

Copeland[™]
brand products

Alco Controls[™]

General Product Guide 2015

For Refrigeration, Air Conditioning and Heat Pumps




EMERSON[™]
Climate Technologies

ZR Copeland Scroll™ Compressor Range for R407C and R134a

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

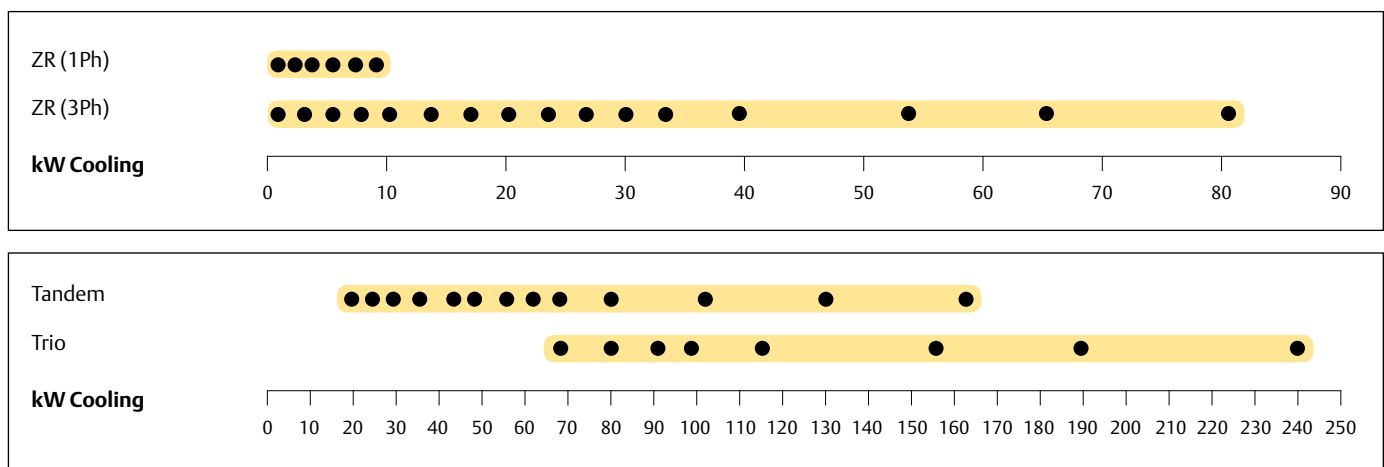
Applied in the air conditioning and comfort industry for water chillers, rooftops and close control unit applications, scroll compressors are now the most used compression technology replacing reciprocating and screw compressors due to its undeniable superiority. Several, fully Copeland™ qualified, multiple 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

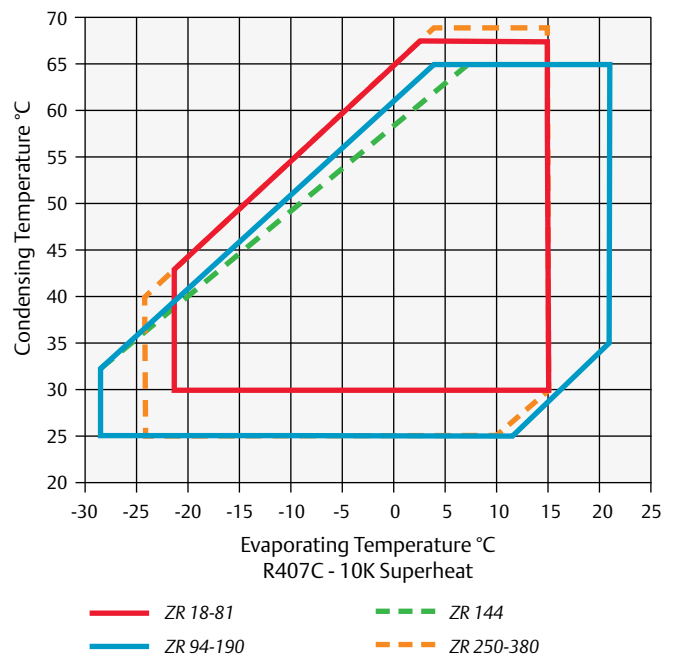
Features and Benefits

- 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



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 (dBA) ***
										1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
ZR18K3E	1.5	3.7	3.0	4.4	¾	½	0.74	242/242/383	20	PFJ		10		35		54
ZR22K3E	2.0	4.5	2.9	5.3	¾	½	1.00	242/242/363	22	PFJ	TFD	11	4	47	24	54
ZR28K3E	2.5	5.9	2.9	6.8	¾	½	1.00	242/242/363	25	PFJ	TFD	15	5	61	32	54
ZR34K3E	2.8	7.0	3.0	8.0	¾	½	1.10	242/242/386	26	PFJ	TFD	17	6	76	40	57
ZR40K3E	3.5	8.2	3.0	9.4	¾	½	1.10	242/242/400	27	PFJ	TFD	23	7	100	46	57
ZR48K3E	4.0	10.1	3.1	11.4	¾	½	1.36	242/242/417	31	PFJ	TFD	23	10	114	50	57
ZR61KCE	5.0	12.5	3.1	14.4	¾	½	1.66	241/247/451	43	PFJ	TFD	30	11	150	65	60
ZR61K3E	5.0	12.8	3.2	14.4	¾	½	1.42	242/242/430	30	PFZ	TFM		11		59	61
ZR72KCE	6.0	14.8	3.2	17.1	¾	½	1.77	242/242/438	39		TFD		13		74	61
ZR81KCE	6.8	16.7	3.2	18.7	¾	¾	1.77	242/242/446	39		TFD		15		101	61
ZR94KCE	8.0	20.6	3.3	22.1	1 ¼	¾	2.65	264/285/476	57		TFD		16		95	63
ZR108KCE	9.0	23.0	3.4	24.9	1 ¼	¾	3.38	264/285/533	60		TFD		17		111	63
ZR125KCE	10.0	27.0	3.4	29.1	1 ¼	¾	3.38	264/285/533	61		TFD		19		118	63
ZR144KCE	12.0	30.9	3.4	33.2	1 ¼	¾	3.38	264/285/533	61		TFD		22		118	64
ZR160KCE	13.0	33.4	3.2	36.4	1 ¼	¾	3.38	264/285/552	65		TFD		28		140	67
ZR190KCE	15.0	39.3	3.2	43.3	1 ¼	¾	3.38	264/285/552	66		TFD		34		174	69
ZR250KCE	20.0	52.2	3.2	56.6	1 ¼	1 ¼	4.70	432/376/717	140		TWD		41		225	72
ZR310KCE	25.0	65.0	3.2	71.4	1 ¼	1 ¼	6.80	448/392/715	160		TWD		52		272	74
ZR380KCE	30.0	81.7	3.4	87.4	1 ¼	1 ¼	6.30	447/427/724	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	6.5	8.3	10.5	13.0	15.9	19.2	23.0	ZR94KCE	3.4	3.4	3.4	3.5	3.5	3.5	3.5
ZR108KCE	7.3	9.3	11.7	14.5	17.8	21.5	25.7	ZR108KCE	3.7	3.8	3.8	3.9	3.9	3.9	3.9
ZR125KCE	8.6	10.9	13.7	17.0	20.8	25.1	30.0	ZR125KCE	4.4	4.4	4.5	4.5	4.6	4.6	4.5
ZR144KCE	10.5	13.4	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	11.0	14.3	17.7	21.4	25.5	30.1	35.3	ZR160KCE	5.4	5.4	5.5	5.6	5.7	5.7	5.6
ZR190KCE	13.3	17.0	21.0	25.5	30.5	36.2	42.7	ZR190KCE	6.5	6.6	6.7	6.8	6.8	6.9	7.0
ZR250KCE	16.6	21.0	26.3	32.5	39.7	48.2	57.9	ZR250KCE	8.8	8.8	8.9	9.0	9.1	9.2	9.4
ZR310KCE	20.5	26.0	32.5	40.1	49.1	59.6	71.7	ZR310KCE	11.0	11.0	11.1	11.2	11.3	11.5	11.7
ZR380KCE	26.0	32.9	41.1	50.8	61.8	74.4	88.6	ZR380KCE	13.0	13.3	13.5	13.8	13.9	14.1	14.2

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
ZR61KCE	6.5	8.1	10.0	12.0	14.4	17.2	20.6	ZR61KCE	3.0	3.1	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

ZB Copeland Scroll™ Compressor Range for Medium Temperature Refrigeration

using R404A, R407F, R407A/C, R134a and R22

Emerson Climate Technologies offers ZB compressors with a wide displacement range from 5.9 m³/h to 87.5 m³/h. It includes digital compressor models that offer 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 condensing 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.

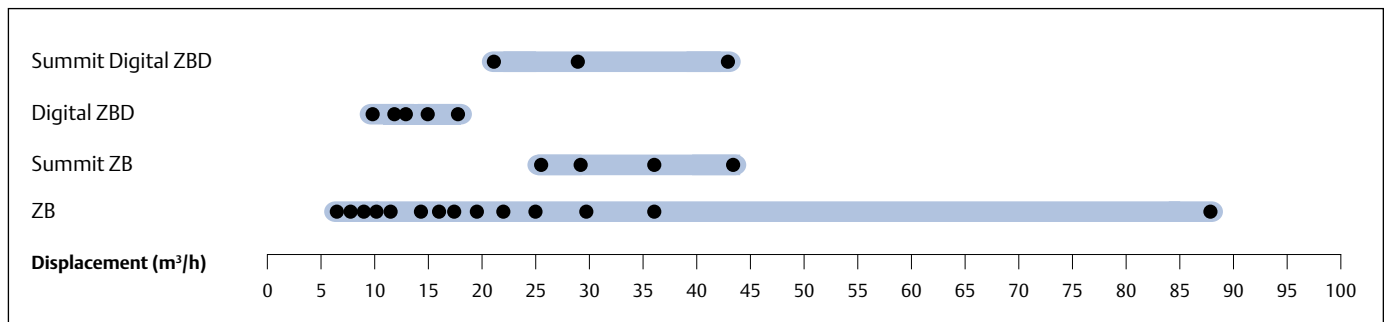
The ZB range also features ZB220 (30hp), the largest refrigeration scroll available on the market. These compressors are qualified for R404A, R407F, R407A/C, R134a and R22. CoreSense™ Diagnostics is now available as an option for the ZB Scroll Summit series (ZB66K5E, ZB76K5E, ZB95K5E and ZB114K5E) as well as for Summit Digital ZBD.

For more details on Digital models please refer to page 50 in the catalogue.



ZB Compressor for Medium Temperature Refrigeration with and without Sound Shell

ZB and ZBD Compressor Line-up



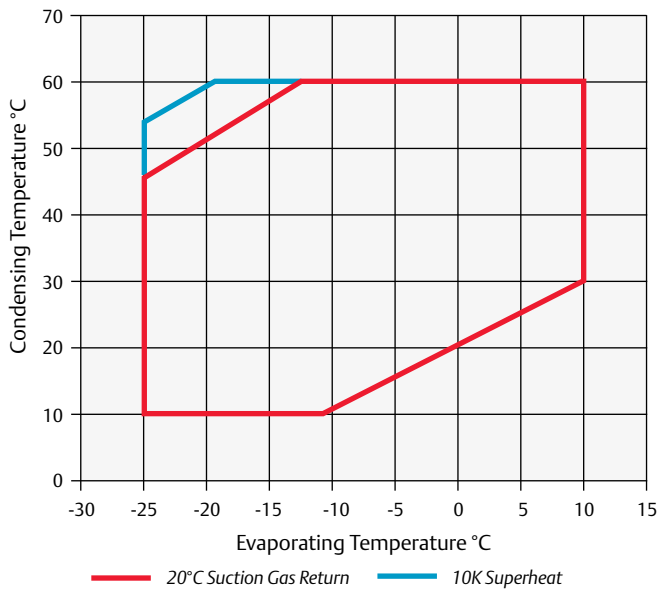
Features and Benefits

- 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, more than 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 7 Digital Scroll compressor models for simple, stepless 10 to 100% capacity modulation
- One model for multiple refrigerants R404A, R407F, R407A/C, R134a and R22

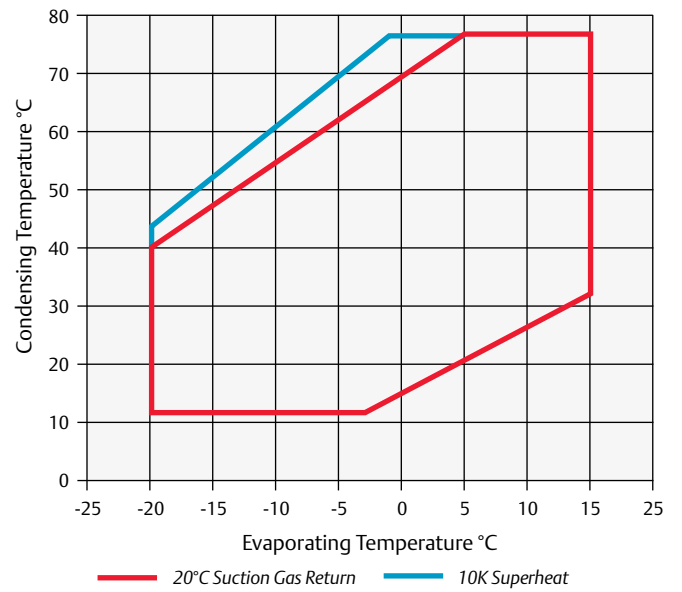
Maximum Allowable Pressure (PS)

- 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)

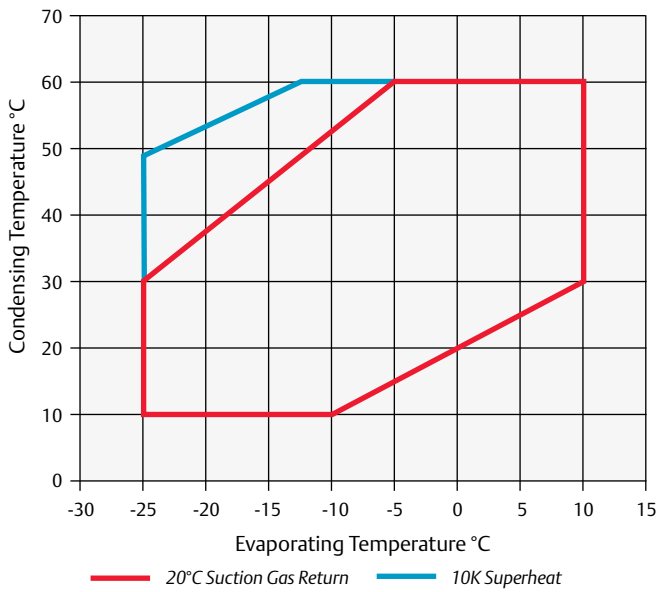
Operating Envelope R404A



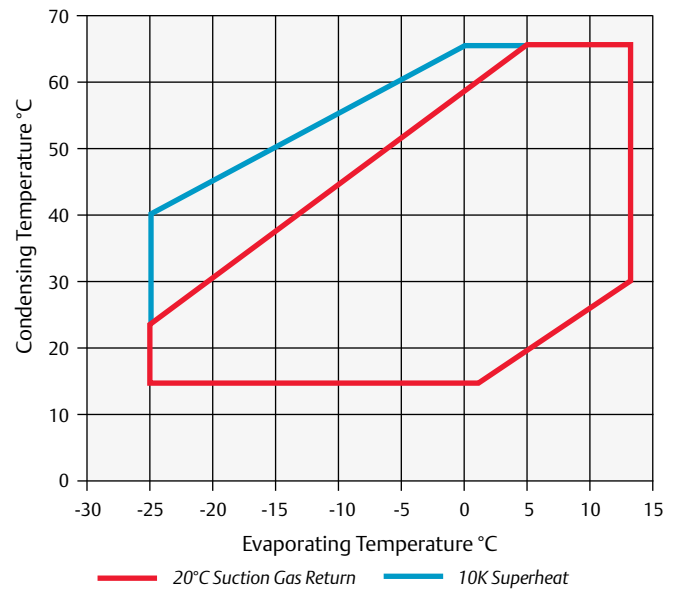
Operating Envelope R134a



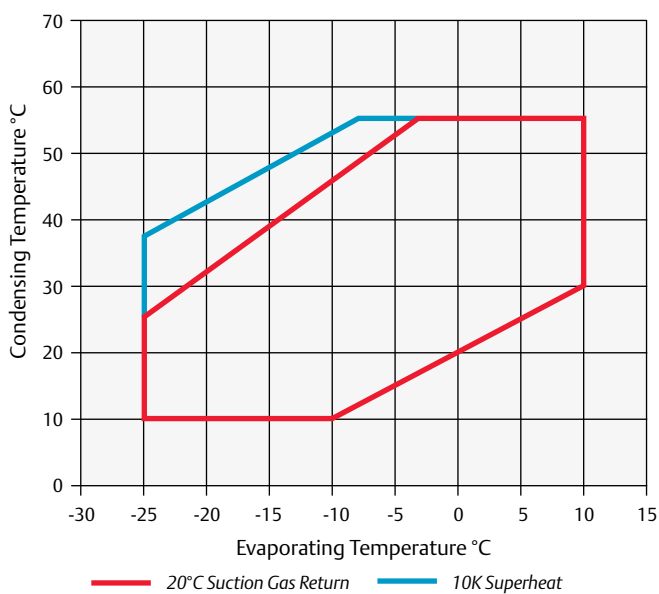
Operating Envelope R407A



Operating Envelope R407C



Operating Envelope R407F



For individual model details please refer to Select Software.

Technical Overview

Models	Nominal hp	Displacement (m ³ /h)	Rotolock Suction (inch)	Rotolock 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 @1m (dBA)***
								1 Ph*	3 Ph**	1 Ph*	3 Ph**	1 Ph*	3 Ph**	
ZB15KCE	2.0	5.9	1.3	1.0	1.3	241/241/369	25.4	PFJ	TFD	12.8	4.9	58	26	55
ZB19KCE	2.5	6.8	1.3	1.0	1.5	242/242/369	27.2	PFJ	TFD	12.8	6.5	61	32	55
ZB21KCE	3.0	8.6	1.3	1.0	1.2	243/244/391	29.0	PFJ	TFD	16.4	7.2	82	40	58
ZB26KCE	3.5	10.0	1.3	1.0	1.5	243/244/405	28.0	PFJ	TFD	18.0	8.9	97	46	60
ZB29KCE	4.0	11.4	1.3	1.0	1.5	246/246/423	28.6		TFD		10.0		50	58
ZB30KCE	4.0	11.7	1.3	1.0	1.9	242/242/438	35.4	PFJ	TFD	26.4	10.3	142	49.3	61
ZB38KCE	5.0	14.4	1.3	1.0	1.9	242/242/438	37.4	PFJ	TFD	32.3	12.8	142	65.5	63
ZB42KCE	5.5	16.2	1.3	1.0	1.9	251/246/438	43.0	PFJ		35.7		150		62
ZB45KCE	6.0	17.1	1.3	1.0	1.9	242/242/438	39.5		TFD		13.1		74	61
ZB48KCE	6.5	18.8	1.3	1.3	1.8	246/250/442	39.0		TFD		14.0		101	62
ZB50KCE	6.5	19.8	1.3	1.0	2.7	246/284/480	59.0		TFD		14.6		100	64
ZB57KCE		21.4	1.3	1.3	1.9	246/256/442	39.5		TFD		15.9		102	65
ZB58KCE	8.0	22.1	1.8	1.3	2.5	264/284/476	57.2		TFD		15.6		95	65
ZB66KCE	9.0	24.9	1.8	1.3	3.3	264/284/533	59.9		TFD		17.5		111	66
ZB76KCE	10.0	29.1	1.8	1.3	3.3	264/284/533	61.2		TFD		20.4		118	66
ZB95KCE	13.0	36.4	1.8	1.3	3.3	264/285/552	64.9		TFD		28.2		140	67
ZB114KCE	15.0	43.4	1.8	1.3	3.3	264/285/552	66.0		TFD		33.0		174	71
ZB220KCE	30.0	87.5	2 ¼ x 12 UN	1 ¾ x 12 UN	6.3	448/392/715	176.0		TWM		69.0		310	78
ZB Summit Models														
ZB66K5E	10.0	25.7	1.8	1.3	3.4	280/280/534	59.9		TFD		17.5		111	66
ZB76K5E	12.0	28.8	1.8	1.3	3.4	280/280/534	61.2		TFD		20.4		118	67
ZB95K5E	13.0	36.4	1.8	1.3	3.4	280/280/552	64.9		TFD		28.2		140	69
ZB114K5E	15.0	43.4	1.8	1.3	3.4	280/280/552	66.2		TFD		33.5		174	72

* 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)						
Models	-35	-30	-25	-20	-15	-10	-5	Models	-35	-30	-25	-20	-15	-10	-5
ZB15KCE				1.4	1.7	2.2	2.7	ZB15KCE				0.9	0.9	0.9	1.0
ZB19KCE				1.6	2.0	2.5	3.2	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				2.7	3.4	4.3	5.4	ZB29KCE				1.7	1.7	1.8	1.8
ZB30KCE				2.7	3.4	4.3	5.4	ZB30KCE				1.7	1.7	1.7	1.8
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
ZB50KCE				4.6	5.9	7.4	9.1	ZB50KCE				3.0	3.0	3.0	3.1
ZB57KCE				4.7*	6.4	8.1	10.1	ZB57KCE				3.4*	3.4	3.4	3.5
ZB58KCE				5.2	6.6	8.3	10.3	ZB58KCE				3.4	3.4	3.4	3.4
ZB66KCE				6.0	7.5	9.5	11.8	ZB66KCE				3.8	3.7	3.8	3.8
ZB76KCE				6.9	8.6	10.9	13.5	ZB76KCE				4.4	4.4	4.4	4.5
ZB95KCE				8.2	10.8	13.8	17.1	ZB95KCE				5.4	5.5	5.6	5.6
ZB114KCE				9.6	12.7	16.3	20.4	ZB114KCE				6.6	6.6	6.6	6.7
ZB220KCE					27.3	34.1	42.1	ZB220KCE					13.0	13.2	13.5
ZB Summit Models															
ZB66K5E				6.0	7.6	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	5.6	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

* 10K border

**only 230V

Preliminary data

Capacity Data

Condensing Temperature: 40°C															
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Models	-35	-30	-25	-20	-15	-10	-5	Models	-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				3.2*	4.1	5.1	6.2	ZB21KCE				2.1*	2.1	2.1	2.1
ZB26KCE				3.6*	4.7	5.8	7.1	ZB26KCE				2.3*	2.3	2.3	2.4
ZB29KCE			2.9*	4.0*	5.3	6.6	8.0	ZB29KCE			2.7*	2.7*	2.7	2.7	2.7
ZB30KCE				4.4*	5.8	7.3	8.9	ZB30KCE				2.7*	2.7	2.7	2.8
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			5.4*	6.9*	9.1	11.2	13.7	ZB48KCE			4.2*	4.3*	4.4	4.4	4.4
ZB57KCE			6.5*	8.7	11.1	13.8	17.0	ZB57KCE			5.2*	5.2	5.2	5.3	5.3
ZB58KCE				7.2*	10.1	13.0	16.2	ZB58KCE				5.1*	5.2	5.2	5.3
ZB66KCE				8.5*	11.6	14.7	18.3	ZB66KCE				5.7*	5.8	5.9	6.0
ZB76KCE				10.1*	13.7	17.4	21.6	ZB76KCE				6.5*	6.7	6.8	6.9
ZB95KCE				12.0*	16.7	21.2	26.4	ZB95KCE				8.6*	8.7	8.8	8.9
ZB56KCE				7.4*	9.7	12.0	14.6	ZB56KCE				5.0*	5.1	5.2	5.2
ZB75KCE				10.9*	14.2	17.4	21.1	ZB75KCE				6.2*	6.5	6.7	6.9
ZB92KCE				13.6*	17.6	21.5	26.2	ZB92KCE				8.0*	8.3	8.6	8.8
ZB Summit Models - with Liquid Injection															
ZB66K5E				9.2*	12.4	15.6	19.3	ZB66K5E				5.5*	5.6	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

* 10K border

** only 230V

Preliminary data

Capacity Data

Condensing Temperature: 40°C															
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Models	-35	-30	-25	-20	-15	-10	-5	Models	-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*	5.1	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
ZB30KCE				4.2*	5.5*	7.2	8.9	ZB30KCE				2.9*	2.9*	2.9	2.9
ZB38KCE				5.2*	6.9*	8.9	11.0	ZB38KCE				3.7*	3.7*	3.7	3.7
ZB45KCE				6.0*	8.1*	10.5	13.0	ZB45KCE				4.1*	4.2*	4.3	4.2
ZB48KCE				6.6*	8.9*	11.6	14.3	ZB48KCE				4.5*	4.7*	4.7	4.7
ZB57KCE				8.5*	10.8*	13.8	17.0	ZB57KCE				5.2*	5.2*	5.3	5.3
ZB58KCE				7.5*	10.6*	14.1	17.6	ZB58KCE				5.4*	5.5*	5.5	5.5
ZB66KCE				8.9*	12.2*	15.9	19.8	ZB66KCE				6.*	6.1*	6.2	6.2
ZB76KCE				10.5*	14.4*	18.8	23.3	ZB76KCE				6.9*	7.0*	7.1	7.2
ZB95KCE				12.4*	17.5*	23.1	28.7	ZB95KCE				8.9*	9.0*	9.2	9.3
ZB114KCE				14.5*	20.6*	27.5	34.4	ZB114KCE				10.8*	10.9*	11.0	11.1
ZB Summit Models															
ZB66K5E				9.3*	12.1*	15.6	19.3	ZB66K5E				5.5*	5.6*	5.7	5.8
ZB76K5E				10.7*	13.9*	18.0	22.4	ZB76K5E				6.5*	6.5*	6.7	6.9
ZB95K5E				13.0*	17.3*	22.4	27.8	ZB95K5E				8.3*	8.3*	8.5	8.7
ZB114K5E				14.9*	20.0*	26.3	32.7	ZB114K5E				10.2*	10.2*	10.3	10.5

Suction Gas Return 20°C

* 10K border

** only 230V

Preliminary data

Capacity Data

Condensing Temperature: 40°C															
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Models	-35	-30	-25	-20	-15	-10	-5	Models	-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			4.1	5.1	6.3	7.6	9.1	ZB29KCE			2.9	2.9	2.9	2.9	2.8
ZB30KCE			4.1	5.0	6.2	7.5	9.0	ZB30KCE			3.0	3.0	3.0	3.0	3.0
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
ZB50KCE				6.6*	9.1	11.5	14.4	ZB50KCE				5.2	5.1	5.1	5.1
ZB57KCE			7.9	9.7	11.9	14.3	17.1	ZB57KCE			4.7	4.9	5.2	5.4	5.5
ZB58KCE			7.2	9.4	11.9	14.5	17.5	ZB58KCE			5.6	5.6	5.6	5.7	5.7
ZB66KCE			8.9	11.1	13.6	16.4	19.7	ZB66KCE			6.2	6.3	6.3	6.4	6.4
ZB76KCE			10.4	13.0	16.0	19.4	23.3	ZB76KCE			7.1	7.2	7.3	7.3	7.4
ZB95KCE			10.7*	15.6	19.5	23.8	28.7	ZB95KCE			9.4*	9.4	9.3	9.4	9.5
ZB114KCE				12.3*	18.3	28.3	34.4	ZB114KCE				11.4*	11.3	11.3	11.4
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

* 10K border

**only 230V

Preliminary data

Capacity Data

Condensing Temperature: 40°C															
R407C	Cooling Capacity (kW)							R407C	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Models	-35	-30	-25	-20	-15	-10	-5	Models	-35	-30	-25	-20	-15	-10	-5
ZB15KCE			1.3*	1.8*	2.4*	3.2	4.0	ZB15KCE			1.4*	1.4*	1.4*	1.4	1.3
ZB19KCE			1.6*	2.1*	2.7*	3.5	4.4	ZB19KCE			1.6*	1.6*	1.6*	1.6	1.6
ZB21KCE			2.1*	2.9*	3.7*	4.7	5.9	ZB21KCE			1.9*	1.9*	1.9*	1.9	1.9
ZB26KCE			2.5*	3.3*	4.3*	5.5	6.9	ZB26KCE			2.2*	2.2*	2.2*	2.2	2.2
ZB29KCE			3.2*	4.2*	5.3*	6.7	8.2	ZB29KCE			2.2*	2.3*	2.4*	2.5	2.6
ZB30KCE			3.4*	4.2*	5.3*	6.6	8.1	ZB30KCE			2.4*	2.5*	2.6*	2.7	2.7
ZB38KCE			3.8*	5.2*	6.6*	8.3	10.1	ZB38KCE			3.2*	3.1*	3.1*	3.2	3.2
ZB42KCE**			4.4*	5.7*	7.2*	9.1	11.2	ZB42KCE**			3.8*	3.8*	3.8*	3.8	3.6
ZB45KCE			4.5*	5.8*	7.5*	9.6	11.9	ZB45KCE			3.6*	3.6*	3.6*	3.7	3.7
ZB48KCE			3.4*	5.3*	7.4*	9.9	12.5	ZB48KCE			4.0*	4.0*	4.1*	4.1	4.1
ZB50KCE				6.3*	8.7	11.0	13.5	ZB50KCE				4.4*	4.4	4.4	4.4
ZB57KCE			5.0*	6.9	8.9	11.3	14.1	ZB57KCE			4.5*	4.6	4.8	4.8	4.9
ZB58KCE				7.5*	10.2	12.8	15.7	ZB58KCE				4.9*	4.9	5.0	5.0
ZB66KCE				9.1*	11.7	14.4	17.6	ZB66KCE				5.3*	5.4	5.4	5.4
ZB76KCE				10.3*	13.5	16.7	20.5	ZB76KCE				6.2*	6.3	6.3	6.4
ZB95KCE				11.2*	15.5	19.8	24.9	ZB95KCE				8.0*	8.0	8.1	8.2
ZB114KCE				12.3*	18.3	28.3	34.4	ZB114KCE				9.6*	9.7	9.7	9.8
ZB Summit Models															
ZB66K5E				9.4*	12.1	14.9	18.2	ZB66K5E				5.2*	5.3	5.3	5.3
ZB76K5E				10.4*	13.6	16.9	20.8	ZB76K5E				6.2*	6.3	6.3	6.3
ZB95K5E				11.5*	15.8	20.2	25.5	ZB95K5E				7.8*	7.9	7.9	8.0
ZB114K5E				14.2*	19.2	24.3	30.0	ZB114K5E				9.6*	9.7	9.8	9.8

Suction Gas Return 20°C
 * 10K border
 ** only 230V
 Preliminary data

Condensing Temperature: 40°C															
R22	Cooling Capacity (kW)							R22	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Models	-35	-30	-25	-20	-15	-10	-5	Models	-35	-30	-25	-20	-15	-10	-5
ZB15KCE			1.4*	2.1*	2.7*	3.5	4.2	ZB15KCE			1.5*	1.4*	1.4*	1.4	1.4
ZB19KCE			1.9*	2.5*	3.2*	4.0	4.8	ZB19KCE			1.6*	1.6*	1.6*	1.6	1.6
ZB21KCE			2.0*	3.0*	4.0*	5.1	6.2	ZB21KCE			2.2*	2.1*	2.0*	2.0	2.0
ZB26KCE			2.7*	3.5*	4.4*	5.6	6.8	ZB26KCE			2.2*	2.2*	2.2*	2.2	2.2
ZB30KCE			2.2*	3.2*	4.5*	6.0	7.7	ZB30KCE			2.6*	2.7*	2.7*	2.7	2.7
ZB38KCE			3.8*	4.9*	6.3*	8.0	10.0	ZB38KCE			2.9*	3.0*	3.1*	3.1	3.2
ZB42KCE**			5.2*	6.6*	8.1*	9.9	11.9	ZB42KCE**			3.9*	3.8*	3.8*	3.7	3.6
ZB45KCE			4.5*	6.4*	8.3*	10.3	12.5	ZB45KCE			3.4*	3.6*	3.7*	3.7	3.8
ZB48KCE			5.5*	6.9*	8.8*	11.1	13.7	ZB48KCE			4.0*	4.1*	4.1*	4.2	4.2
ZB50KCE				9.2*	10.7	14.4	17.4	ZB50KCE				5.2	5.1	5.1	5.1
ZB58KCE			5.1*	7.5*	10.1*	13.0	16.1	ZB58KCE			4.8*	4.9*	4.9*	4.9	4.9
ZB66KCE			7.4*	9.7*	12.2*	15.1	18.4	ZB66KCE			5.1*	5.2*	5.3*	5.4	5.4
ZB76KCE			8.9*	11.5*	14.4*	17.8	21.7	ZB76KCE			5.9*	6.1*	6.2*	6.3	6.4
ZB95KCE					16.8*	21.4*	26.5*	ZB95KCE					8.0*	8.1*	8.2*
ZB56KCE			6.6*	8.2*	10.2*	12.5	15.1	ZB56KCE			4.5*	4.7*	4.9*	5.1	5.2
ZB75KCE			8.8*	11.1*	13.7*	16.8	20.3	ZB75KCE			6.3*	6.6*	6.8*	7.1	7.3
ZB92KCE			11.3*	14.1*	17.4*	21.3	25.7	ZB92KCE			7.5*	7.8*	8.1*	8.4	8.7
ZB114KCE					19.9*	25.5*	3.7*	ZB114KCE					9.6*	9.6*	9.7*

Suction Gas Return 20°C
 * 10K border
 ** only 230V

ZF Copeland Scroll™ Compressor Range for Low Temperature Refrigeration using R404A, R407F, R407A and R22

Emerson Climate Technologies 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*KCE 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.

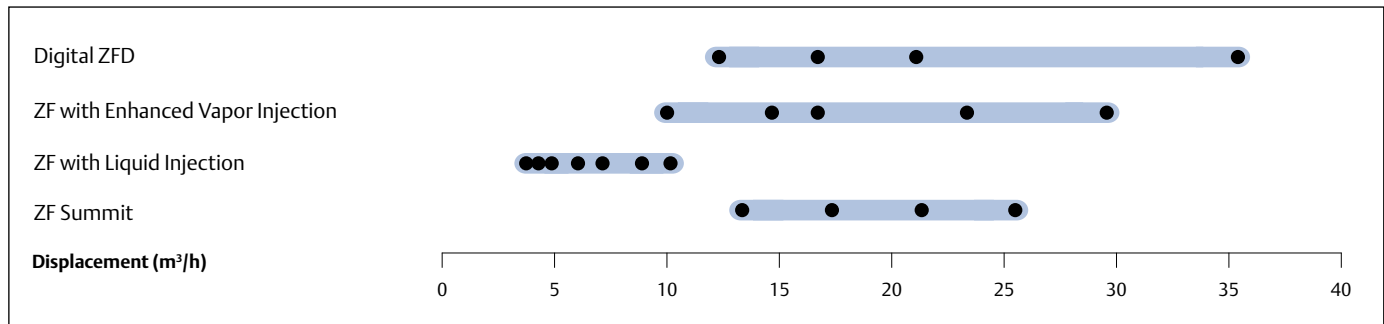
These compressors are qualified for R404A, R407F, R407A, R507, R22 and R134a for certain models. For more details on Digital Scroll models please refer to page 44 in the catalogue.

CoreSense™ Diagnostics is now available as an option for the ZF Scroll Summit series (ZF34K5E-ZF49K5E) as well as for Summit Digital ZFD41K5E.



ZF Compressor for Low Temperature Refrigeration with and without Sound Shell

ZF and ZFD Compressor Line-up



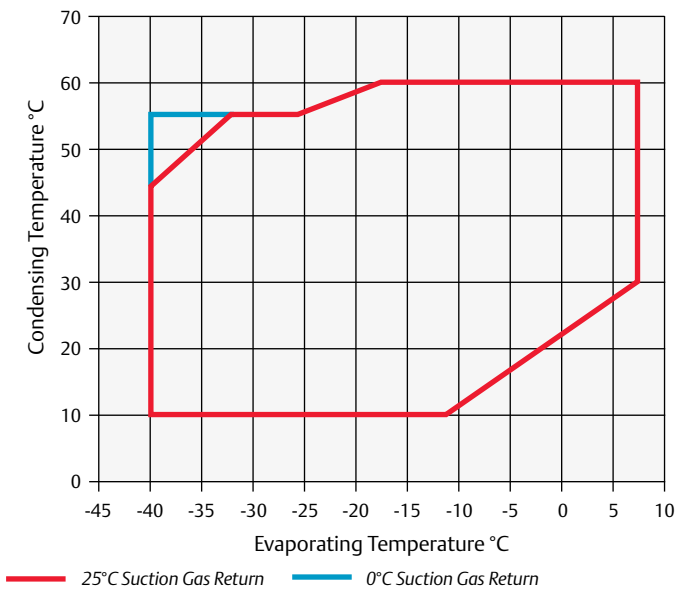
Features and Benefits

- Wide operating envelope with 10°C low condensing temperature to minimize energy consumption
- One model for multiple refrigerants
- Light weight and compactness, more than half the weight of equivalent semi-hermetic compressor
- Optional Sound Shell allowing 10 dBA sound attenuation
- ZF models with liquid injection
 - Easy, efficient and reliable injection via Discharge Temperature Control Valve (DTC) on the smaller models
- 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

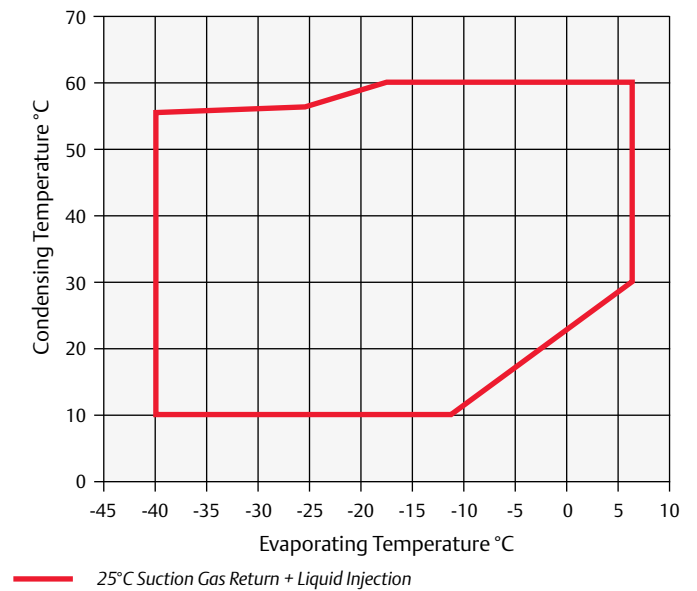
Maximum Allowable Pressure (PS)

- ZF06 to ZF18 (K4E/KVE):
Low Side PS 21 bar(g) / High Side PS 32 bar(g)
- ZF24 to ZF48 (K4E/KVE/K5E):
Low Side PS 22.6 bar(g) / High Side PS 32 bar(g)
- Digital ZFD:
Low Side PS 19 bar(g) / High Side PS 28 bar(g)

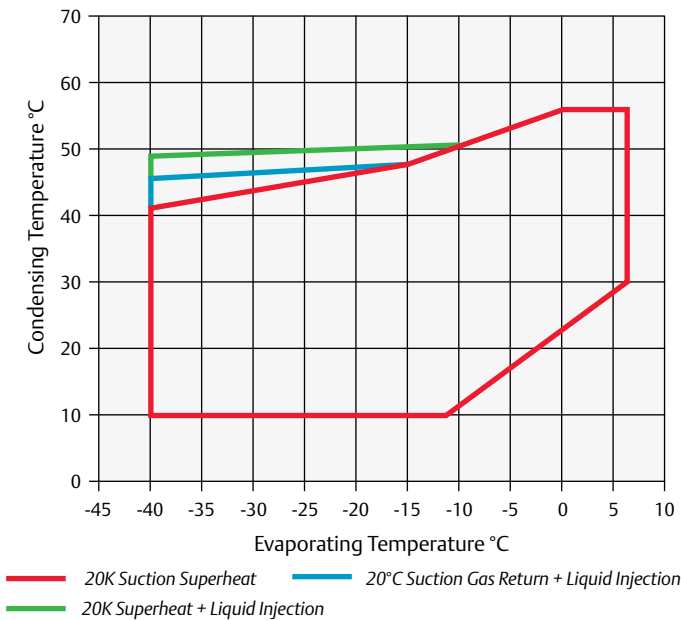
Operating Envelope R404A - For Vapor Injection



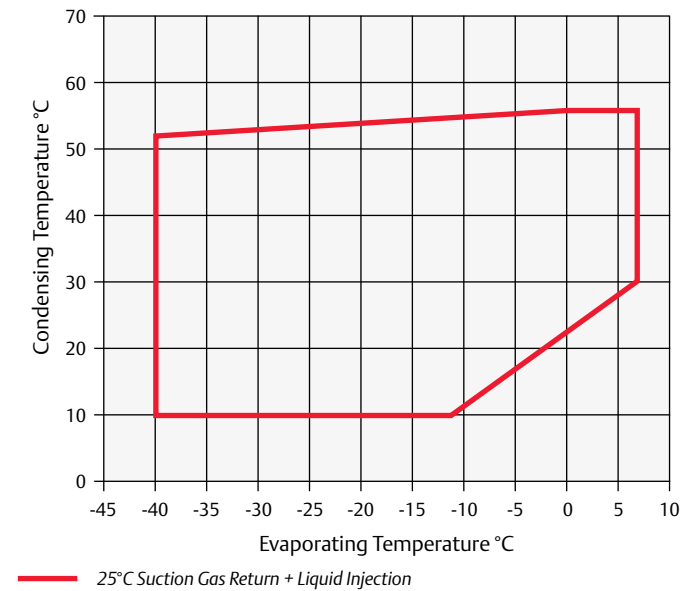
For Liquid Injection



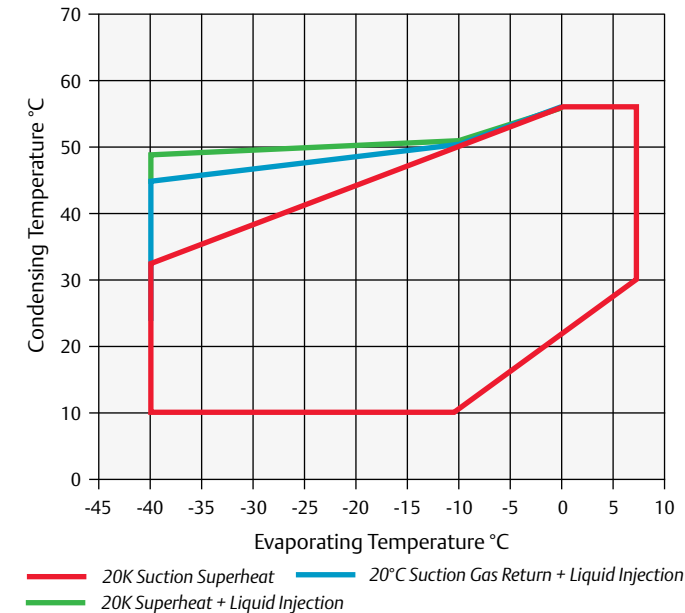
Operating Envelope R407A - For Vapor Injection



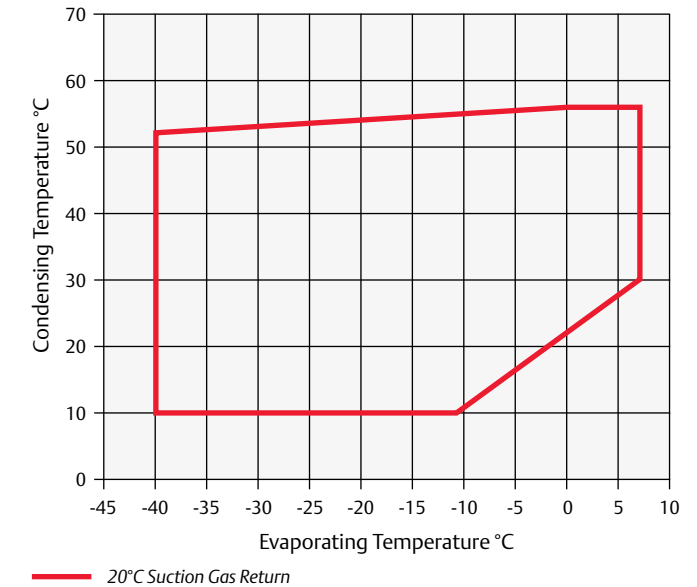
For Liquid Injection



Operating Envelope R407F - For Vapor Injection



For Liquid Injection



For individual model details please refer to Select Software.

Technical Overview

Models	Nominal hp	Displacement (m ³ /h)	Rota Suction (inch)	Rota 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 (dBA) ***
								3 Ph **	3 Ph **	3 Ph **	
Models with Liquid Injection											
ZF06K4E	2.0	3.5	1.3	1.0	1.3	243/245/369	25.4	TFD	5	26	57.0
ZF08K4E	2.5	4.5	1.3	1.0	1.5	243/245/391	27.2	TFD	6	32	59.0
ZF09K4E	2.8	4.8	1.3	1.0	1.5	243/244/391	27.0	TFD	6	40	62.0
ZF11K4E	3.5	6.0	1.3	1.0	1.5	243/244/405	28.0	TFD	7	46	63.0
ZF13K4E	4.0	7.1	1.3	1.0	1.9	246/251/442	38.0	TFD	8	52	65.0
ZF15K4E	5.0	8.6	1.3	1.0	1.9	246/251/442	39.0	TFD	10	64	65.0
ZF18K4E	6.0	10.4	1.3	1.0	1.9	246/251/442	41.0	TFD	13	74	67.0
ZF Summit Models - with Liquid Injection											
ZF25K5E	7.5	13.0	1.3	1.3	1.9	246/257/452	39.5	TFD	14	102	71.0
ZF34K5E		17.2	1.8	1.3	3.4	280/280/534	63.1	TFD	25	100	63.0
ZF41K5E		21.3	1.8	1.3	3.4	280/280/534	63.1	TFD	29	118	63.0
ZF49K5E		25.7	1.8	1.3	3.4	280/280/552	66.2	TFD	30	139	71.0
Models with Enhanced Vapor Injection											
ZF13KVE EVI	4.0	9.7	1.3	1.0	1.4	246/251/442	38.0	TFD	9	52	63.0
ZF18KVE EVI	6.0	14.1	1.3	1.0	1.9	246/251/442	39.5	TFD	14	74	67.0
ZF25K5E EVI	7.5	16.9	1.3	1.3	1.9	246/257/452	39.5	TFD	16	102	70.0
ZF34K5E EVI		23.5	1.8	1.3	3.4	280/280/534	63.1	TFD	25	100	72.0
ZF41K5E EVI		29.1	1.8	1.3	3.4	280/280/534	63.1	TFD	29	118	72.0

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

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

Capacity Data

Condensing Temperature: 40°C															
R407F	Cooling Capacity (kW)							R407F	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Models	-35	-30	-25	-20	-15	-10	-5	Models	-35	-30	-25	-20	-15	-10	-5
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	4,6	4,7
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	8,4	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	7,1	7,3	7,5	7,7	8,0	8,2	8,4
ZF49K5E EVI	12,7	15,8	19,4	23,5	28,1			ZF49K5E EVI	8,4	8,7	9,0	9,3	9,5		
Models with Liquid Injection															
ZF06K4E	1,2	1,6	2,0	2,4	3,0	3,7	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	5,6	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	2,0	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	7,1	8,7	10,7	13,0	ZF18K4E	3,5	3,6	3,7	3,8	4,0	4,1	4,3
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	6,6	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

Suction Gas Return 20°C
Preliminary data

Condensing Temperature: 40°C															
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Models	-35	-30	-25	-20	-15	-10	-5	Models	-35	-30	-25	-20	-15	-10	-5
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	16.5	ZF18KVE EVI	3.4	3.5	3.6	3.7	3.9	4.1	4.4
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	17.5	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	18.5	22.3	26.8			ZF49K5E EVI	8.0	8.3	8.5	8.8	9.1		
Models with Liquid Injection															
ZF06K4E	1.2	1.6	2.0	2.5	3.0	3.7	4.5	ZF06K4E	1.4	1.5	1.5	1.6	1.7	1.8	1.9
ZF08K4E	1.5	1.9	2.3	2.9	3.6	4.4	5.3	ZF08K4E	1.7	1.7	1.8	1.9	2.0	2.2	2.3
ZF09K4E	1.9	2.3	2.9	3.5	4.3	5.2	6.2	ZF09K4E	1.7	1.9	2.1	2.3	2.6	3.0	3.4
ZF11K4E	2.1	2.6	3.3	4.1	5.0	6.1	7.4	ZF11K4E	1.8	1.9	2.0	2.1	2.2	2.4	2.5
ZF13K4E	2.2	2.8	3.5	4.4	5.5	6.5	7.7	ZF13K4E	2.1	2.2	2.3	2.3	2.4	2.5	2.5
ZF15K4E	2.7	3.4	4.3	5.5	6.7	8.1	9.7	ZF15K4E	2.5	2.7	2.8	2.9	3.0	3.1	3.0
ZF18K4E	3.3	4.1	5.2	6.6	8.1	9.7	11.5	ZF18K4E	3.0	3.2	3.3	3.5	3.6	3.7	3.5
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	8.5	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

Suction Gas Return 20°C
Preliminary data

Capacity Data

Condensing Temperature: 40°C															
R404A	Cooling Capacity (kW)							R404A	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Models	-35	-30	-25	-20	-15	-10	-5	Models	-35	-30	-25	-20	-15	-10	-5
Models with Enhanced Vapor Injection															
ZF13KVE EVI	4.0	4.9	6.0	7.2	8.5	10.0	11.7	ZF13KVE EVI	2.9	3.0	3.1	3.2	3.3	3.4	3.5
ZF18KVE EVI	6.1	7.3	8.7	10.4	12.3	14.4	16.9	ZF18KVE EVI	4.0	4.2	4.4	4.6	4.8	4.9	5.1
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	6.6
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	8.7
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	10.6
ZF49K5E EVI	14.1	17.1	20.5	24.5	28.9			ZF49K5E EVI	9.1	9.7	10.3	10.8	11.3		
Models with Liquid Injection															
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	4.1	4.8	5.7	ZF08K4E	1.6	1.7	1.8	1.9	2.0	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	3.7	3.8	4.1
ZF18K4E	4.2	5.2	6.4	7.8	9.4	11.3	13.5	ZF18K4E	3.4	3.6	3.7	3.8	4.0	4.2	4.4
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

Suction Gas Return 20°C
Preliminary data

R22	Cooling Capacity (kW)							R22	Power Input (kW)						
	Evaporating Temperature (°C)								Evaporating Temperature (°C)						
Models	-35	-30	-25	-20	-15	-10	-5	Models	-35	-30	-25	-20	-15	-10	-5
ZF08K4E	2.7	3.3	4.1	5.0	6.1	7.3	8.7	ZF08K4E	2.5	2.5	2.6	2.7	2.8	2.9	3.0
ZF09K4E	1.8	2.3	2.8	3.5	4.2	5.1	6.1	ZF09K4E	1.9	1.9	2.0	2.0	2.1	2.1	2.2
ZF11K4E	2.3	2.9	3.5	4.3	5.2	6.3	7.5	ZF11K4E	2.1	2.1	2.2	2.3	2.4	2.5	2.7
ZF13K4E	2.7	3.3	4.1	5.0	6.1	7.3	8.7	ZF13K4E	2.5	2.5	2.6	2.7	2.8	2.9	3.0
ZF15K4E	3.2	4.1	5.0	6.1	7.4	8.9	10.6	ZF15K4E	3.0	3.1	3.2	3.3	3.4	3.6	3.7
ZF18K4E	3.8	4.8	5.9	7.3	8.8	10.7	12.7	ZF18K4E	3.8	3.8	3.9	4.0	4.1	4.3	4.5

Suction Gas Return 20°C
Preliminary data

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

The Discus ranges from 5 to 60 hp with a displacement of 16.8 to 181. These compressors are qualified for R404A, R507, R134a, R407A, R407F and R22. All Discus compressors are designed to deliver maximum performance and reliability:

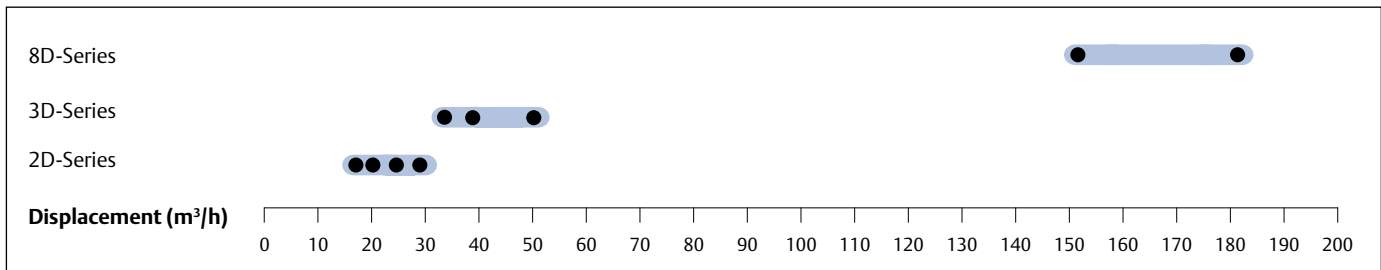
- Discus “puck” valve integrated into the valve plate for highest performance whatever the operating condition
- Positive displacement high flow oil pump guarantees high oil feeding pressure for good lubrication and bearings’ cooling



Discus Compressor

- 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



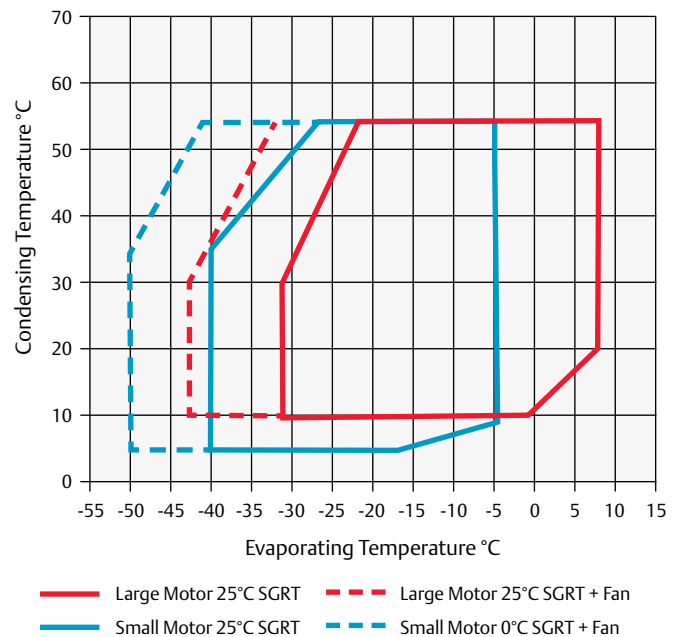
Features and Benefits

- 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

Maximum Allowable Pressure (PS)

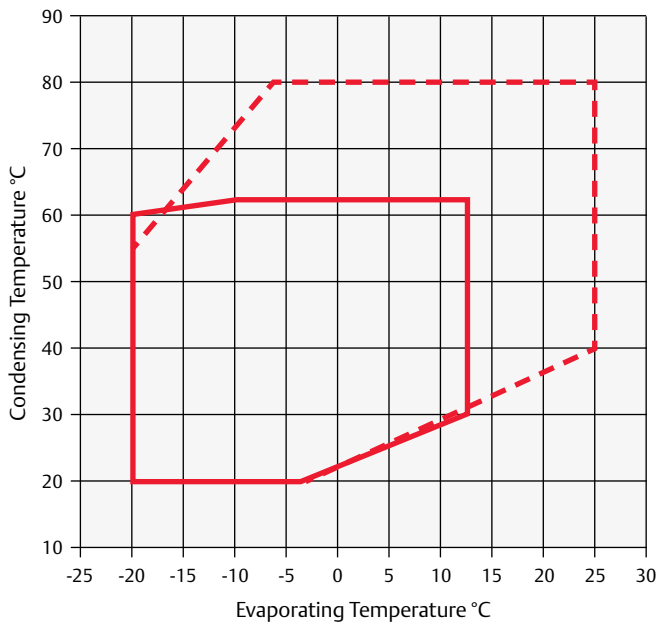
- Low Side PS 22.5 bar (g)/ High Side PS 28 bar (g)

Operating Envelope R404A



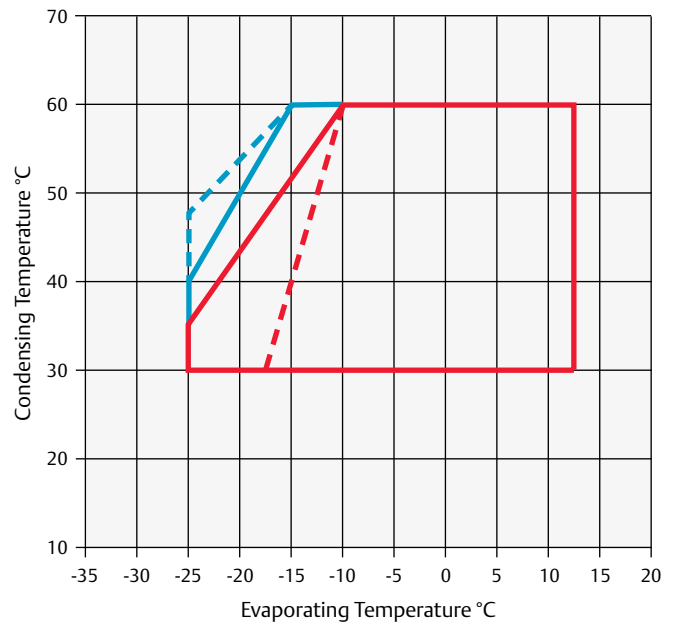
For individual model details please refer to Select Software.

Operating Envelope R134a



— 25°C Suction Gas Return - - - Large Motor Version

Operating Envelope R407C



— 25°C Suction Gas Return - - - Large Motor Version
 — 20K Suction Superheat - - - Large Motor Version

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 (dBA) ***
						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															
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
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

° High Discharge Temp - Additional Cooling Required

* 10K border

Condensing Temperature: 40°C															
R407A	Cooling Capacity (kW)							R407A	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
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

° High Discharge Temp - Additional Cooling Required

* 10K border

Capacity Data

R407F	Cooling Capacity (kW)							R407F	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
2DC-50X		1.1*	1.9*	4.7	8.0	10.1	15.4	2DC-50X		1.4*	1.7*	2.4	3.1	3.3	3.6
2DD-50X		1.6*	2.6*	5.9	9.7	12.1	18.1	2DD-50X		1.7*	2.1*	2.9	3.6	3.8	4.1
2DL-40X		2.6*	3.9*	7.7	12.4	15.3		2DL-40X		2.4*	2.8*	3.7	4.5	4.9	
2DL-75X				7.6	12.5	15.6	23.4	2DL-75X				3.7	4.4	4.6	5.0
2DB-50X		3.9*	5.4*	9.8	15.3	18.8		2DB-50X		2.9*	3.4*	4.5	5.4	5.8	
2DB-75X				9.6	15.3	18.9	27.9	2DB-75X				4.6	5.6	6.0	6.3
3DA-50X		4.3*	6.1*	11.3	17.9	22.1		3DA-50X		3.4*	4.0*	5.2	6.4	6.8	
3DA-75X				11.4	18.4	22.8	33.8	3DA-75X				5.2	6.3	6.8	7.2
3DC-75X		5.4*	7.5*	13.8	21.6	26.6		3DC-75X		4.2*	4.8*	6.2	7.5	8.1	
3DC-100X				14.0	22.1	27.3	40.2	3DC-100X				6.1	7.4	7.9	8.5
3DS-100X		7.3*	10.2*	18.4	28.8	35.3		3DS-100X		5.5*	6.4*	8.3	10.0	10.8	
3DS-150X				18.8	29.7	36.4	53.2	3DS-150X				8.2	10.1	10.8	11.8
8DL-370X		20.8*	28.9*	53.6	85.3	105.5		8DL-370X		17.4*	19.8*	25.2	30.5	33.0	
8DH-500X				53.0	84.6	105.0	156.5	8DH-500X				25.8	30.5	32.2	34.9
8DJ-600X				63.7	101.0	125.0	187.5	8DJ-600X				30.6	36.9	39.8	43.9
8DT-450X		26.8*	35.9*	64.1	100.5	123.5		8DT-450X		21.8*	24.7*	31.2	37.7	40.7	

Suction Gas Return 20°C / Subcooling 0K

° High Discharge Temp - Additional Cooling Required

* 10K border

Condensing Temperature: 40°C															
R404A	Cooling Capacity (kW)							R404A	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
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

Capacity Data

Condensing Temperature: 40°C															
R407C		Cooling Capacity (kW)						R407C		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
2DC-50X				4.1	7.4	9.6	15.1	2DC-50X				2.1	2.7	2.9	3.3
2DD-50X				4.9	8.7	11.2	17.4	2DD-50X				2.5	3.1	3.4	3.8
2DL-75X				6.3	10.9	13.9	21.5	2DL-75X				3.1	3.9	4.2	4.8
2DB-75X				8.3	13.5	16.9	25.4	2DB-75X				3.9	4.7	5.1	5.7
3DA-75X				9.2	15.4	19.5	29.9	3DA-75X				4.5	5.5	5.9	6.4
3DC-100X				11.3	18.5	23.2	35.3	3DC-100X				5.3	6.4	6.9	7.6
3DS-150X				15.8	24.8	30.8	46.0	3DS-150X				7.4	8.8	9.4	10.3
8DH-500X				40.0*	70.6	88.9	135.0	8DH-500X				22.0*	26.6	28.7	31.8
8DJ-600X				47.9*	84.6	106.5	162.0	8DJ-600X				25.9*	31.8	34.6	39.2

Suction Gas Return 20°C / Subcooling 0K

* 10K border

Condensing Temperature: 40°C															
R22		Cooling Capacity (kW)						R22		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
2DC-500/-50X				4.9	8.4	10.6	15.9	2DC-500/-50X				2.4	2.9	3.1	3.4
2DD-500/-50X				5.8	9.8	12.3	18.4	2DD-500/-50X				2.8	3.4	3.6	3.9
2DL-400 DC	1.4°	3.1°	4.3°	7.4°	11.7°			2DL-400 DC	1.7°	2.5°	2.9°	3.7°	4.4°		
2DL-750/-75X				7.4	12.2	15.2	22.7	2DL-750/-75X				3.5	4.2	4.5	4.9
2DB-500 DC	1.9°	4.0°	5.4°	9.1°	14.2°			2DB-500 DC	2.3°	3.2°	3.6°	4.5°	5.2°		
2DB-750/-75X				9.5	15.0	18.4	26.7	2DB-750/-75X				4.3	5.1	5.4	5.8
3DA-500 DC	2.1°	4.5°	6.0°	10.1°				3DA-500 DC	2.3°	3.4°	4.0°	5.0°			
3DA-750/-75X				10.7	17.3	21.4	31.6	3DA-750/-75X				5.0	5.9	6.3	6.6
3DC-750 DC	2.7°	5.4°	7.3°	12.5°				3DC-750 DC	2.8°	4.0°	4.7°	6.1°			
3DC-1000/-100X				12.9	20.6	25.4	37.2	3DC-1000/-100X				5.9	7.0	7.4	7.8
3DS-1000 DC	3.4°	7.5°	10.2°	17.2°				3DS-1000 DC	3.9°	5.7°	6.6°	8.4°			
3DS-1500/-150X				17.7	27.4	33.4	48.3	3DS-1500/-150X				8.1	9.4	10.0	10.6
8DH-5000/-500X				48.4*	79.3	97.6	143.0	8DH-5000/-500X				24.6*	28.9	30.7	33.1
8DJ-6000/-600X				58.0*	95.1	117.0	171.5	8DJ-6000/-600X				29.2*	34.8	37.3	41.0

Suction Gas Return 20°C / Subcooling 0K

° High Discharge Temp - Additional Cooling Required

* 10K border



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