

Copeland™ YB and YF Scroll Compressor Ranges for A1 and A2L Refrigerants

Optimized Scroll Compressors for
Efficient Medium and Low Temperature Applications

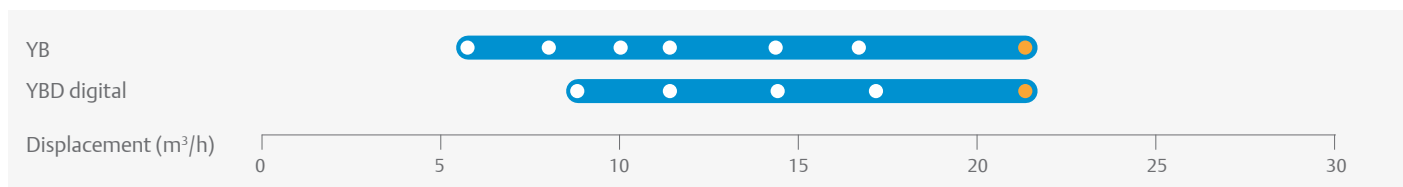


Reliable Scroll Compressors for Refrigerants with High HFO Content

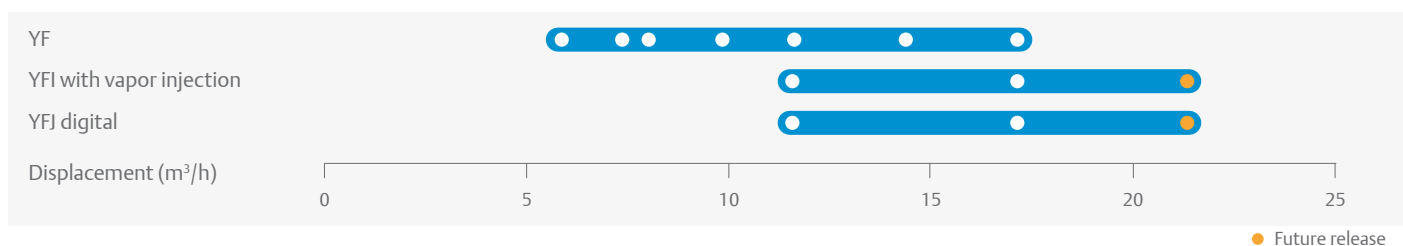
The F-gas regulation strives to reduce the direct and indirect global greenhouse gas emissions and has set deadlines by which OEMs and end-users have to lower the GWP of their refrigeration systems. Emerson has developed solutions for a variety of refrigerants to support this transition, such as CO₂ (R744), propane (R290) or alternatives like HFO blends / A2L refrigerants. Each solution is optimized for the specific refrigerant.

Emerson has developed new series of scroll compressors for A2L refrigerants (and A1 refrigerants retroactively applicable), for medium and low temperature applications. These compressors were optimized internally and externally for F-Gas compliant low GWP A2L refrigerants, to create the most reliable compressors with refrigerants with a high HFO content.

Scroll Compressor Line-up for Medium Temperature (A2L/A1 Refrigerants)



Scroll Compressor Line-up for Low Temperature (A2L/A1 Refrigerants)



Features and Benefits

- Range of six fixed speed YB models and four digital YBD models dedicated to medium temperature applications
- Range of seven fixed speed YF models, two digital YFJ models and two YFI models with vapor injection, dedicated to low temperature applications
- Optimized design for F-gas compliant low GWP A2L refrigerants: one model for multiple A1 and A2L refrigerants, such as R455A, R454A, R454C, as well as R1234yf for YB scrolls
- Highly efficient scroll technology for reduced operation cost – up to 15% higher seasonal efficiency than traditional semi-hermetic compressors
- 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. Availability of sound shell option for an additional 10 to 12 dBA sound attenuation
- 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
- Ready with CE certification under PED Cat.-II due to the mild flammability of A2L refrigerants



Applications

- Food retail: ideal for both direct and indirect expansion systems such as compact multi-compressor packs and units
- Food service: cold room condensing units, remote condensing units, mono-block systems
- Light industry: process chillers

Emerson Solution Benefits

YB, YBD scroll compressors for medium temperature, as well as YF, YFI and YFJ scrolls for low temperature applications are available as an A2L-ready solution for single or multi-compressor applications, along with Emerson controllers, pressure switches, expansion valves, and oil regulators. Emerson solutions offer manufacturers reduced time to market for their systems.



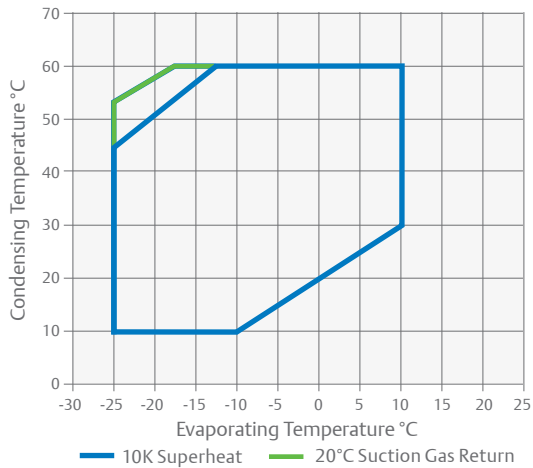
Technical Overview

Models *	Nominal hp	Displacement (m ³ /h)	Braze Suction (inch)	Braze 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**	
Medium Temperature											
YB12K1E	2.0	5.8	3/4	1/2	1.3	253/248/365	24	TFMN	4	26	60
YB17K1E	3.0	8.0	3/4	1/2	1.5	253/248/387	28	TFMN	5	32	61
YB21K1E	3.5	10.0	3/4	1/2	1.5	253/248/401	29	TFMN	7	46	64
YB24K1E	4.0	11.4	1 1/4	1	1.5	253/248/417	29	TFMN	8	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
Medium Temperature with Digital Modulation											
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
Low Temperature											
YF05K1E	2.0	5.9	3/4	1/2	1.3	253/248/369	25	TFD	5	26	58
YF06K1E	2.5	7.3			1.5	253/248/391	26	TFD	6	32	58
YF07K1E	2.8	8.0	3/4	1/2	1.5	253/248/391	28	TFD	6	40	60
YF09K1E	3.5	9.9	3/4	1/2	1.5	253/248/405	29	TFD	7	46	60
YF10K1E	4.0	11.7	7/8	1/2	1.9	258/263/442	37	TFD	8	52	60
YF13K1E	5.0	14.4	7/8	1/2	1.9	258/263/442	40	TFD	10	64	60
YF15K1E	6.0	17.1	7/8	1/2	1.9	258/263/442	40	TFD	13	74	62
Low Temperature with Vapor Injection											
YFI10K1E	4.0	11.7	7/8	1/2	1.9	258/263/442	38	TFD	9	64	63
YFI15K1E	6.0	17.1	7/8	1/2	1.9	258/263/442	40	TFD	14	74	67
Low Temperature with Digital Modulation											
YFJ10K1E	4.0	11.7	7/8	1/2	1.9	258/263/442	40	TFD	9	64	63
YFJ15K1E	6.0	17.1	7/8	1/2	1.9	258/263/442	41	TFD	14	74	67

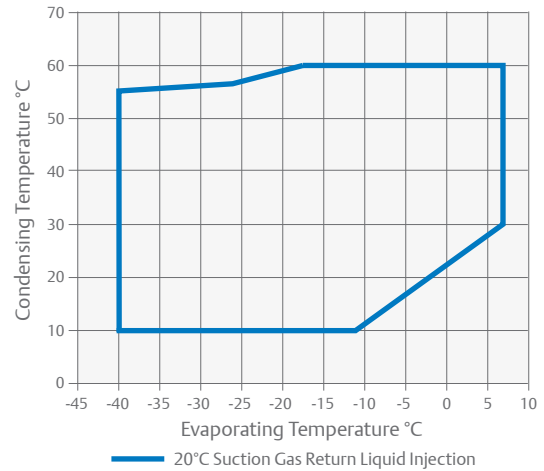
* Some models are available in 1ph version also. Please refer to Emerson Select Software.
 ** 3 Ph: 380-420V/ 50Hz
 *** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Operating Envelopes

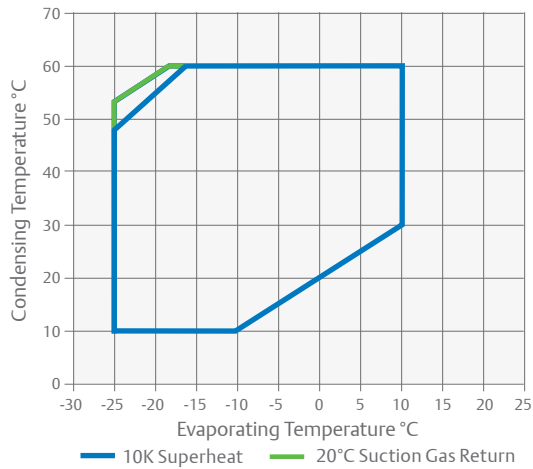
YB* 1E - R455A



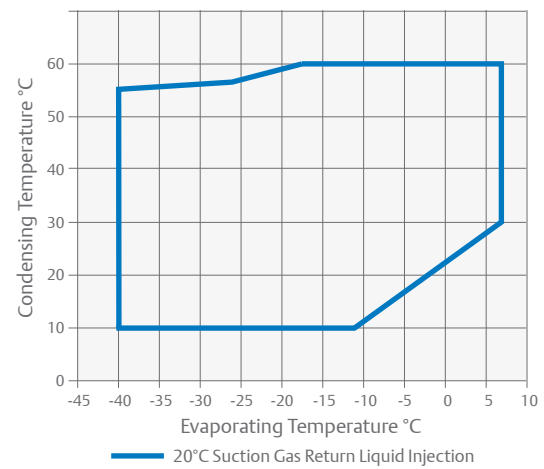
YF* 1E - R455A



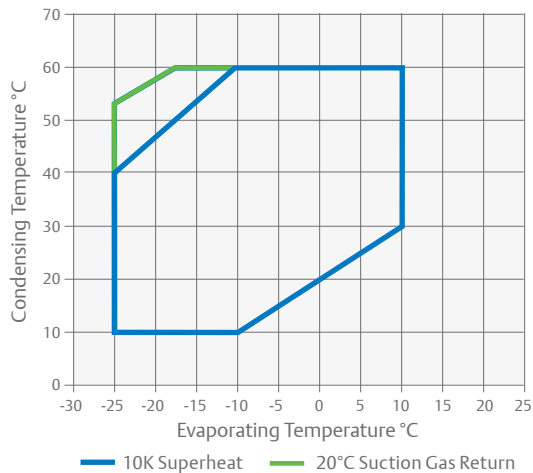
YB* 1E - R454C



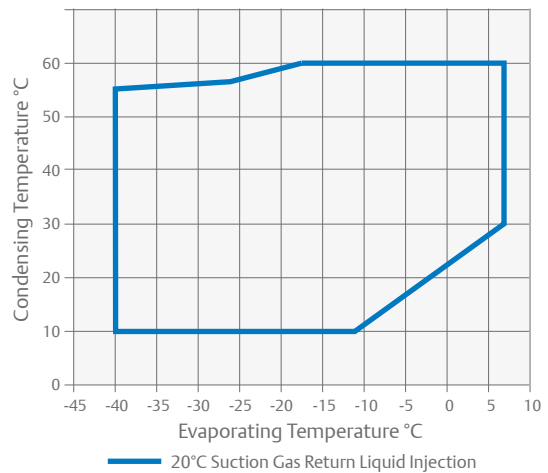
YF* 1E - R454C



YB* 1E - R454A



YF* 1E - R454A



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For more details, see climate.emerson.com/en-gb

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