

ZB Copeland Scroll™ Compressor Range for Medium Temperature Refrigeration using R404A, R134a, R407A/C and R22

Emerson Climate Technologies offers ZB compressors with a wide cooling capacity range starting from 3 kW to 26 kW. 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.

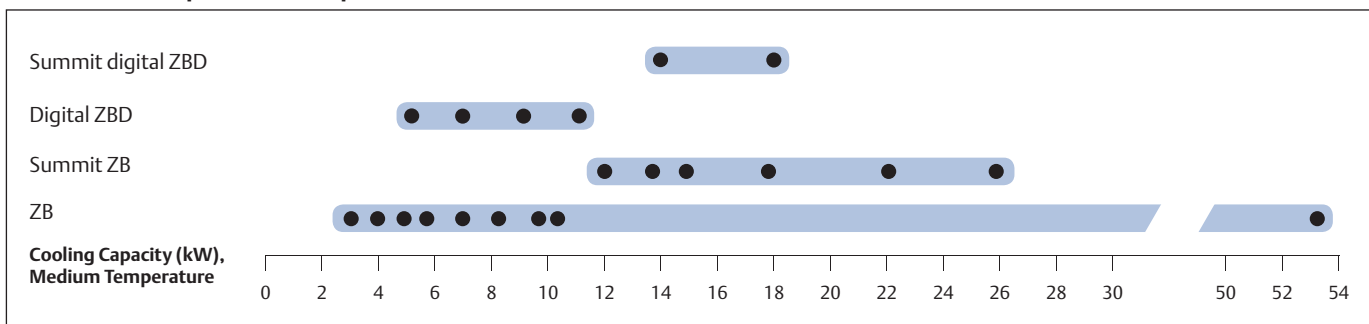
The ZB range also features ZB220 (30hp), the largest refrigeration scroll available on the market. These compressors are qualified for R404A, R134a, R407A/C and R22.

For more details on digital model please refer to page 38 in the catalogue.



ZB Compressor for Medium Temperature Refrigeration

ZB and ZBD Compressor Line-up



Conditions EN12900, R404A: Evaporating -10°C, Condensing 45°C, Suction Gas Temperature 20°C, Subcooling 0K

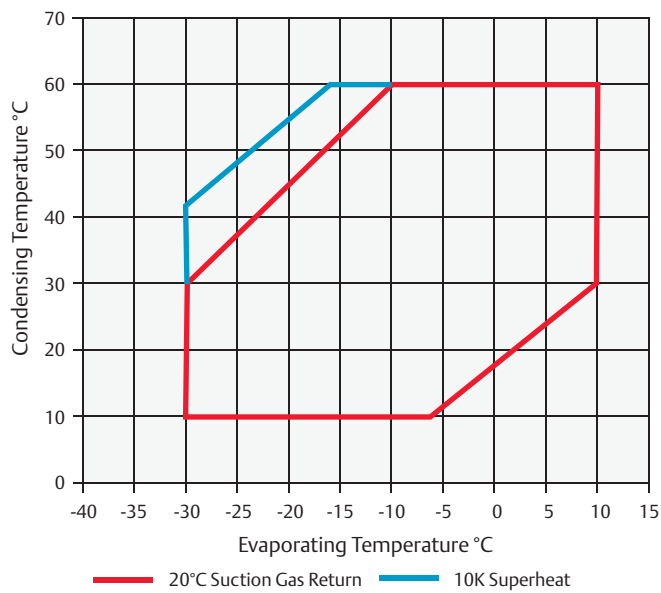
Features and Benefits

- 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 6 digital scroll compressor models for simple, stepless 10 to 100% capacity modulation
- One model for multi refrigerants R404A, R407A/C, R134a, R22

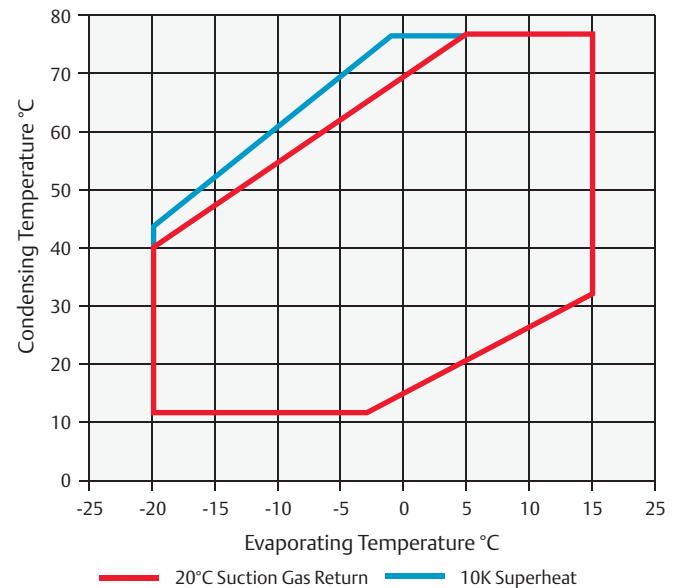
Maximum Allowable Pressure (PS)

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

Operating Envelope R404A



Operating Envelope R134a



Refer to Emerson's Select 7.5 selection software for individual model operating envelopes and other refrigerants.

Technical Overview

R404A	Nominal hp	Capacity (kW)	COP	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 (dBA) ***
										1 Ph *	3 Ph **	1 Ph *	3 Ph **	1 Ph *	3 Ph **	
ZB15KCE	2.0	3.3	1.8	5.9	3/4	1/2	1.30	241/241/382	25	PFJ	TFD	13	5	58	26	55
ZB19KCE	2.5	3.9	1.9	6.8	1 1/4	1	1.50	242/242/369	27	PFJ	TFD	13	7	61	32	55
ZB21KCE	3.0	5.1	2.0	8.6	1 1/4	1	1.24	243/244/392	29	PFJ	TFD	16	7	82	40	58
ZB26KCE	3.5	5.8	1.8	10.0	1 1/4	1	1.45	243/244/406	28	PFJ	TFD	18	9	97	46	60
ZB29KCE	4.0	6.3	2.0	11.4	1 1/4	1	1.50	242/242/423	29		TFD		10		50	59
ZB30KCE	4.0	6.9	2.0	11.7	1 1/4	1	1.90	242/242/438	35	PFJ	TFD	26	10	142	49	61
ZB38KCE	5.0	8.5	2.0	14.4	1 1/4	1	1.90	242/242/438	37	PFJ	TFD	32	13	142	66	63
ZB42KCE	5.5	9.7	2.1	16.2	1 1/4	1	1.90	251/246/450	40	PFJ		36		150		62
ZB45KCE	6.0	10.1	2.1	17.1	1 1/4	1	1.90	242/242/458	40		TFD		13		74	61
ZB48KCE	7.0	11.2	2.1	18.8	1 1/4	1 1/4	1.80	241/247/456	39		TFD		14		101	62
ZB50KCE	7.0	11.9	2.1	19.8	1 1/8	7/8	2.65	264/284/480	57		TFD		15		100	64
ZB58KCE	8.0	13.3	2.1	22.1	1 3/4	1 1/4	2.65	264/284/478	57		TFD		15		95	65
ZB66KCE	9.0	15.1	2.1	24.9	1 3/4	1 1/4	3.38	264/284/533	60		TFD		18		111	66
ZB76KCE	10.0	17.9	2.2	29.1	1 3/4	1 1/4	3.38	264/284/546	61		TFD		20		118	66
ZB95KCE	13.0	21.7	2.1	36.4	1 3/4	1 1/4	3.38	264/285/552	65		TFD		28		140	67
ZB114KCE	15.0	25.8	2.0	43.4	1 3/4	1 1/4	3.38	264/285/552	66		TFD		33		174	71
ZB220KCE	30.0	53.2	2.2	87.5	2 1/4 x 12UN	1 3/4 x 12UN	6.30	448/392/717	176		TWM		69		310	78

Conditions EN12900 : MT, Evaporating -10°C, Condensing 45°C, Suction Gas Temperature 20°C, 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															
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		1.4	1.9	2.4	3.0	3.7	4.5	ZB15KCE		1.7	1.7	1.7	1.6	1.6	1.5
ZB19KCE		2.0	2.5	3.1	3.8	4.5	5.4	ZB19KCE		1.9	1.9	1.9	1.9	1.9	1.9
ZB21KCE		2.4	3.0	3.7	4.5	5.5	6.6	ZB21KCE		2.2	2.2	2.2	2.2	2.2	2.2
ZB26KCE		2.8	3.5	4.3	5.3	6.4	7.6	ZB26KCE		2.6	2.6	2.6	2.6	2.6	2.6
ZB29KCE	2.1*	3.2	4.1	5.0	6.2	7.5	9.0	ZB29KCE	2.8*	2.8	2.9	2.9	2.9	2.9	2.8
ZB30KCE	2.1*	3.2	4.1	5.0	6.2	7.5	9.0	ZB30KCE	3.0*	3.0	3.0	3.0	3.0	3.0	3.0
ZB38KCE	2.7*	4.1	5.1	6.3	7.7	9.3	11.2	ZB38KCE	3.7*	3.7	3.8	3.8	3.8	3.8	3.8
ZB42KCE**		4.6	5.7	7.1	8.7	10.6	12.7	ZB42KCE**		4.2	4.2	4.2	4.2	4.2	4.2
ZB45KCE	3.2*	4.8	6.0	7.4	9.1	11.0	13.2	ZB45KCE	4.2*	4.3	4.3	4.3	4.3	4.3	4.3
ZB48KCE	3.6*	5.5	6.9	8.6	10.5	12.7	15.2	ZB48KCE	4.9*	4.9	4.9	4.9	4.9	4.9	4.9
ZB50KCE		2.8*	5.9	8.2	10.6	13.1	15.8	ZB50KCE		5.2*	5.2	5.1	5.1	5.1	5.1
ZB58KCE		4.2*	7.2	9.4	11.9	14.5	17.5	ZB58KCE		5.6*	5.6	5.6	5.6	5.7	5.7
ZB66KCE		6.0*	8.9	11.1	13.6	16.4	19.7	ZB66KCE		6.1*	6.2	6.3	6.3	6.4	6.4
ZB76KCE		7.0*	10.4	13.0	16.0	19.4	23.3	ZB76KCE		7.0*	7.1	7.2	7.3	7.3	7.4
ZB95KCE		7.6*	10.7*	15.6	19.5	23.8	28.7	ZB95KCE		9.6*	9.4*	9.4	9.3	9.4	9.5
ZB114KCE		8.5*	12.3*	18.3	23.0	28.3	34.4	ZB114KCE		11.6*	11.4*	11.3	11.3	11.3	11.4
ZB220KCE			28.4*	39.2	47.7	57.5	68.9	ZB220KCE			21.4*	21.8	22.0	22.2	22.4

Suction Gas Return 20°C / Subcooling 0K

* Suction Superheat 10K / Subcooling 0K

** Single Phase only

Preliminary data

Condensing Temperature +40℃															
R407A	Cooling Capacity (kW)							R407A	Power Input (kW)						
	Evaporating Temperature (℃)								Evaporating Temperature (℃)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
ZB15KCE			1.6*	2.1*	2.8	3.5	4.2	ZB15KCE			1.5*	1.5*	1.5	1.5	1.5
ZB19KCE			2.1*	2.6*	3.4	4.2	5.2	ZB19KCE			1.7*	1.7*	1.8	1.8	1.8
ZB21KCE			2.5*	3.2*	4.1	5.1	6.2	ZB21KCE			2.0*	2.1*	2.1	2.1	2.1
ZB26KCE			2.6*	3.6*	4.7	5.8	7.1	ZB26KCE			2.3*	2.3*	2.3	2.3	2.4
ZB30KCE			3.4*	4.4*	5.8	7.3	8.9	ZB30KCE			2.7*	2.7*	2.7	2.7	2.8
ZB38KCE			4.2*	5.4*	7.2	8.9	11	ZB38KCE			3.2*	3.2*	3.3	3.3	3.4
ZB45KCE			4.9*	6.3*	8.2	10.2	12.4	ZB45KCE			3.8*	3.9*	4.0	4.0	4.0

Suction Gas Return 20°C / Subcooling 0K

* Suction Superheat 10K / Subcooling 0K

Condensing Temperature +40℃															
R407C	Cooling Capacity (kW)							R407C	Power Input (kW)						
	Evaporating Temperature (℃)								Evaporating Temperature (℃)						
Model	-35	-30	-25	-20	-15	-10	-5	Model	-35	-30	-25	-20	-15	-10	-5
ZB15KCE			1.6 *	1.9 *	2.3 *	2.9	3.6	ZB15KCE			1.2 *	1.3 *	1.3 *	1.3	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	5.8	ZB21KCE			1.9 *	2.0 *	2.0 *	2.0	2.0
ZB26KCE			2.2 *	2.9 *	3.7 *	4.9	6.2	ZB26KCE			2.2 *	2.2 *	2.2 *	2.2	2.2
ZB30KCE			2.7 *	3.6 *	4.8 *	6.2	7.7	ZB30KCE			2.5 *	2.5 *	2.6 *	2.6	2.6
ZB38KCE			3.1 *	4.2 *	5.6 *	7.4	9.4	ZB38KCE			2.9 *	3.0 *	3.1 *	3.1	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			3.7 *	5.3 *	7.1 *	9.2	11.5	ZB45KCE			3.4 *	3.6 *	3.6 *	3.7	3.7

Suction Gas Return 20°C / Subcooling 0K

* Suction Superheat 10K / Subcooling 0K

** Single Phase only

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
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	3.2	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
ZB30KCE				2.5*	3.4	4.3	5.4	ZB30KCE				1.7*	1.7	1.7	1.8
ZB38KCE				3.0*	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				3.8*	5.1	6.4	8.0	ZB45KCE				2.4*	2.4	2.5	2.5
ZB50KCE				4.6	5.9	7.4	9.1	ZB50KCE				3.0	3.0	3.0	3.1
ZB58KCE				5.2	6.6	8.3	10.3	ZB58KCE				3.4	3.4	3.4	3.4
ZB66KCE				6.0	7.6	9.5	11.8	ZB66KCE				3.8	3.7	3.8	3.8
ZB76KCE				6.9	8.6	10.8	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	6.7	6.7

Suction Gas Return 20°C / Subcooling 0K

* Suction Superheat 10K / Subcooling 0K

** Single Phase only

Condensation Temperature +40℃															
R22	Cooling Capacity (kW)							R22	Power Input (kW)						
	Evaporating Temperature (℃)								Evaporating Temperature (℃)						
Models	-35	-30	-25	-20	-15	-10	-5	Models	-35	-30	-25	-20	-15	-10	-5
ZB15KCE			1.4*	2.1*	2.8*	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
ZB50KCE			4.6*	6.9*	9.2*	11.7	14.4	ZB50KCE			4.4*	4.4*	4.4*	4.3	4.3
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*	9.6*	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*
ZB114KCE					19.9*	25.5*	31.7*	ZB114KCE					9.6*	9.6*	9.7*

Suction Gas Return 20°C / Subcooling 0K

* Suction Superheat 10K / Subcooling 0K

** Single Phase only