12.0	14.0		ZXLE060E		3.7	4.1	4.7	5.3	5.6	
ZXLE075E		5.2	6.5	9.7	13.7	16.2	21.8	ZXLE075E		3.9	4.2	4.8	5.3	5.6	6.1
Digital Medium Temperature Models															
ZXDE-040E				4.8	7.2	8.7	12.3	ZXDE-040E				2.5	2.7	2.8	3.1
ZXDE-050E				5.8	8.7	10.4	14.4	ZXDE-050E				3.2	3.7	3.9	4.4
ZXDE-060E				6.8	10.1	12.0	16.6	ZXDE-060E				3.9	4.5	4.8	5.5
ZXDE-075E				7.7	11.4	13.6	18.8	ZXDE-075E				4.2	4.8	5.1	5.8

Suction Gas Return 20°C / Subcooling 0K
** Single Phase Only
Preliminary Data

Capacity Data

Ambient Temperature: 32°C															
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
ZXME020E				2.4	3.6	4.2	5.7	ZXME020E				1.8	1.8	1.8	1.8
ZXME025E**				3.0	4.3	5.1	6.9	ZXME025E**				1.9	2.0	2.0	2.1
ZXME030E				3.7	5.2	6.2	8.2	ZXME030E				2.4	2.5	2.6	2.7
ZXME040E**				4.7	6.8	8.0	10.6	ZXME040E**				3.2	3.4	3.5	3.8
ZXME040E				4.9	7.0	8.2	10.8	ZXME040E				3.2	3.4	3.5	3.8
ZXME050E				6.4	9.1	10.7	14.4	ZXME050E				4.0	4.2	4.3	4.5
ZXME060E				7.3	10.4	12.2	16.2	ZXME060E				4.6	4.8	5.0	5.3
ZXME075E				8.4	11.9	13.9	18.5	ZXME075E				5.1	5.4	5.5	5.9
Low Temperature Models															
ZXLE020E		1.9	2.4	3.5	4.9	5.7		ZXLE020E		1.6	1.7	1.9	2.1	2.1	
ZXLE025E		2.2	2.8	4.1	5.8	6.7		ZXLE025E		1.9	2.0	2.2	2.4	2.5	
ZXLE030E		2.6	3.2	4.6	6.4	7.4		ZXLE030E		2.1	2.2	2.4	2.6	2.6	
ZXLE040E		4.0	4.9	7.0	9.6	11.0		ZXLE040E		3.0	3.2	3.6	4.1	4.4	
ZXLE050E		5.0	6.0	8.5	11.5	13.2		ZXLE050E		3.6	3.9	4.4	5.0	5.4	
ZXLE060E		5.8	7.0	9.8	13.2	15.0	18.9	ZXLE060E		4.4	4.7	5.5	6.3	6.7	7.7
ZXLE075E		6.5	7.9	11.2	15.3	17.6		ZXLE075E		4.6	4.9	5.5	6.2	6.6	
Digital Medium Temperature Models															
ZXDE-040E				5.3	7.6	8.9	12.2	ZXDE-040E				2.7	3.0	3.1	3.3
ZXDE-050E				6.4	9.0	10.6	14.1	ZXDE-050E				3.6	4.0	4.3	4.7
ZXDE-060E				7.4	10.5	12.2	16.1	ZXDE-060E				4.3	4.9	5.2	5.8
ZXDE-075E				8.4	11.9	13.8	18.3	ZXDE-075E				4.7	5.3	5.6	6.3

Suction Gas Return 20°C / Subcooling 0K
** Single Phase Only

Ambient Temperature: 32°C															
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
ZXME020E				1.4	2.3	2.8	4.0	ZXME020E				1.0	1.0	1.0	1.1
ZXME025E**				1.5	2.6	3.2	4.7	ZXME025E**				1.2	1.3	1.3	1.4
ZXME030E				2.1	3.2	4.0	5.8	ZXME030E				1.3	1.4	1.4	1.5
ZXME040E**				2.6	4.3	5.3	7.8	ZXME040E**				2.0	2.1	2.2	2.4
ZXME040E				2.8	4.4	5.4	7.8	ZXME040E				1.7	1.8	1.9	2.0
ZXME050E				3.4	5.5	6.8	9.9	ZXME050E				2.1	2.3	2.4	2.5
ZXME060E				4.2	6.5	8.0	11.7	ZXME060E				2.5	2.6	2.7	3.0
ZXME075E				4.8	7.5	9.1	13.2	ZXME075E				3.1	3.2	3.3	3.6
Digital Medium Temperature Models															
ZXDE-040E					4.3	5.3	8.0	ZXDE-040E					1.8	1.9	1.9
ZXDE-050E					5.3	6.5	9.7	ZXDE-050E					2.3	2.4	2.5
ZXDE-060E					6.3	7.9	11.7	ZXDE-060E					2.7	2.8	3.0
ZXDE-075E					7.2	8.8	12.7	ZXDE-075E					3.0	3.0	3.3

Suction Gas Return 20°C / Subcooling 0K
** Single Phase Only
Preliminary Data

Capacity Data

Ambient Temperature: 32°C															
R450A	Cooling Capacity (kW)							R450A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
ZXME020E				1.2	2.0	2.5	3.6	ZXME020E				0.9	0.9	0.9	0.9
ZXME025E**				1.4	2.3	2.8	4.2	ZXME025E**				1.0	1.0	1.0	1.1
ZXME030E				1.8	2.9	3.6	5.3	ZXME030E				1.2	1.2	1.2	1.3
ZXME040E				2.5	3.9	4.9	7.1	ZXME040E				1.6	1.6	1.6	1.7
ZXME050E				3.1	5.0	6.1	9.1	ZXME050E				2.0	2.1	2.1	2.2
ZXME060E				3.6	5.8	7.1	10.5	ZXME060E				2.3	2.4	2.4	2.5
ZXME075E				4.0	6.5	8.0	11.8	ZXME075E				2.6	2.7	2.7	2.9
Digital Medium Temperature Models															
ZXDE-040E				2.5	3.9	4.9	7.1	ZXDE-040E				1.6	1.6	1.6	1.7
ZXDE-050E				3.1	5.0	6.1	9.1	ZXDE-050E				2.0	2.1	2.1	2.2
ZXDE-060E				3.6	5.8	7.1	10.5	ZXDE-060E				2.3	2.4	2.4	2.5
ZXDE-075E				4.0	6.5	8.0	11.8	ZXDE-075E				2.6	2.7	2.7	2.9

Suction Gas Return 20°C / Subcooling 0K
** Single Phase Only
Preliminary Data

Ambient Temperature: 32°C															
R513A	Cooling Capacity (kW)							R513A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
ZXME020E				1.5	2.3	2.9	4.2	ZXME020E				1.0	1.0	1.0	1.1
ZXME025E**				1.7	2.7	3.3	4.9	ZXME025E**				1.2	1.2	1.2	1.3
ZXME030E				2.2	3.4	4.2	6.0	ZXME030E				1.4	1.4	1.5	1.6
ZXME040E				3.0	4.6	5.7	8.2	ZXME040E				1.9	1.9	2.0	2.1
ZXME050E				3.8	5.9	7.2	10.5	ZXME050E				2.4	2.5	2.5	2.6
ZXME060E				4.4	6.8	8.4	12.1	ZXME060E				2.8	2.8	2.9	3.0
ZXME075E				4.9	7.7	9.4	13.5	ZXME075E				3.1	3.2	3.2	3.4
Digital Medium Temperature Models															
ZXDE-040E				3.0	4.6	5.7	8.2	ZXDE-040E				1.9	1.9	2.0	2.1
ZXDE-050E				3.8	5.9	7.2	10.5	ZXDE-050E				2.4	2.5	2.5	2.6
ZXDE-060E				4.4	6.8	8.4	12.1	ZXDE-060E				2.8	2.8	2.9	3.0
ZXDE-075E				4.9	7.7	9.4	13.5	ZXDE-075E				3.1	3.2	3.2	3.4

Suction Gas Return 20°C / Subcooling 0K
** Single Phase Only
Preliminary Data

Copeland™ Outdoor Refrigeration Units for R744-Transcritical Applications

With this range of outdoor refrigeration units, Emerson offers a solution which responds to the increasing demand for future proof refrigeration technology.
These models are designed for operation with the natural refrigerant CO_2 which has a very low gobal warming potential (GWP) of only 1.

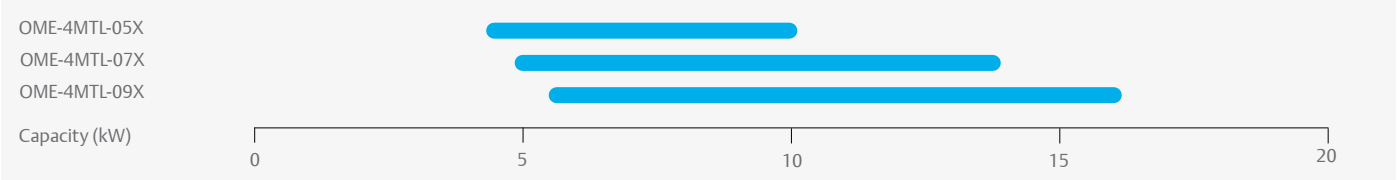
The range features the latest technology like Stream series compressors which are characterized by their silent and reliable operation. The integrated frequency inverter controls the compressor speed exactly to the capacity demand of the application. EC-fans remove the heat from the gas cooler in the most efficient and silent way.

The state of the art electronic contoller allows for precise adjustment and control of all relevant parameters and comprises numerous electronic protection functions for highly reliable operation.

The refrigeration units are future-proof choice for various target applications:
- Convenience stores
- Forecourt sites
- Cold rooms
- Fast food stores, bars and restaurants

Copeland™ Outdoor Refrigeration Unit for R744-Transcritical Applications

Refrigeration Unit Line-up



Technical Overview

Model	Displacement @ 50 Hz [m3/h]	Cooling Capacity @ 50 Hz [kW]	Receiver Capacity (l)	Suction Tube Diameter inch	Discharge Tube Diameter inch	Dimensions W / D / H (mm)	Design Pressure High/Med/Low (bar)	Net Weight [kg]	Power Supply	Nominal Current (A)	Sound Pressure 10 m dB (A)
OME-4MTL-05X	4.6	8.72	20	3/4	1/2	1574/900/1120	120/90/90	440	3/N/PE~50Hz 400/230V TN-S	19	42 - 44
OME-4MTL-07X	6.2	11.81	20	3/4	5/8	1574/900/1120	120/90/90	440	3/N/PE~50Hz 400/230V TN-S	22	42 - 44
OME-4MTL-09X	7.4	14.65	25	7/8	5/8	1574/900/1120	120/90/90	460	3/N/PE~50Hz 400/230V TN-S	27	42 - 44

Features and Benefits

- Future-proof solution with natural GWP 1 refrigerant, not impacted by F-Gas legislation
- Low carbon footprint
- Silent operation due to special attenuation on panels and sound optimized EC fans
- High energy efficiency through inverter controlled compressor and EC fans
- Space saving design
- Time saving comissioning by pre-set parameters
- High reliability with electronic protection against incorrect voltage, phase, current and discharge temperature
- State of the art controller for precise system control
- Modbus communication and monitoring functionality
- LCD Display to show the operation status
- OilWatch maintains correct system oil level
- Controller prepared for heat recovery
- Easy access for time saving service
- Built and tested in advanced industrial processes
- Individual compressor power consumption monitoring

Design Pressure:

- 90 bar in receiver and liquid line
- 120 bar on high-pressure side

Copeland Scroll™ Indoor Refrigeration Units for Refrigeration

Copeland™ air-cooled refrigeration units for medium temperature and low temperature applications.

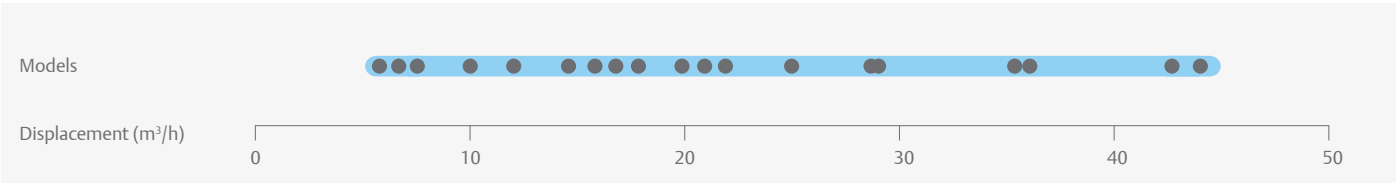
Copeland Scroll refrigeration units are equipped with the latest refrigeration scroll compressors and build the widest range of its kind. The modular line concept offers base units which can be adapted to the target application by various options including weather housings and fan speed controls.

Copeland Scroll refrigeration units are available with normal or high capacity condensers to ensure optimum performance even under extreme conditions. They are equipped with dedicated medium or low temperature compressors which makes them suitable for all general refrigeration applications, such as:

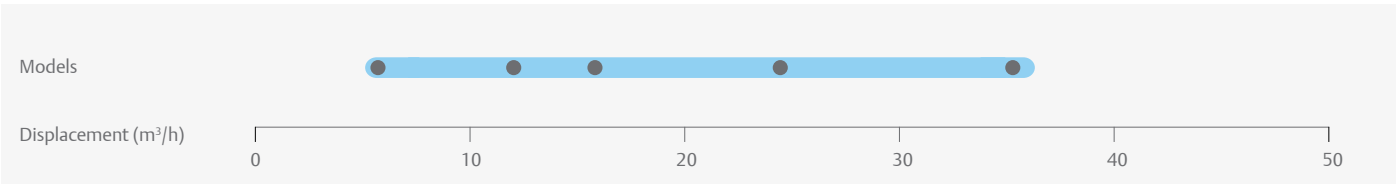
- Mini markets and supermarkets
- Bars, restaurants and kitchens
- Beer cellars and beverage coolers
- Cold rooms
- Milk cooling tank

Copeland Scroll
Indoor Refrigeration Unit

Copeland Scroll Refrigeration Units Line-up



Copeland Scroll Digital Refrigeration Units Line-up



Features and Benefits

- Standard equipment: base plate, scroll compressor, crank case heater, condenser with 1ph fan(s), HP and LP switch, liquid receiver with rotalock-valve, suction- and discharge shut-off valves
- Suitable for multiple refrigerants: R407A/F, R448A/R449A, R404A, R134a, R450A and R513A
- Wide range of quality accessories
- Excellent efficiency and reliability

Maximum Allowable Pressures (PS)

- Low Side PS 22.5 bar (g)
- High Side PS = 28 bar (g)

Technical Overview

Model	Displacement (m^3/h)	Receiver Capacity (l)	Number of fans	Total Fan Motor Power (W)	Suction Line Diameter (inch)	Liquid Line Diameter (inch)	Width/ Depth/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @10m - dB(A)***
									1 Ph*	3 Ph **	1 Ph*	3 Ph **	1 Ph*	3 Ph **	
Medium Temperature Models															
MC-D8-ZB15KE	5.9	3.9	1	110	3/4	1/2	560/570/446	48.0	PFJ	TFD	13	5	58	26	45.8
MC-H8-ZB15KE	5.9	7.9	1	235	3/4	1/2	735/680/533	57.0	PFJ	TFD	13	5	58	26	48.6
MC-D8-ZB19KE	6.8	3.9	1	110	3/4	1/2	560/570/446	49.0	PFJ	TFD	13	7	61	32	45.9
MC-K9-ZB19KE	6.8	7.9	2	220	3/4	1/2	950/640/454	66.5	PFJ	TFD	13	7	61	32	47.5
MC-H8-ZB19KE	6.8	7.9	1	235	3/4	1/2	735/680/533	61.0	PFJ	TFD	13	7	61	32	48.7
MC-D8-ZB21KE	8.6	3.9	1	110	7/8	1/2	560/570/446	50.0	PFJ	TFD	16	7	82	40	46.4
MC-H8-ZB21KE	8.6	7.9	1	235	7/8	1/2	735/680/533	61.0	PFJ	TFD	16	7	82	40	48.9
MC-K9-ZB21KE	8.6	7.9	2	220	7/8	1/2	950/640/454	67.5	PFJ	TFD	16	7	82	40	47.8
MC-K9-ZB26KE	10.0	7.9	2	220	7/8	1/2	950/640/454	68.0	PFJ	TFD	18	9	97	46	47.8
MC-H8-ZB26KE	10.0	7.9	1	235	7/8	1/2	735/680/533	62.0	PFJ	TFD	18	9	97	46	48.9
MC-H8-ZB30KE	11.7	7.9	1	235	7/8	1/2	735/680/533	74.0	PFJ	TFD	26	10	142	49	49.1
MC-M8-ZB30KE	11.7	7.9	1	235	7/8	1/2	735/730/708	86.5	PFJ	TFD	26	10	142	49	48.6
MC-P8-ZB30KE	11.7	7.9	2	220	7/8	1/2	950/640/633	86.5		TFD		10		49	48.5
MC-H8-ZB38KE	14.4	7.9	1	235	7/8	1/2	735/680/533	77.0	PFJ	TFD	32	13	142	66	49.2
MC-M8-ZB38KE	14.4	7.9	1	235	7/8	1/2	735/730/708	89.0	PFJ	TFD	32	13	142	66	48.8
MC-P8-ZB38KE	14.4	7.9	2	220	7/8	1/2	950/640/633	89.0	PFJ	TFD	32	13	142	66	48.7
MC-M8-ZB42KE	16.2	7.9	1	235	7/8	1/2	735/730/708	91.0	PFJ		36		150		49.4
MC-R7-ZB42KE	16.2	7.9	2	470	7/8	1/2	1130/680/633	101.0	PFJ		36		150		52.7
MC-M8-ZB45KE	17.1	7.9	1	235	7/8	1/2	735/730/708	91.0		TFD		13		74	49.4
MC-M9-ZB45KE	17.1	7.9	1	400	7/8	1/2	735/730/708	95.5		TFD		13		74	49.4
MC-R7-ZB45KE	17.1	7.9	2	470	7/8	1/2	1130/680/633	101.0		TFD		13		74	49.5
MC-R7-ZB50KE	19.8	7.9	2	470	1 3/8	1/2	1130/820/621	110.0		TFD		15		100	49.3
MC-S9-ZB50KE	22.1	11.7	2	470	1 3/8	5/8	1130/820/703	113.0		TFD		15		100	49.7
MC-R7-ZB58KE	22.1	7.9	2	470	1 3/8	1/2	1130/820/621	110.0		TFD		16		95	
MC-S9-ZB58KE	22.1	11.7	2	470	1 3/8	5/8	1130/820/703	113.0		TFD		16		95	
MC-S9-ZB66KE	24.9	11.7	2	470	1 3/8	5/8	1130/820/707	116.0		TFD		18		111	50.3
MC-V9-ZB66KE	24.9	15.8	2	470	1 3/8	3/4	1330/820/821	150.0		TFD		18		111	50.2
MC-V9-ZB76KE	29.1	15.8	2	470	1 3/8	3/4	1330/820/835	151.0		TFD		20		118	50.2
MC-V6-ZB76KE	29.1	15.8	2	800	1 3/8	3/4	1330/820/835	168.0		TFD		20		118	54.7
MC-V9-ZB95KE	36.4	15.8	2	470	1 3/8	3/4	1330/820/835	155.0		TFD		28		140	50.7
MC-V6-ZB95KE	36.4	15.8	2	800	1 3/8	3/4	1330/820/835	172.0		TFD		28		140	54.7
MC-V6-ZB114KE	43.3	15.8	2	800	1 3/8	3/4	1330/820/835	174.0		TFD		33		174	54.7
MC-W9-ZB114KE	43.3	15.8	2	800	1 3/8	3/4	1640/820/864	174.0		TFD		33		174	54.7
Digital Medium Temperature Models															
MC-M8-ZBD30	11.7	11.7	1	235	7/8	5/8	735/730/708	86.5		TFD		8		52	48.6
MC-M9-ZBD45	17.1	11.7	1	400	7/8	5/8	735/730/708	95.5		TFD		12		74	49.4
MC-V6-ZBDT60	23.4	18.9	2	800	1 3/8	3/4	1330/820/835	207.0		TFD		8+10			57.4
MC-V6-ZBDT90	34.1	18.9	2	800	1 3/8	3/4	1330/820/835	218.0		TFD		12+13			57.4
MC-S9-ZF48KE	11.7	11.7	2	470	1 3/8	5/8	1130/820/708	189.0		TWD		29		198	54.7

* 1ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
*** @ 10m: sound pressure level at 10m distance from the compressor, free field condition

Technical Overview

Models	Displacement (m^3/h)	Receiver Capacity (l)	Number of Fans	Total Fan Motor Power (W)	Suction Line Diameter (inch)	Liquid Line Diameter (inch)	Width/ Depth/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @10m - dB(A)***
									1 Ph*	3 Ph **	1 Ph*	3 Ph **	1 Ph*	3 Ph **	
Low Temperature Models															
MC-B8-ZF06KE	3.3	3.3	1	85	7/8	1/2	560/570/396	64.0		TFD		5		26	46.7
MC-D8-ZF09KE	3.9	3.9	1	110	7/8	1/2	560/570/446	64.0		TFD		6		40	46.7
MC-H8-ZF09KE	7.9	7.9	1	235	7/8	1/2	735/680/533	66.0		TFD		6		40	49.1
MC-H8-ZF11KE	7.9	7.9	1	235	7/8	1/2	735/680/533	67.0		TFD		7		46	49.4
MC-H8-ZF13KE	7.9	7.9	1	235	7/8	1/2	735/680/533	77.0		TFD		8		52	49.5
MC-M8-ZF13KE	7.9	7.9	1	235	7/8	1/2	735/730/708	85.0		TFD		8		52	49.0
MC-M9-ZF13KE	7.9	7.9	1	400	7/8	1/2	735/730/708	95.5		TFD		8		52	
MC-H8-ZF15KE	7.9	7.9	1	235	7/8	1/2	735/680/533	83.0		TFD		10		64	50.0
MC-M8-ZF15KE	7.9	7.9	1	235	7/8	1/2	735/730/708	86.0		TFD		10		64	49.6
MC-R7-ZF15KE	7.9	7.9	2	470	1 3/8	1/2	1130/680/708	105.0		TFD		10		64	52.0
MC-M8-ZF18KE	7.9	7.9	1	235	7/8	1/2	735/730/708	88.0		TFD		13		74	49.9
MC-M9-ZF18KE	7.9	7.9	1	400	7/8	1/2	735/730/708	95.5		TFD		13		74	50.0
MC-S9-ZF18KE	7.9	7.9	2	470	1 3/8	1/2	1130/680/708	168.0		TFD		13		74	
MC-S9-ZF25K5	11.7	11.7	2	470	1 1/8	5/8	1130/680/703	117.0		TFD		16		102	54.7
MC-S9-ZF34K5	11.7	11.7	2	470	1 1/8	5/8	1130/680/703	141.0		TFD		25		100	54.7
MC-V6-ZF41K5	11.7	11.7	2	800	1 3/8	5/8	1330/820/830	168.0		TFD		29		118	57.4
MC-V6-ZF49K5	11.7	11.7	2	800	1 3/8	3/4	1330/820/830	185.0		TFD		30		139	57.4

* 1ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
*** @ 10m: sound pressure level at 10m distance from the compressor, free field condition

Capacity Data

Ambient Temperature: 32°C																
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
MC-H8-ZB15KE					3.5	4.2	5.9	MC-H8-ZB15KE					1.7	1.8	1.9
MC-D8-ZB15KE					3.2	3.8	5.3	MC-D8-ZB15KE					1.8	1.9	2.1
MC-D8-ZB19KE					3.7*	4.5	6.1	MC-D8-ZB19KE					2.2*	2.3	2.5
MC-K9-ZB19KE					4.1	4.9	6.8	MC-K9-ZB19KE					2.1	2.1	2.3
MC-H8-ZB19KE					4.1	4.9	6.9	MC-H8-ZB19KE					2.1	2.2	2.3
MC-K9-ZB21KE					4.8	5.8	8.0	MC-K9-ZB21KE					2.5	2.6	2.8
MC-H8-ZB21KE					4.8	5.8	8.0	MC-H8-ZB21KE					2.5	2.6	2.8
MC-D8-ZB21KE					4.2*	5.1		MC-D8-ZB21KE					2.7*	3.0	
MC-K9-ZB26KE					5.4	6.4	8.8	MC-K9-ZB26KE					2.9	3.0	3.4
MC-H8-ZB26KE					5.4	6.4	8.9	MC-H8-ZB26KE					2.9	3.0	3.4
MC-M8-ZB30KE					6.4	7.8	10.8	MC-M8-ZB30KE					3.3	3.4	3.7
MC-P8-ZB30KE					6.5	7.8	10.9	MC-P8-ZB30KE					3.2	3.4	3.7
MC-H8-ZB30KE					5.9*	7.3		MC-H8-ZB30KE					3.5*	3.7	
MC-H8-ZB38KE					7.2*	8.6*		MC-H8-ZB38KE					4.5*	4.9*	
MC-P8-ZB38KE					7.8*	9.6	13.0	MC-P8-ZB38KE					4.1*	4.4	5.0
MC-M8-ZB38KE					7.7*	9.5		MC-M8-ZB38KE					4.2*	4.5	
MC-R7-ZB42KE**				6.0*	9.3	11.1	15.3	MC-R7-ZB42KE**				4.4*	4.8	5.0	5.3
MC-M8-ZB42KE**				5.6*	8.2*	10.0	13.4	MC-M8-ZB42KE**				4.6*	5.1*	5.5	6.0
MC-M8-ZB45KE					8.5*	10.3		MC-M8-ZB45KE					5.2*	5.6	
MC-R7-ZB45KE					9.6	11.5	15.7	MC-R7-ZB45KE					4.9	5.1	5.5
MC-M9-ZB45KE					9.3	11.0	14.9	MC-M9-ZB45KE					5.1	5.3	5.8
MC-R7-ZB50KE					11.0	13.2	18.0	MC-R7-ZB50KE					6.0	6.3	6.9
MC-S9-ZB50KE					11.4	13.7	19.0	MC-S9-ZB50KE					5.7	5.9	6.4
MC-R7-ZB58KE					11.1*	13.8		MC-R7-ZB58KE					6.6*	7.1	
MC-S9-ZB58KE					11.9	14.5	20.4	MC-S9-ZB58KE					6.3	6.7	7.4
MC-V9-ZB66KE					13.8	16.7	23.2	MC-V9-ZB66KE					6.9	7.3	8.1
MC-S9-ZB66KE					13.2	15.9	21.9	MC-S9-ZB66KE					7.3	7.7	8.7
MC-V9-ZB76KE					15.8	19.0	26.3	MC-V9-ZB76KE					8.2	8.7	9.8
MC-V6-ZB76KE					16.7	20.2	28.4	MC-V6-ZB76KE					8.0	8.4	9.2
MC-V6-ZB95KE					19.5	23.5	32.6	MC-V6-ZB95KE					10.7	11.3	12.6
MC-V9-ZB95KE					17.4*	21.5		MC-V9-ZB95KE					11.3*	12.1	
MC-V6-ZB114KE					21.4*	26.8		MC-V6-ZB114KE					13.0*	13.9	
MC-W9-ZB114KE					22.5	27.4	38.4	MC-W9-ZB114KE					12.9	13.6	15.4

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
** Single Phase Only
Preliminary Data

Capacity Data

Ambient Temperature: 32°C															
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Low Temperature Models															
MC-H8-ZF09KE		1.7	2.1	3.2	4.7	5.5	7.6	MC-H8-ZF09KE		1.7	1.7	1.8	2.1	2.3	2.7
MC-D8-ZF09KE		1.6	2.0	3.0	4.3	5.0	6.6*	MC-D8-ZF09KE		1.7	1.7	1.9	2.1	2.3	2.8*
MC-M9-ZF13KE		2.3	2.9	4.5	6.7	8.0	11.1	MC-M9-ZF13KE		2.5	2.6	2.8	3.2	3.4	4.1
MC-H8-ZF13KE		2.3	2.8	4.3	6.3	7.4	10.0	MC-H8-ZF13KE		2.5	2.6	2.9	3.4	3.7	4.6
MC-M8-ZF13KE		2.3	2.9	4.4	6.5	7.7	10.6	MC-M8-ZF13KE		2.4	2.5	2.8	3.2	3.4	4.2
MC-M8-ZF15KE		2.8	3.5	5.3	7.6	9.0	12.2	MC-M8-ZF15KE		2.9	3.1	3.6	4.2	4.7	5.8
MC-R7-ZF15KE		2.9	3.6	5.6	8.2	9.7	13.5	MC-R7-ZF15KE		3.0	3.1	3.5	4.0	4.4	5.3
MC-H8-ZF15KE		2.7	3.4	5.1	7.2	8.5		MC-H8-ZF15KE		3.0	3.3	3.8	4.6	5.1	
MC-S9-ZF18KE		3.5	4.4	6.7	9.9	11.8	16.3	MC-S9-ZF18KE		3.5	3.7	4.1	4.6	4.9	5.8
MC-M8-ZF18KE		3.3	4.2	6.2	8.9	10.4	13.7*	MC-M8-ZF18KE		3.6	3.8	4.4	5.1	5.6	6.8*
MC-M9-ZF18KE		3.4	4.3	6.5	9.3	11.1	14.9	MC-M9-ZF18KE		3.6	3.8	4.3	4.9	5.3	6.4
MC-S9-ZF25K5		4.4	5.5	8.5	12.4	14.8		MC-S9-ZF25K5		4.3	4.6	5.3	6.2	6.7	
MC-S9-ZF34K5		5.9	7.5	11.4	16.4	19.4		MC-S9-ZF34K5		5.6	6.2	7.4	9.0	9.9	
MC-V6-ZF41K5		7.4	9.4	14.2	20.6	24.4		MC-V6-ZF41K5		6.8	7.4	8.7	10.2	11.1	
MC-V6-ZF49K5		8.7	11.1	16.9	24.5	29.1		MC-V6-ZF49K5		8.3	9.1	10.8	12.8	13.9	
Digital Medium Temperature Models															
MC-M8-ZBD30					6.8	8.1	11.1	MC-M8-ZBD30					3.4	3.6	4.0
MC-M9-ZBD45					9.2	11.0	15.0	MC-M9-ZBD45					4.9	5.2	5.8
MC-V6-ZBDT60				9.4	14.4	17.4	24.3	MC-V6-ZBDT60				6.0	6.4	6.7	7.3
MC-V6-ZBDT90				12.7	19.1	22.8	31.4	MC-V6-ZBDT90				8.8	9.5	9.9	10.9

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
** Single Phase Only
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Capacity Data

Ambient Temperature: 32°C																
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
MC-H8-ZB15KE					3.4	4.1	5.7	MC-H8-ZB15KE					1.8	1.9	1.9
MC-D8-ZB15KE					3.0	3.7	5.0	MC-D8-ZB15KE					2.0	2.0	2.2
MC-H8-ZB19KE					4.0	4.8	6.7	MC-H8-ZB19KE					2.2	2.3	2.5
MC-K9-ZB19KE					4.0	4.8	6.7	MC-K9-ZB19KE					2.2	2.3	2.5
MC-D8-ZB19KE					3.5*	4.3	5.9	MC-D8-ZB19KE					2.4*	2.5	2.8
MC-K9-ZB21KE					4.7	5.6	7.7	MC-K9-ZB21KE					2.7	2.9	3.1
MC-H8-ZB21KE					3.9*	4.7*		MC-H8-ZB21KE					3.0*	3.2*	
MC-H8-ZB26KE					5.1*	6.3	8.6	MC-H8-ZB26KE					3.3*	3.5	3.9
MC-K9-ZB26KE					5.1*	6.3	8.6	MC-K9-ZB26KE					3.3*	3.5	3.9
MC-M8-ZB30KE				4.1*	6.6	8.0	11.2	MC-M8-ZB30KE				3.3*	3.5	3.7	4.1
MC-P8-ZB30KE				4.1*	6.6	8.0	11.3	MC-P8-ZB30KE				3.2*	3.5	3.6	4.0
MC-H8-ZB30KE					6.1*	7.5		MC-H8-ZB30KE					3.8*	4.0	
MC-M8-ZB38KE					7.6*	9.3		MC-M8-ZB38KE					4.7*	4.9	
MC-P8-ZB38KE					7.7*	9.4		MC-P8-ZB38KE					4.6*	4.9	
MC-H8-ZB38KE					7.0*	8.4*		MC-H8-ZB38KE					5.0*	5.3*	
MC-R7-ZB45KE				5.9*	9.7	11.8	16.4	MC-R7-ZB45KE				4.7*	5.2	5.5	6.0
MC-M9-ZB45KE					9.1*	11.2	15.5	MC-M9-ZB45KE					5.4*	5.7	6.4
MC-M8-ZB45KE					8.4*	10.2*		MC-M8-ZB45KE					5.6*	6.0*	
MC-R7-ZB58KE					11.7*	14.6		MC-R7-ZB58KE					7.1*	7.6	
MC-S9-ZB58KE				7.1*	12.4*	15.4	21.5	MC-S9-ZB58KE				6.0*	6.7*	7.2	8.1
MC-V9-ZB66KE				8.7*	14.6	17.7	24.6	MC-V9-ZB66KE				6.6*	7.4	7.8	8.7
MC-S9-ZB66KE					13.6*	16.8		MC-S9-ZB66KE					7.7*	8.3	
MC-V9-ZB76KE				9.8*	16.3*	20.1	27.8	MC-V9-ZB76KE				7.6*	8.7*	9.4	10.7
MC-V6-ZB76KE				10.6*	17.8	21.6	30.2	MC-V6-ZB76KE				7.6*	8.5	8.9	9.9
MC-W9-ZB114KE				13.3*	23.2*	29.0		MC-W9-ZB114KE				12.1*	13.7*	14.7	
MC-V6-ZB114KE					22.6*	28.2		MC-V6-ZB114KE					14.0*	15.1	
Low Temperature Models															
MC-B8-ZF06KE		1.2	1.4	2.1				MC-B8-ZF06KE		1.5	1.6	1.8			
MC-H8-ZF09KE		1.7	2.2	3.3	4.9	5.8	7.9	MC-H8-ZF09KE		1.8	1.8	1.9	2.2	2.4	2.8
MC-D8-ZF09KE		1.7	2.1	3.1	4.4	5.2		MC-D8-ZF09KE		1.8	1.8	2.0	2.3	2.5	
MC-H8-ZF11KE		2.2	2.7	4.1	5.9	6.9	9.3	MC-H8-ZF11KE		2.1	2.2	2.4	2.7	3.0	3.5
MC-M9-ZF13KE		2.4	3.1	4.7	7.0	8.3	11.6	MC-M9-ZF13KE		2.6	2.7	3.0	3.3	3.6	4.3
MC-M8-ZF13KE		2.4	3.0	4.6	6.8	8.1	11.0	MC-M8-ZF13KE		2.5	2.6	2.9	3.4	3.7	4.5
MC-H8-ZF13KE		2.4	3.0	4.5	6.5	7.7		MC-H8-ZF13KE		2.6	2.8	3.1	3.6	4.0	
MC-H8-ZF15KE		2.8	3.6	5.3	7.5			MC-H8-ZF15KE		3.2	3.5	4.1	5.0		
MC-R7-ZF15KE		3.0	3.8	5.8	8.5	10.2	14.0	MC-R7-ZF15KE		3.1	3.3	3.7	4.2	4.6	5.6
MC-M8-ZF15KE		2.9	3.7	5.5	8.0	9.4		MC-M8-ZF15KE		3.0	3.3	3.8	4.5	5.0	
MC-M8-ZF18KE		3.5	4.3	6.5	9.2	10.8		MC-M8-ZF18KE		3.8	4.1	4.7	5.5	6.0	
MC-M9-ZF18KE		3.5	4.5	6.8	9.7	11.5		MC-M9-ZF18KE		3.8	4.0	4.6	5.2	5.7	
MC-S9-ZF18KE		3.6	4.6	7.1	10.4	12.3	17.0	MC-S9-ZF18KE		3.7	3.9	4.3	4.9	5.2	6.1
Digital Medium Temperature Models															
MC-M8-ZBD30				4.6*	6.8	8.1	10.9	MC-M8-ZBD30				2.8*	3.3	3.6	4.1
MC-M9-ZBD45					9.4*	11.6	15.5	MC-M9-ZBD45					5.1*	5.5	6.6
MC-V6-ZBDT60				9.1*	14.3	17.2	24.0	MC-V6-ZBDT60				6.1*	6.7	6.9	7.6
MC-V6-ZBDT90				12.1*	19.7	23.7	32.6	MC-V6-ZBDT90				8.7*	10.1	10.7	12.2

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
Preliminary Data

Capacity Data

Ambient Temperature: 32°C																
R448A	Cooling Capacity (kW)							R448A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
MC-D8-ZB15KE				2.1	3.2	3.8	5.3	MC-D8-ZB15KE				1.7	1.8	1.8	2.0
MC-H8-ZB15KE				2.2	3.5	4.2	5.9	MC-H8-ZB15KE				1.7	1.7	1.7	1.8
MC-D8-ZB19KE				2.3*	3.7	4.4	6.0	MC-D8-ZB19KE				2.0*	2.1	2.2	2.5
MC-H8-ZB19KE				2.6	4.0	4.8	6.6	MC-H8-ZB19KE				1.9	2.0	2.1	2.3
MC-K9-ZB19KE				2.6	3.9	4.7	6.6	MC-K9-ZB19KE				1.9	2.0	2.0	2.3
MC-D8-ZB21KE				2.9*	4.5	5.3	7.0	MC-D8-ZB21KE				2.4*	2.8	3.0	3.4
MC-H8-ZB21KE				3.3	4.9	5.9	8.1	MC-H8-ZB21KE				2.3	2.5	2.6	2.8
MC-K9-ZB21KE				3.3	4.9	5.9	8.1	MC-K9-ZB21KE				2.3	2.5	2.6	2.9
MC-H8-ZB26KE				3.8	5.6	6.7	9.2	MC-H8-ZB26KE				2.8	3.0	3.1	3.5
MC-K9-ZB26KE				3.7	5.6	6.6	9.1	MC-K9-ZB26KE				2.8	3.0	3.2	3.5
MC-H8-ZB30KE				4.0*	6.4	7.5	10.3	MC-H8-ZB30KE				3.2*	3.6	3.8	4.2
MC-P8-ZB30KE				4.4	6.7	8.0	11.0	MC-P8-ZB30KE				3.1	3.3	3.4	3.8
MC-M8-ZB30KE				4.4	6.7	8.0	10.9	MC-M8-ZB30KE				3.1	3.3	3.5	3.9
MC-H9-ZB38KE				4.7*	7.5	8.8		MC-H9-ZB38KE				4.3*	4.8	5.1	
MC-P8-ZB38KE				5.1*	8.0	9.5	13.0	MC-P8-ZB38KE				3.9*	4.3	4.5	5.1
MC-M8-ZB38KE				5.0*	8.0	9.4	12.8	MC-M8-ZB38KE				4.0*	4.4	4.6	5.2
MC-M8-ZB42KE**				5.5*	8.7	10.3	13.9	MC-M8-ZB42KE**				4.6*	5.2	5.5	6.2
MC-R7-ZB42KE**				6.3	9.5	11.4	15.7	MC-R7-ZB42KE**				4.4	4.7	4.9	5.4
MC-M8-ZB45KE				5.7*	9.0	10.6	14.3	MC-M8-ZB45KE				4.7*	5.2	5.5	6.3
MC-R7-ZB45KE				6.5	9.8	11.8	16.1	MC-R7-ZB45KE				4.5	4.8	5.0	5.5
MC-M9-ZB45KE				6.3	9.5	11.3	15.4	MC-M9-ZB45KE				4.6	5.0	5.2	5.9
MC-R7-ZB58KE				7.1*	12.0	14.4	19.7	MC-R7-ZB58KE				6.1*	6.8	7.2	8.1
MC-S9-ZB58KE				7.5*	12.5	15.1	20.8	MC-S9-ZB58KE				5.9*	6.4	6.7	7.5
MC-S9-ZB66KE				8.6*	13.9	16.5	22.4	MC-S9-ZB66KE				6.7*	7.4	7.8	8.7
MC-V9-ZB66KE				9.0*	14.5	17.3	23.7	MC-V9-ZB66KE				6.5*	7.0	7.3	8.1
MC-V6-ZB76KE				10.9*	17.4	21.0	29.0	MC-V6-ZB76KE				7.4*	8.0	8.4	9.3
MC-V9-ZB76KE				10.3*	16.6	19.8	26.9	MC-V9-ZB76KE				7.5*	8.3	8.8	10.0
MC-V9-ZB95KE				11.2*	18.8	22.5	30.2	MC-V9-ZB95KE				10.2*	11.5	12.3	14.2
MC-W9-ZB114KE				14.1*	23.6	28.5	39.3	MC-W9-ZB114KE				11.9*	13.1	13.8	15.6
MC-V6-ZB114KE				13.8*	23.1	27.9	38.3	MC-V6-ZB114KE				12.2*	13.4	14.1	16.1
Low Temperature Models															
MC-D8-ZF09KE		1.7	2.2	3.2	4.5	5.2		MC-D8-ZF09KE		2.0	2.0	2.2	2.5	2.7	
MC-H8-ZF09KE		1.8	2.3	3.4	4.9	5.7		MC-H8-ZF09KE		1.9	1.9	2.0	2.3	2.5	
MC-H8-ZF13KE		2.5	3.1	4.7	6.7	7.8		MC-H8-ZF13KE		2.6	2.6	2.9	3.4	3.7	
MC-M8-ZF13KE		2.6	3.2	4.9	7.0	8.2		MC-M8-ZF13KE		2.5	2.5	2.8	3.1	3.4	
MC-M9-ZF13KE		2.6	3.3	5.0	7.2	8.5		MC-M9-ZF13KE		2.6	2.6	2.8	3.1	3.4	
MC-H8-ZF15KE		3.0	3.8	5.5	7.6			MC-H8-ZF15KE		3.4	3.6	4.2	5.0		
MC-M8-ZF15KE		3.1	3.9	5.8	8.1	9.4		MC-M8-ZF15KE		3.3	3.4	3.9	4.5	5.0	
MC-R7-ZF15KE		3.2	4.0	6.1	8.7	10.3		MC-R7-ZF15KE		3.3	3.4	3.7	4.3	4.6	
MC-M8-ZF18KE		3.6	4.5	6.7	9.3	10.8		MC-M8-ZF18KE		4.1	4.2	4.6	5.4	5.9	
MC-M9-ZF18KE		3.7	4.6	6.9	9.8	11.5		MC-M9-ZF18KE		4.0	4.0	4.4	5.0	5.4	
MC-S9-ZF18KE		3.8	4.8	7.2	10.4	12.3		MC-S9-ZF18KE		3.8	3.8	4.1	4.6	4.9	
Digital Medium Temperature Models															
MC-M8-ZBD30				4.5	6.8	8.1	11.1	MC-M8-ZBD30				2.7	3.2	3.5	4.1
MC-M9-ZBD45				6.5	9.7	11.6	15.6	MC-M9-ZBD45				4.0	4.8	5.2	6.1
MC-V6-ZBDT60				9.4	14.3	17.1	23.8	MC-V6-ZBDT60				5.8	6.3	6.6	7.4
MC-V6-ZBDT90				13.2	19.9	23.6	32.4	MC-V6-ZBDT90				8.3	9.3	9.9	11.3

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
** Single Phase Only
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Capacity Data

Ambient Temperature: 32°C															
R449A	Cooling Capacity (kW) Evaporating Temperature (°C)							R449A	Power Input (kW) Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
MC-D8-ZB15KE				2.1	3.2	3.8	5.3	MC-D8-ZB15KE				1.7	1.8	1.8	2.0
MC-H8-ZB15KE				2.2	3.5	4.2	5.9	MC-H8-ZB15KE				1.7	1.7	1.7	1.8
MC-D8-ZB19KE				2.3*	3.7	4.4	6.0	MC-D8-ZB19KE				2.0*	2.1	2.2	2.5
MC-H8-ZB19KE				2.6	4.0	4.8	6.6	MC-H8-ZB19KE				1.9	2.0	2.1	2.3
MC-K9-ZB19KE				2.6	3.9	4.7	6.6	MC-K9-ZB19KE				1.9	2.0	2.0	2.3
MC-D8-ZB21KE				2.9*	4.5	5.3	7.0	MC-D8-ZB21KE				2.4*	2.8	3.0	3.4
MC-H8-ZB21KE				3.3	4.9	5.9	8.1	MC-H8-ZB21KE				2.3	2.5	2.6	2.8
MC-K9-ZB21KE				3.3	4.9	5.9	8.1	MC-K9-ZB21KE				2.3	2.5	2.6	2.9
MC-H8-ZB26KE				3.8	5.6	6.7	9.2	MC-H8-ZB26KE				2.8	3.0	3.1	3.5
MC-K9-ZB26KE				3.7	5.6	6.6	9.1	MC-K9-ZB26KE				2.8	3.0	3.2	3.5
MC-H8-ZB30KE				4.0*	6.4	7.5	10.3	MC-H8-ZB30KE				3.2*	3.6	3.8	4.2
MC-P8-ZB30KE				4.4	6.7	8.0	11.0	MC-P8-ZB30KE				3.1	3.3	3.4	3.8
MC-M8-ZB30KE				4.4	6.7	8.0	10.9	MC-M8-ZB30KE				3.1	3.3	3.5	3.9
MC-P8-ZB38KE				5.1*	8.0	9.5	13.0	MC-P8-ZB38KE				3.9*	4.3	4.5	5.1
MC-M8-ZB38KE				5.0*	8.0	9.4	12.8	MC-M8-ZB38KE				4.0*	4.4	4.6	5.2
MC-H8-ZB38KE				4.7*	7.5	8.8		MC-H8-ZB38KE				4.3*	4.8	5.1	
MC-M8-ZB42KE**				5.5*	8.7	10.3	13.9	MC-M8-ZB42KE**				4.6*	5.2	5.5	6.2
MC-R7-ZB42KE**				6.3	9.5	11.4	15.7	MC-R7-ZB42KE**				4.4	4.7	4.9	5.4
MC-M8-ZB45KE				5.7*	9.0	10.6	14.3	MC-M8-ZB45KE				4.7*	5.2	5.5	6.3
MC-R7-ZB45KE				6.5	9.8	11.8	16.1	MC-R7-ZB45KE				4.5	4.8	5.0	5.5
MC-M9-ZB45KE				6.3	9.5	11.3	15.4	MC-M9-ZB45KE				4.6	5.0	5.2	5.9
MC-R7-ZB58KE				7.1*	12.0	14.4	19.7	MC-R7-ZB58KE				6.1*	6.8	7.2	8.1
MC-S9-ZB58KE				7.5*	12.5	15.1	20.8	MC-S9-ZB58KE				5.9*	6.4	6.7	7.5
MC-S9-ZB66KE				8.6*	13.9	16.5	22.4	MC-S9-ZB66KE				6.7*	7.4	7.8	8.7
MC-V9-ZB66KE				9.0*	14.5	17.3	23.7	MC-V9-ZB66KE				6.4*	7.0	7.3	8.1
MC-V6-ZB76KE				10.9*	17.4	21.0	29.0	MC-V6-ZB76KE				7.4*	8.0	8.4	9.3
MC-V9-ZB76KE				10.3*	16.6	19.8	26.9	MC-V9-ZB76KE				7.5*	8.3	8.8	10.0
MC-V6-ZB95KE				12.3*	20.5	24.5	33.4	MC-V6-ZB95KE				9.9*	10.8	11.4	12.8
MC-V9-ZB95KE				11.2*	18.8	22.5	30.2	MC-V9-ZB95KE				10.2*	11.5	12.3	14.2
MC-V6-ZB114KE				13.7*	23.1	27.9	38.3	MC-V6-ZB114KE				12.2*	13.4	14.1	16.1
MC-W9-ZB114KE				14.1*	23.6	28.5	39.3	MC-W9-ZB114KE				11.9*	13.1	13.8	15.6
Low Temperature Models															
MC-D8-ZF09KE		1.7	2.2	3.2	4.5	5.2		MC-D8-ZF09KE		2.0	2.0	2.2	2.5	2.7	
MC-H8-ZF09KE		1.8	2.3	3.4	4.9	5.7		MC-H8-ZF09KE		1.9	1.9	2.0	2.3	2.5	
MC-H8-ZF13KE		2.5	3.1	4.7	6.7	7.8		MC-H8-ZF13KE		2.6	2.6	2.9	3.4	3.7	
MC-M8-ZF13KE		2.6	3.2	4.9	7.0	8.2		MC-M8-ZF13KE		2.5	2.5	2.8	3.1	3.4	
MC-M9-ZF13KE		2.6	3.3	5.0	7.2	8.5		MC-M9-ZF13KE		2.6	2.6	2.8	3.1	3.4	
MC-H8-ZF15KE		3.0	3.8	5.5	7.6			MC-H8-ZF15KE		3.4	3.6	4.2	5.0		
MC-M8-ZF15KE		3.1	3.9	5.8	8.1	9.4		MC-M8-ZF15KE		3.3	3.4	3.9	4.5	5.0	
MC-R7-ZF15KE		3.2	4.0	6.1	8.7	10.3		MC-R7-ZF15KE		3.3	3.4	3.7	4.3	4.6	
MC-M8-ZF18KE		3.6	4.5	6.7	9.3	10.8		MC-M8-ZF18KE		4.1	4.2	4.6	5.4	5.9	
MC-M9-ZF18KE		3.7	4.6	6.9	9.8	11.5		MC-M9-ZF18KE		4.0	4.0	4.4	5.0	5.4	
MC-S9-ZF18KE		3.8	4.8	7.2	10.4	12.3		MC-S9-ZF18KE		3.8	3.8	4.1	4.6	4.9	
Digital Medium Temperature Models															
MC-M8-ZBD30				4.5	6.8	8.1	11.1	MC-M8-ZBD30				2.7	3.2	3.5	4.1
MC-M9-ZBD45				6.5	9.7	11.6	15.6	MC-M9-ZBD45				4.0	4.8	5.2	6.1
MC-V6-ZBDT60				9.4	14.3	17.1	23.8	MC-V6-ZBDT60				5.8	6.3	6.6	7.4
MC-V6-ZBDT90				13.2	19.9	23.6	32.4	MC-V6-ZBDT90				8.3	9.3	9.9	11.3

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
** Single Phase Only
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Capacity Data

Ambient Temperature: 32°C															
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
MC-H8-ZB15KE				2.5	3.6	4.3	5.8	MC-H8-ZB15KE				1.9	1.9	1.9	1.9
MC-D8-ZB15KE				2.2	3.3	3.8	5.0	MC-D8-ZB15KE				1.9	2.0	2.0	2.1
MC-K9-ZB19KE				2.9	4.1	4.8	6.5	MC-K9-ZB19KE				2.1	2.2	2.2	2.4
MC-H8-ZB19KE				2.9	4.1	4.8	6.5	MC-H8-ZB19KE				2.1	2.2	2.3	2.4
MC-D8-ZB19KE				2.6	3.7	4.3	5.6	MC-D8-ZB19KE				2.2	2.4	2.5	2.6
MC-H8-ZB21KE				3.6	5.1	5.9	7.8	MC-H8-ZB21KE				2.6	2.7	2.8	3.0
MC-K9-ZB21KE				3.6	5.1	5.9	7.8	MC-K9-ZB21KE				2.6	2.7	2.8	3.0
MC-D8-ZB21KE				3.2	4.4	5.0	6.4	MC-D8-ZB21KE				2.8	3.1	3.2	3.5
MC-K9-ZB26KE				4.1	5.7	6.6	8.7	MC-K9-ZB26KE				3.1	3.3	3.4	3.6
MC-H8-ZB26KE				4.1	5.7	6.6	8.6	MC-H8-ZB26KE				3.1	3.3	3.4	3.7
MC-H8-ZB30KE				4.6	6.4	7.4	9.6	MC-H8-ZB30KE				3.7	3.9	4.1	4.4
MC-P8-ZB30KE				5.0	7.1	8.3	11.1	MC-P8-ZB30KE				3.3	3.5	3.5	3.8
MC-M8-ZB30KE				4.8	6.8	7.9	10.5	MC-M8-ZB30KE				3.4	3.6	3.7	4.0
MC-H8-ZB38KE				5.3	7.3	8.4	10.7	MC-H8-ZB38KE				4.8	5.2	5.4	6.0
MC-P8-ZB38KE				6.0	8.4	9.7	12.9	MC-P8-ZB38KE				4.2	4.5	4.7	5.1
MC-M8-ZB38KE				5.7	8.0	9.2	12.0	MC-M8-ZB38KE				4.4	4.8	5.0	5.4
MC-R7-ZB42KE**				6.9	9.8	11.4	15.1	MC-R7-ZB42KE**				4.8	5.1	5.2	5.6
MC-M8-ZB42KE**				6.3	8.7	10.0	12.8	MC-M8-ZB42KE**				5.1	5.6	5.8	6.3
MC-R7-ZB45KE				7.1	10.1	11.8	15.6	MC-R7-ZB45KE				5.0	5.3	5.4	5.8
MC-M8-ZB45KE				6.5	8.9	10.3	13.2	MC-M8-ZB45KE				5.3	5.7	6.0	6.5
MC-M9-ZB45KE				6.9	9.6	11.1	14.5	MC-M9-ZB45KE				5.1	5.5	5.7	6.1
MC-S9-ZB50KE				7.9	12.0	14.2	18.9	MC-S9-ZB50KE				5.8	6.1	6.3	6.7
MC-R7-ZB50KE				7.5	11.4	13.4	17.7	MC-R7-ZB50KE				6.0	6.5	6.7	7.2
MC-R7-ZB58KE				8.5	12.4	14.5	18.8	MC-R7-ZB58KE				6.7	7.3	7.6	8.3
MC-S9-ZB58KE				8.9	13.1	15.4	20.3	MC-S9-ZB58KE				6.4	6.9	7.1	7.7
MC-S9-ZB66KE				10.3	14.5	16.8	21.7	MC-S9-ZB66KE				7.4	7.9	8.2	8.9
MC-V9-ZB66KE				10.7	15.1	17.6	23.0	MC-V9-ZB66KE				7.1	7.6	7.8	8.5
MC-V6-ZB76KE				12.9	18.5	21.6	28.7	MC-V6-ZB76KE				8.0	8.6	8.9	9.6
MC-V9-ZB76KE				12.2	17.2	19.9	25.8	MC-V9-ZB76KE				8.3	9.0	9.4	10.3
MC-V6-ZB95KE				14.9	21.5	25.2	33.1	MC-V6-ZB95KE				10.7	11.4	11.9	13.0
MC-V9-ZB95KE				12.2*	19.3	22.4	28.7	MC-V9-ZB95KE				11.2*	12.4	13.0	14.3
MC-W9-ZB114KE				16.8	24.6	28.8	38.0	MC-W9-ZB114KE				13.2	14.1	14.6	16.0
MC-V6-ZB114KE				15.1*	24.3	28.4	37.3	MC-V6-ZB114KE				13.1*	14.3	14.8	16.2

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
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Capacity Data

Ambient Temperature: 32°C														
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Low Temperature Models															
MC-B8-ZF06KE		1.3	1.6	2.2	2.9	3.2		MC-B8-ZF06KE		1.7	1.8	2.1	2.4	2.6	
MC-D8-ZF09KE		1.9	2.3	3.3	4.4	5.0	6.3	MC-D8-ZF09KE		2.0	2.1	2.3	2.6	2.8	3.2
MC-H8-ZF09KE		2.0	2.5	3.6	4.9	5.7	7.5	MC-H8-ZF09KE		2.0	2.0	2.2	2.5	2.6	3.0
MC-H8-ZF11KE		2.5	3.0	4.3	5.8	6.7	8.7	MC-H8-ZF11KE		2.4	2.5	2.7	3.1	3.3	3.8
MC-M9-ZF13KE		2.9	3.6	5.3	7.3	8.5	11.2	MC-M9-ZF13KE		2.6	2.7	3.0	3.4	3.6	4.1
MC-H8-ZF13KE		2.8	3.4	4.9	6.6	7.6	9.7	MC-H8-ZF13KE		2.6	2.7	3.1	3.5	3.8	4.3
MC-M8-ZF13KE		2.8	3.5	5.1	7.0	8.1	10.6	MC-M8-ZF13KE		2.5	2.6	2.9	3.3	3.6	4.1
MC-R7-ZF15KE		3.5	4.4	6.4	8.9	10.4	13.6	MC-R7-ZF15KE		3.4	3.6	4.0	4.5	4.9	5.7
MC-M8-ZF15KE		3.4	4.2	5.9	8.1	9.2	11.7	MC-M8-ZF15KE		3.3	3.5	4.0	4.7	5.1	6.0
MC-H8-ZF15KE		3.3	4.0	5.6	7.4	8.4		MC-H8-ZF15KE		3.4	3.7	4.3	5.0	5.5	
MC-M8-ZF18KE		3.9	4.8	6.8	9.2	10.5	13.3	MC-M8-ZF18KE		4.0	4.3	4.8	5.5	5.9	6.8
MC-M9-ZF18KE		4.0	5.0	7.2	9.8	11.3	14.6	MC-M9-ZF18KE		4.0	4.2	4.6	5.2	5.6	6.4
MC-S9-ZF18KE		4.2	5.2	7.6	10.6	12.4	16.5	MC-S9-ZF18KE		3.8	4.0	4.4	4.9	5.2	5.9
MC-S9-ZF25K5		5.3	6.5	9.3	13.0	15.1	19.8	MC-S9-ZF25K5		4.2	4.5	5.2	6.1	6.5	7.5
MC-S9-ZF34K5		6.7	8.3	11.9	16.1	18.5		MC-S9-ZF34K5		5.6	6.0	7.1	8.3	9.1	
MC-V6-ZF41K5		8.6	10.6	15.4	21.4	24.8	32.6	MC-V6-ZF41K5		7.0	7.5	8.7	10.1	10.8	12.4
MC-V6-ZF49K5		10.2	12.5	18.1	24.8	28.7		MC-V6-ZF49K5		8.4	8.9	10.3	12.1	13.1	
Digital Medium Temperature Models															
MC-M8-ZBD30				5.0	6.9	8.0	10.5	MC-M8-ZBD30				3.0	3.4	3.6	4.0
MC-M9-ZBD45				7.1	9.8	11.4	14.6	MC-M9-ZBD45				4.5	5.2	5.6	6.4
MC-V6-ZBDT60				10.4	14.9	17.6	23.6	MC-V6-ZBDT60				6.3	6.7	7.0	7.5
MC-V6-ZBDT90				14.1	20.4	24.1	32.5	MC-V6-ZBDT90				9.6	10.4	10.8	11.9

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
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Capacity Data

Ambient Temperature: 32°C															
R407C	Cooling Capacity (kW)							R407C	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
MC-D8-ZB15KE				1.8*	3.0	3.6	5.1	MC-D8-ZB15KE				1.6*	1.6	1.7	1.8
MC-H8-ZB15KE				1.9*	3.2	3.9	5.6	MC-H8-ZB15KE				1.6*	1.6	1.6	1.7
MC-H8-ZB19KE				2.2*	3.5	4.3	6.3	MC-H8-ZB19KE				1.7*	1.8	1.9	2.0
MC-D8-ZB19KE				2.0*	3.2*	4.0	5.7	MC-D8-ZB19KE				1.7*	1.9*	2.0	2.2
MC-K9-ZB19KE				2.2*	3.5	4.3	6.3	MC-K9-ZB19KE				1.7*	1.8	1.9	2.0
MC-H8-ZB21KE				2.9*	4.6	5.5	7.8	MC-H8-ZB21KE				2.1*	2.3	2.4	2.6
MC-K9-ZB21KE				2.8*	4.6	5.5	7.7	MC-K9-ZB21KE				2.1*	2.3	2.4	2.6
MC-D8-ZB21KE				2.6*	4.0*	4.9*	6.8	MC-D8-ZB21KE				2.2*	2.5*	2.6*	3.0
MC-H8-ZB26KE				3.3*	5.1*	6.3	8.8	MC-H8-ZB26KE				2.5*	2.7*	2.9	3.2
MC-K9-ZB26KE				3.3*	5.1*	6.2	8.7	MC-K9-ZB26KE				2.5*	2.7*	2.9	3.2
MC-M8-ZB30KE				4.2*	6.2*	7.5	10.4	MC-M8-ZB30KE				2.8*	3.2*	3.3	3.7
MC-H8-ZB30KE				4.0*	5.9*	7.1	9.7	MC-H8-ZB30KE				3.0*	3.4*	3.6	4.0
MC-P8-ZB30KE				4.2*	6.3	7.5	10.5	MC-P8-ZB30KE				2.8*	3.1	3.3	3.6
MC-M8-ZB38KE				4.9*	7.5*	9.1	12.3	MC-M8-ZB38KE				3.6*	3.9*	4.2	4.7
MC-H8-ZB38KE					7.0*	8.4*	11.4	MC-H8-ZB38KE					4.3*	4.5*	5.3
MC-P8-ZB38KE				4.9*	7.5*	9.1	12.5	MC-P8-ZB38KE				3.6*	3.9*	4.1	4.6
MC-R7-ZB42KE**				5.7*	8.8	10.5	14.7	MC-R7-ZB42KE**				4.3*	4.6	4.7	4.8
MC-M8-ZB42KE**				5.3*	7.9*	9.4*	13.0	MC-M8-ZB42KE**				4.5*	4.9*	5.1*	5.6
MC-R7-ZB45KE				5.8*	9.1	11.1	15.5	MC-R7-ZB45KE				4.1*	4.5	4.7	5.1
MC-M8-ZB45KE				5.4*	8.2*	9.8*	13.8	MC-M8-ZB45KE				4.3*	4.8*	5.1*	5.9
MC-M9-ZB45KE				5.6*	8.7*	10.7	14.8	MC-M9-ZB45KE				4.2*	4.6*	4.9	5.5
MC-S9-ZB50KE				6.3*	10.5	12.8	17.8	MC-S9-ZB50KE				4.9*	5.2	5.4	6.0
MC-R7-ZB50KE				5.9*	10.0	12.3	17.1	MC-R7-ZB50KE				5.1*	5.5	5.7	6.3
MC-V9-ZB66KE				9.0*	13.8	16.5	23.0	MC-V9-ZB66KE				5.8*	6.4	6.7	7.3
MC-S9-ZB66KE					13.3	15.9	22.0	MC-S9-ZB66KE					6.7	7.1	7.9
MC-V6-ZB76KE				10.4*	16.3	19.7	27.6	MC-V6-ZB76KE				6.9*	7.5	7.7	8.5
MC-V9-ZB76KE				10.0*	15.6	18.7	26.0	MC-V9-ZB76KE				6.9*	7.7	8.1	9.1
MC-W9-ZB114KE				13.6*	22.2	26.9	37.7	MC-W9-ZB114KE				10.7*	11.9	12.5	14.0

Suction Gas Return 20°C / Subcooling 0K
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Capacity Data

Ambient Temperature: 32°C															
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
MC-D8-ZB15KE				1.4	2.2	2.7	3.9	MC-D8-ZB15KE				1.0	1.0	1.1	1.2
MC-H8-ZB15KE				1.4	2.3	2.8	4.1	MC-H8-ZB15KE				1.1	1.1	1.1	1.2
MC-H8-ZB19KE				1.6	2.6	3.2	4.7	MC-H8-ZB19KE				1.2	1.3	1.3	1.4
MC-K9-ZB19KE				1.6	2.6	3.2	4.7	MC-K9-ZB19KE				1.2	1.2	1.3	1.3
MC-D8-ZB19KE				1.6	2.5	3.1	4.4	MC-D8-ZB19KE				1.1	1.2	1.3	1.4
MC-H8-ZB21KE				2.1	3.2	4.0	5.7	MC-H8-ZB21KE				1.5	1.5	1.6	1.7
MC-K9-ZB21KE				2.1	3.2	4.0	5.8	MC-K9-ZB21KE				1.4	1.5	1.6	1.7
MC-D8-ZB21KE				1.9*	3.1	3.7	5.3	MC-D8-ZB21KE				1.4*	1.5	1.6	1.8
MC-H8-ZB26KE				2.3	3.7	4.5	6.5	MC-H8-ZB26KE				1.7	1.8	1.8	2.0
MC-K9-ZB26KE				2.4	3.7	4.5	6.5	MC-K9-ZB26KE				1.6	1.7	1.8	1.9
MC-M8-ZB30KE				2.8	4.4	5.3	7.7	MC-M8-ZB30KE				1.9	2.0	2.0	2.2
MC-P8-ZB30KE				2.8	4.4	5.4	7.8	MC-P8-ZB30KE				1.8	1.9	2.0	2.1
MC-H8-ZB30KE				2.7	4.2	5.2	7.4	MC-H8-ZB30KE				1.9	2.0	2.1	2.3
MC-P8-ZB38KE				3.3	5.4	6.6	9.5	MC-P8-ZB38KE				2.2	2.4	2.5	2.7
MC-M8-ZB38KE				3.3	5.3	6.5	9.3	MC-M8-ZB38KE				2.2	2.4	2.5	2.8
MC-H8-ZB38KE				3.0*	5.1	6.3	8.9	MC-H8-ZB38KE				2.3*	2.6	2.7	3.0
MC-R7-ZB42KE**				3.9	6.1	7.5	10.8	MC-R7-ZB42KE**				2.8	2.9	2.9	2.9
MC-M8-ZB42KE**				3.8	5.9	7.1	10.1	MC-M8-ZB42KE**				2.8	2.9	3.0	3.1
MC-M8-ZB45KE				4.0	6.2	7.6	10.9	MC-M8-ZB45KE				2.7	2.9	3.0	3.3
MC-M9-ZB45KE				4.1	6.4	7.8	11.3	MC-M9-ZB45KE				2.7	2.9	3.0	3.3
MC-R7-ZB45KE				4.2	6.5	8.0	11.6	MC-R7-ZB45KE				2.8	2.9	3.0	3.2
MC-R7-ZB50KE				4.7	7.3	8.9	12.8	MC-R7-ZB50KE				3.4	3.5	3.7	4.0
MC-S9-ZB50KE				4.8	7.5	9.1	13.1	MC-S9-ZB50KE				3.3	3.4	3.5	3.8
MC-S9-ZB58KE				5.3	8.3	10.2	14.6	MC-S9-ZB58KE				3.7	3.8	4.0	4.3
MC-R7-ZB58KE				5.2	8.1	9.9	14.1	MC-R7-ZB58KE				3.8	4.0	4.1	4.5
MC-S9-ZB66KE				6.1	9.4	11.4	16.4	MC-S9-ZB66KE				4.1	4.3	4.5	4.9
MC-V9-ZB66KE				6.2	9.5	11.6	16.7	MC-V9-ZB66KE				4.0	4.2	4.4	4.7
MC-V9-ZB76KE				7.0	10.8	13.1	18.8	MC-V9-ZB76KE				4.7	4.9	5.2	5.6
MC-V6-ZB76KE				7.1	11.1	13.6	19.6	MC-V6-ZB76KE				4.9	5.0	5.2	5.6
MC-V9-ZB95KE				8.3	13.3	16.2	22.9	MC-V9-ZB95KE				5.9	6.4	6.7	7.4
MC-V6-ZB95KE				8.6	13.8	16.9	24.2	MC-V6-ZB95KE				5.9	6.3	6.5	7.1
MC-V6-ZB114KE				9.9	16.1	19.8	28.4	MC-V6-ZB114KE				7.2	7.6	8.0	8.7
MC-W9-ZB114KE				9.9	16.2	20.0	28.7	MC-W9-ZB114KE				7.1	7.6	7.9	8.6
Digital Medium Temperature Models															
MC-M8-ZBD30				2.9	4.5	5.4	7.6	MC-M8-ZBD30				1.8	2.0	2.1	2.4
MC-M9-ZBD45				3.9*	6.4	7.7	11.0	MC-M9-ZBD45				2.6*	3.0	3.1	3.5
MC-V6-ZBDT60				5.8	9.1	11.1	16.0	MC-V6-ZBDT60				3.9	4.1	4.3	4.6
MC-V6-ZBDT90				8.4	13.0	15.9	22.9	MC-V6-ZBDT90				5.2	5.7	6.0	6.6

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
** Single Phase Only
Preliminary Data

Capacity Data

Ambient Temperature: 32°C															
R450A	Cooling Capacity (kW)							R450A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
MC-D8-ZB15KE				1.2	1.9	2.4	3.5	MC-D8-ZB15KE				0.9	0.9	0.9	0.9
MC-H8-ZB15KE				1.2	2.0	2.5	3.7	MC-H8-ZB15KE				1.0	1.0	1.0	1.0
MC-D8-ZB19KE				1.4	2.2	2.7	4.0	MC-D8-ZB19KE				1.1	1.1	1.1	1.2
MC-H8-ZB19KE				1.4	2.3	2.8	4.2	MC-H8-ZB19KE				1.1	1.1	1.1	1.2
MC-K9-ZB19KE				1.4	2.3	2.8	4.2	MC-K9-ZB19KE				1.1	1.1	1.1	1.2
MC-D8-ZB21KE				1.6*	2.8	3.4	4.9	MC-D8-ZB21KE				1.3*	1.3	1.4	1.5
MC-H8-ZB21KE				1.8	2.9	3.6	5.3	MC-H8-ZB21KE				1.3	1.4	1.4	1.4
MC-K9-ZB21KE				1.8	2.9	3.6	5.3	MC-K9-ZB21KE				1.3	1.3	1.3	1.4
MC-H8-ZB26KE				2.1	3.3	4.1	6.0	MC-H8-ZB26KE				1.5	1.6	1.6	1.7
MC-K9-ZB26KE				2.1	3.3	4.1	6.0	MC-K9-ZB26KE				1.5	1.5	1.6	1.7
MC-H8-ZB30KE				2.4	3.8	4.7	6.9	MC-H8-ZB30KE				1.8	1.8	1.8	1.9
MC-M8-ZB30KE				2.4	3.9	4.9	7.1	MC-M8-ZB30KE				1.7	1.7	1.8	1.8
MC-P8-ZB30KE				2.5	4.0	4.9	7.2	MC-P8-ZB30KE				1.7	1.7	1.7	1.8
MC-H9-ZB38KE				2.7*	4.6	5.7	8.2	MC-H9-ZB38KE				2.2*	2.3	2.4	2.6
MC-M8-ZB38KE				3.0	4.8	5.9	8.6	MC-M8-ZB38KE				2.1	2.2	2.2	2.4
MC-P8-ZB38KE				3.0	4.8	6.0	8.7	MC-P8-ZB38KE				2.1	2.1	2.2	2.3
MC-M8-ZB42KE**				3.3	5.3	6.5	9.4	MC-M8-ZB42KE**				2.4	2.5	2.5	2.7
MC-R7-ZB42KE**				3.4	5.5	6.8	10.0	MC-R7-ZB42KE**				2.5	2.5	2.6	2.7
MC-M8-ZB45KE				3.5	5.5	6.8	9.8	MC-M8-ZB45KE				2.5	2.5	2.6	2.8
MC-M9-ZB45KE				3.5	5.7	7.0	10.2	MC-M9-ZB45KE				2.6	2.6	2.7	2.8
MC-R7-ZB45KE				3.6	5.8	7.1	10.5	MC-R7-ZB45KE				2.6	2.6	2.7	2.8
MC-R7-ZB58KE				4.5	7.2	8.8	12.7	MC-R7-ZB58KE				3.3	3.6	3.8	4.1
MC-S9-ZB58KE				4.6	7.3	8.9	13.0	MC-S9-ZB58KE				3.3	3.5	3.7	4.0
MC-S9-ZB66KE				5.1	8.1	9.9	14.4	MC-S9-ZB66KE				3.6	3.9	4.1	4.5
MC-V9-ZB66KE				5.2	8.2	10.1	14.6	MC-V9-ZB66KE				3.6	3.9	4.0	4.4
MC-V6-ZB76KE				6.0	9.7	11.9	17.4	MC-V6-ZB76KE				4.4	4.7	4.9	5.2
MC-V9-ZB76KE				5.9	9.4	11.6	16.9	MC-V9-ZB76KE				4.1	4.5	4.7	5.2
MC-V6-ZB95KE				7.3	11.8	14.5	21.3	MC-V6-ZB95KE				5.4	5.7	6.0	6.7
MC-V9-ZB95KE				7.1	11.3	14.0	20.3	MC-V9-ZB95KE				5.3	5.7	6.0	6.8
MC-V6-ZB114KE				8.4	13.8	17.0	24.8	MC-V6-ZB114KE				6.5	7.0	7.3	8.1
MC-W9-ZB114KE				8.5	13.8	17.1	25.0	MC-W9-ZB114KE				6.5	7.0	7.3	8.0
Digital Medium Temperature Models															
MC-M8-ZBD30				2.5	4.0	4.9	7.1	MC-M8-ZBD30				1.5	1.7	1.8	2.0
MC-M9-ZBD45				3.6	5.8	7.1	10.2	MC-M9-ZBD45				2.3	2.6	2.7	3.0
MC-V6-ZBDT60				5.0	8.1	10.1	14.8	MC-V6-ZBDT60				3.5	3.6	3.7	4.0
MC-V6-ZBDT90				7.3	11.6	14.3	21.0	MC-V6-ZBDT90				4.8	5.1	5.2	5.7

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
** Single Phase Only
Preliminary Data

Capacity Data

Ambient Temperature: 32°C															
R513A	Cooling Capacity (kW)							R513A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Medium Temperature Models															
MC-D8-ZB15KE				1.4	2.3	2.8	4.0	MC-D8-ZB15KE				1.1	1.1	1.1	1.1
MC-H8-ZB15KE				1.5	2.4	2.9	4.2	MC-H8-ZB15KE				1.1	1.1	1.1	1.1
MC-D8-ZB19KE				1.6*	2.6	3.2	4.4	MC-D8-ZB19KE				1.2*	1.3	1.3	1.4
MC-H8-ZB19KE				1.8	2.8	3.3	4.8	MC-H8-ZB19KE				1.3	1.3	1.3	1.4
MC-K9-ZB19KE				1.8	2.8	3.4	4.8	MC-K9-ZB19KE				1.3	1.3	1.3	1.4
MC-D8-ZB21KE				2.0*	3.3	3.9	5.3	MC-D8-ZB21KE				1.5*	1.6	1.7	1.8
MC-H8-ZB21KE				2.3	3.5	4.2	5.9	MC-H8-ZB21KE				1.5	1.6	1.6	1.7
MC-K9-ZB21KE				2.3	3.5	4.2	5.9	MC-K9-ZB21KE				1.5	1.6	1.6	1.7
MC-H8-ZB26KE				2.5	3.9	4.7	6.8	MC-H8-ZB26KE				1.8	1.9	1.9	2.0
MC-K9-ZB26KE				2.5	3.9	4.8	6.8	MC-K9-ZB26KE				1.8	1.8	1.9	2.0
MC-H8-ZB30KE				2.7*	4.5	5.5	7.8	MC-H8-ZB30KE				2.0*	2.1	2.2	2.4
MC-M8-ZB30KE				3.0	4.6	5.7	8.2	MC-M8-ZB30KE				2.0	2.0	2.1	2.2
MC-P8-ZB30KE				3.0	4.7	5.8	8.3	MC-P8-ZB30KE				1.9	2.0	2.0	2.1
MC-H9-ZB38KE				3.2*	5.4	6.5	9.2	MC-H9-ZB38KE				2.6*	2.8	2.9	3.1
MC-M8-ZB38KE				3.4*	5.6	6.8	9.7	MC-M8-ZB38KE				2.5*	2.6	2.7	2.9
MC-P8-ZB38KE				3.7	5.7	7.0	10.0	MC-P8-ZB38KE				2.5	2.6	2.6	2.8
MC-M8-ZB42KE**				3.7*	6.2	7.6	10.7	MC-M8-ZB42KE**				2.8*	3.0	3.1	3.3
MC-R7-ZB42KE**				4.2	6.6	8.0	11.5	MC-R7-ZB42KE**				2.9	3.0	3.0	3.2
MC-M8-ZB45KE				3.9*	6.5	7.8	11.1	MC-M8-ZB45KE				2.9*	3.1	3.2	3.4
MC-M9-ZB45KE				4.3	6.7	8.1	11.6	MC-M9-ZB45KE				3.0	3.1	3.2	3.4
MC-R7-ZB45KE				4.4	6.8	8.3	12.0	MC-R7-ZB45KE				3.0	3.1	3.1	3.3
MC-R7-ZB58KE				5.5	8.4	10.2	14.4	MC-R7-ZB58KE				3.9	4.1	4.3	4.7
MC-S9-ZB58KE				5.5	8.6	10.5	14.9	MC-S9-ZB58KE				3.9	4.0	4.1	4.5
MC-S9-ZB66KE				6.2	9.6	11.6	16.4	MC-S9-ZB66KE				4.3	4.5	4.7	5.1
MC-V9-ZB66KE				6.3	9.7	11.8	16.8	MC-V9-ZB66KE				4.3	4.4	4.5	4.9
MC-V6-ZB76KE				7.4	11.5	14.0	20.2	MC-V6-ZB76KE				5.1	5.3	5.5	5.8
MC-V9-ZB76KE				7.2	11.2	13.6	19.3	MC-V9-ZB76KE				4.9	5.2	5.4	5.9
MC-V6-ZB95KE				8.9	14.0	17.1	24.3	MC-V6-ZB95KE				6.4	6.7	6.9	7.4
MC-V9-ZB95KE				8.6	13.4	16.2	22.8	MC-V9-ZB95KE				6.3	6.8	7.1	7.8
MC-V6-ZB114KE				10.1	16.3	19.9	28.1	MC-V6-ZB114KE				7.8	8.2	8.5	9.1
MC-W9-ZB114KE				10.2	16.4	20.0	28.3	MC-W9-ZB114KE				7.7	8.2	8.4	9.0
MC-V6-ZB114KE			10.2					MC-V6-ZB114KE							
Digital Medium Temperature Models															
MC-M8-ZBD30				3.0	4.7	5.7	8.1	MC-M8-ZBD30				1.8	2.0	2.1	2.3
MC-M9-ZBD45				4.4	6.8	8.2	11.6	MC-M9-ZBD45				2.7	3.0	3.2	3.6
MC-V6-ZBDT60				6.2	9.6	11.9	17.2	MC-V6-ZBDT60				4.0	4.2	4.3	4.6
MC-V6-ZBDT90				8.8	13.7	16.8	24.0	MC-V6-ZBDT90				5.6	6.0	6.2	6.7

Suction Gas Return 20°C / Subcooling 0K
*Suction Superheat 10K, Subcooling 0K
** Single Phase Only
Preliminary Data

Copeland Scroll Digital™ Receiver Unit HLR

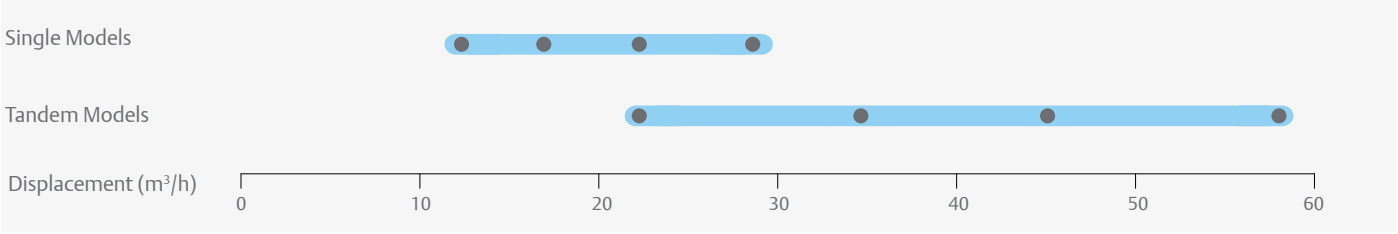
Copeland Scroll Digital Receiver Units are the perfect choice for remote condenser systems.

These Scroll Digital Receiver Units are an innovative offering by Emerson for food service and retail businesses. Their compact design and the power of Digital Scroll continuous capacity modulation allow for optimized environmental integration at highest system efficiency.

Eight models with single or tandem compressors cover the need of medium temperature refrigeration capacities in various applications. The continuous capacity modulation always provides the right performance, especially for systems with multiple evaporators and variable loads. The remote condenser concept allows for optimal building integration.

Digital Receiver Unit HLR

Digital Receiver Unit HLR Line-up



Features and Benefits

- Standard equipment: Digital Scroll compressor, liquid receiver, liquid line with filter drier and sight glass, HP/LP switch, complete electrical box including controller with overload protection and communication interface
- Continuous capacity modulation 10-100 % (Single) or 5-100 % (Tandem)
- Precise suction pressure control
- Maximum system flexibility by free choice of third party condensers
- Excellent energy efficiency
- High reliability
- Easy and quick installation
- Suitable for multiple refrigerants: R407A/F, R448A/R449A, R404A, R134a, R450A and R513A

Maximum Allowable Pressures (PS)

- Low Side PS 22.5 bar (g)
- High Side PS = 28/32 bar (g)

Technical Overview

Models	Displacement (m^3/h)	Receiver Capacity (l)	Suction Line Diameter (inch)	Liquid Line Diameter (inch)	Width/ Depth/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @1 m - dB(A)***	
							1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	Without Sound Shell	With Sound Shell
Single Compressor Unit Models														
HLR13-ZBD30KE	11.7	13	7/8	5/8	690/400/710	72	TFD		8		52		59	49
HLR13-ZBD45KE	17.1	13	7/8	5/8	690/400/710	75	TFD		12		74		61	51
HLR13-ZBD58KE	22.1	13	1 1/8	3/4	725/400/710	84	TFD		15		95		65	55
HLR13-ZBD76KE	28.8	13	1 3/8	3/4	725/400/710	90	TFD		20		118		66	56
Tandem Compressor Unit Models														
HLR31-ZBDT60KE	23.4	31	1 3/8	7/8	970/480/910	130	TFD		8+8		52 + 52		62	-
HLR31-ZBDT90KE	34.1	31	1 3/8	7/8	970/480/910	138	TFD		12 + 12		74 + 74		64	-
HLR31-ZBDT116KE	44.2	31	1 5/8	1 1/8	970/480/870	165	TFD		15 + 15		95 + 95		68	-
HLR31-ZBDT152KE	58.2	31	1 5/8	1 3/8	970/480/870	175	TFD		20 + 20		118 + 118		69	-

Capacity Data

Condensing Temperature: 40°C															
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Single Compressor Unit Models															
HLR13-ZBD30KCE				4.0*	6.8	8.4	12.4	HLR13-ZBD30KCE				3.2*	3.1	3.2	3.2
HLR13-ZBD45KCE				5.5*	9.4	11.7	17.2	HLR13-ZBD45KCE				4.4*	4.3	4.4	4.4
Tandem Compressor Unit Models															
HLR31-ZBDT60KCE				8.0*	13.6	16.8	24.6	HLR31-ZBDT60KCE				6.2*	6.2	6.2	6.3
HLR31-ZBDT90KCE				11.4*	18.9	23.2	34.1	HLR31-ZBDT90KCE				8.7*	8.8	8.8	8.8

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Suction Superheat 10K
Preliminary Data

Condensing Temperature: 40°C															
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
HLR13-ZBD30KCE			2.8*	4.8	7.3	8.8	12.8	HLR13-ZBD30KCE			2.0*	2.5	2.8	2.9	3.1
HLR13-ZBD45KCE				6.4*	10.8	13.2	18.9	HLR13-ZBD45KCE				3.7*	4.1	4.3	4.6
HLR31-ZBDT60KCE				8.9*	14.5	17.7	25.7	HLR31-ZBDT60KCE				5.4*	5.7	5.8	6.0
HLR31-ZBDT90KCE				12.4*	21.2	26.1	37.9	HLR31-ZBDT90KCE				7.8*	8.4	8.5	8.8

Conditions: EN12900: Condensing Temperature 45°C, Suction Gas Return 20°C, Subcooling 0K
*Conditions: EN12900: Condensing Temperature 45°C, Suction Superheat 10K

Condensing Temperature: 40°C															
R448A	Cooling Capacity (kW)							R448A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Single Compressor Unit Models															
HLR13-ZBD30KCE				4.1*	6.8	8.3	12.1	HLR13-ZBD30KCE				2.7*	3.0	3.1	3.4
HLR13-ZBD45KCE				6.0*	10.0	12.2	17.7	HLR13-ZBD45KCE				3.8*	4.2	4.4	4.8
Tandem Compressor Unit Models															
HLR31-ZBDT60KCE				8.2*	13.5	16.6	24.2	HLR31-ZBDT60KCE				5.4*	5.9	6.2	6.8
HLR31-ZBDT90KCE				12.0*	20	24.4	35.4	HLR31-ZBDT90KCE				7.6*	8.4	8.8	9.6
HLR31-ZBDT116KCE				13.7*	25.5	31.7	46.2	HLR31-ZBDT116KCE				11.9*	11.8	11.9	12.1
HLR31-ZBDT152KCE				19.8*	34.9	43.10	62.5	HLR31-ZBDT152KCE				15.8*	16.0	16.10	16.5

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Suction Superheat 10K
Preliminary Data

Capacity Data

Condensing Temperature: 40°C														
R449A	Cooling Capacity (kW)							R449A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Single Compressor Unit Models															
HLR13-ZBD30KCE				4.1*	6.8	8.3	12.1	HLR13-ZBD30KCE				2.7*	3.0	3.1	3.4
HLR13-ZBD45KCE				6.0*	10.0	12.2	17.7	HLR13-ZBD45KCE				3.8*	4.2	4.4	4.8
Tandem Compressor Unit Models															
HLR31-ZBDT60KCE				8.2*	13.5	16.6	24.2	HLR31-ZBDT60KCE				5.4*	5.9	6.2	6.8
HLR31-ZBDT90KCE				11.9*	20.0	24.4	35.4	HLR31-ZBDT90KCE				7.6*	8.4	8.8	9.6
HLR31-ZBDT116KCE				13.7*	25.5	31.7	46.2	HLR31-ZBDT116KCE				11.9*	11.8	11.9	12.1
HLR31-ZBDT152KCE				19.7*	34.9	43.10	62.5	HLR31-ZBDT152KCE				15.8*	16.0	16.10	16.5

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Suction Superheat 10K
Preliminary Data

Condensing Temperature: 45°C														
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
	-45	-35	-30	-20	-10	-5	+5		-45	-35	-30	-20	-10	-5	+5
Single Compressor Unit Models															
HLR13-ZBD30KCE			2.7*	4.8	7.0	8.4	11.8	HLR13-ZBD30KCE			2.4*	2.9	3.1	3.2	3.5
HLR13-ZBD45KCE			3.4*	6.6	10.2	12.5	18.0	HLR13-ZBD45KCE			4.4*	4.6	4.8	4.9	5.2
HLR13-ZBD58KCE				8.6	13.5	16.3	22.9	HLR13-ZBD58KCE				6.4	6.4	6.4	6.4
HLR13-ZBD76KCE				11.8	17.9	21.4	30.2	HLR13-ZBD76KCE				8.1	8.3	8.3	8.4
Tandem Compressor Unit Models															
HLR31-ZBDT60KCE			5.4*	9.6	14.1	16.9	23.6	HLR31-ZBDT60KCE			4.9*	5.8	6.3	6.5	6.9
HLR31-ZBDT90KCE			7.0*	13.4	20.3	24.5	35.0	HLR31-ZBDT90KCE			9.2*	9.4	9.6	9.7	9.9
HLR31-ZBDT116KE			6.4*	17.0	26.7	32.4	45.8	HLR31-ZBDT116KE			13.1*	12.7	12.7	12.7	12.8
HLR31-ZBDT152KE				23.7	35.7	42.9	60.3	HLR31-ZBDT152KE				16.2	16.4	16.5	16.8

Conditions: EN12900: Condensing Temperature 45°C, Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN12900: Condensing Temperature 45°C, Suction Superheat 10K

Condensing Temperature: 40°C														
R407C	Cooling Capacity (kW)							R407C	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Single Compressor Unit Models															
HLR13-ZBD30KCE					6.2	7.6	11.1	HLR13-ZBD30KCE					3.0	3.0	3.0
HLR13-ZBD45KCE					8.9	11.1	16.5	HLR13-ZBD45KCE					4.1	4.1	4.2
Tandem Compressor Unit Models															
HLR31-ZBDT60KCE					12.2*	15.2	22.2	HLR31-ZBDT60KCE					6.0*	6.0	6.1
HLR31-ZBDT90KCE					17.5*	22.2	32.9	HLR31-ZBDT90KCE					8.3*	8.3	8.4

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Suction Superheat 10K

Capacity Data

Condensing Temperature: 40°C															
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Single Compressor Unit Models															
HLR13-ZBD30KCE					4.3	5.2	7.5	HLR13-ZBD30KCE					1.9	2.0	2.2
HLR13-ZBD45KCE					6.0	7.5	11.2	HLR13-ZBD45KCE					2.7	2.9	3.1
HLR13-ZBD58KCE					7.8	9.7	14.4	HLR13-ZBD58KCE					3.8	3.8	3.9
HLR31-ZBD76KCE					10.2	12.7	18.9	HLR31-ZBD76KCE					4.9	5.0	5.1
Tandem Compressor Unit Models															
HLR31-ZBDT60KCE					8.3	10.3	15.2	HLR31-ZBDT60KCE					3.9	4.0	4.2
HLR31-ZBDT90KCE					12.1	15.1	22.6	HLR31-ZBDT90KCE					5.5	5.6	5.9
HLR31-ZBDT116KCE					15.6	19.4	28.8	HLR31-ZBDT116KCE					7.5	7.6	7.8
HLR31-ZBDT152KCE					20.4	25.3	37.8	HLR31-ZBDT152KCE					9.8	9.9	10.2

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
Preliminary Data

Condensing Temperature: 40°C															
R450A	Cooling Capacity (kW)							R450A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Single Compressor Unit Models															
HLR13-ZBD30KCE				2.0*	3.6	4.6	6.9	HLR13-ZBD30KCE				1.5*	1.6	1.7	1.8
HLR13-ZBD45KCE				3.0*	5.4	6.7	10.2	HLR13-ZBD45KCE				2.2*	2.4	2.5	2.8
Tandem Compressor Unit Models															
HLR31-ZBDT60KCE				4.1*	7.3	9.1	13.8	HLR31-ZBDT60KCE				3.0*	3.2	3.3	3.6
HLR31-ZBDT90KCE				5.9*	10.8	13.5	20.3	HLR31-ZBDT90KCE				4.4*	4.7	4.9	5.3

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
Preliminary Data

Condensing Temperature: 40°C															
R513A	Cooling Capacity (kW)							R513A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
Single Compressor Unit Models															
HLR13-ZBD30KCE				2.5*	4.3	5.4	8.0	HLR13-ZBD30KCE				1.8*	1.9	2.0	2.1
HLR13-ZBD45KCE				3.6*	6.4	7.9	11.9	HLR13-ZBD45KCE				2.6*	2.8	2.9	3.1
Tandem Compressor Unit Models															
HLR31-ZBDT60KCE				5.0*	8.7	10.8	16.0	HLR31-ZBDT60KCE				3.5*	3.9	4.0	4.2
HLR31-ZBDT90KCE				7.3*	12.8	15.9	23.7	HLR31-ZBDT90KCE				5.1*	5.6	5.8	6.3

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
Preliminary Data

Semi-Hermetic Refrigeration Units K/L Compressors

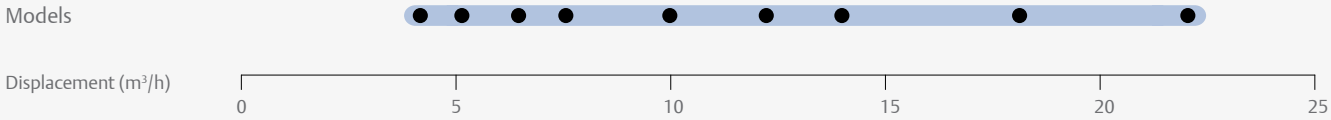
Copeland™ air-cooled indoor refrigeration units for medium temperature and low temperature applications.

Long-term engineering and manufacturing experience has led to these refrigeration units with reed valve technology compressors. Their excellent quality and reliability is traditionally well known in the refrigeration industry.

This series of refrigeration units is equipped with single fan or twin fans which allows for very compact dimensions. The wide range of models offers solutions for most applications including operation in extreme conditions like high evaporation temperatures and high ambient temperatures.

Semi-Hermetic Refrigeration Unit K/L Compressors

Semi-Hermetic K & L Refrigeration Units Line-up



Features and Benefits

- Standard equipment: compressor, condenser with thermally protected fan(s), discharge line with flexible pipe loop or vibration absorber, liquid receiver with shut-off-valve, HP/LP switch with automatic reset
- Suitable for a broad range of refrigerants: R407A/F, R404A and R134a
- Wide range of quality accessories
- Proven reliability

Maximum Allowable Pressures (PS)

- Low Side PS 22.5 bar (g)
- High Side PS = 28 bar (g)

Technical Overview

Models	Displacement (m^3/h)	Receiver Capacity (l)	Number of fans	Total Fan Motor Power (W)	Suction Line Diameter (inch)	Liquid Line Diameter (inch)	Width/Depth/ Height (mm)	Net Weight (kg)	Motor Version/ Code		Maximum Operating Current (A)		Locked Rotor Current (A)		Sound Pressure @10m - dB(A)***
									1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
B8-KJ-10X-B	3.3	3.3	1	85	5/8	1/2	560/570/396	57.5	CAG	EWL	7	3	32	16	39.0
B8-KJ-7X-B	3.3	3.3	1	85	5/8	1/2	560/570/396	57.5	CAG	EWL	6	2	35	12	
B8-KL-15X-B	3.3	3.3	1	85	5/8	1/2	560/570/396	57.5	CAG	EWL	8	3	43	19	39.5
B8-KM-5X-B	3.3	3.3	1	85	5/8	1/2	560/570/396	56.0	CAG	EWL	5	2	24	12	39.0
B8-KM-7X-B	3.3	3.3	1	85	1/2	1/2	560/570/396	57.5	CAG	EWL	6	2	35	12	
B8-KSJ-10X-B	3.3	3.3	1	85	5/8	1/2	560/570/396	58.5	CAG	EWL	7	3	32	16	
D8-KSJ-15X-B	3.9	3.9	1	110	7/8	1/2	560/570/446	62.0	CAG	EWL	9	3	43	19	45.6
D8-KSL-20X-B	3.9	3.9	1	110	5/8	1/2	560/570/446	60.0		EWL		5		23	
D8-LE-20X-B	3.9	3.9	1	110	5/8	1/2	560/715/446	96.5		EWL		6		38	
D8-LF-20X-B	3.9	3.9	1	110	5/8	1/2	560/715/446	98.5		EWL		6		38	
H8-KSL-20X-B	7.9	7.9	1	235	5/8	1/2	735/680/533	60.0		EWL		5		23	
H8-LE-20X-B	7.9	7.9	1	235	7/8	1/2	735/680/533	108.0		EWL		6		38	
H8-LF-30X-B	7.9	7.9	1	235	7/8	1/2	735/680/533	108.0		EWL		7		51	48.5
H8-LJ-20X-B	7.9	7.9	1	235	7/8	1/2	735/680/533	103.0		EWL		6		38	
H8-LJ-30X-B	7.9	7.9	1	235	7/8	1/2	735/680/533	108.0		EWL		7		51	48.5
H8-LL-30X-B	7.9	7.9	1	235	1 1/8	1/2	735/680/533	110.0		EWL		7		53	48.5
H8-LL-40X-B	7.9	7.9	1	235	1 1/8	1/2	735/680/533	112.0		EWL		10		59	48.6
H8-LSG-40X-B	7.9	7.9	1	235	1 1/8	1/2	735/680/533	116.0		EWL		9		69	
K9-LL-30X-B	7.9	7.9	2	220	1 1/8	1/2	950/640/454	134.0		EWL		7		53	47.2
K9-LSG-40X-B	7.9	7.9	2	220	1 1/8	1/2	950/640/454	131.0		EWL		9		69	50.9
P8-LF-30X-B	7.9	7.9	2	220	1 1/8	1/2	950/640/633	127.0		EWL		7		51	47.8
P8-LJ-30X-B	7.9	7.9	2	220	7/8	1/2	950/640/633	127.0		EWL		7		51	47.8
P8-LL-40X-B	7.9	7.9	2	220	1 1/8	1/2	950/640/633	128.0		EWL		10		59	48.0

* 1ph: 230V/ 50Hz
** 3 Ph: 380-420V/ 50Hz
*** @ 10m: sound pressure level at 10m distance from the compressor, free field condition

Capacity Data

Ambient Temperature: 32°C														
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
B8-KM-5X-B		0.5	0.7	1.2				B8-KM-5X-B		0.5	0.6	0.7			
B8-KM-7X-B		0.5	0.7	1.2	1.8	2.2	3.0	B8-KM-7X-B		0.6	0.6	0.8	0.9	1.0	1.2
B8-KJ-7X-B		0.7	0.9	1.5				B8-KJ-7X-B		0.7	0.8	1.0			
B8-KJ-10X-B		0.7	0.9	1.5	2.3	2.7		B8-KJ-10X-B		0.6	0.7	0.9	1.2	1.4	
D8-KSJ-15X-B		0.9	1.2	2.0	3.0	3.6		D8-KSJ-15X-B		0.9	1.0	1.3	1.5	1.7	
B8-KSJ-10X-B		0.9	1.2	1.9				B8-KSJ-10X-B		0.9	1.0	1.3			
B8-KL-15X-B		1.0	1.3	2.1				B8-KL-15X-B		1.0	1.1	1.4			
D8-LE-20X-B		0.9	1.4	2.6	4.1	5.0		D8-LE-20X-B		0.9	1.1	1.5	2.0	2.2	
H8-LE-20X-B		0.9	1.5	2.8	4.6	5.6	7.9	H8-LE-20X-B		1.0	1.2	1.6	2.1	2.3	2.7
H8-LF-30X-B		1.3	2.0	3.7	5.9	7.1		H8-LF-30X-B		1.4	1.6	2.2	2.8	3.1	
P8-LF-30X-B		1.4	2.1	3.9	6.2	7.5	10.6	P8-LF-30X-B		1.3	1.6	2.2	2.7	3.0	3.6
D8-LF-20X-B		1.3	1.8	3.2				D8-LF-20X-B		1.2	1.5	2.0			
P8-LJ-30X-B		1.9	2.6	4.5	6.9	8.3		P8-LJ-30X-B		1.7	1.9	2.6	3.2	3.6	
H8-LJ-20X-B		1.6	2.3	4.2				H8-LJ-20X-B		1.5	1.8	2.5			
H8-LJ-30X-B		1.8	2.6	4.3	6.6	7.9		H8-LJ-30X-B		1.7	2.0	2.6	3.3	3.7	
H8-LL-40X-B		2.1	3.1	5.3	8.0	9.5		H8-LL-40X-B		1.9	2.2	3.1	4.1	4.6	
H8-LL-30X-B		2.1	3.0	5.2				H8-LL-30X-B		1.8	2.2	3.1			
P8-LL-40X-B		2.2	3.2	5.6	8.6	10.4		P8-LL-40X-B		1.9	2.2	3.1	4.0	4.5	
K9-LSG-40X-B		2.7	3.8	6.3				K9-LSG-40X-B		2.3	2.7	3.8			

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

Capacity Data

Ambient Temperature: 32°C															
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
B8-KM-7X-B	0.3	0.6	0.8	1.3	1.9	2.2	3.0	B8-KM-7X-B	0.4	0.6	0.7	0.8	1.0	1.1	1.3
B8-KM-5X-B	0.3	0.6	0.8	1.3				B8-KM-5X-B	0.5	0.6	0.6	0.8			
B8-KJ-7X-B	0.4	0.8	1.1	1.7				B8-KJ-7X-B	0.6	0.8	0.9	1.1			
B8-KJ-10X-B	0.4	0.8	1.1	1.7	2.4	2.8	3.6	B8-KJ-10X-B	0.5	0.8	0.9	1.1	1.4	1.5	1.8
D8-KSJ-15X-B	0.6	1.1	1.4	2.2	3.2	3.8		D8-KSJ-15X-B	0.7	1.0	1.1	1.4	1.8	1.9	
B8-KSJ-10X-B	0.6	1.1	1.3					B8-KSJ-10X-B	0.8	1.0	1.2				
B8-KL-15X-B	0.7	1.2	1.5	2.3				B8-KL-15X-B	0.9	1.1	1.3	1.6			
H8-KSL-20X-B	0.9	1.7	2.2	3.3	4.8	5.7		H8-KSL-20X-B	1.1	1.5	1.7	2.1	2.6	2.8	
D8-KSL-20X-B	0.9	1.6	2.0	3.1	4.3			D8-KSL-20X-B	1.0	1.3	1.5	2.0	2.6		
H8-LE-20X-B		1.3	1.9	3.2	4.8	5.8	7.8	H8-LE-20X-B		1.2	1.4	1.9	2.3	2.5	3.0
D8-LE-20X-B		1.2	1.7	2.9	4.3	5.0		D8-LE-20X-B		1.1	1.3	1.7	2.2	2.5	
H8-LF-30X-B	0.9	2.1	2.7	4.4	6.3	7.4		H8-LF-30X-B	1.3	1.9	2.1	2.7	3.3	3.6	
P8-LF-30X-B	1.0	2.1	2.9	4.7	6.9	8.2	11.1	P8-LF-30X-B	1.3	1.9	2.1	2.6	3.2	3.4	4.0
D8-LF-20X-B		1.7	2.2	3.5				D8-LF-20X-B		1.5	1.8	2.4			
H8-LJ-20X-B		2.1	2.9					H8-LJ-20X-B		1.8	2.2				
P8-LJ-30X-B	1.1	2.4	3.2	5.1	7.5	8.9	11.9	P8-LJ-30X-B	1.4	2.0	2.3	3.0	3.6	4.0	4.6
H8-LJ-30X-B	1.1	2.3	3.0	4.7	6.8	7.9		H8-LJ-30X-B	1.4	2.0	2.4	3.0	3.8	4.2	
H8-LL-40X-B	1.4	2.8	3.6	5.7	8.1	9.4		H8-LL-40X-B	1.7	2.4	2.8	3.7	4.7	5.3	
H8-LL-30X-B	1.2	2.7	3.6	5.7				H8-LL-30X-B	1.5	2.2	2.7	3.6			
P8-LL-40X-B	1.4	2.9	3.9	6.2	9.1	10.8		P8-LL-40X-B	1.7	2.4	2.8	3.6	4.5	5.0	
K9-LL-30X-B	1.2	2.7	3.6	5.7				K9-LL-30X-B	1.5	2.2	2.6	3.6			
H8-LSG-40X-B	1.7	3.4	4.4	6.7				H8-LSG-40X-B	1.9	2.8	3.3	4.5			
K9-LSG-40X-B	1.7	3.4	4.4	6.7				K9-LSG-40X-B	1.9	2.8	3.3	4.5			

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

Ambient Temperature: 32°C															
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
B8-KM-5X-B				0.8	1.2	1.5	2.2	B8-KM-5X-B				0.6	0.6	0.6	0.6
B8-KJ-7X-B				1.0	1.6	1.9	2.8	B8-KJ-7X-B				0.8	0.8	0.8	0.8
B8-KSJ-10X-B				1.2	1.9	2.4	3.4	B8-KSJ-10X-B				0.8	0.9	1.0	0.8
B8-KL-15X-B				1.4	2.2	2.6	3.7	B8-KL-15X-B				0.9	1.2	1.3	1.2
D8-KSL-20X-B				1.8	2.9	3.5	5.0	D8-KSL-20X-B				1.1	1.4	1.5	1.8
H8-KSL-20X-B				1.9	3.0	3.7	5.4	H8-KSL-20X-B				1.2	1.5	1.6	1.8
D8-LE-20X-B				1.6	2.7	3.4	4.9	D8-LE-20X-B				1.4	1.4	1.4	1.4
H8-LE-20X-B				1.7	2.9	3.6	5.4	H8-LE-20X-B				1.5	1.5	1.5	1.5
D8-LF-20X-B				2.2	3.6	4.4	6.2	D8-LF-20X-B				1.7	1.7	1.7	1.7
H8-LJ-20X-B				2.7	4.3	5.2	7.5	H8-LJ-20X-B				2.2	2.2	2.2	2.2
H8-LL-30X-B				3.2	5.2	6.4	9.2	H8-LL-30X-B				2.1	2.1	2.1	2.1
K9-LL-30X-B				3.2	5.3	6.5	9.3	K9-LL-30X-B				2.1	2.6	2.1	2.1
H8-LSG-40X-B				4.2	6.5	7.9	11.0	H8-LSG-40X-B				3.2	3.2	3.2	3.2
K9-LSG-40X-B				4.2	6.6	8.0	11.1	K9-LSG-40X-B				2.5	3.2	3.6	3.6

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

Refrigeration Units With Semi-Hermetic Discus™ Compressors

Copeland™ air-cooled indoor refrigeration units for medium temperature and low temperature applications.

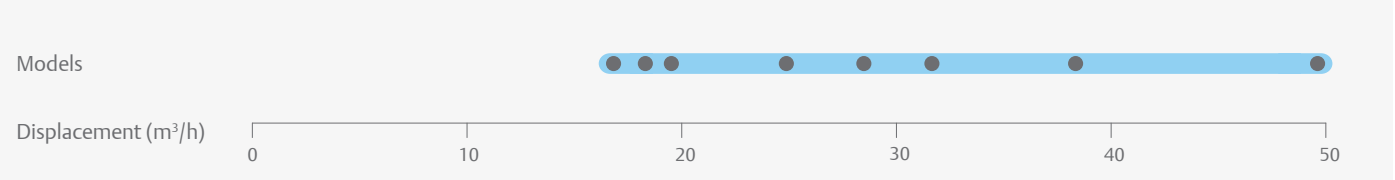
In a further approach to improve compressor performance and reduce compression losses, Emerson engineers developed the Discus valve technology.

This series of refrigeration units is equipped with 2 or 3 cylinder semi-hermetic compressors with Discus valve technology. The models are specifically suitable for those applications where high efficiency and low energy consumption is required.

The wide range of compressor models combined with 2 or 4 fan high capacity condensers covers most application needs of low temperature and medium temperature applications.

Refrigeration Units with Semi-Hermetic Discus Compressors

Discus Refrigeration Units Line-up



Features and Benefits

- Standard equipment: Discus compressor, condenser with thermally protected fan(s), discharge line with flexible pipe loop or vibration absorber, liquid receiver with shut-off-valve, HP/LP switch with automatic reset, oil pressure safety control OPS2
- Suitable for multiple refrigerants: R407A/F, R448A/R449A, R404A, R134a, R450A and R513A
- Wide range of quality accessories
- Excellent efficiency
- Proven reliability

Maximum Allowable Pressures (PS)

- Low Side PS 22.5 bar (g)
- High Side PS = 28 bar (g)

Technical Overview

Model	Displacement (m^3/h)	Receiver Capacity (l)	Number of fans	Total Fan Motor Power (W)	Suction Line Diameter (inch)	Liquid Line Diameter (inch)	Width/Depth/ Height (mm)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @10m - dB(A)***
									3 Ph**	3 Ph**	3 Ph**	
P8-2DC-50X-B	17	11.7	2	220	1 3/8	5/8	950/740/633	186.0	AWM	9	55	
R7-2DD-50X-B	19	15.8	2	470	1 3/8	3/4	1130/820/633	196.0	AWM	10	55	
P8-2DL-75X-B	24	11.7	2	220	1 3/8	5/8	950/740/633		AWM	14	82	50.0
R7-2DL-75X-B	24	15.8	2	470	1 3/8	3/4	1130/820/708	205.0	AWM	14	82	
P8-2DB-50X-B	28	11.7	2	220	1 3/8	5/8	950/740/633	186.0	AWM	13	55	49.6
P8-2DB-75X-B	28	11.7	2	220	1 3/8	5/8	950/740/633	191.0	AWM	16	82	52.0
S9-2DB-75X-B	28	15.8	2	470	1 3/8	3/4	1130/820/708	212.0	AWM	16	82	
P8-3DA-50X-B	32	11.7	2	220	1 3/8	5/8	950/740/633	205.0	AWM	16	55	51.6
P8-3DA-75X-B	32	11.7	2	220	1 3/8	5/8	950/740/633	211.0	AWM	18	106	52.0
S9-3DA-75X-B	32	18.9	2	470	1 3/8	7/8	1330/820/835	259.0	AWM	18	106	
R7-3DC-100X-B	38	15.8	2	470	1 3/8	3/4	1129/820/633	234.0	AWM	21	121	56.0
R7-3DC-75X-B	38	15.8	2	470	1 3/8	3/4	1130/820/633	278.0	AWM	18	82	54.6
S9-3DS-100X-B	50	15.8	2	470	1 3/8	3/4	1130/820/708	239.0	AWM	24	121	54.0
S9-3DS-150X-B	50	15.8	2	470	1 3/8	3/4	1129/820/708	243.0	AWM	29	123	57.0

** 3 Ph: 380-420V/ 50Hz
*** @ 10m: sound pressure level at 10m distance from the compressor, free field condition

Capacity Data

Ambient Temperature: 32°C															
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
P8-2DC-50X-B		1.8	2.6	4.5	7.1	8.7	12.3	P8-2DC-50X-B		1.6	1.9	2.5	3.2	3.6	4.5
R7-2DD-50X-B		2.4	3.4	5.8	9.1	11.0	15.5	R7-2DD-50X-B		2.2	2.5	3.2	4.0	4.4	5.2
R7-2DL-75X-B				7.1	10.9	13.1	18.2	R7-2DL-75X-B				4.0	5.0	5.5	6.6
P8-2DB-75X-B				7.9	11.4	13.2		P8-2DB-75X-B				4.8	6.3	7.1	
S9-2DB-75X-B				8.7	13.2	15.7	21.4	S9-2DB-75X-B				4.9	6.1	6.8	8.1
P8-2DB-50X-B		3.3*	4.5*	7.9	11.3	13.2		P8-2DB-50X-B		3.0*	3.5*	4.7	6.2	7.1	
S9-3DA-75X-B				9.8	14.7	17.5	23.7	S9-3DA-75X-B				5.6	7.0	7.8	9.4
P8-3DA-50X-B		3.7*	5.0*	8.7	12.1	13.9		P8-3DA-50X-B		3.4*	4.1*	5.6	7.4	8.5	
P8-3DA-75X-B				8.5	12.2	14.2		P8-3DA-75X-B				5.5	7.2	8.2	
R7-3DC-75X-B		4.7*	6.3*	11.1	15.8	18.3		R7-3DC-75X-B		4.3*	5.1*	6.8	8.8	9.9	
V6-3DC-100X-B				12.6	19.1	22.9	31.5	V6-3DC-100X-B				6.6	8.2	9.0	10.6
R7-3DC-100X-B				11.1	16.2	18.9		R7-3DC-100X-B				6.5	8.5	9.6	
V6-3DS-150X-B				16.1	23.8	28.2	37.8	V6-3DS-150X-B				8.9	11.2	12.4	15.0
S9-3DS-100X-B		6.3*	8.5*	14.7	20.5	23.6		S9-3DS-100X-B		5.7*	6.7*	9.0	11.8	13.4	
W9-3DS-150X-B				16.3	24.2	28.7	38.8	W9-3DS-150X-B				8.8	11.1	12.3	14.7

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K

Ambient Temperature: 32°C															
R448A	Cooling Capacity (kW)							R448A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
P8-2DC-50X		1.7*	2.8	4.9	7.6	9.1	12.6	P8-2DC-50X		1.6*	2.0	2.7	3.4	3.8	4.6
R7-2DD-50X		2.0*	3.3	5.9	9.2	11.1	15.6	R7-2DD-50X		2.1*	2.5	3.3	4.1	4.5	5.3
P8-2DL-75X		2.6*	3.7*	6.7	10.1	12.0		P8-2DL-75X		2.5*	2.9*	3.8	4.9	5.6	
R7-2DL-75X		2.8*	4.2	7.1	11.0	13.4	18.8	R7-2DL-75X		2.8*	3.1	4.0	5.0	5.5	6.8
P8-2DB-50X		3.6*	4.8*	8.0	11.4	13.3		P8-2DB-50X		3.1*	3.6*	4.8	6.4	7.2	
P8-2DB-75X		3.7*	5.0*	8.2	11.7	13.5		P8-2DB-75X		3.2*	3.7*	5.0	6.4	7.3	
S9-2DB-75X		4.0*	5.4*	9.2	13.6	16.3	22.1	S9-2DB-75X		3.4*	3.9*	5.0	6.2	6.8	8.3
P8-3DA-50X		4.0*	5.2*	8.6	12.2			P8-3DA-50X		3.5*	4.1*	5.6	7.4		
P8-3DA-75X		3.8*	5.3*	9.0	13.0	15.1		P8-3DA-75X		3.6*	4.2*	5.7	7.4	8.3	
S9-3DA-75X		4.2*	5.9*	10.4	15.5	18.4	25.1	S9-3DA-75X		3.8*	4.4*	5.8	7.1	7.9	9.4
R7-3DC-100X		4.6*	6.6*	11.5	16.5	19.2		R7-3DC-100X		4.1*	4.8*	6.6	8.5	9.6	
V6-3DC-100X		5.2*	7.8	13.1	19.7	23.4	32.0	V6-3DC-100X		4.4*	5.2	6.7	8.2	9.1	10.8
R7-3DC-75X		5.1*	6.7*	11.0	15.8	18.4		R7-3DC-75X		4.5*	5.1*	6.8	8.7	9.8	
S9-3DS-100X		7.0*	9.0*	14.8	21.2			S9-3DS-100X		5.8*	6.8*	9.1	11.9		
S9-3DS-150X		7.3*	9.5*	15.3	21.2	24.3		S9-3DS-150X		6.1*	7.0*	9.3	11.9	13.3	
V6-3DS-150X		7.8*	10.3*	16.9	24.5	28.8	38.2	V6-3DS-150X		6.3*	7.2*	9.2	11.4	12.6	15.2
W9-3DS-150X		7.8*	10.4*	17.2	24.9	29.4	39.2	W9-3DS-150X		6.3*	7.2*	9.1	11.3	12.5	15.0

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

Capacity Data

Ambient Temperature: 32°C															
R449A	Cooling Capacity (kW)							R449A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
P8-2DC-50X		1.7*	2.8	4.9	7.6	9.1	12.6	P8-2DC-50X		1.6*	2.0	2.7	3.4	3.8	4.6
R7-2DD-50X		2.0*	3.3	5.9	9.2	11.1	15.6	R7-2DD-50X		2.1*	2.5	3.3	4.1	4.5	5.3
P8-2DL-75X		2.6*	3.7*	6.7	10.1	12.0		P8-2DL-75X		2.5*	2.9*	3.8	4.9	5.6	
R7-2DL-75X		2.8*	4.2	7.1	11.0	13.4	18.8	R7-2DL-75X		2.8*	3.1	4.0	5.0	5.5	6.8
P8-2DB-50X		3.6*	4.8*	8.0	11.4	13.3		P8-2DB-50X		3.1*	3.6*	4.8	6.4	7.2	
P8-2DB-75X		3.7*	4.9*	8.2	11.7	13.5		P8-2DB-75X		3.2*	3.7*	5.0	6.4	7.3	
S9-2DB-75X		4.0*	5.4*	9.2	13.6	16.3	22.1	S9-2DB-75X		3.4*	3.9*	5.0	6.2	6.8	8.3
P8-3DA-50X		4.0*	5.2*	8.6	12.2			P8-3DA-50X		3.5*	4.1*	5.6	7.4		
P8-3DA-75X		3.8*	5.2*	9.0	13.0	15.1		P8-3DA-75X		3.6*	4.2*	5.7	7.4	8.3	
S9-3DA-75X		4.2*	5.9*	10.4	15.5	18.4	25.1	S9-3DA-75X		3.8*	4.4*	5.8	7.1	7.9	9.4
R7-3DC-100X		4.6*	6.6*	11.5	16.5	19.2		R7-3DC-100X		4.1*	4.8*	6.6	8.5	9.6	
V6-3DC-100X		5.2*	7.8	13.1	19.7	23.4	32.0	V6-3DC-100X		4.4*	5.2	6.7	8.2	9.1	10.8
R7-3DC-75X		5.1*	6.6*	11.0	15.8	18.4		R7-3DC-75X		4.5*	5.1*	6.8	8.7	9.8	
S9-3DS-100X		6.9*	9.0*	14.8	21.2			S9-3DS-100X		5.8*	6.8*	9.1	11.9		
S9-3DS-150X		7.3*	9.5*	15.3	21.2	24.3		S9-3DS-150X		6.1*	7.0*	9.3	11.9	13.3	
V6-3DS-150X		7.8*	10.3*	16.9	24.5	28.8	38.2	V6-3DS-150X		6.3*	7.2*	9.2	11.4	12.6	15.2
W9-3DS-150X		7.8*	10.4*	17.2	24.9	29.4	39.2	W9-3DS-150X		6.3*	7.2*	9.1	11.3	12.5	15.0

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

Ambient Temperature: 32°C															
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
P8-2DC-50X-B		2.4	3.2	5.2	7.9	9.5	13.0	P8-2DC-50X-B		2.0	2.3	3.0	3.7	4.0	4.7
R7-2DD-50X-B		3.1	4.1	6.7	9.9	11.7	15.9	R7-2DD-50X-B		2.6	3.0	3.8	4.5	4.9	5.6
R7-2DL-75X-B		3.8	5.0	8.0	11.8	13.9	18.6	R7-2DL-75X-B		3.2	3.6	4.5	5.6	6.1	7.3
P8-2DB-75X-B		4.8	6.0	8.9	12.2	14.0		P8-2DB-75X-B		3.7	4.2	5.5	6.9	7.7	
S9-2DB-75X-B		5.1	6.5	10.0	14.2	16.7	21.9	S9-2DB-75X-B		3.9	4.4	5.6	6.9	7.6	8.9
P8-2DB-50X-B	2.0*	4.6	5.9	8.9	12.3			P8-2DB-50X-B	2.5*	3.4	4.0	5.4	7.0		
P8-3DA-50X-B	2.3*	5.4	6.7	9.6	12.9			P8-3DA-50X-B	2.9*	4.2	5.0	6.5	8.3		
P8-3DA-75X-B		5.0	6.5	9.8	13.5	15.4		P8-3DA-75X-B		4.1	4.8	6.4	8.1	9.0	
S9-3DA-75X-B		5.4	7.1	11.2	16.0	18.7	24.5	S9-3DA-75X-B		4.4	5.1	6.5	8.0	8.7	10.3
R7-3DC-75X-B	3.1*	6.7	8.4	12.1	16.2			R7-3DC-75X-B	3.9*	5.4	6.2	7.9	9.9		
R7-3DC-100X-B		6.3	8.2	12.3	16.6	18.9		R7-3DC-100X-B		5.1	5.9	7.8	9.8	10.8	
V6-3DC-100X-B		7.1	9.3	14.6	20.9	24.5	32.5	V6-3DC-100X-B		5.4	6.2	7.8	9.3	10.1	11.5
S9-3DS-100X-B	4.2*	9.0	11.3	16.2	21.5			S9-3DS-100X-B	5.1*	7.1	8.2	10.7	13.5		
V6-3DS-150X-B		9.4	12.2	18.5	25.9	30.1	39.1	V6-3DS-150X-B		7.1	8.2	10.6	12.9	14.1	16.3
W9-3DS-150X-B		9.4	12.2	18.7	26.2	30.5	39.7	W9-3DS-150X-B		7.1	8.2	10.5	12.9	14.0	16.2

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K

Capacity Data

Ambient Temperature: 32°C															
R134a	Cooling Capacity (kW)							R134a	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5	Model	-45	-35	-30	-20	-10	-5	+5
B8-KM-5X-B				0.8	1.2	1.5	2.2	B8-KM-5X-B				0.6	0.6	0.6	0.6
B8-KJ-7X-B				1.0	1.6	1.9	2.8	B8-KJ-7X-B				0.8	0.8	0.8	0.8
B8-KSJ-10X-B				1.2	1.9	2.4	3.4	B8-KSJ-10X-B				0.8	0.9	1.0	0.8
B8-KL-15X-B				1.4	2.2	2.6	3.7	B8-KL-15X-B				0.9	1.2	1.3	1.2
D8-KSL-20X-B				1.8	2.9	3.5	5.0	D8-KSL-20X-B				1.1	1.4	1.5	1.8
H8-KSL-20X-B				1.9	3.0	3.7	5.4	H8-KSL-20X-B				1.2	1.5	1.6	1.8
D8-LE-20X-B				1.6	2.7	3.4	4.9	D8-LE-20X-B				1.4	1.4	1.4	1.4
H8-LE-20X-B				1.7	2.9	3.6	5.4	H8-LE-20X-B				1.5	1.5	1.5	1.5
D8-LF-20X-B				2.2	3.6	4.4	6.2	D8-LF-20X-B				1.7	1.7	1.7	1.7
H8-LJ-20X-B				2.7	4.3	5.2	7.5	H8-LJ-20X-B				2.2	2.2	2.2	2.2
H8-LL-30X-B				3.2	5.2	6.4	9.2	H8-LL-30X-B				2.1	2.1	2.1	2.1
K9-LL-30X-B				3.2	5.3	6.5	9.3	K9-LL-30X-B				2.1	2.6	2.1	2.1
H8-LSG-40X-B				4.2	6.5	7.9	11.0	H8-LSG-40X-B				3.2	3.2	3.2	3.2
K9-LSG-40X-B				4.2	6.6	8.0	11.1	K9-LSG-40X-B				2.5	3.2	3.6	3.6

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

Refer to Emerson's Select software for R450A and R513A capacity data.

Refrigeration Units With Semi-Hermetic Stream Compressors and CoreSense™ Diagnostics

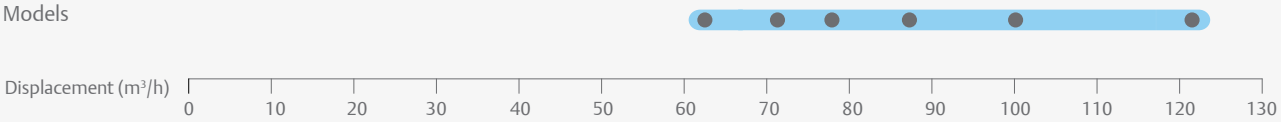
Copeland air-cooled indoor refrigeration units for low, medium and high temperature applications.

This series of refrigeration units is equipped with 4 or 6 cylinder high performance semi-hermetic Stream compressors. The advanced protection and diagnostic features reduce service costs and system downtime. These models are specifically suitable for those applications where high efficiency and reliability is required to achieve low lifecycle costs.

Multiple refrigerant approvals and wide range of accessories improve flexibility in system design.

Refrigeration Units with Semi-Hermetic Stream Compressors and CoreSense™ Diagnostics

Refrigeration Units With Stream Compressor Line-up



Features and Benefits

- Standard equipment: Stream compressor with CoreSense Diagnostics, condenser with thermally protected fan(s), discharge line with flexible pipe loop or vibration absorber, liquid receiver with shut-off-valve, HP/LP switch with automatic reset.
- Suitable for multiple refrigerants: R407A/F, R448A/R449A, R404A, R134a, R450A and R513A
- Wide range of quality accessories
- Excellent efficiency
- Proven reliability

Maximum Allowable Pressures (PS)

- Low pressure side = 22.5 bar
- High pressure side = 28 bar

CoreSense Diagnostics Features

- Motor and oil protection
- Storage of compressor asset and advanced runtime information
- Runtime and alarm signalling using multicoloured LED flash-codes
- System communication via Modbus
- Compressor power sensing

Technical Overview

Model	Displacement (m^3/h)	Receiver Capacity (l)	Number of Fans	Total Fan Motor Power (W)	Suction Line Diameter (inch)	Liquid Line Diameter (inch)	Net Weight (kg)	Motor Version/ Code	Maximum Operating Current (A)	Locked Rotor Current (A)	Sound Pressure @10m - dB(A)***
								3 Ph**	3 Ph**	3 Ph**	
W99-6MI-40X	121	47.9	4	1600	2 1/8	7/8	521.0	AWM	71	304	59.0
Z9-4MA-22X	62	18.9	4	1600	1 5/8	7/8	383.0	AWM	36	175	59.0
V6-4ML-15X	71	18.9	2	800	1 5/8	7/8	303.0	AWM	35	156	57.0
V6-4MF-13X	62	18.9	2	800	1 5/8	7/8	295.0	AWM	31	105	57.0
Z9-4MH-25X	71	18.9	4	1600	2 1/8	7/8	389.0	AWM	42	199	59.0
Z9-4MM-20X	71	18.9	4	1600	2 1/8	7/8	388.0	AWM	39	175	
Z9-4MI-30X	78	18.9	4	1600	2 1/8	7/8	416.0	AWM	47	221	59.0
Z9-4MT-22X	71	18.9	4	1600	2 1/8	7/8	389.0	AWM	45	175	
Z9-4MJ-33X	88	18.9	4	1600	2 1/8	7/8	416.0	AWM	53	221	59.0
W9-4MT-22X	88	18.9	2	800	2 1/8	7/8	358.0	AWM	45	175	59.0
W9-4MM-20X	78	18.9	2	800	2 1/8	7/8	358.0	AWM	39	175	57.0
Z9-4MU-25X	100	18.9	4	1600	2 1/8	7/8	392.0	AWM	52	199	59.0
Z9-6MM-30X	121	18.9	4	1600	2 1/8	7/8	410.0	AWM	60	255	59.0
W99-4MK-35X	121	47.9	4	1600	2 1/8	7/8	504.0	AWM	61	255	59.0
Z9-4ML-15X	71	18.9	4	1600	1 5/8	7/8	386.0	AWM	35	156	

** 3 Ph: 380-420V/ 50Hz
*** @ 10m: sound pressure level at 10m distance from the compressor, free field condition

Capacity Data

R407A	Cooling Capacity (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
V6-4MF-13X		7.5*	10.3*	18.4	26.5	31.0	
Z9-4MA-22X				20.9	32.0	38.7	54.5
Z9-4ML-15X		10.2*	15.2	24.6	36.7	43.8	
Z9-4MH-25X				24.4	36.6	43.9	60.9
V6-4ML-15X		9.3*	12.6*	21.7	30.9	35.9	
Z9-4MI-30X				26.6	40.0	47.9	66.1
Z9-4MM-20X		11.4*	16.7	26.7	39.6	47.2	
W9-4MM-20X		10.5*	14.0*	23.8	33.8	39.2	
Z9-4MJ-33X				29.3	43.6	52.0	71.2
W9-4MT-22X		11.1*	14.7*	25.1	35.2	40.6	
Z9-4MT-22X		12.1*	17.9	28.4	41.9	49.8	
W99-4MK-35X				32.4	47.9	56.8	76.6
Z9-4MU-25X		13.2*	19.8	31.7	46.5	55.0	
Z9-6MM-30X		15.8*	23.7	37.5	54.5	64.0	
W99-6MI-40X				38.4	56.2	66.1	87.7

R407A	Power Input (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
V6-4MF-13X		6.9*	8.1*	10.9	14.0	15.8	
Z9-4MA-22X				11.0	13.3	14.5	17.0
Z9-4ML-15X		8.9*	10.2	12.9	15.8	17.4	
Z9-4MH-25X				12.9	15.7	17.1	20.0
V6-4ML-15X		8.2*	9.6*	12.9	16.7	18.9	
Z9-4MI-30X				14.2	17.4	19.0	22.5
Z9-4MM-20X		9.7*	11.2	14.3	17.6	19.3	
W9-4MM-20X		9.0*	10.6*	14.3	18.5	20.9	
Z9-4MJ-33X				15.9	19.6	21.5	25.8
W9-4MT-22X		10.3*	12.1*	16.4	21.4	24.3	
Z9-4MT-22X		10.9*	12.6	16.2	20.1	22.2	
W99-4MK-35X				18.1	22.6	25.0	30.4
Z9-4MU-25X		12.1*	14.0	18.1	22.8	25.5	
Z9-6MM-30X		14.2*	16.5	21.7	27.6	30.9	
W99-6MI-40X				21.6	27.3	30.5	37.5

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K

R407F	Cooling Capacity (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X				21.3*	34.0	41.1	57.5
V6-4MF-13X		8.0*	11.0*	18.1*	27.5	32.1	
V6-4ML-15X		9.9*	13.3*	21.4*	32.4		
Z9-4MH-25X				24.4*	38.7	46.5	64.6
Z9-4MI-30X				26.9*	42.0	50.2	68.8
W9-4MM-20X		10.9*	14.6*	23.3*	35.1		
Z9-4MJ-33X				29.6*	45.9	54.5	74.1
W9-4MT-22X		12.4*	16.4*	25.5*	36.1*		
Z9-4MU-25X		14.8*	19.8*	32.2*	49.5	58.5	
W99-4MK-35X				32.5*	50.1	59.3	79.8
W99-6MI-40X				38.4*	59.0	69.3	91.6
Z9-6MM-30X		17.7*	23.7*	38.1*	58.0	68.1	

R407F	Power Input (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X				11.7*	14.2	15.5	18.0
V6-4MF-13X		7.2*	8.5*	11.4*	14.9	16.8	
V6-4ML-15X		8.6*	10.1*	13.6*	17.9		
Z9-4MH-25X				13.5*	16.6	18.1	21.3
Z9-4MI-30X				14.7*	18.2	20.0	23.9
W9-4MM-20X		9.6*	11.2*	15.0*	19.6		
Z9-4MJ-33X				16.6*	20.6	22.9	27.7
W9-4MT-22X		10.9*	12.7*	17.2*	22.8*		
Z9-4MU-25X		12.7*	14.7*	19.1*	24.4	27.3	
W99-4MK-35X				18.8*	23.6	26.4	32.7
W99-6MI-40X				22.6*	28.9	32.4	40.2
Z9-6MM-30X		15.1*	17.4*	22.8*	29.3	32.8	

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K

Capacity Data

R448A	Cooling Capacity (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X		9.0*	13.1	21.8	33.6	40.8	57.8
V6-4MF-13X		8.4*	11.0*	18.2	25.8	30.1	
Z9-4MH-25X		10.6*	15.2	24.9	37.5	45.0	62.2
V6-4ML-15X		10.5*	13.8*	22.4	31.6	36.6	
Z9-4ML-15X		11.5*	16.0	25.3	37.3	44.3	
Z9-4MI-30X		11.9*	17.2	27.9	41.7	49.7	68.2
W9-4MM-20X		11.7*	15.3*	24.5	34.1	39.2	
Z9-4MM-20X		12.7*	17.6	27.7	40.3	47.5	
Z9-4MJ-33X		13.2*	18.8	30.3	45.0	53.6	73.3
W9-4MT-22X		13.1*	16.9*	27.0	37.2		
Z9-4MT-22X		14.4*	18.8*	30.7	44.5	52.4	
W99-4MK-35X		14.7*	19.8*	33.4	49.3	58.5	79.3
Z9-4MU-25X		15.2*	20.0*	33.1	48.3	57.1	
W99-6MI-40X		17.8*	23.9*	40.0	57.7	67.5	88.5
Z9-6MM-30X		18.3*	24.0*	39.1	55.5	64.6	

R448A	Power Input (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X		7.8*	9.0	11.3	13.6	14.8	17.2
V6-4MF-13X		7.0*	8.2*	11.1	14.4	16.3	
Z9-4MH-25X		9.1*	10.4	13.2	16.1	17.7	20.9
V6-4ML-15X		8.4*	9.8*	13.2	17.3	19.7	
Z9-4ML-15X		9.1*	10.4	13.2	16.3	17.9	
Z9-4MI-30X		9.8*	11.4	14.6	17.9	19.7	23.2
W9-4MM-20X		9.3*	10.9*	14.6	19.3	22.0	
Z9-4MM-20X		10.0*	11.4	14.5	18.0	20.0	
Z9-4MJ-33X		10.8*	12.5	16.2	20.2	22.3	26.8
W9-4MT-22X		10.5*	12.4*	16.7	22.1		
Z9-4MT-22X		11.2*	12.8*	16.4	20.5	22.8	
W99-4MK-35X		12.3*	14.2*	18.6	23.3	25.9	31.3
Z9-4MU-25X		12.3*	14.2*	18.5	23.6	26.5	
W99-6MI-40X		14.5*	16.9*	21.9	27.7	30.9	37.9
Z9-6MM-30X		14.6*	16.9*	22.2	28.1	31.4	

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

R449A	Cooling Capacity (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X		9.0*	13.1	21.8	33.6	40.8	57.8
V6-4MF-13X		8.4*	11.0*	18.2	25.8	30.1	
Z9-4MH-25X		10.5*	15.2	24.9	37.5	45.0	62.2
V6-4ML-15X		10.4*	13.7*	22.4	31.6	36.6	
Z9-4ML-15X		11.4*	16.0	25.3	37.3	44.3	
W9-4MM-20X		11.7*	15.2*	24.5	34.1	39.2	
Z9-4MJ-33X		13.2*	18.8	30.3	45.0	53.6	73.3
W9-4MT-22X		13.1*	16.9*	27.0	37.2		
Z9-4MT-22X		14.3*	18.8*	30.7	44.5	52.4	
W99-4MK-35X		14.7*	19.7*	33.4	49.3	58.5	79.3
Z9-4MU-25X		15.1*	19.9*	33.1	48.3	57.1	
W99-6MI-40X		17.7*	23.8*	40.0	57.7	67.5	88.5
Z9-6MM-30X		18.2*	24.0*	39.1	55.5	64.6	

R449A	Power Input (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X		7.8*	9.0	11.3	13.6	14.8	17.2
V6-4MF-13X		7.0*	8.2*	11.1	14.4	16.3	
Z9-4MH-25X		9.1*	10.4	13.2	16.1	17.7	20.9
V6-4ML-15X		8.4*	9.8*	13.2	17.3	19.7	
Z9-4ML-15X		9.1*	10.4	13.2	16.3	17.9	
W9-4MM-20X		9.3*	10.9*	14.6	19.3	22.0	
Z9-4MJ-33X		10.8*	12.5	16.2	20.2	22.3	26.8
W9-4MT-22X		10.5*	12.4*	16.7	22.1		
Z9-4MT-22X		11.2*	12.8*	16.4	20.5	22.8	
W99-4MK-35X		12.3*	14.2*	18.6	23.3	25.9	31.3
Z9-4MU-25X		12.3*	14.2*	18.5	23.6	26.5	
W99-6MI-40X		14.5*	16.9*	21.9	27.7	30.9	37.9
Z9-6MM-30X		14.6*	16.9*	22.2	28.1	31.4	

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K
Preliminary Data

Capacity Data

R404A	Cooling Capacity (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X		11.7	15.3	24.0	34.8	41.0	55.0
V6-4MF-13X	4.3*	10.8	13.7	20.4	28.4	32.8	
V6-4ML-15X	5.4*	13.0	16.4	23.9	32.6	37.2	
Z9-4MH-25X		13.4	17.5	27.3	39.6	46.7	62.8
Z9-4ML-15X	5.9*	14.2	18.1	27.7	39.5	46.3	
Z9-4MM-20X	6.8*	15.9	20.1	30.2	42.5	49.4	
W9-4MM-20X	6.3*	14.5	18.1	25.9	34.6	39.2	
Z9-4MI-30X		15.4	20.0	30.5	43.1	50.3	66.1
Z9-4MJ-33X		17.0	21.8	33.2	46.9	54.6	71.6
W9-4MT-22X	7.2*	15.9	19.7	28.1	37.6		
Z9-4MT-22X	7.9*	17.7	22.2	33.3	46.9	54.6	
W99-4MK-35X		18.9	24.1	36.5	51.3	59.6	77.8
Z9-4MU-25X	8.4*	19.2	24.2	36.1	50.7		
W99-6MI-40X		22.1	28.2	42.3	58.8	67.9	87.3
Z9-6MM-30X	10.1*	22.8	28.4	41.8	58.1	67.2	

R404A	Power Input (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X		8.9	10.1	12.5	14.9	16.0	18.2
V6-4MF-13X	5.8*	8.2	9.5	12.3	15.3	16.9	
V6-4ML-15X	7.1*	9.9	11.5	14.9	18.7	20.6	
Z9-4MH-25X		10.2	11.6	14.6	17.6	19.1	22.0
Z9-4ML-15X	7.9*	10.5	12.0	15.0	18.0	19.4	
Z9-4MM-20X	8.7*	11.6	13.1	16.3	19.7	21.3	
W9-4MM-20X	7.9*	11.0	12.7	16.5	20.7	23.0	
Z9-4MI-30X		11.4	13.0	16.3	19.6	21.2	24.6
Z9-4MJ-33X		12.4	14.2	17.9	21.8	23.8	27.8
W9-4MT-22X	8.8*	12.4	14.4	18.7	23.6		
Z9-4MT-22X	9.6*	13.0	14.7	18.5	22.4	24.4	
W99-4MK-35X		14.1	16.2	20.5	25.2	27.6	32.4
Z9-4MU-25X	10.5*	14.4	16.5	20.9	25.5		
W99-6MI-40X		16.8	19.3	24.8	30.6	33.6	40.0
Z9-6MM-30X	12.8*	17.5	20.0	25.3	31.2	34.3	

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
* Conditions: EN13215: Suction Superheat 10K

R407C	Cooling Capacity (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X				20.0	30.4	36.7	51.5
Z9-4MH-25X				22.7	34.8	42.0	58.8
Z9-4MI-30X				25.3	38.3	46.0	64.0
Z9-4MJ-33X				27.8	42.0	50.4	69.6
W99-4MK-35X				31.9	47.7	56.9	77.5
W99-6MI-40X				36.2	53.5	63.3	84.5

R407C	Power Input (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X				10.7	12.9	13.9	16.0
Z9-4MH-25X				12.2	14.8	16.1	18.8
Z9-4MI-30X				13.4	16.4	18.0	21.1
Z9-4MJ-33X				14.8	18.4	20.2	24.3
W99-4MK-35X				16.9	21.2	23.5	28.5
W99-6MI-40X				20.0	25.5	28.4	34.9

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K
Preliminary Data

Capacity Data

R134a	Cooling Capacity (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X				14.0	21.9	26.9	39.1
V6-4MF-13X				12.4	19.6	23.8	33.8
Z9-4ML-15X				15.7	24.8	30.5	44.0
Z9-4MH-25X				15.8	24.9	30.6	44.4
V6-4ML-15X				14.8	22.9	27.7	38.6
W9-4MM-20X				16.4	25.2	30.3	42.1
Z9-4MI-30X				17.5	27.2	33.3	47.9
Z9-4MM-20X				17.3	27.1	33.2	47.6
Z9-4MJ-33X				19.5	30.1	36.7	52.4
Z9-4MT-22X				19.6	30.4	37.1	52.9
W9-4MT-22X				18.5	28.0	33.6	45.9
Z9-4MU-25X				21.2	33.3	40.6	57.9
W99-4MK-35X				21.8	33.7	41.0	58.5
Z9-6MM-30X				25.3	39.1	47.4	66.7
W99-6MI-40X				25.2	39.0	47.4	67.3

R134a	Power Input (kW)						
	Ambient Temperature: 32°C						
	Evaporating Temperature (°C)						
Model	-45	-35	-30	-20	-10	-5	+5
Z9-4MA-22X				7.4	8.8	9.4	10.6
V6-4MF-13X				6.6	8.2	9.1	10.9
Z9-4ML-15X				8.3	10.0	10.9	12.5
Z9-4MH-25X				8.5	10.2	11.1	12.6
V6-4ML-15X				7.7	9.8	10.9	13.2
W9-4MM-20X				8.5	10.8	12.0	14.6
Z9-4MI-30X				9.1	11.0	12.0	13.8
Z9-4MM-20X				9.1	11.0	12.0	13.8
Z9-4MJ-33X				10.2	12.3	13.4	15.5
Z9-4MT-22X				10.2	12.4	13.6	15.9
W9-4MT-22X				9.7	12.3	13.7	16.9
Z9-4MU-25X				11.3	14.0	15.4	18.3
W99-4MK-35X				11.2	13.8	15.2	18.0
Z9-6MM-30X				13.3	16.7	18.4	22.1
W99-6MI-40X				13.5	16.5	18.2	21.7

Conditions: EN13215: Suction Gas Return 20°C, Subcooling 0K

Refer to Emerson's Select software for R450A and R513A capacity data.

Compressors Motor Codes Table

Semi-Hermetic						
Motor Codes	**Voltage**	**Connection**		**Motor Codes**	**Voltage**	**Connection**
Standard Motor Version						
CAG	220-230/1/50	-				
EWL (DK, DL, D2S)	220-240/3/50	Δ		EWN (DK, DL, D2S)	250-280/3/60	Δ
EWL (DK, DL, D2S)	380-420/3/50	Y		EWN (DK, DL, D2S)	440-480/3/60	Y
AWM	380-420/3/50	YY/Y		AWD	440-480/3/60	YY/Y
Special Motor Version						
EWM	380-420/3/50	Δ/Y-Start		EWD	440-480/3/60	Δ/Y-Start
AWR	220-240/3/50	YY/Y		EWK (not D8)	220-240/3/60	Δ
AWY	500-550/3/50	YY/Y		EWK (not D8)	380-420/3/60	Y
				AWC	208-230/3/60	YY/Y
				AWX	380/3/60	YY/Y
Hermetic & Scroll						
Motor Codes	Voltage	Connection		Motor Codes	Voltage	Connection
Standard Motor Version						
PFJ	220-240/1/50	-		PFJ	265/1/60	-
PFT	220-240/1/50	-				
PFZ	220-240/1/50	-				
TFD	380-420/3/50	Y		TFD	460/3/60	Y
TFM	380-420/3/50	Y				
TWD	380-420/3/50	Y		TWD	460/3/60	Y
FWD	380-420/3/50	Δ/Δ				
FWM	380-420/3/50	Δ/Δ				
TWM	380-420/3/50	Y				
Special Motor Version						
TF5	200-220/3/50	Y		TF5	200-230/3/60	Y
TWR	220-240/3/50	Y		TW7	380/3/60	Y
TWC	200/3/50	Y		TWC	208-230/3/60	Y
TFE	500/3/50	Y		TFE	575/3/60	Y
TWE	500/3/50	Y		TWE	575/3/60	Y
				TF7	380/3/60	Y
TW5	200-220/3/50	Y		TW5	220-230/3/60	Y
Variable Speed Motor Version						
*E9	BPM Motor	-				

YY/Y = Part-Winding-Start
Δ/Δ = Part-Winding-Start