

ZF Copeland Scroll™ Compressor Range for Low Temperature Refrigeration

using R407A/F, R448A/R449A and R404A

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* 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.

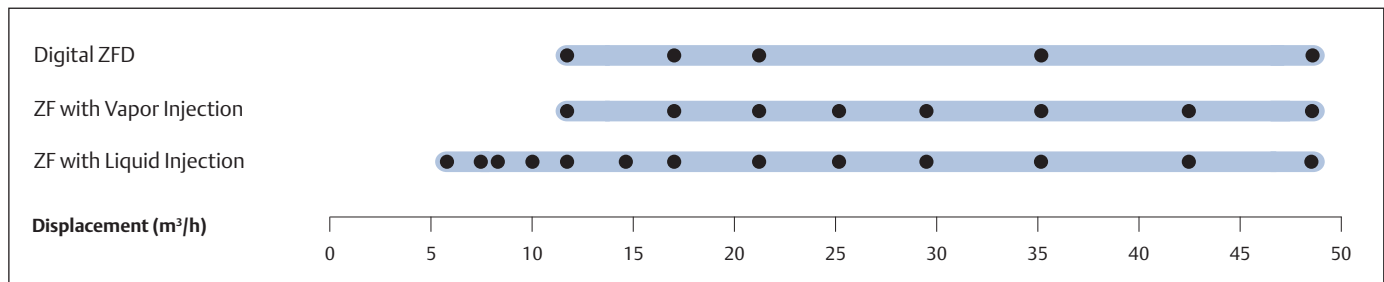
These compressors are qualified for R407A/F, R448A/R449A, R404A and R134a for certain models. For more details on Digital Scroll models please refer to page 54 in the catalogue.

CoreSense™ Diagnostics is now available as an option for the ZF Scroll Summit series (ZF34K5E-ZF54K5E) as well as for Summit Digital ZFD41K5E and ZFD54K5E.



ZF Compressor for Low Temperature Refrigeration with and without Sound Shell

ZF and ZFD Compressor Line-up



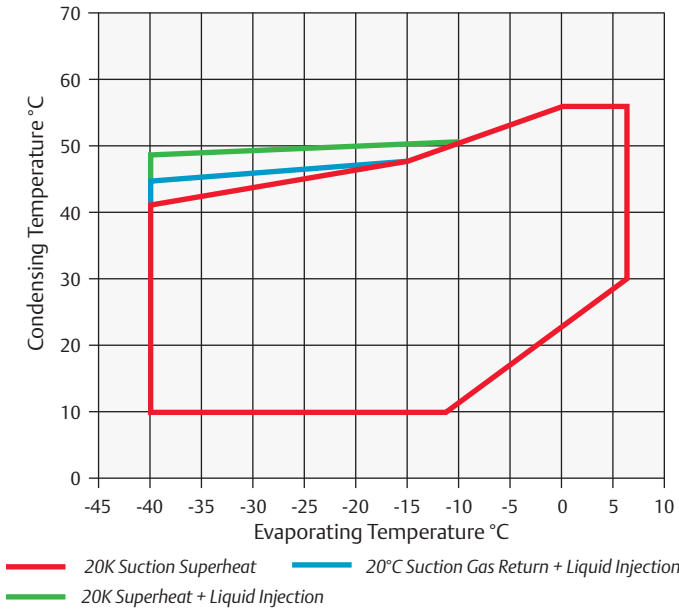
Features and Benefits

- 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 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

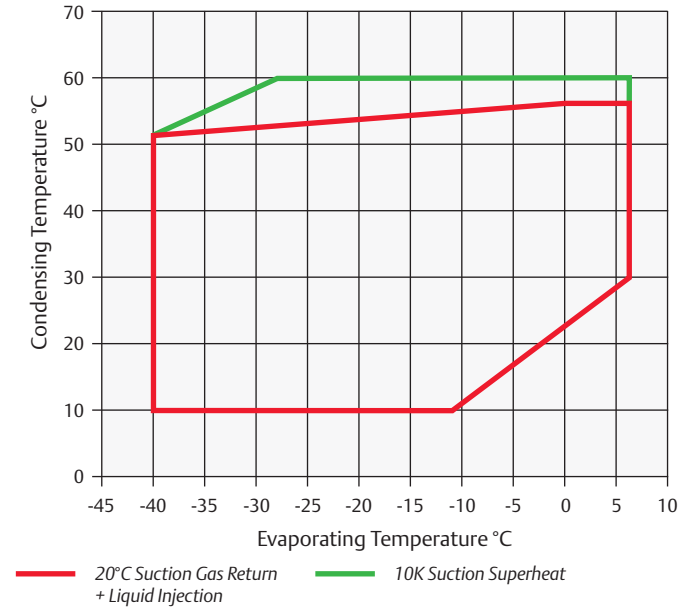
Maximum Allowable Pressure (PS)

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

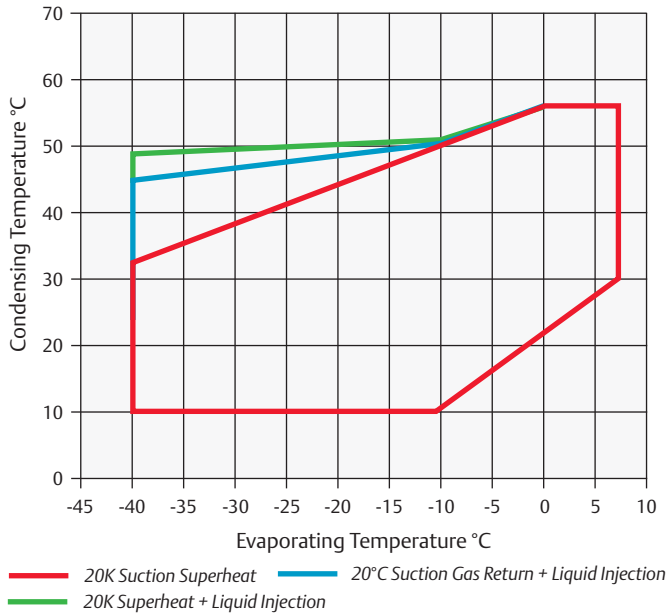
Operating Envelope R407A - For Vapor Injection



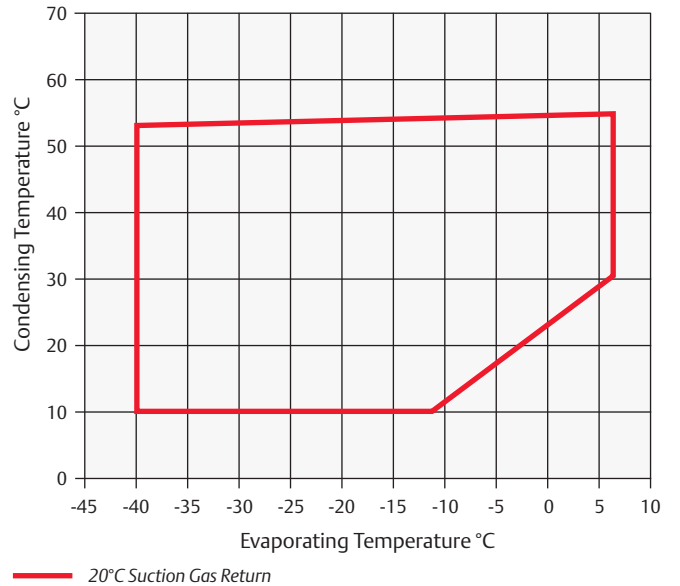
For Liquid Injection



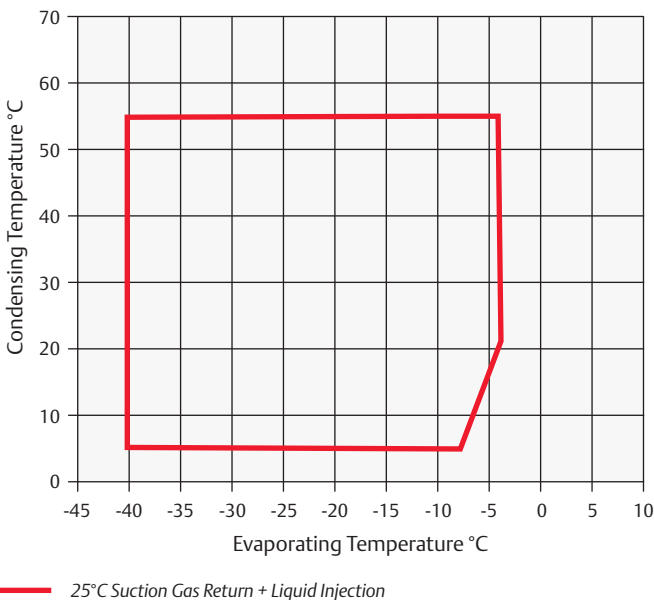
Operating Envelope R407F - For Vapor Injection



For Liquid Injection



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)	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 @ 1 m - dB(A)***
								3 Ph**	3 Ph**	3 Ph**	
Models with Liquid Injection											
ZF06K4E	2.0	5.9	1 ¼	1	1.3	243/245/369	25.4	TFD	5.0	26.0	57.0
ZF08K4E	2.5	7.3	1 ¼	1	1.5	243/245/391	27.2	TFD	6.0	32.0	59.0
ZF09K4E	2.8	8.0	1 ¼	1	1.5	243/244/391	27.0	TFD	6.0	40.0	62.0
ZF11K4E	3.5	9.9	1 ¼	1	1.5	243/244/405	28.0	TFD	7.1	46.0	63.0
ZF13K4E	4.0	11.8	1 ¼	1	1.9	246/251/442	38.0	TFD	8.0	51.5	65.0
ZF15K4E	5.0	14.5	1 ¼	1	1.9	246/251/442	39.0	TFD	10.0	64.0	65.0
ZF18K4E	6.0	17.1	1 ¼	1	1.9	246/251/442	41.0	TFD	12.5	74.0	67.0
ZF24K4E	7.5	20.9	1 ¾	1 ¼	4.1	368/316/525	100.0	TWD	16.1	99.0	72.0
ZF33K4E	10.5	28.8	1 ¾	1 ¼	4.1	368/319/532	93.0	TWD	22.3	127.0	72.0
ZF40K4E	12.5	35.6	1 ¾	1 ¼	4.1	368/324/532	103.0	TWD	25.1	167.0	72.0
ZF48K4E	15.0	42.8	2 ¼	1 ¾	4.1	324/294/579	112.0	TWD	28.7	198.0	72.0
ZF Summit Models with Liquid Injection											
ZF25K5E	7.5	21.4	1 ¼	1 ¼	1.9	246/257/452	39.5	TFD	16.0	102.0	70.0
ZF34K5E	9.0	29.1	1 ¾	1 ¼	3.4	280/280/534	63.1	TFD	25.0	100.0	68.0
ZF41K5E	10.0	35.3	1 ¾	1 ¼	3.4	280/280/534	63.1	TFD	29.0	118.0	69.0
ZF49K5E	13.0	42.4	1 ¾	1 ¼	3.4	280/280/552	66.2	TFD	30.0	139.0	72.0
Models with Enhanced Vapor Injection											
ZF13KVE EVI	4.0	11.7	1 ¼	1	1.9	246/251/442	38.0	TFD	9.0	64.0	63.0
ZF18KVE EVI	6.0	17.1	1 ¼	1	1.9	246/251/442	39.5	TFD	13.7	74.0	67.0
ZF24KVE EVI	7.5	20.9	1 ¾	1 ¼	4.1	316/368/525	100.2	TWD	16.0	99.0	70.0
ZF33KVE EVI	10.5	28.8	1 ¾	1 ¼	4.1	368/319/525	93.0	TWD	21.4	127.0	72.0
ZF40KVE EVI	12.5	35.6	1 ¾	1 ¼	4.1	316/368/532	96.2	TWD	27.0	167.0	72.0
ZF48KVE EVI	15.0	42.8	2 ¼	1 ¾	4.1	324/294/579	112.0	TWD	30.6	198.0	72.0

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

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

For technical and capacity data of ZF28K5E and ZF54K5E please refer to Select software.

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
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
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	12.7	15.8	19.4	23.5	28.1			ZF49K5E EVI	8.4	8.7	9.0	9.3	9.5		

Suction Gas Return 20°C / Subcooling 0K

Preliminary 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
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
ZF24K4E	5.2	6.4	7.9	9.6	11.6	13.8	16.4	ZF24K4E	4.5	4.7	5.0	5.2	5.4	5.6	5.8
ZF33K4E	7.1	8.8	10.9	13.3	16.1	19.3	23.0	ZF33K4E	5.8	6.2	6.5	6.9	7.2	7.5	7.8
ZF40K4E	8.8	11.0	13.5	16.4	19.8	23.7	28.2	ZF40K4E	7.4	7.8	8.2	8.6	9.0	9.4	9.8
ZF48K4E	10.6	13.2	16.3	20.0	24.1	28.9	34.4	ZF48K4E	9.7	10.2	10.6	11.1	11.6	12.1	12.7
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	4.3	4.5	4.6	4.8	5.0	5.1
ZF24KVE EVI	7.2	8.8	10.7	12.7	14.9	17.4	20.3	ZF24KVE EVI	5.1	5.4	5.6	5.8	6.0	6.2	6.5
ZF19KVE EVI	7.7	9.4	11.3	13.4				ZF19KVE EVI	5.2	5.4	5.7	5.9			
ZF33KVE EVI	9.8	11.9	14.4	17.2	20.4	24.0	28.0	ZF33KVE EVI	6.9	7.2	7.4	7.7	8.0	8.3	8.5
ZF40KVE EVI	11.9	15.2	18.7	22.4	26.4	30.8	35.6	ZF40KVE EVI	8.0	8.8	9.4	9.9	10.3	10.6	10.8
ZF48KVE EVI	14.9	18.2	21.7	25.6	29.8	34.6	39.7	ZF48KVE EVI	9.8	10.4	11.0	11.6	12.2	12.8	13.5
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
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	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		

Suction Gas Return 20°C / Subcooling 0K

Preliminary data

For capacity data of ZF28K5E and ZF54K5E please refer to Select software.