



Cooling Controls Products for A2L System Refrigerants

Brain Gain Training Comfort Control



A2L Refrigerants and WR Products

Why The Move To A2L Refrigerants?

Global Warming Potential:

A metric that is used to measure a refrigerant's environmental impact as a greenhouse gas is Global Warming Potential

- Most HFCs have very high GWP
- HFOs have a lower GWP
- HCs (Hydrocarbons) have a very low GWP but have higher flammability



HFC 410A

GWP = 2088



HFC 404A

GWP = 3920



HFO 1234yf

GWP = <1



Propane (R-290)

GWP = 3

Flammability Classes

- Toxicity, a term used to describe the poisonous quality of a substance, is represented by a letter, with "A" representing a low toxicity and "B" indicating a higher level of toxicity.
- Flammability, which indicates a substance's ability to burn, is represented by a number, with "1" being no flame propagation.

	Safety group	
Higher Flammability	A3	B3
Lower Flammability	A2	B2
	<u>A2L*</u>	<u>B2L*</u>
No flame Propagation	A1	B1
	Lower Toxicity	Higher Toxicity

Cooling Controls Products for A2L System Refrigerants

Common A2L refrigerants

- **Air-Conditioning:** R-32, R-452B, R-454B
- **Refrigeration:** R-1234yf, R-1234ze, R-454A, R-454C, R-455A

Comfort Control's product approvals

- UL certification
- Compatibility testing

UL standards' additional development tests for certifying products for A2L

- **UL 429 "electrical":** Solenoid, EXV
 - Seal compatibility test to UL 157
 - External leak tested after 100,000 cycles
- **UL 207 "non-electrical":** TXV, Filter Drier, System Protector – none
- **UL 60335-2-89 "system":** currently in OEM discussions

Cooling Controls Products for A2L System Refrigerants

Product	Series	R-1234yf	R-1234ze	R-32	R-452B	R-454A	R-454B	R-454C	R-455A
Solenoid Valves	100, 200, 500RB								
	250, 540RA								
Thermostatic Expansion Valves	A, B	Discontinuing 2023							
	HF		2023	NA	NA	2023	NA	2023	2023
	NXT	2023	2023			2023		2023	2023
	TX7	NA	NA			NA		NA	NA
Electronic Expansion Valves	PM								
	EX	2023							
Filter Driers	EK, BFK, ADK								
	STAS								
	ASK, SFD, ASF								
	Copper Spun	2023							
Mufflers	APD								
Accumulators	A-AS								
Oil Separators	A-FL								
Oil Mgmt	OMB/C, W-OLC								
Ball Valve	BVE/S								
Check Valve	ACK								
Press. Switch	PS4								
Moisture Ind.	HMI, AMI								
Receivers	VR								

A2L Products Flyer

Product Line	Product Series	R-1234yf	R-1234ze	R-32	R-452B	R-454A	R-454B	R-454C	R-455A	R-290
Solenoid Valves	100RB	✓	✓	✓	✓	✓	✓	✓	✓	✓
	150RB	Coming 2022								
	200RB	✓	✓	✓	✓	✓	✓	✓	✓	✓
	250RA	✓	✓	✓	✓	✓	✓	✓	✓	✓
	500RB	✓	✓	✓	✓	✓	✓	✓	✓	✓
	540RA	✓	✓	✓	✓	✓	✓	✓	✓	✓
Thermostatic Expansion Valves	A	✓								✓
	B	✓								✓
	HF	✓	Coming 2022			Coming 2022		Coming 2022	Coming 2022	✓
	NXT	Coming 2022	Coming 2022	✓	✓	Coming 2022	✓	Coming 2022	Coming 2022	Coming 2022
	TX7			✓	✓		✓			
Pulse-Width Modulating Expansion Valve	PM	✓	✓	✓	✓	✓	✓	✓	✓	✓
Filter Driers	EK	✓	✓	✓	✓	✓	✓	✓	✓	✓
	ADK	✓	✓	✓	✓	✓	✓	✓	✓	✓
	BFK	✓	✓	✓	✓	✓	✓	✓	✓	✓
	ADKX	✓	✓	✓	✓	✓	✓	✓	✓	✓
	BTAS	✓	✓	✓	✓	✓	✓	✓	✓	✓
	ASD	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SFD	✓	✓	✓	✓	✓	✓	✓	✓	✓
	ASF	✓	✓	✓	✓	✓	✓	✓	✓	✓
Muffler	APD	✓	✓	✓	✓	✓	✓	✓	✓	✓
Accumulator	A-AS			✓						✓
Oil Reservoir	AOR									✓
Oil Separator	A-FL	✓	✓	✓	✓	✓	✓	✓	✓	
Oil Management Control - Electro-Mechanical	OMB/OMC	✓	✓	✓	✓	✓	✓	✓	✓	
Oil Level Control - Mechanical	W-OLC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ball Valve	BVE/S	✓	✓	✓	✓	✓	✓	✓	✓	✓
Check Valve	ACK	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pressure Switch	PS4	✓	✓	✓	✓	✓	✓	✓	✓	✓

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Cooling Controls for A2L Refrigerants



Sustainable solutions for reduced environmental impact

Emerson is ready and committed to providing solutions for commercial refrigeration as you determine your path for long-term refrigerant transitions to achieve lower global warming potential (GWP).

- Low GWP solutions
- Capacity ranges for a wide range of applications
- UL-certified components including solenoids, expansion valves, filter driers, oil controls and more

