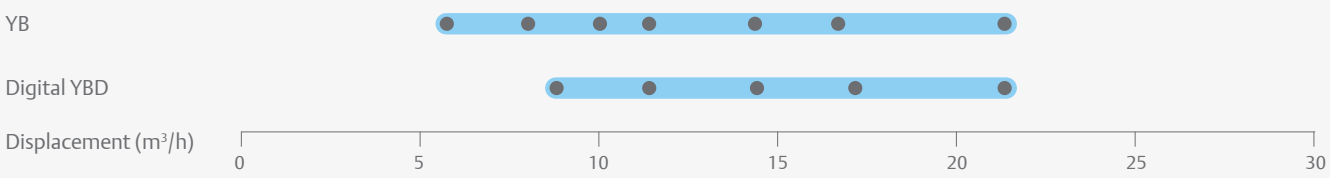
Copeland™ YB and YBD Scroll Compressor Ranges for Medium Temperature Refrigeration for Low GWP Refrigerants Classified as A2L

The standard and digital models from Copeland YB*K1E scroll series for medium temperature applications feature an optimized design for F-Gas compliant low GWP A2L refrigerants. The scroll compressor was optimized internally and externally to create the most reliable compressor with refrigerants with a high HFO content.

These compressors, available with displacements from 5.8 to 21.4 m³/h are 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 - 12 dBA sound reduction, which makes them best choice for refrigeration applications in urban and domestic areas.

YB scroll compressor

YB & YBD Scroll Compressors Line-up



Features and Benefits

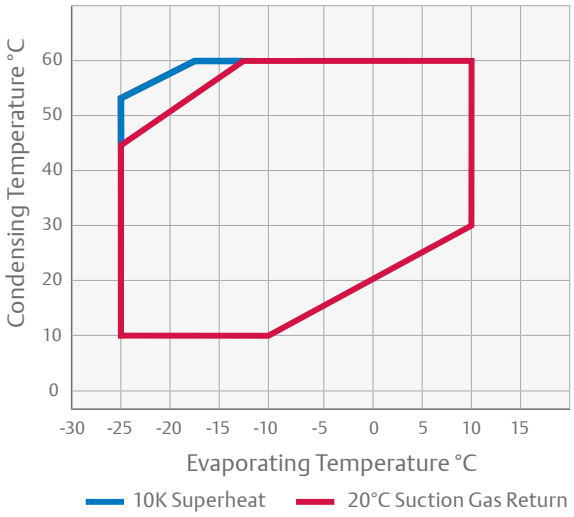
- One model for multiple A2L refrigerants: R455A, R454A, R454C, as well as R1234yf for YB models. These compressors are also designed to operate with previous A1 refrigerants: R448A/R449A, R407A/F, R450A, R513A, R134a and R404A.
- Fully hermetic design to avoid risk of refrigerant leakage
- Flexibility in terms of required capacity: multiple design options
- Extremely quiet operation, specially adapted to applications in urban and domestic areas
- Copeland scroll digital technology for simple, stepless 10 to 100% capacity modulation
- Light weight and compact design
- Wide operating envelope with 10°C low condensing limit

Maximum Allowable Pressure (PS)

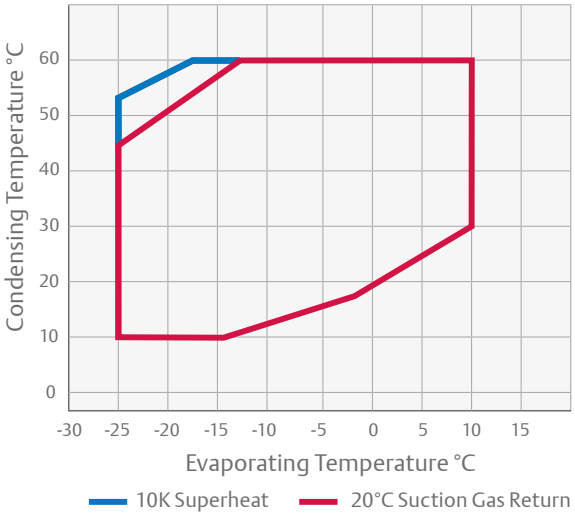
- Low Side PS 23.5 bar (g)
- High Side PS 38 bar (g)

Operating Envelopes

YB*1E - R455A

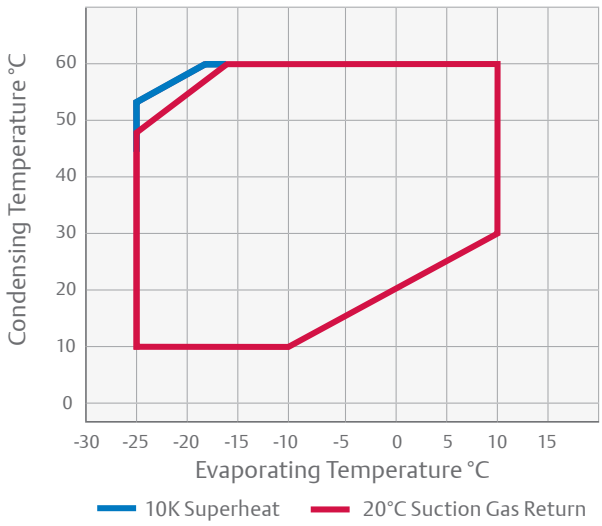


YBD*1E - R455A

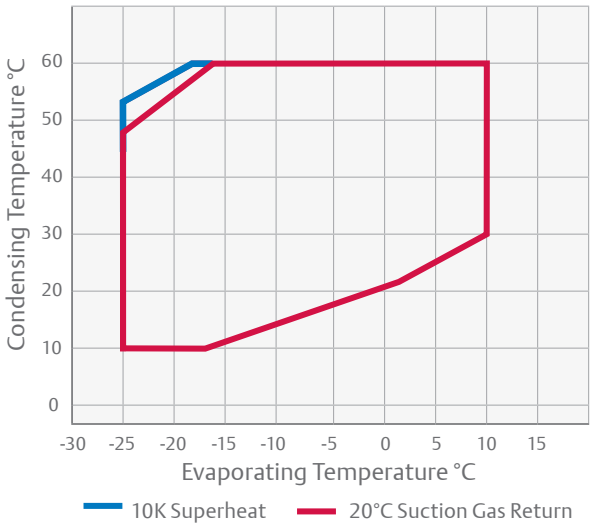


Operating Envelopes

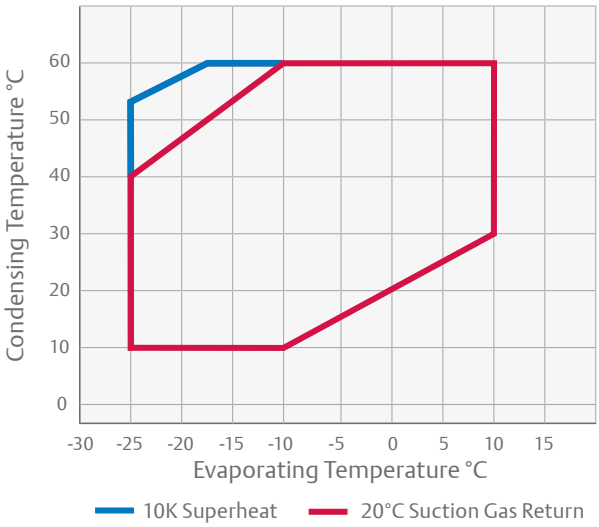
YB*1E - R454C



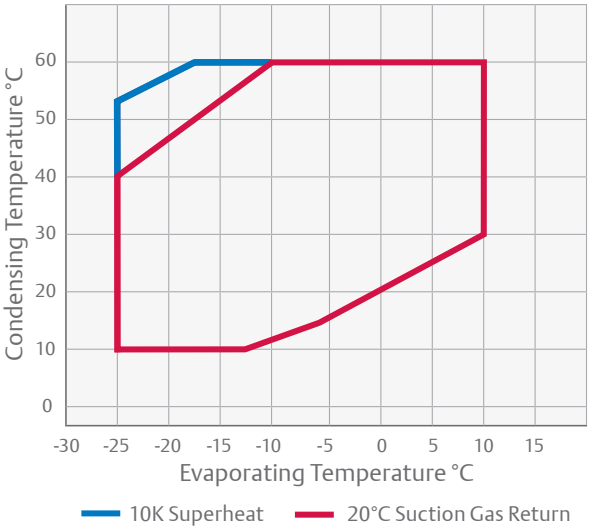
YBD*1E - R454C



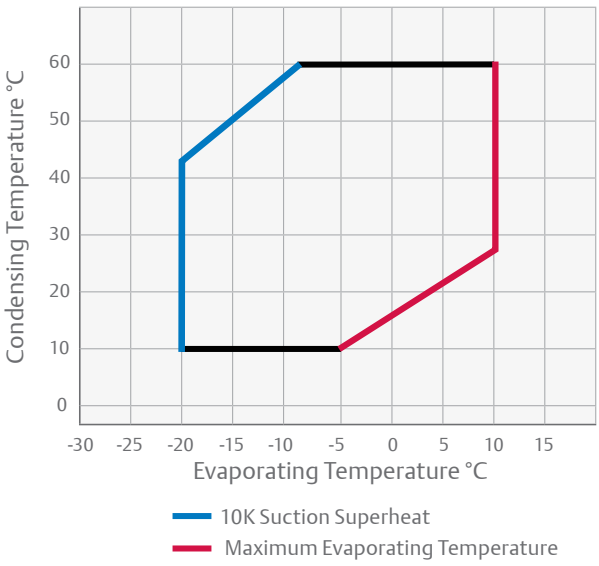
YB*1E - R454A



YBD*1E - R454A



YB*1E - R1234yf



Technical Overview

Models	Nominal hp	Displacement (m³/h)	Brazed Suction (inch)	Brazed 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**	
YB12K1E	2.0	5.8	3/4	1/2	1.3	253/248/365	24	PFZN	TFMN	11	4	61	26	60
YB17K1E	2.5	8.0	3/4	1/2	1.5	253/248/387	28	PFZN	TFMN	16	6	76	32	61
YB21K1E	3.5	10.0	3/4	1/2	1.5	253/248/401	29	PFZN	TFMN	21	7	97	46	64
YB24K1E	4.0	11.4	3/4	1/2	1.5	253/248/417	29	PFZN	TFMN	24	8	114	50	60
YB31K1E	5.0	14.3	7/8	1/2	1.9	255/261/442	38		TFMN		10		64	63
YB36K1E	6.0	16.7	7/8	1/2	1.9	255/261/442	39		TFMN		12		74	64
YB45K1E	8.0	21.4	7/8	1/2	1.9	255/261/442	44		TFMN		16		102	71
Digital Models														
YBD17K1E	3.0	8.8	3/4	1/2	1.2	253/248/435	30		TFMN		7		40	58
YBD24K1E	4.0	11.4	7/8	1/2	1.4	253/248/466	30		TFMN		10		48	58
YBD31K1E	5.0	14.4	7/8	1/2	1.9	255/261/481	38		TFMN		11		64	67
YBD36K1E	6.0	17.1	7/8	1/2	1.9	255/261/481	40		TFMN		12		74	61
YBD45K1E	8.0	21.4	7/8	1/2	1.9	255/261/481	43		TFMN		16		102	68

* 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														
R455A	Cooling Capacity (kW)							R455A	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
YB12K1E			1.7	2.2	2.7	3.3	4.0	YB12K1E			1.1	1.2	1.3	1.3	1.4
YB17K1E			2.5	3.1	3.8	4.6	5.6	YB17K1E			1.6	1.6	1.7	1.8	1.8
YB21K1E			3.1	3.9	4.8	5.8	7.0	YB21K1E			2.0	2.1	2.1	2.2	2.3
YB24K1E			3.6	4.4	5.4	6.5	7.9	YB24K1E			2.3	2.4	2.4	2.5	2.6
YB31K1E			4.4	5.5	6.8	8.2	10.0	YB31K1E			2.7	2.8	2.9	3.1	3.2
YB36K1E			5.2	6.5	8.0	9.7	11.8	YB36K1E			3.1	3.3	3.5	3.6	3.7
YB45K1E			6.7	8.3	10.1	12.3	14.9	YB45K1E			4.0	4.2	4.4	4.6	4.8
Digital Models															
YBD17K1E			2.7	3.4	4.2	5.1	6.2	YBD17K1E			1.8	1.8	1.9	1.9	2.0
YBD24K1E			3.6	4.4	5.4	6.5	7.9	YBD24K1E			2.3	2.4	2.4	2.5	2.6
YBD31K1E			4.5	5.5	6.8	8.3	10.0	YBD31K1E			2.7	2.8	3.0	3.1	3.2
YBD36K1E			5.4	6.6	8.2	10.0	12.1	YBD36K1E			3.2	3.4	3.5	3.7	3.8
YBD45K1E			6.7	8.3	10.1	12.3	14.9	YBD45K1E			4.0	4.2	4.4	4.6	4.8

Conditions: Suction Gas Return 20°C / Subcooling 0K 4
Preliminary data

Capacity Data

Condensing Temperature 40°C															
R454C	Cooling Capacity (kW)							R454C	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
YB12K1E			1.7	2.1	2.6	3.1	3.8	YB12K1E			1.1	1.1	1.2	1.2	1.3
YB17K1E			2.4	2.9	3.6	4.4	5.3	YB17K1E			1.5	1.5	1.6	1.6	1.7
YB21K1E			3.0	3.7	4.6	5.6	6.7	YB21K1E			1.9	1.9	2.0	2.1	2.1
YB24K1E			3.4	4.2	5.1	6.3	7.6	YB24K1E			2.1	2.2	2.3	2.3	2.4
YB31K1E			4.2	5.2	6.4	7.9	9.5	YB31K1E			2.5	2.6	2.7	2.8	3.0
YB36K1E			5.0	6.2	7.6	9.3	11.3	YB36K1E			2.9	3.1	3.2	3.3	3.5
YB45K1E			6.3	7.8	9.7	11.8	14.3	YB45K1E			3.8	4.0	4.1	4.3	4.4
Digital Models															
YBD17K1E			2.6	3.2	4.0	4.8	5.9	YBD17K1E			1.7	1.7	1.7	1.8	1.8
YBD24K1E			3.4	4.2	5.1	6.3	7.6	YBD24K1E			2.1	2.2	2.3	2.3	2.4
YBD31K1E			4.2	5.3	6.5	7.9	9.6	YBD31K1E			2.5	2.7	2.8	2.9	3.0
YBD36K1E			5.1	6.3	7.8	9.5	11.5	YBD36K1E			3.0	3.1	3.3	3.4	3.5
YBD45K1E			6.3	7.8	9.7	11.8	14.3	YBD45K1E			3.8	4.0	4.1	4.3	4.4

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

Condensing Temperature 40°C															
R454A	Cooling Capacity (kW)							R454A	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
YB12K1E			2.0	2.5	3.0	3.7	4.5	YB12K1E			1.3	1.3	1.4	1.5	1.5
YB17K1E			2.8	3.4	4.2	5.2	6.2	YB17K1E			1.8	1.8	1.9	1.9	2.0
YB21K1E			3.5	4.4	5.4	6.6	8.0	YB21K1E			2.2	2.3	2.4	2.4	2.5
YB24K1E			3.9	4.9	6.0	7.3	8.9	YB24K1E			2.5	2.6	2.7	2.8	2.9
YB31K1E			4.9	6.2	7.6	9.3	11.2	YB31K1E			3.0	3.1	3.3	3.4	3.5
YB36K1E			5.8	7.3	9.0	11.0	13.3	YB36K1E			3.5	3.7	3.8	4.0	4.1
YB45K1E			7.4	9.2	11.4	13.9	16.8	YB45K1E			4.5	4.7	4.9	5.1	5.3
Digital Models															
YBD17K1E			3.1	3.8	4.7	5.7	6.9	YBD17K1E			2.0	2.0	2.1	2.1	2.2
YBD24K1E			3.9	4.9	6.0	7.3	8.9	YBD24K1E			2.5	2.6	2.7	2.8	2.9
YBD31K1E			5.0	6.2	7.6	9.3	11.3	YBD31K1E			3.0	3.1	3.3	3.4	3.5
YBD36K1E			5.9	7.5	9.2	11.3	13.6	YBD36K1E			3.6	3.7	3.9	4.1	4.2
YBD45K1E			7.4	9.2	11.4	13.9	16.8	YBD45K1E			4.5	4.7	4.9	5.1	5.3

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

Condensing Temperature 40°C															
R1234yf	Cooling Capacity (kW)							R1234yf	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
YB12K1E				1.2*	1.8	2.2	2.6	YB12K1E				0.8*	0.8	0.9	0.9
YB17K1E				1.8*	2.5	3.0	3.7	YB17K1E				1.1*	1.1	1.2	1.2
YB21K1E				2.2*	3.2	3.9	4.7	YB21K1E				1.4*	1.4	1.5	1.5
YB24K1E				2.5*	3.6	4.3	5.3	YB24K1E				1.6*	1.6	1.7	1.7
YB31K1E				3.2*	4.5	5.5	6.6	YB31K1E				1.9*	1.9	2.0	2.1
YB36K1E				3.7*	5.2	6.4	7.8	YB36K1E				2.2*	2.3	2.4	2.5
YB45K1E				4.8*	6.7	8.2	9.9	YB45K1E				2.8*	2.9	3.0	3.2
Digital Models															
YBD17K1E				1.9*	2.7	3.4	4.1	YBD17K1E				1.2*	1.2	1.3	1.3
YBD24K1E				2.5*	3.6	4.3	5.3	YBD24K1E				1.6*	1.6	1.7	1.7
YBD31K1E				3.2*	4.5	5.5	6.7	YBD31K1E				1.9*	1.9	2.0	2.1
YBD36K1E				3.8*	5.3	6.5	7.9	YBD36K1E				2.2*	2.3	2.4	2.5
YBD45K1E				4.8*	6.7	8.2	9.9	YBD45K1E				2.8*	2.9	3.0	3.2

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