*Copeland ZS, ZB & ZF*KA small scroll compressor range for medium and low temperature applications*

As an extension to the existing ZB*KCE and ZF*K4E scroll range, Copeland ZS*KA, ZB*KA and ZF*KA scroll compressors represent the latest innovation in scroll technology for refrigeration equipment covering a small size displacement range of 2.4 m^3/h to 6.7 m^3/h.

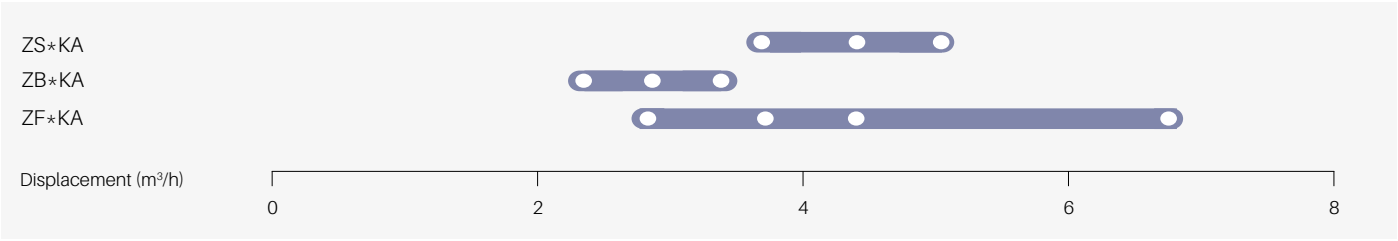
ZS*KA and ZB*KA models are intended for medium temperature refrigeration type systems, and are ideally suited for applications such as walk-in coolers, reach-in coolers, cold rooms, display cases and milk tank units. The ZB*KA scrolls cover a range from 0.7hp to 1.3hp, while ZS*KA cover 1.3hp to 1.8hp.

ZF*KA models are suitable for low temperature type systems such as walk-in freezers and reach-in freezers. They cover a range from 1hp to 2.5hp.

ZS, ZB and ZF*KA are multi-refrigerant capable and feature low sound and low vibration, which is particularly important in the retail and food service sector and recommended for supermarkets, restaurants, convenience stores and milk cooling operations. Their compact design provides seasonal efficiencies up to 28% higher than the equivalent hermetic reciprocating compressors. They are qualified for today's HFC as well as new low GWP refrigerants and HFO blends.

Copeland ZS*KA scroll compressor range for medium temperature refrigeration applications

Compressor line-up



Features and benefits

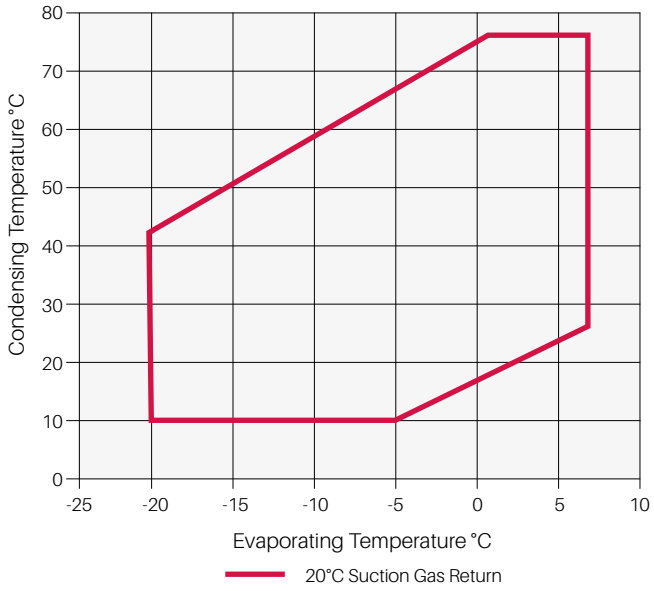
- Copeland scroll axial and radial compliance for superior reliability and efficiency
- High seasonal efficiencies as scrolls are designed at the condition where equipment runs most of the time
- Up to 15% efficiency advantage over hermetic reciprocating compressors at rating conditions, and up to 28% 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 ranges: from -25°C to 10°C covering a minimum condensing limit of 10°C for ZS*KA and ZB*KA and -40°C to -12°C for ZF*KA
- Qualified for R407A/F/C, R448A, R449A, R404A and R134a refrigerants

Maximum allowable pressure (PS)

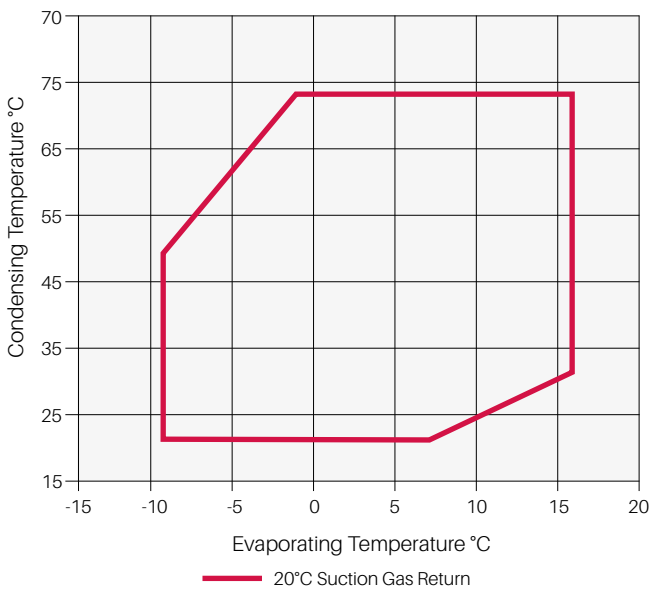
- ZS09 to ZS13KA:
  Low Side PS 21.6 bar(g) / High Side PS 31.9 bar(g)
- ZB06 to ZB08KA:
  Low Side PS 21.0 bar(g) / High Side PS 28.8 bar(g)
- ZF03 to ZF07KA:
  Low Side PS 21.0 bar(g) / High Side PS 28.8 bar(g)

Operating envelope

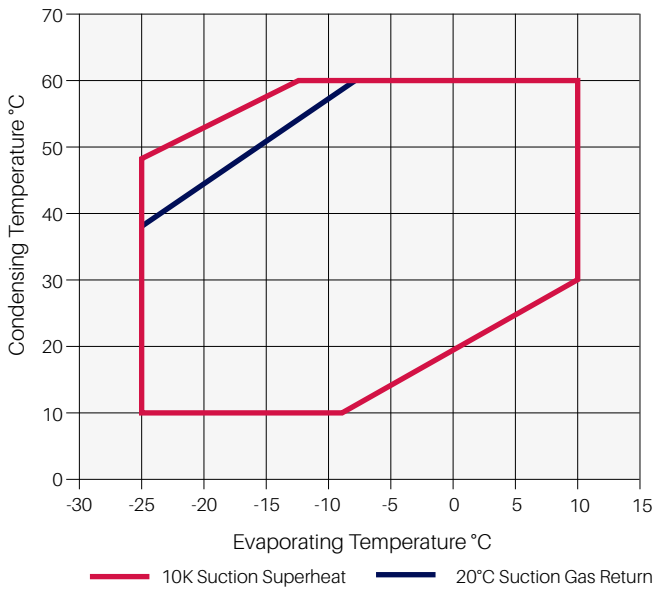
ZS*KA - R134a



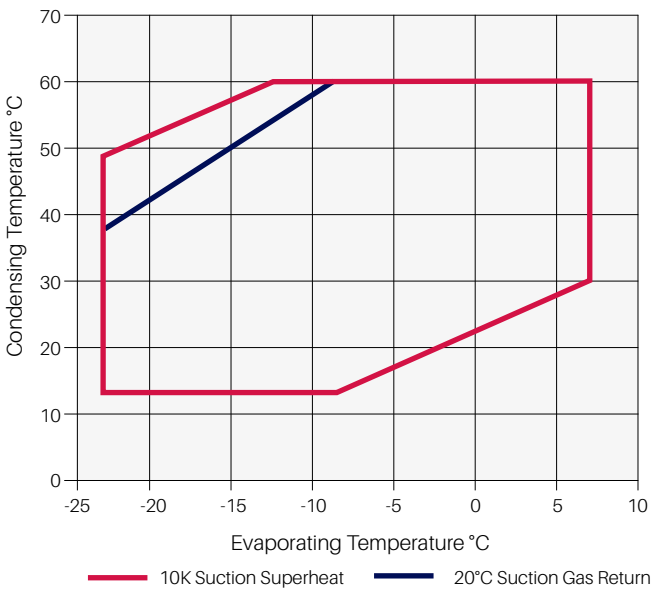
ZB*KA - R134a



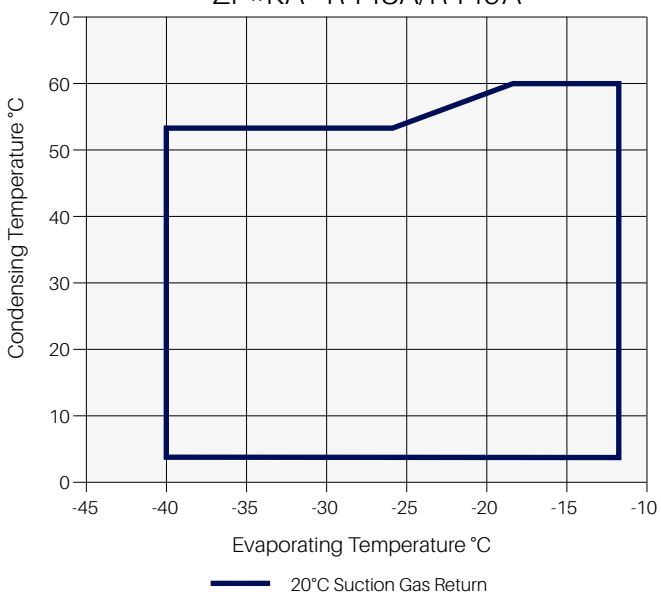
ZS*KA - R448A/R449A



ZB*KA - R448A/R449A



ZF*KA - R448A/R449A



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														
ZB06KAE	0.8	2.4	3/4	1/2	0.7	246/246/380	21	PFJ	TFD	5	2	32	15	59
ZB07KAE	1.0	2.9	3/4	1/2	0.7	246/246/380	23	PFJ	TFD	6	2	45	20	59
ZB08KAE	1.2	3.4	3/4	1/2	0.7	246/246/380	23	PFJ	TFD	7	2	45	20	59
ZS09KAE	1.3	3.7	3/4	1/2	0.7	246/246/399	22	PFJ	TFD	7	3	45	27	58
ZS11KAE	1.5	4.4	3/4	1/2	0.7	246/246/399	22	PFJ	TFD	9	3	45	27	58
ZS13KAE	1.8	5.0	3/4	1/2	0.7	246/246/399	22	PFJ	TFD	10	4	54	29	59
Low Temperature														
ZF03KAE	1.0	2.8	3/4	1/2	0.7	246/246/387	22	PFJ	TFD	5	2	40	20	40
ZF04KAE	1.3	3.7	3/4	1/2	0.7	246/246/387	22	PFJ	TFD	6	3	45	27	45
ZF05KAE	1.5	4.4	3/4	1/2	0.7	246/246/387	22	PFJ	TFD	7	5	45	27	45
ZF07KAE	2.5	6.7	3/4	1/2	0.7	246/246/387	23	PFJ	TFD	11	4	79	27	79

* 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															
ZB06KAE				0.9	1.1	1.4	1.7	ZB06KAE				0.6	0.6	0.6	0.6
ZB07KAE				1.0	1.3	1.7	2.1	ZB07KAE				0.7	0.7	0.7	0.8
ZB08KAE				1.2	1.5	1.9	2.3	ZB08KAE				0.8	0.8	0.9	0.9
ZS09KAE		0.9	1.2	1.5	1.8	2.2	2.6	ZS09KAE		0.7	0.8	0.8	0.8	0.8	0.9
ZS11KAE		1.1	1.4	1.7	2.1	2.6	3.1	ZS11KAE		0.9	0.9	1.0	1.0	1.0	1.1
ZS13KAE		1.2	1.6	2.0	2.4	2.9	3.6	ZS13KAE		1.0	1.1	1.1	1.2	1.2	1.2
Low Temperature															
ZF03KAE	0.5*	0.6*	0.8*	0.9*	1.2*			ZF03KAE	0.6*	0.6*	0.7*	0.7*	0.7*		
ZF04KAE	0.6*	0.8*	1.1*	1.4*	1.7*			ZF04KAE	0.7*	0.8*	0.8*	0.9*	0.9*		
ZF05KAE	0.8*	1.0*	1.3*	1.6*	2.0*			ZF05KAE	0.9*	1.0*	1.0*	1.0*	1.0*		
ZF07KAE	1.3*	1.6*	2.0*	2.5*	3.1*			ZF07KAE	1.3*	1.4*	1.4*	1.5*	1.6*		

Conditions: Suction Gas Return 20°C / Subcooling 0K
*Conditions: Suction Superheat 10K, 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															
ZB06KAE				0.9	1.1	1.4	1.7	ZB06KAE				0.6	0.6	0.6	0.6
ZB07KAE				1.0	1.3	1.7	2.1	ZB07KAE				0.7	0.7	0.7	0.8
ZB08KAE				1.2	1.5	1.9	2.3	ZB08KAE				0.8	0.8	0.9	0.9
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
Low Temperature															
ZF03KAE	0.5*	0.6*	0.8*	1.0*	1.2*			ZF03KAE	0.6*	0.6*	0.7*	0.7*	0.8*		
ZF04KAE	0.6*	0.8*	1.1*	1.4*	1.7*			ZF04KAE	0.7*	0.8*	0.8*	0.9*	1.0*		
ZF05KAE	0.8*	1.0*	1.3*	1.6*	2.0*			ZF05KAE	0.9*	1.0*	1.0*	1.0*	1.0*		
ZF07KAE	1.3*	1.6*	2.0*	2.5*	3.1*			ZF07KAE	1.3*	1.4*	1.4*	1.5*	1.6*		

Conditions: Suction Gas Return 20°C / Subcooling 0K
*Conditions: 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	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
Medium Temperature															
ZB06KAE				0.9	1.2	1.4	1.7	ZB06KAE				0.6	0.6	0.6	0.6
ZB07KAE				1.1	1.4	1.7	2.1	ZB07KAE				0.7	0.7	0.8	0.8
ZB08KAE				1.2	1.5	1.9	2.3	ZB08KAE				0.8	0.9	0.9	0.9
ZS09KAE		0.9	1.1	1.4	1.7	2.1	2.5	ZS09KAE		0.7	0.8	0.8	0.9	0.9	0.9
ZS11KAE		1.0	1.3	1.6	2.0	2.5	3.1	ZS11KAE		0.8	0.9	1.0	1.0	1.0	1.0
ZS13KAE		1.4	1.8	2.3	2.8	3.4	4.1	ZS13KAE		1.1	1.3	1.4	1.4	1.5	1.5
Low Temperature															
ZF03KAE	0.5*	0.7*	0.8*	1.0*	1.3*			ZF03KAE	0.7*	0.7*	0.7*	0.7*	0.7*		
ZF04KAE	0.7*	0.9*	1.1*	1.4*	1.8*			ZF04KAE	0.7*	0.8*	0.8*	0.9*	1.0*		
ZF05KAE	0.8*	1.1*	1.3*	1.7*	2.1*			ZF05KAE	1.0*	1.0*	1.0*	1.0*	1.0*		
ZF07KAE	1.3*	1.7*	2.1*	2.6*	3.2*			ZF07KAE	1.3*	1.4*	1.4*	1.5*	1.6*		

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															
ZB06KAE					0.7	0.9	1.1	ZB06KAE					0.4	0.4	0.4
ZB07KAE					0.8	1.0	1.3	ZB07KAE					0.5	0.5	0.5
ZB08KAE					0.9	1.2	1.5	ZB08KAE					0.5	0.6	0.6
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