

Copeland Scroll™ YB(D) Range for Low GWP A2L Refrigerants

Optimized Scroll Compressors for
Efficient Medium Temperature Applications



A Reliable Scroll Compressor 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.

Copeland Scroll™ YB(D)*K1E is Emerson's new series of standard and digital compressors for medium temperature applications. The scroll compressor was optimized internally and externally for F-Gas compliant low GWP A2L refrigerants, to create the most reliable compressor with refrigerants with a high HFO content.

Features and Benefits

- Range of seven fixed speed models and five digital models
- Optimized design for F-gas compliant low GWP A2L refrigerants
- One model for multiple refrigerants: R455A, R454A, R454C, as well as R1234yf for YB models
- 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

The YB and YBD compressors 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.



Supermarket in
England saves

3.65%
Energy 

Emerson has been operating field trials with Copeland Scroll compressors for low GWP A2L refrigerants since 2017. A 14 400 sqm supermarket in England retrofitted part of its existing multiple circuit systems from R448A to R454A and integrated Copeland Scroll compressors with R454A into an A2L ready rack.

This resulted in savings of around 4.1kWh per day (3.65%). Additional savings of up to 4.33% are expected within the next months.

YB Models - 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)
								3 Ph *	3 Ph *	3 Ph *
YB12K1E	2.0	5.8	3/4	1/2	1.3	253/248/365	23	TFMN	4.2	26
YB17K1E	3.0	8.0	3/4	1/2	1.5	253/248/387	27	TFMN	5.5	32
YB21K1E	3.5	10.0	3/4	1/2	1.5	253/248/401	28	TFMN	6.8	46
YB24K1E	4.0	11.4	3/4	1/2	1.5	253/248/417	29	TFMN	7.8	50
YB31K1E	5.0	14.3	7/8	1/2	1.9	255/261/442	37	TFMN	10.1	64
YB36K1E	6.0	16.7	7/8	1/2	1.9	255/261/442	40	TFMN	11.8	74
YB45K1E	7.5	21.4	7/8	3/4	1.9	255/261/442	40	TFMN	15.9	102

* 3 Ph: 380-420V/ 50Hz

YBD Digital Models - 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)
								3 Ph *	3 Ph *	3 Ph *
YBD17K1E	3.0	8.8	3/4	1/2	1.2	253/248/435	30	TFMN	6.7	40
YBD24K1E	4.0	11.4	7/8	1/2	1.4	253/248/466	30	TFMN	10.0	48
YBD31K1E	5.0	14.4	7/8	1/2	1.9	255/261/481	38	TFMN	11.3	64
YBD36K1E	6.0	17.1	7/8	1/2	1.9	255/261/481	40	TFMN	12.3	74
YBD45K1E	7.5	21.4	7/8	3/4	1.9	255/261/481	43	TFMN	15.9	102

* 3 Ph: 380-420V/ 50Hz

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

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