KRAMER

A2L

NEXT GEN ALL-TEMP LOW PROFILE UNIT COOLER

Walk-Ins: Small to Medium Cooler and Freezer Applications

Air Defrost

5,000 to 47,700 BTUH

Electric Defrost

3,200 to 34,300 BTUH

FEATURES

All-Temps were the original low profile unit coolers with the air draw-through design that established the industry standard as the all-purpose model for walk-in coolers, freezers, and other applications. We've taken these unit coolers to the next level with the release of the Next-Gen All-Temp models. The units feature a new fan guard design and deep draw venturi to achieve optimal airflow and easy access for serviceability. These models can be used with multiple refrigerants, and are available in air and electric.

SIZES

There are a wide array of sizes available with capacities ranging from 2,700 to 45,900 BTUH at a 10° TD. One through six fan models are available with air flow spanning a range of 800 to 4,650 CFM.

HOUSING

The lightweight yet durable embossed aluminum casing is designed to prevent short cycling of the discharge air with baffled fan sections. These units are compliant with NSF requirements and designed to mount flush to the ceiling. The top panel features 1/2" wide slotted mounting points for easy installation. The removable drain fitting is located at the bottom of the drain pan for easy field connection and can be replaced without changing the entire drain pan. The end panels can be easily slid out from the front of the unit, providing convenient access to the spacious electrical and piping compartments from the front or side for easy maintenance.

COIL

Copper hairpins consist of high efficiency 3/8" enhanced copper tubes which are staggered and mechanically expanded into corrugated aluminum fins achieving maximum heat transfer while reducing refrigerant charge. Die formed fin collars provide even fin spacing. Models are available in 4 and 6 fins per inch (FPI). Sweat connections are standard on all models.

MOTORS

Standard models feature highly efficient Dual Speed Electronically Commutated (EC) motors. Available for 115V or 208-230V and are compliant with California Title 24 regulations. All motors include thermal overload protection

FANS AND FAN GUARDS

Heavy duty 12" aluminum fans are balanced to provide vibration-free operation. Improved black plastic fan guard design and deep draw venturi achieve optimal air pattern.

REFRIGERANTS

Low Profile Unit Coolers are optimized for multiple A2L refrigerants including R454A, R454C and R455A. Please specify the refrigerant requirements when ordering. A separate compartment is provided for all refrigerant connections, which allows for internal mounting of expansion valves.

ELECTRICAL

Available for 115V and 208-230V. A large electrical compartment is supplied internal to the unit to house the electrical components and is easily accessible by removing the slide out end panel. All models are UL and cUL listed and are available for 60 Hz or 50 Hz applications.

AIR DEFROST

Air Defrost models are designed for use in coolers 35°F and warmer. All components are factory wired to convenient screw-type terminal strips.

ELECTRIC DEFROST

Electric Defrost 6 FPI models are designed for use in coolers and freezers between 34°F to -20°F. Electric Defrost 4 FPI models are designed for use in freezers between 32°F to -20°F. Defrost heaters are mounted on the air intake side of the unit for optimal performance and easy maintenance.

An additional lower heater is installed inside the drain pan for fast, reliable drainage. A defrost termination fan delay thermostat terminates the defrost cycle when the temperature is satisfied. The fan delay allows the warm coil to cool after a defrost cycle prior to the fans turning on. A heater safety thermostat is installed to prevent overheating.

OPTIONAL FEATURES

- EcoNet® Enabled Controller[1] (factory-installed)
- EcoNet® Command Center (loose)
- Thermostat - Mechanical or Electric (mounted or loose)
- Thermostatic Expansion Valve (mounted or loose)
- Electronic Expansion Valve (mounted or loose)
- Safety Shut Off Valve (SSOV) in place Liquid Line Solenoid Available Loose for field installation.
- Insulated Drain Pan
- Painted Cabinet (White or Black)
- Stainless Steel Cabinet
- Coated Coil (Russproof, Heresite, Bronz-Glow, or Electrofin®)

1. EcoNet Control Package includes: EEV, suction pressure transducer, suction entering air coil temp. thermistors, local on-board two-row backlit LCD display and push-button adjustments. (Controller replaces TXV, liquid line solenoid valve, room thermostat, defrost termination, fan delay, and time clock.)

ECONET® ENABLED UNIT COOLERS (OPTIONAL)

2019 DEALER DESIGN AWARDS
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Developed in conjunction with Rheem Manufacturing specifically for walk-in coolers and freezers – it builds in the reliability and efficiency of Rheem's EcoNet technology.

- Saves energy in refrigeration systems through precise superheat and space temperature control, fan cycling, and controlling how often the system goes into defrost based on compressor runtime.
- Eliminates unnecessary defrosts
- Maximizes energy efficiency with less compressor runtime
- Reduces fan speed to 50% during off cycle for energy savings
- Can be used with a condensing unit in single and multiple evaporator installations as a group.

Optional **EcoNet** Command Center with intuitive graphical interface controls up to 32 devices (including the Command Center) through one display, provides continuous communication between system components, and the remote mount display allows for EcoNet Enabled Unit Coolers to be programmed, monitored and troubleshot outside of the space being cooled.

MODEL NOMENCLATURE

CONFIGURABLE BASE MODEL

K	A	L	6	E	042	D	D	A
Brand	Refrigerant Class	Connections	Fins per Inch (FPI)	Defrost Type	BTUH in Hundreds	Unit Voltage[1]	Motor Type	Vintage
K = Kramer	A2L	L = Standard U = Reverse	4 FPI 6 FPI	A = Air E = Electric (Low Temp)	XXX	A =115/1/60 D = 208-230/1/60 E = 208-230/3/60	D = Dual Speed EC	A

1. Refrigerant and electrical connection locations have been changed for the Next-Gen All-Temp design. Standard connections "L" are now opposite of the legacy All-Temp models. Mirror connections "U" are the same end as legacy All-Temp models and are available only as built-to-order base units with no installed options.

2. EcoNet approved refrigerants are: R454A, R454C. R455A.

3. EcoNet Control Package includes: EEV; suction pressure transducer; suction, entering air coil temp. thermistors; local on-board two-row LCD display and push-button adjustments. (Controller replaces TXV, room thermostat, defrost termination and fan delay, and time clock.)

APPLICATION RATING & ELECTRICAL DATA

AIR DEFROST MODELS // 6 FPI

	Model No.	BTUH Capacity @ 25F ST and 10TD	CFM	No. of Fans	115V			208-230/1		
		R454A,R454C R455A			Total Fan Motor Amps (1Phase) EC Motors	MCA	MOPD	Total Fan Motor Amps (1Phase) EC Motors	MCA	MOPD
6 FPI	KAL6A050*DA	5,000	800	1	0.8	15.0	20	0.5	15.0	20
	KAL6A062*DA	6,200	785	1	0.8	15.0	20	0.5	15.0	20
	KAL6A081*DA	8,100	775	1	0.8	15.0	20	0.5	15.0	20
	KAL6A088*DA	8,800	1,600	2	1.6	15.0	20	1.0	15.0	20
	KAL6A113*DA	11,300	1,570	2	1.6	15.0	20	1.0	15.0	20
	KAL6A141*DA	14,100	1,550	2	1.6	15.0	20	1.0	15.0	20
	KAL6A159*DA	15,900	1,550	2	1.6	15.0	20	1.0	15.0	20
	KAL6A170*DA	17,000	2,355	3	2.4	15.0	20	1.5	15.0	20
	KAL6A196*DA	19,600	2,355	3	2.4	15.0	20	1.5	15.0	20
	KAL6A220*DA	22,000	2,325	3	2.4	15.0	20	1.5	15.0	20
	KAL6A234*DA	23,400	3,140	4	3.2	15.0	20	2.0	15.0	20
	KAL6A289*DA	28,900	3,140	4	3.2	15.0	20	2.0	15.0	20
	KAL6A316*DA	31,600	3,199	4	3.2	15.0	20	2.0	15.0	20
	KAL6A375*DA	37,500	3,875	5	4.0	15.0	20	2.5	15.0	20
	KAL6A404*DA	40,400	4,650	6	4.8	15.0	20	3.0	15.0	20
	KAL6A477*DA	47,700	4,650	6	4.8	15.0	20	3.0	15.0	20

* Each asterisk represents a variable character based on voltage ordered. See page 4 for nomenclature.
Dual Speed EC Motors include thermal overload protection.

APPLICATION RATING AND ELECTRICAL DATA

ELECTRIC DEFROST MODELS // 6 FPI

	Model No.	BTUH Capacity @ -20F ST and 10TD	CFM	No. of Fans	Total Fan Motor Amps (1Phase)	208-230V/1				208-230V/3		Heater Amps		Heater Watts
		R454A,R454C R455A			EC Motors	Base Model		Econet Enabled		Base Model		230V		
					208-230V	MCA	MOPD	MCA	MOPD	MCA	MOPD	1PH	3PH	
6 FPI	KAL6E042DDA	4,200	800	1	0.5	15.0	20	15.0	20	-	-	4.9	-	1,125
	KAL6E051DDA	5,100	785	1	0.5	15.0	20	15.0	20	-	-	4.9	-	1,125
	KAL6E058DDA	5,800	775	1	0.5	15.0	20	15.0	20	-	-	4.9	-	1,125
	KAL6E079DDA	7,900	1,600	2	1.0	15.0	20	15.0	20	-	-	9.8	-	2,250
	KAL6E092DDA	9,200	1,570	2	1.0	15.0	20	15.0	20	-	-	9.8	-	2,250
	KAL6E110DDA	11,000	1,550	2	1.0	15.0	20	15.0	20	-	-	9.8	-	2,250
	KAL6E129DDA	12,900	1,550	2	1.0	15.0	20	15.0	20	-	-	9.8	-	2,250
	KAL6E148DDA	14,800	2,355	3	1.5	15.0	20	19.9	20	-	-	14.3	-	3,300
	KAL6E173DDA	17,300	2,325	3	1.5	15.0	20	19.9	20	-	-	14.3	-	3,300
	KAL6E194DDA	19,400	3,140	4	2.0	15.0	20	26.1	30	-	-	19.2	-	4,425
	KAL6E218DDA	21,800	3,100	4	2.0	15.0	20	26.1	30	-	-	19.2	-	4,425
	KAL6E237*DA	23,700	3,925	5	2.5	15.0	20.0	32.2	35	15.0	20	24.1	14.0	5,550
	KAL6E290*DA	29,000	4,710	6	3.0	15.0	20.0	38.3	40	15.0	20	29.0	16.8	6,675
	KAL6E343*DA	34,300	4,650	6	3.0	15.0	20.0	38.3	40	15.0	20	29.0	16.8	6,675

Capacity Correction for Electric Defrost Evaporators				
SST (Dew)	20	-10	-20	-30
Multiply Capacity by:	1.15	1.0375	1	0.9625

* Each asterisk represents a variable character based on voltage ordered. See nomenclature on page 4 for details.
Dual Speed EC Motors include thermal overload protection.
Econet not available in 208-230/3
Note: 208-230 ratings include 2 amp for controls on Econet Enabled units.

APPLICATION RATING AND ELECTRICAL DATA

ELECTRIC DEFROST MODELS // 6 FPI

	Model No.	BTUH Capacity @ -20F ST and 10TD	CFM	No. of Fans	Total Fan Motor Amps (1Phase)	208-230V/1				208-230V/3		Heater Amps		Heater Watts
		R454A,R454C R455A			EC Motors	Base Model		Econet Enabled		Base Model		230V		
					208-230V	MCA	MOPD	MCA	MOPD	MCA	MOPD	1PH	3PH	
6 FPI	KAL4E032DDA	3,200	800	1	0.5	15.0	20	15	20	-	-	4.9	-	1,125
	KAL4E040DDA	4,000	785	1	0.5	15.0	20	15	20	-	-	4.9	-	1,125
	KAL4E046DDA	4,600	775	1	0.5	15.0	20	15	20	-	-	4.9	-	1,125
	KAL4E061DDA	6,100	1,600	2	1.0	15.0	20	15	20	-	-	9.8	-	2,250
	KAL4E076DDA	7,600	1,570	2	1.0	15.0	20	15	20	-	-	9.8	-	2,250
	KAL4E099DDA	9,900	1,550	2	1.0	15.0	20	15	20	-	-	9.8	-	2,250
	KAL4E114DDA	11,400	2,355	3	1.5	15.0	20	19.9	20	-	-	14.3	-	3,300
	KAL4E133DDA	13,300	2,325	3	1.5	15.0	20	19.9	20	-	-	14.3	-	3,300
	KAL4E150DDA	15,000	3,140	4	2.0	15.0	20	26.1	30	-	-	19.2	-	4,425
	KAL4E170DDA	17,000	3,100	4	2.0	15.0	20	26.1	30	-	-	19.2	-	4,425
	KAL4E184*DA	18,400	3,925	5	2.5	15.0	20.0	32.2	35	15.0	20	24.1	14.0	5,550
	KAL4E232*DA	23,200	4,710	6	3.0	15.0	20.0	38.3	40	15.0	20	29.0	16.8	6,675
	KAL4E281*DA	28,100	4,650	6	3.0	15.0	20.0	38.3	40	15.0	20	29.0	16.8	6,675

Capacity Correction for Electric Defrost Evaporators				
SST (Dew)	20	-10	-20	-30
Multiply Capacity by:	1.15	1.0375	1	0.9625

* Each asterisk represents a variable character based on voltage ordered. See nomenclature on page 4 for details.
Dual Speed EC Motors include thermal overload protection.
Econet not available in 208-230/3
Note: 208-230 ratings include 2 amp for controls on Econet Enabled units.

DISTRIBUTOR NOZZLE & EXPANSION VALVE SELECTIONS

AIR DEFROST MODELS // 6 FPI

	Model No.	Part Numbers						
		Nozzle @ Liq. Temp.		TXV @ Liq. Temp.		EEV @ Liq. Temp		No. of Circuits
		50°F	100°F	50°F	100°F	50°F	100°F	
6 FPI - R454A	KAL6A050*DA	-	-	SBFTE-AAA-C	SBFTE-AA-C	SER-AA	SER-AA	1
	KAL6A062*DA	-	-	SBFTE-AAA-C	SBFTE-AA-C	SER-AA	SER-AA	1
	KAL6A081*DA	1/4,TYPE L	3/4,TYPE L	SBFTE-AA-C	SBFTE-A-C	SER-AA	SER-A	2
	KAL6A088*DA	1/3,TYPE L	3/4,TYPE L	SBFTE-AA-C	SBFTE-A-C	SER-AA	SER-A	2
	KAL6A113*DA	1/3,TYPE L	1,TYPE L	SBFTE-AA-C	SBFTE-A-C	SER-A	SER-A	2
	KAL6A141*DA	1/2,TYPE L	1-1/2,TYPE L	SBFTE-A-C	SBFTE-A-C	SER-A	SER-A	3
	KAL6A159*DA	1/2,TYPE L	1-1/2,TYPE L	SBFTE-A-C	SBFTE-B-C	SER-A	SER-B	3
	KAL6A170*DA	3/4,TYPE L	1-1/2,TYPE L	SBFTE-A-C	SBFTE-B-C	SER-A	SER-B	4
	KAL6A196*DA	3/4,TYPE L	1-1/2,TYPE L	SBFTE-A-C	SBFTE-B-C	SER-B	SER-B	3
	KAL6A220*DA	3/4,TYPE L	2,TYPE L	SBFTE-A-C	SBFTE-B-C	SER-B	SER-B	4
	KAL6A234*DA	3/4,TYPE L	2,TYPE L	SBFTE-A-C	SBFTE-B-C	SER-B	SER-B	4
	KAL6A289*DA	1,TYPE L	2-1/2,TYPE L	SBFTE-B-C	SBFTE-C-C	SER-B	SER-B	6
	KAL6A316*DA	1,TYPE L	2-1/2,TYPE L	SBFTE-B-C	SBFTE-C-C	SER-B	SER-C	6
	KAL6A375*DA	1-1/2,TYPE L	3,TYPE L	SBFTE-B-C	SBFTE-C-C	SER-B	SER-C	8
	KAL6A404*DA	1-1/2,TYPE L	3,TYPE L	SBFTE-B-C	SBFTE-C-C	SER-B	SER-C	7
	KAL6A477*DA	1-1/2,TYPE L	4,TYPE L	SBFTE-C-C	SBFTE-C-C	SER-C	SER-C	8
6 FPI - R454C	KAL6A050*DA	-	-	SBFVE-AAA-C	SBFVE-AA-C	SER-AA	SER-AA	1
	KAL6A062*DA	-	-	SBFVE-AA-C	SBFVE-AA-C	SER-AA	SER-AA	1
	KAL6A081*DA	1/4,TYPE L	3/4,TYPE L	SBFVE-AA-C	SBFVE-A-C	SER-A	SER-A	2
	KAL6A088*DA	1/3,TYPE L	3/4,TYPE L	SBFVE-AA-C	SBFVE-A-C	SER-A	SER-A	2
	KAL6A113*DA	1/3,TYPE L	1,TYPE L	SBFVE-A-C	SBFVE-A-C	SER-A	SER-A	2
	KAL6A141*DA	1/2,TYPE L	1-1/2,TYPE L	SBFVE-A-C	SBFVE-A-C	SER-A	SER-B	3
	KAL6A159*DA	1/2,TYPE L	1-1/2,TYPE L	SBFVE-A-C	SBFVE-B-C	SER-A	SER-B	3
	KAL6A170*DA	3/4,TYPE L	1-1/2,TYPE L	SBFVE-A-C	SBFVE-B-C	SER-B	SER-B	4
	KAL6A196*DA	3/4,TYPE L	2,TYPE L	SBFVE-A-C	SBFVE-B-C	SER-B	SER-B	3
	KAL6A220*DA	3/4,TYPE L	2,TYPE L	SBFVE-B-C	SBFVE-B-C	SER-B	SER-B	4
	KAL6A234*DA	3/4,TYPE L	2,TYPE L	SBFVE-B-C	SBFVE-B-C	SER-B	SER-B	4
	KAL6A289*DA	1,TYPE L	2-1/2,TYPE L	SBFVE-B-C	SBFVE-C-C	SER-B	SER-C	6
	KAL6A316*DA	1,TYPE L	3,TYPE L	SBFVE-B-C	SBFVE-C-C	SER-B	SER-C	6
	KAL6A375*DA	1-1/2,TYPE L	4,TYPE L	SBFVE-C-C	SBFVE-C-C	SER-C	SER-C	8
	KAL6A404*DA	1-1/2,TYPE L	4,TYPE L	SBFVE-C-C	SBFVE-C-C	SER-C	SER-C	7
	KAL6A477*DA	1-1/2,TYPE L	4,TYPE L	SBFVE-C-C	SBFVE-C-C	SER-C	SER-C	8

The Distributor lines are 3/16" diameter and 14" long.
* Each asterisk represents a variable character based on voltage ordered. See nomenclature on page 4 for details.
Expansion valve selections based on +25° Suction Temp and 8°F to 12°F evaporator TD. Contact factory for operating conditions outside this range.
SBFTE Expansion valves are compatible with R454A refrigerant. SBFVE Expansion valves are compatible with R454C and R455A refrigerants.
For other valves, follow manufacturer's selection guidelines.
Base models (with no factory-mounted components) include nozzles sized for 100°F liquid, shipped loose.

DISTRIBUTOR NOZZLE & EXPANSION VALVE SELECTIONS

AIR DEFROST MODELS // 6 FPI

	Model No.	Part Numbers						
		Nozzle @ Liq. Temp.		TXV @ Liq. Temp.		EEV @ Liq. Temp		No. of Circuits
		50°F	100°F	50°F	100°F	50°F	100°F	
6 FPI - R455A	KAL6A050*DA	-	-	SBFVE-AAA-C	SBFVE-AA-C	SER-AA	SER-AA	1
	KAL6A062*DA	-	-	SBFVE-AA-C	SBFVE-AA-C	SER-AA	SER-AA	1
	KAL6A081*DA	1/4,TYPE L	3/4,TYPE L	SBFVE-AA-C	SBFVE-A-C	SER-A	SER-A	2
	KAL6A088*DA	1/3,TYPE L	3/4,TYPE L	SBFVE-AA-C	SBFVE-A-C	SER-A	SER-A	2
	KAL6A113*DA	1/3,TYPE L	1,TYPE L	SBFVE-A-C	SBFVE-A-C	SER-A	SER-A	2
	KAL6A141*DA	1/2,TYPE L	1-1/2,TYPE L	SBFVE-A-C	SBFVE-A-C	SER-A	SER-B	3
	KAL6A159*DA	1/2,TYPE L	1-1/2,TYPE L	SBFVE-A-C	SBFVE-B-C	SER-A	SER-B	3
	KAL6A170*DA	3/4,TYPE L	1-1/2,TYPE L	SBFVE-A-C	SBFVE-B-C	SER-B	SER-B	4
	KAL6A196*DA	3/4,TYPE L	2,TYPE L	SBFVE-A-C	SBFVE-B-C	SER-B	SER-B	3
	KAL6A220*DA	3/4,TYPE L	2,TYPE L	SBFVE-B-C	SBFVE-B-C	SER-B	SER-B	4
	KAL6A234*DA	3/4,TYPE L	2,TYPE L	SBFVE-B-C	SBFVE-B-C	SER-B	SER-B	4
	KAL6A289*DA	1,TYPE L	2-1/2,TYPE L	SBFVE-B-C	SBFVE-C-C	SER-B	SER-C	6
	KAL6A316*DA	,1,TYPE L	,3,TYPE L	SBFVE-B-C	SBFVE-C-C	SER-B	SER-C	6
	KAL6A375*DA	1-1/2,TYPE L	4,TYPE L	SBFVE-C-C	SBFVE-C-C	SER-C	SER-C	8
	KAL6A404*DA	1-1/2,TYPE L	,4,TYPE L	SBFVE-C-C	SBFVE-C-C	SER-C	SER-C	7
	KAL6A477*DA	1-1/2,TYPE L	4,TYPE L	SBFVE-C-C	SBFVE-C-C	SER-C	SER-C	8

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SBFTE Expansion valves are compatible with R454A refrigerant. SBFVE Expansion valves are compatible with R454C and R455A refrigerants.
For other valves, follow manufacturer's selection guidelines.
Base models (with no factory-mounted components) include nozzles sized for 100°F liquid, shipped loose.

LOOSE COMPONENTS REQUIRED FOR A2L ISOLATION CONTROLS

A_{MIN} (MINIMUM ALLOWABLE ROOM SIZE) VALUES // AIR DEFROST MODELS

	Model No.	A_{min} Values (Ft^2)					Loose SSOV Isolation Valve @ Liquid Temp			Loose CSOV Isolation CV	
		10 Ft Line Run	20 Ft Line Run	30 Ft Line Run	40 Ft Line Run	50 Ft Line Run	Size	50°F	100°F	Size	Description
6 FPI - R454A	KAL6A050*DA	17	23	28	34	40	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A062*DA	19	25	31	36	42	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A081*DA	21	27	33	38	44	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A088*DA	21	27	32	38	44	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A113*DA	25	31	37	43	49	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6A141*DA	27	33	39	45	51	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6A159*DA	29	35	41	47	53	3/8	SSOV3S130	SSOV6S130	7/8	CSOV-7S
	KAL6A170*DA	29	35	41	47	53	3/8	SSOV3S130	SSOV6S130	7/8	CSOV-7S
	KAL6A196*DA	36	47	58	69	80	1/2	SSOV3S130	SSOV6S140	7/8	CSOV-7S
	KAL6A220*DA	42	53	64	75	86	1/2	SSOV3S130	SSOV6S140	7/8	CSOV-7S
	KAL6A234*DA	39	50	61	72	84	1/2	SSOV6S140	SSOV6S140	7/8	CSOV-7S
	KAL6A289*DA	42	54	65	77	88	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A316*DA	50	61	73	84	96	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A375*DA	57	69	81	92	104	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A404*DA	59	71	82	94	105	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A477*DA	65	76	88	99	111	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
6 FPI - R454C	KAL6A050*DA	16	22	28	33	39	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A062*DA	18	24	30	35	41	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A081*DA	21	26	32	37	43	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A088*DA	20	26	31	37	42	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A113*DA	24	30	36	42	47	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6A141*DA	26	32	38	44	49	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6A159*DA	28	34	40	45	51	3/8	SSOV3S130	SSOV6S130	7/8	CSOV-7S
	KAL6A170*DA	28	34	39	45	51	3/8	SSOV3S130	SSOV6S130	7/8	CSOV-7S
	KAL6A196*DA	35	45	56	67	78	1/2	SSOV3S130	SSOV6S140	7/8	CSOV-7S
	KAL6A220*DA	40	51	62	73	84	1/2	SSOV3S130	SSOV6S140	7/8	CSOV-7S
	KAL6A234*DA	38	49	59	70	81	1/2	SSOV6S140	SSOV6S140	7/8	CSOV-7S
	KAL6A289*DA	41	52	63	74	85	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A316*DA	48	59	70	81	93	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A375*DA	56	67	78	89	100	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A404*DA	57	68	79	91	102	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A477*DA	63	74	85	96	107	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S

Solenoid Shut Off Valves (SSOV) operate as double duty isolation/liquid line solenoid valve and are required to ship loose and be installed in the field, outside the refrigerated space.
SSOV/CSOV (Check Shut Off Valves) Selection Criteria: Maximum 10 Foot Line Rise, 100 Foot Line Run, 1:1 Condensing Unit/Evaporator. Contact applications for additional lengths or design considerations.
A_{min} values calculated using operating conditions included in UL 60335-2-89 101.DVU.1.2 and standard connection sizes (liquid and Suction).
A_{min} values provided for 10 Ft, 20 Ft, 30 Ft, 40 Ft and 50 Ft line lengths. Contact applications for additional lengths or design considerations.
A_{min} values intended to determine compliance with UL 2-89 and is NOT for charging calculations.

LOOSE COMPONENTS REQUIRED FOR A2L ISOLATION CONTROLS

A_{MIN} (MINIMUM ALLOWABLE ROOM SIZE) VALUES // AIR DEFROST MODELS

	Model No.	A_{min} Values (Ft^2)					Loose SSOV Isolation Valve @ Liquid Temp			Loose CSOV Isolation CV	
		10 Ft Line Run	20 Ft Line Run	30 Ft Line Run	40 Ft Line Run	50 Ft Line Run	Size	50°F	100°F	Size	Description
6 FPI - R454A	KAL6A050*DA	15	20	25	30	35	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A062*DA	17	22	27	32	37	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A081*DA	19	24	29	34	39	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A088*DA	18	23	29	34	39	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6A113*DA	22	27	33	38	43	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6A141*DA	24	29	34	40	45	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6A159*DA	26	31	36	41	47	3/8	SSOV3S130	SSOV6S130	7/8	CSOV-7S
	KAL6A170*DA	25	31	36	41	47	3/8	SSOV3S130	SSOV6S130	7/8	CSOV-7S
	KAL6A196*DA	32	41	51	61	71	1/2	SSOV3S130	SSOV6S140	7/8	CSOV-7S
	KAL6A220*DA	37	47	57	66	76	1/2	SSOV3S130	SSOV6S140	7/8	CSOV-7S
	KAL6A234*DA	35	44	54	64	74	1/2	SSOV6S140	SSOV6S140	7/8	CSOV-7S
	KAL6A289*DA	37	47	58	68	78	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A316*DA	44	54	64	74	85	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A375*DA	51	61	71	81	91	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A404*DA	52	62	73	83	93	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6A477*DA	57	67	77	88	98	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S

Solenoid Shut Off Valves (SSOV) operate as double duty isolation/liquid line solenoid valve and are required to ship loose and be installed in the field, outside the refrigerated space.
SSOV/CSOV (Check Shut Off Valves) Selection Criteria: Maximum 10 Foot Line Rise, 100 Foot Line Run, 1:1 Condensing Unit/Evaporator. Contact applications for additional lengths or design considerations.
A_{min} values calculated using operating conditions included in UL 60335-2-89 101.DVU.1.2 and standard connection sizes (liquid and suction).
A_{min} values provided for 10 Ft, 20 Ft, 30 Ft, 40 Ft and 50 Ft line lengths. Contact applications for additional lengths or design considerations.
A_{min} values intended to determine compliance with UL 2-89 and is NOT for charging calculations.

DISTRIBUTOR NOZZLE & EXPANSION VALVE SELECTIONS

ELECTRIC DEFROST // 6 FPI

	Model No.	Part Numbers						
		Nozzle @ Liq. Temp.		TXV @ Liq. Temp.		EEV @ Liq. Temp		No. of Circuits
		50°F	100°F	50°F	100°F	50°F	100°F	
6 FPI - R454A	KAL6E042DDA	1/3,TYPE L	1/2,TYPE L	SBFTE-AA-Z	SBFTE-AA-Z	SER-AA	SER-AA	2
	KAL6E051DDA	1/3,TYPE L	3/4,TYPE L	SBFTE-AA-Z	SBFTE-AA-Z	SER-AA	SER-AA	2
	KAL6E058DDA	1/3,TYPE L	3/4,TYPE L	SBFTE-AA-Z	SBFTE-A-Z	SER-AA	SER-AA	2
	KAL6E079DDA	1/2,TYPE L	1,TYPE L	SBFTE-AA-Z	SBFTE-A-Z	SER-AA	SER-A	2
	KAL6E092DDA	3/4,TYPE L	1,TYPE L	SBFTE-A-Z	SBFTE-A-Z	SER-A	SER-A	3
	KAL6E110DDA	3/4,TYPE L	1-1/2,TYPE L	SBFTE-A-Z	SBFTE-B-Z	SER-A	SER-A	5
	KAL6E129DDA	1,TYPE L	2,TYPE L	SBFTE-A-Z	SBFTE-B-Z	SER-A	SER-A	6
	KAL6E148DDA	1,TYPE L	2,TYPE L	SBFTE-A-Z	SBFTE-B-Z	SER-A	SER-B	6
	KAL6E173DDA	1-1/2,TYPE L	2-1/2,TYPE L	SBFTE-B-Z	SBFTE-B-Z	SER-A	SER-B	6
	KAL6E194DDA	1-1/2,TYPE L	2-1/2,TYPE L	SBFTE-B-Z	SBFTE-C-Z	SER-A	SER-B	6
	KAL6E218DDA	1-1/2,TYPE L	3,TYPE L	SBFTE-B-Z	SBFTE-C-Z	SER-B	SER-B	8
	KAL6E237*DA	1-1/2,TYPE L	3,TYPE L	SBFTE-B-Z	SBFTE-C-Z	SER-B	SER-B	9
	KAL6E290*DA	2,TYPE L	4,TYPE L	SBFTE-B-Z	SBFTE-C-Z	SER-B	SER-C	9
	KAL6E343*DA	2-1/2,TYPE G	4,TYPE G	SBFTE-C-Z	SBFTE-C-Z	SER-B	SER-C	12
6 FPI - R454C	KAL6E042DDA	1/3,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-AA-Z	SER-AA	SER-AA	2
	KAL6E051DDA	1/3,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-A-Z	SER-AA	SER-AA	2
	KAL6E058DDA	1/2,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-A-Z	SER-AA	SER-AA	2
	KAL6E079DDA	1/2,TYPE L	1-1/2,TYPE L	SBFVE-A-Z	SBFVE-A-Z	SER-AA	SER-A	2
	KAL6E092DDA	3/4,TYPE L	1-1/2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-A	3
	KAL6E110DDA	3/4,TYPE L	2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-A	5
	KAL6E129DDA	1,TYPE L	2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-A	6
	KAL6E148DDA	1,TYPE L	2,TYPE L	SBFVE-B-Z	SBFVE-B-Z	SER-A	SER-B	6
	KAL6E173DDA	1-1/2,TYPE L	2-1/2,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-A	SER-B	6
	KAL6E194DDA	1-1/2,TYPE L	3,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-B	SER-B	6
	KAL6E218DDA	1-1/2,TYPE L	3,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-B	SER-B	8
	KAL6E237*DA	1-1/2,TYPE L	4,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-B	SER-B	9
	KAL6E290*DA	2,TYPE L	4,TYPE L	SBFVE-C-Z	SBFVE-C-Z	SER-B	SER-C	9
	KAL6E343*DA	2-1/2,TYPE G	5,TYPE G	SBFVE-C-Z	EBSVE-7-Z	SER-B	SER-C	12

The Distributor lines are 3/16" diameter and 14" long.
* Each asterisk represents a variable character based on voltage ordered. See nomenclature page for details.
Expansion valve selections based on -20° Suction Temp and 8°F to 12°F evaporator TD. Contact factory for operating conditions outside this range.
Do not use pressure limiting TXV's when the condensing unit includes a CPR valve.
SBFTE Expansion valves are compatible with R454A refrigerant. SBFVE Expansion valves are compatible with R454C and R455A refrigerants.
For other valves, follow manufacturer's selection guidelines.
Base models (with no factory-mounted components) include nozzles sized for 100°F liquid, shipped loose.

DISTRIBUTOR NOZZLE & EXPANSION VALVE SELECTIONS

ELECTRIC DEFROST // 6 FPI

	Model No.	Part Numbers						
		Nozzle @ Liq. Temp.		TXV @ Liq. Temp.		EEV @ Liq. Temp		No. of Circuits
		50°F	100°F	50°F	100°F	50°F	100°F	
6 FPI - R455A	KAL6E042DDA	1/3,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-AA-Z	SER-AA	SER-AA	2
	KAL6E051DDA	1/3,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-A-Z	SER-AA	SER-AA	2
	KAL6E058DDA	1/2,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-A-Z	SER-AA	SER-AA	2
	KAL6E079DDA	1/2,TYPE L	1-1/2,TYPE L	SBFVE-A-Z	SBFVE-A-Z	SER-AA	SER-A	2
	KAL6E092DDA	3/4,TYPE L	1-1/2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-A	3
	KAL6E110DDA	3/4,TYPE L	2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-A	5
	KAL6E129DDA	1,TYPE L	2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-A	6
	KAL6E148DDA	1,TYPE L	2,TYPE L	SBFVE-B-Z	SBFVE-B-Z	SER-A	SER-B	6
	KAL6E173DDA	1-1/2,TYPE L	2-1/2,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-A	SER-B	6
	KAL6E194DDA	1-1/2,TYPE L	3,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-B	SER-B	6
	KAL6E218DDA	1-1/2,TYPE L	3,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-B	SER-B	8
	KAL6E237*DA	1-1/2,TYPE L	4,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-B	SER-B	9
	KAL6E290*DA	2,TYPE L	4,TYPE L	SBFVE-C-Z	SBFVE-C-Z	SER-B	SER-C	9
	KAL6E343*DA	2-1/2,TYPE G	5,TYPE G	SBFVE-C-Z	EBSVE-7-Z	SER-B	SER-C	12

The Distributor lines are 3/16" diameter and 14" long.
* Each asterisk represents a variable character based on voltage ordered. See nomenclature page for details.
Expansion valve selections based on -20° Suction Temp and 8°F to 12° F evaporator TD. Contact factory for operating conditions outside this range.
Do not use pressure limiting TXV's when the condensing unit includes a CPR valve.
SBFTE Expansion valves are compatible with R454A refrigerant. SBFVE Expansion valves are compatible with R454C and R455A refrigerants.
For other valves, follow manufacturer's selection guidelines.
Base models (with no factory-mounted components) include nozzles sized for 100°F liquid, shipped loose.

LOOSE COMPONENTS REQUIRED FOR A2L ISOLATION CONTROLS

A_{MIN} (MINIMUM ALLOWABLE ROOM SIZE) VALUES // ELECTRIC DEFROST MODELS // 6 FPI

	Model No.	A_{min} Values (Ft^2)					Loose SSOV Isolation Valve @ Liquid Temp			Loose CSOV Isolation CV	
		10 Ft Line Run	20 Ft Line Run	30 Ft Line Run	40 Ft Line Run	50 Ft Line Run	Size	50°F	100°F	Size	Description
6 FPI - R454A	KAL6E042DDA	17	22	28	33	39	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6E051DDA	19	25	30	36	42	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E058DDA	21	27	32	38	44	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E079DDA	21	26	32	38	43	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E092DDA	25	30	36	42	47	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E110DDA	26	32	38	44	50	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL6E129DDA	29	35	40	46	52	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL6E148DDA	31	36	42	48	54	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL6E173DDA	41	52	63	74	85	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6E194DDA	41	52	63	74	85	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6E218DDA	48	60	71	82	93	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL6E237*DA	46	58	69	80	91	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL6E290*DA	52	63	74	85	97	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL6E343*DA	62	74	85	96	107	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
6 FPI - R454C	KAL6E042DDA	16	22	27	32	38	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6E051DDA	18	24	29	35	40	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E058DDA	20	26	31	37	42	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E079DDA	20	26	31	37	42	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E092DDA	24	29	35	40	46	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E110DDA	25	31	37	42	48	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL6E129DDA	28	33	39	45	51	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL6E148DDA	30	35	41	47	52	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL6E173DDA	40	51	61	72	83	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6E194DDA	40	50	61	72	82	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6E218DDA	47	58	69	80	90	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL6E237*DA	45	56	67	78	89	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL6E290*DA	50	61	72	83	94	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL6E343*DA	60	71	82	93	104	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S

Solenoid Shut Off Valves (SSOV) operate as double duty isolation/liquid line solenoid valve and are required to ship loose and be installed in the field, outside the refrigerated space.
SSOV/CSOV (Check Shut Off Valves) Selection Criteria: Maximum 10 Foot Line Rise, 100 Foot Line Run, 1:1 Condensing Unit/Evaporator. Contact applications for additional lengths or design considerations.
A_{min} values calculated using operating conditions included in UL 60335-2-89 101.DVU.1.2 and standard connection sizes (liquid and suction).
A_{min} values provided for 10 Ft, 20 Ft, 30 Ft, 40 Ft and 50 Ft line lengths.
Contact applications for additional lengths or design considerations.
A_{min} values intended to determine compliance with UL 2-89 and is NOT for charging calculations.

LOOSE COMPONENTS REQUIRED FOR A2L ISOLATION CONTROLS

A_{MIN} (MINIMUM ALLOWABLE ROOM SIZE) VALUES // ELECTRIC DEFROST MODELS // 6 FPI

	Model No.	A_{min} Values (Ft^2)					Loose SSOV Isolation Valve @ Liquid Temp			Loose CSOV Isolation CV	
		10 Ft Line Run	20 Ft Line Run	30 Ft Line Run	40 Ft Line Run	50 Ft Line Run	Size	50°F	100°F	Size	Description
6 FPI - R454A	KAL6E042DDA	15	20	25	29	34	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL6E051DDA	17	22	27	32	37	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E058DDA	18	23	29	34	39	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E079DDA	18	23	28	33	38	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E092DDA	22	27	32	37	42	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL6E110DDA	23	28	33	39	44	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL6E129DDA	25	30	36	41	46	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL6E148DDA	27	32	37	43	48	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL6E173DDA	36	46	56	65	75	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6E194DDA	36	46	56	65	75	1/2	SSOV6S140	SSOV6S140	1 1/8	CSOV-9S
	KAL6E218DDA	43	53	63	73	82	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL6E237*DA	41	51	61	71	81	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL6E290*DA	46	56	66	75	85	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL6E343*DA	55	65	75	85	95	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S

Solenoid Shut Off Valves (SSOV) operate as double duty isolation/liquid line solenoid valve and are required to ship loose and be installed in the field, outside the refrigerated space.
SSOV/CSOV (Check Shut Off Valves) Selection Criteria: Maximum 10 Foot Line Rise, 100 Foot Line Run, 1:1 Condensing Unit/Evaporator. Contact applications for additional lengths or design considerations.
A_{min} values calculated using operating conditions included in UL 60335-2-89 101.DVU.1.2 and standard connection sizes (liquid and suction).
A_{min} values provided for 10 Ft, 20 Ft, 30 Ft, 40 Ft and 50 Ft line lengths.
Contact applications for additional lengths or design considerations.
A_{min} values intended to determine compliance with UL 2-89 and is NOT for charging calculations.

DISTRIBUTOR NOZZLE & EXPANSION VALVE SELECTIONS

ELECTRIC DEFROST // 4 FPI

	Model No.	Part Numbers						
		Nozzle @ Liq. Temp.		TXV @ Liq. Temp.		EEV @ Liq. Temp		No. of Circuits
		50°F	100°F	50°F	100°F	50°F	100°F	
4 FPI - R454A	KAL4E032DDA	-	-	SBFTE-AAA-Z	SBFTE-AA-Z	SER-AA	SER-AA	1
	KAL4E040DDA	1/4,TYPE L	1/2,TYPE L	SBFTE-AA-Z	SBFTE-AA-Z	SER-AA	SER-AA	2
	KAL4E046DDA	1/3,TYPE L	3/4,TYPE L	SBFTE-AA-Z	SBFTE-AA-Z	SER-AA	SER-AA	2
	KAL4E061DDA	1/2,TYPE L	3/4,TYPE L	SBFTE-AA-Z	SBFTE-A-Z	SER-AA	SER-AA	2
	KAL4E076DDA	1/2,TYPE L	1,TYPE L	SBFTE-AA-Z	SBFTE-A-Z	SER-AA	SER-A	3
	KAL4E099DDA	3/4,TYPE L	1-1/2,TYPE L	SBFTE-A-Z	SBFTE-B-Z	SER-AA	SER-A	4
	KAL4E114DDA	1,TYPE L	1-1/2,TYPE L	SBFTE-A-Z	SBFTE-B-Z	SER-A	SER-A	6
	KAL4E133DDA	1,TYPE L	2,TYPE L	SBFTE-A-Z	SBFTE-B-Z	SER-A	SER-A	6
	KAL4E150DDA	1,TYPE L	2,TYPE L	SBFTE-A-Z	SBFTE-B-Z	SER-A	SER-B	6
	KAL4E170DDA	1-1/2,TYPE L	,2-1/2,TYPE L	SBFTE-B-Z	SBFTE-B-Z	SER-A	SER-B	8
	KAL4E184*DA	1-1/2,TYPE L	2-1/2,TYPE L	SBFTE-B-Z	SBFTE-C-Z	SER-A	SER-B	9
	KAL4E232*DA	1-1/2,TYPE L	3,TYPE L	SBFTE-B-Z	SBFTE-C-Z	SER-B	SER-B	9
	KAL4E281*DA	2,TYPE G	4,TYPE G	SBFTE-B-Z	SBFTE-C-Z	SER-B	SER-B	12
4 FPI - R454C	KAL4E032DDA	-	-	SBFVE-AAA-Z	SBFVE-AA-Z	SER-AA	SER-AA	1
	KAL4E040DDA	1/4,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-AA-Z	SER-AA	SER-AA	2
	KAL4E046DDA	1/3,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-AA-Z	SER-AA	SER-AA	2
	KAL4E061DDA	1/2,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-A-Z	SER-AA	SER-A	2
	KAL4E076DDA	1/2,TYPE L	1,TYPE L	SBFVE-A-Z	SBFVE-A-Z	SER-AA	SER-A	3
	KAL4E099DDA	3/4,TYPE L	1-1/2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-A	4
	KAL4E114DDA	1,TYPE L	2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-A	6
	KAL4E133DDA	1,TYPE L	2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-B	6
	KAL4E150DDA	1,TYPE L	2,TYPE L	SBFVE-B-Z	SBFVE-B-Z	SER-A	SER-B	6
	KAL4E170DDA	1-1/2,TYPE L	2-1/2,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-A	SER-B	8
	KAL4E184*DA	1-1/2,TYPE L	3,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-B	SER-B	9
	KAL4E232*DA	1-1/2,TYPE L	3,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-B	SER-B	9
	KAL4E281*DA	2,TYPE G	4,TYPE G	SBFVE-C-Z	SBFVE-C-Z	SER-B	SER-C	12
4 FPI - R455A	KAL4E032DDA	-	-	SBFVE-AAA-Z	SBFVE-AA-Z	SER-AA	SER-AA	1
	KAL4E040DDA	1/4,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-AA-Z	SER-AA	SER-AA	2
	KAL4E046DDA	1/3,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-AA-Z	SER-AA	SER-AA	2
	KAL4E061DDA	1/2,TYPE L	3/4,TYPE L	SBFVE-AA-Z	SBFVE-A-Z	SER-AA	SER-A	2
	KAL4E076DDA	1/2,TYPE L	1,TYPE L	SBFVE-A-Z	SBFVE-A-Z	SER-AA	SER-A	3
	KAL4E099DDA	3/4,TYPE L	1-1/2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-A	4
	KAL4E114DDA	1,TYPE L	2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-A	6
	KAL4E133DDA	1,TYPE L	2,TYPE L	SBFVE-A-Z	SBFVE-B-Z	SER-A	SER-B	6
	KAL4E150DDA	1,TYPE L	2,TYPE L	SBFVE-B-Z	SBFVE-B-Z	SER-A	SER-B	6
	KAL4E170DDA	1-1/2,TYPE L	2-1/2,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-A	SER-B	8
	KAL4E184*DA	1-1/2,TYPE L	3,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-B	SER-B	9
	KAL4E232*DA	1-1/2,TYPE L	3,TYPE L	SBFVE-B-Z	SBFVE-C-Z	SER-B	SER-B	9
	KAL4E281*DA	2,TYPE G	4,TYPE G	SBFVE-C-Z	SBFVE-C-Z	SER-B	SER-C	12

The distributor lines are 3/16" tube & 14" long.
* Each asterisk represents a variable character based on voltage ordered. See page 4 for nomenclature.
^ TXV selections are based on +20°F suction temperature, 8°F to 12°F evaporator or TD.
Contact factory for operating conditions outside of this range.
Base models (no factory-mounted components) include nozzles sized for 100°F liquid shipped loose.

LOOSE COMPONENTS REQUIRED FOR A2L ISOLATION CONTROLS

A_{MIN} (MINIMUM ALLOWABLE ROOM SIZE) VALUES // ELECTRIC DEFROST MODELS // 4 FPI

	Model No.	A_{min} Values (Ft^2)					Loose SSOV Isolation Valve @ Liquid Temp			Loose CSOV Isolation CV	
		10 Ft Line Run	20 Ft Line Run	30 Ft Line Run	40 Ft Line Run	50 Ft Line Run	Size	50°F	100°F	Size	Description
4 FPI - R455A	KAL4E032DDA	17	22	28	33	39	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL4E040DDA	19	24	30	35	41	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL4E046DDA	21	27	32	38	44	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E061DDA	21	26	32	38	43	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E076DDA	25	30	36	42	47	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E099DDA	28	34	40	45	51	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E114DDA	31	36	42	48	54	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E133DDA	36	42	48	54	60	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E150DDA	36	42	48	53	59	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E170DDA	43	49	55	61	66	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E184*DA	46	57	68	79	90	1/2	SSOV3S130	SSOV6S140	1 1/8	CSOV-9S
	KAL4E232*DA	52	63	74	85	97	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL4E281*DA	62	74	85	96	107	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
4 FPI - R454C	KAL4E032DDA	16	22	27	32	38	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL4E040DDA	18	23	29	34	40	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL4E046DDA	20	26	31	37	42	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E061DDA	20	26	31	37	42	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E076DDA	24	29	35	40	46	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E099DDA	28	33	39	44	50	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E114DDA	30	35	41	47	52	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E133DDA	35	41	46	52	58	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E150DDA	35	40	46	52	57	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E170DDA	42	47	53	59	64	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E184*DA	45	55	66	77	87	1/2	SSOV3S130	SSOV6S140	1 1/8	CSOV-9S
	KAL4E232*DA	50	61	72	83	94	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL4E281*DA	60	71	82	93	104	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
4 FPI - R455A	KAL4E032DDA	15	20	25	29	34	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL4E040DDA	16	21	26	31	36	3/8	SSOV3S130	SSOV3S130	5/8	CSOV-5S
	KAL4E046DDA	18	23	29	34	39	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E061DDA	18	23	28	33	38	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E076DDA	22	27	32	37	42	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E099DDA	25	30	35	40	45	3/8	SSOV3S130	SSOV3S130	7/8	CSOV-7S
	KAL4E114DDA	27	32	37	43	48	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E133DDA	32	37	42	47	53	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E150DDA	32	37	42	47	52	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E170DDA	38	43	48	54	59	3/8	SSOV3S130	SSOV3S130	1 1/8	CSOV-9S
	KAL4E184*DA	41	50	60	70	80	1/2	SSOV3S130	SSOV6S140	1 1/8	CSOV-9S
	KAL4E232*DA	46	56	66	75	85	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S
	KAL4E281*DA	55	65	75	85	95	1/2	SSOV6S140	SSOV6S140	1 3/8	CSOV-11S

Solenoid Shut Off Valves (SSOV) operate as double duty isolation/liquid line solenoid valve and are required to ship loose and be installed in the field, outside the refrigerated space.
SSOV/CSOV (Check Shut Off Valves) Selection Criteria: Maximum 10 Foot Line Rise, 100 Foot Line Run, 1:1 Condensing Unit/Evaporator. Contact applications for additional lengths or design considerations.
A_{min} values calculated using operating conditions included in UL 60335-2-89 101.DVU.1.2 and standard connection sizes (liquid and suction).
A_{min} values provided for 10 Ft, 20 Ft, 30 Ft, 40 Ft and 50 Ft line lengths. Contact applications for additional lengths or design considerations.
A_{min} values intended to determine compliance with UL 2-89 and is NOT for charging calculations.

SPECIFICATIONS // AIR DEFROST MODELS

	Model No.	Fans	Refrigerant Connections		No. of Hanger Slot Locations	Dimensions (Inches)				Estimated Shipping Weight (Lbs.)
			Liquid	Suction		A	B	C	D	
6 FPI - KAL6A	KAL6A050*DA	1	3/8	5/8	2	17-1/4	-	-	27-1/8	41
	KAL6A062*DA	1	3/8	5/8	2	17-1/4	-	-	27-1/8	44
	KAL6A081*DA	1	3/8	5/8	2	17-1/4	-	-	27-1/8	47
	KAL6A088*DA	2	3/8	5/8	2	33-1/4	-	-	43-5/8	52
	KAL6A113*DA	2	3/8	7/8	2	33-1/4	-	-	43-5/8	55
	KAL6A141*DA	2	3/8	7/8	2	33-1/4	-	-	43-5/8	58
	KAL6A159*DA	2	3/8	7/8	2	33-1/4	-	-	43-5/8	62
	KAL6A170*DA	3	3/8	7/8	2	49-1/4	-	-	60-1/8	72
	KAL6A196*DA	3	1/2	7/8	2	49-1/4	-	-	60-1/8	78
	KAL6A220*DA	3	1/2	7/8	2	49-1/4	-	-	60-1/8	85
	KAL6A234*DA	4	1/2	7/8	2	65-1/4	-	-	76-5/8	115
	KAL6A289*DA	4	1/2	1 1/8	2	65-1/4	-	-	76-5/8	124
	KAL6A316*DA	4	1/2	1 1/8	2	65-1/4	-	-	76-5/8	147
	KAL6A375*DA	5	1/2	1 1/8	3	81-1/4	32-5/8	48-5/8	93-1/8	218
	KAL6A404*DA	6	1/2	1 1/8	3	97-1/4	48-5/8	48-5/8	109-5/8	257
	KAL6A477*DA	6	1/2	1 1/8	3	97-1/4	48-5/8	48-5/8	109-5/8	262

* Each asterisk represents a variable character based on voltage ordered. See nomenclature on page 4 for details.
For dimensional distance between hanger slots, consult model's corresponding dimensional drawing. Hanger slots are 3/8" deep x 1" wide.
2. Drain connection is 1-1/4" NPT for all models.
3. For shipping dimensions and weights, see the Shipping information included with each dimensional drawing.

SPECIFICATIONS // ELECTRIC DEFROST MODELS

	Model No.	Fans	Refrigerant Connections		No. of Hanger Slot Locations	Dimensions (Inches)				Estimated Shipping Weight (Lbs.)
			Liquid	Suction		A	B	C	D	
6 FPI - KAL6E	KAL6E042DDA	1	3/8	5/8	2	17-1/4	-	-	27-1/8	41
	KAL6E051DDA	1	3/8	7/8	2	17-1/4	-	-	27-1/8	44
	KAL6E058DDA	1	3/8	7/8	2	17-1/4	-	-	27-1/8	47
	KAL6E079DDA	2	3/8	7/8	2	33-1/4	-	-	43-5/8	52
	KAL6E092DDA	2	3/8	7/8	2	33-1/4	-	-	43-5/8	55
	KAL6E110DDA	2	3/8	1 1/8	2	33-1/4	-	-	43-5/8	58
	KAL6E129DDA	2	3/8	1 1/8	2	33-1/4	-	-	43-5/8	62
	KAL6E148DDA	3	3/8	1 1/8	2	49-1/4	-	-	60-1/8	78
	KAL6E173DDA	3	1/2	1 1/8	2	49-1/4	-	-	60-1/8	85
	KAL6E194DDA	4	1/2	1 1/8	2	65-1/4	-	-	76-5/8	124
	KAL6E218DDA	4	1/2	1 3/8	2	65-1/4	-	-	76-5/8	147
	KAL6E237*DA	5	1/2	1 3/8	3	81-1/4	32-5/8	48-5/8	93-1/8	195
	KAL6E290*DA	6	1/2	1 3/8	3	97-1/4	48-5/8	48-5/8	109-5/8	238
	KAL6E343*DA	6	1/2	1 3/8	3	97-1/4	48-5/8	48-5/8	109-5/8	262

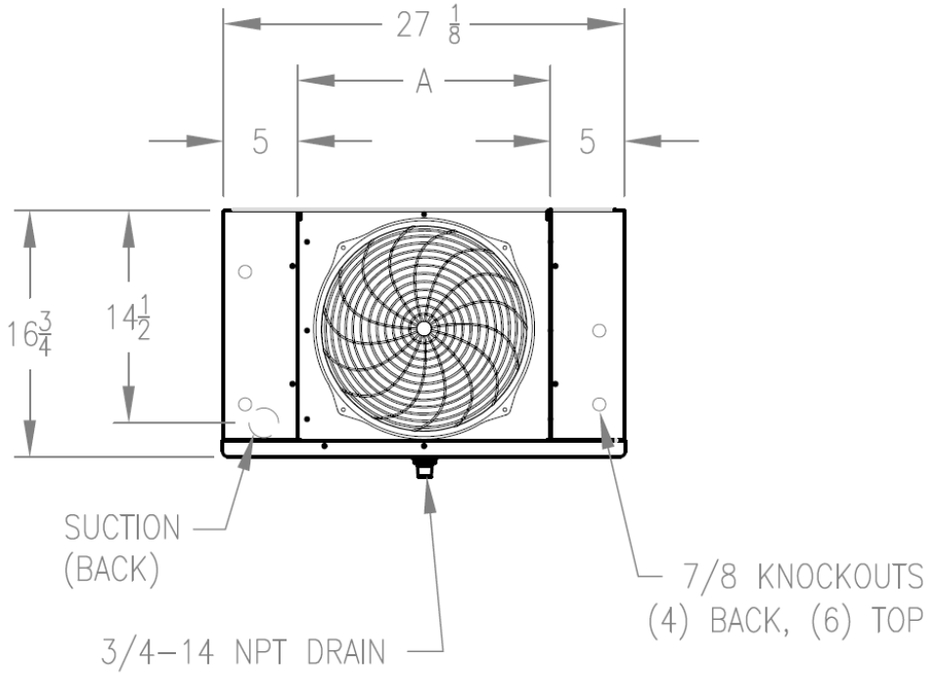
	Model No.	Fans	Refrigerant Connections		No. of Hanger Slot Locations	Dimensions (Inches)				Estimated Shipping Weight (Lbs.)
			Liquid	Suction		A	B	C	D	
4 FPI - KAL4E	KAL4E032DDA	1	3/8	5/8	2	17-1/4	-	-	27-1/8	40
	KAL4E040DDA	1	3/8	5/8	2	17-1/4	-	-	27-1/8	42
	KAL4E046DDA	1	3/8	7/8	2	17-1/4	-	-	27-1/8	46
	KAL4E061DDA	2	3/8	7/8	2	33-1/4	-	-	43-5/8	50
	KAL4E076DDA	2	3/8	7/8	2	33-1/4	-	-	43-5/8	52
	KAL4E099DDA	2	3/8	7/8	2	33-1/4	-	-	43-5/8	55
	KAL4E114DDA	3	3/8	1 1/8	2	49-1/4	-	-	60-1/8	79
	KAL4E133DDA	3	3/8	1 1/8	2	49-1/4	-	-	60-1/8	84
	KAL4E150DDA	4	3/8	1 1/8	2	65-1/4	-	-	76-5/8	124
	KAL4E170DDA	4	3/8	1 1/8	2	65-1/4	-	-	76-5/8	144
	KAL4E184*DA	5	1/2	1 1/8	3	81-1/4	32-5/8	48-5/8	93-1/8	191
	KAL4E232*DA	6	1/2	1 3/8	3	97-1/4	48-5/8	48-5/8	109-5/8	257
	KAL4E281*DA	6	1/2	1 3/8	3	97-1/4	48-5/8	48-5/8	109-5/8	262

* Each asterisk represents a variable character based on voltage ordered. See nomenclature on page 4 for details.
For dimensional distance between hanger slots, consult model's corresponding dimensional drawing. Hanger slots are 3/8" deep x 1" wide.
2. Drain connection is 1-1/4" NPT for all models.
3. For shipping dimensions and weights, see the Shipping information included with each dimensional drawing.

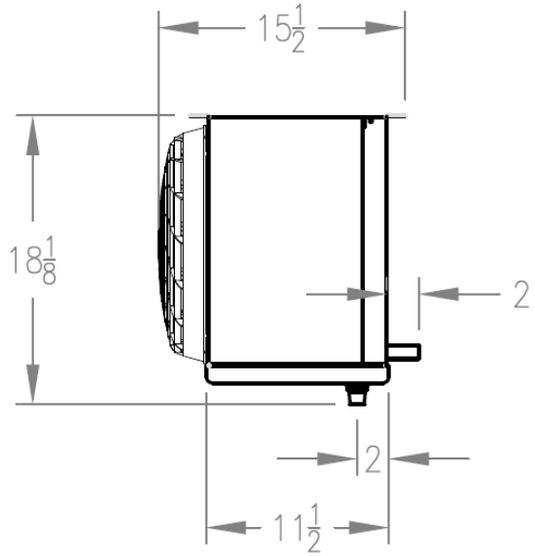
DIMENSIONAL DRAWINGS

Figure 1 - Single Fan

Front View



Side View

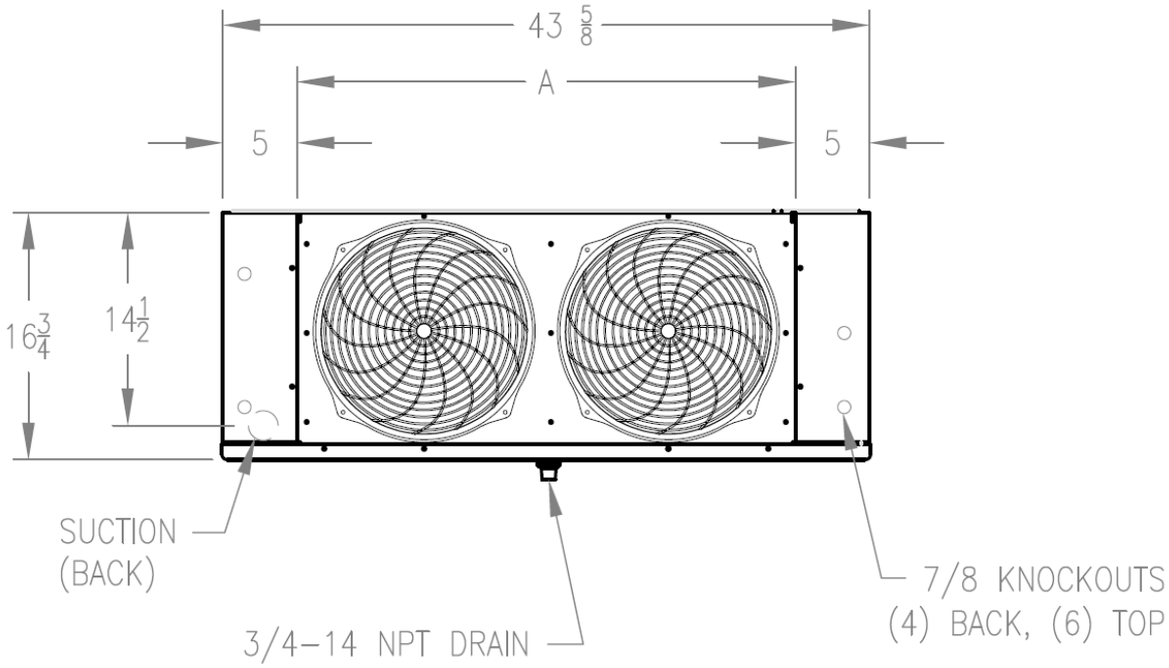


Measurements noted on the end view drawing are the same for all units. All mounting holes are 3/8" diameter.
All dimensions are in inches.

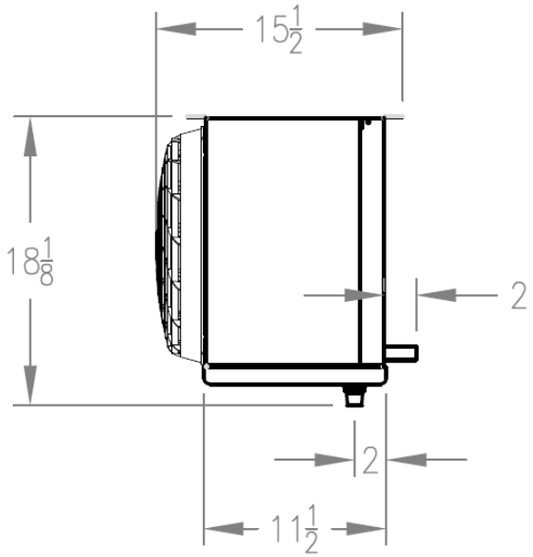
DIMENSIONAL DRAWINGS

Figure 2 - Two Fan

Front View



Side View

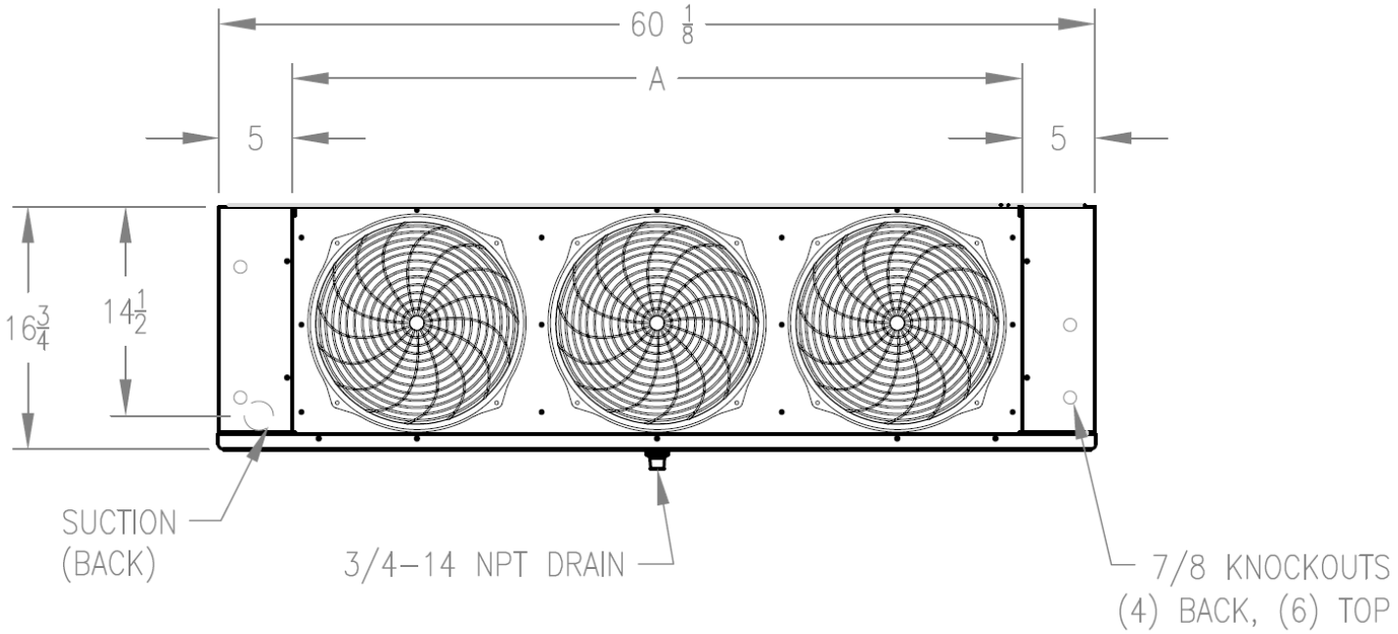


Measurements noted on the end view drawing are the same for all units. All mounting holes are 3/8" diameter.
All dimensions are in inches.

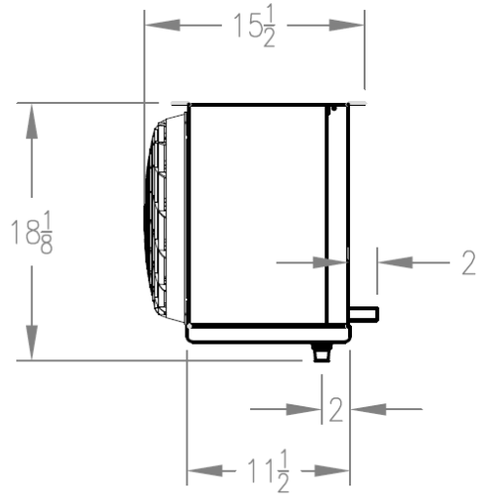
DIMENSIONAL DRAWINGS

Figure 3 - Three Fan

Front View



Side View

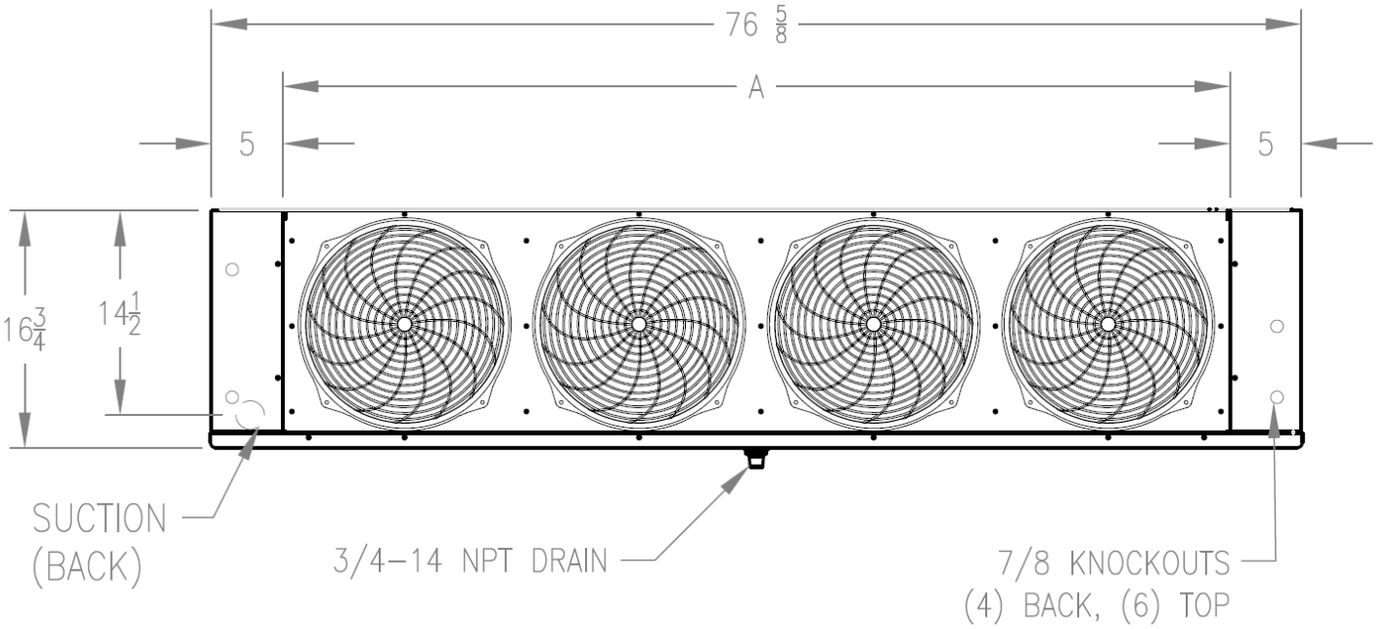


Measurements noted on the end view drawing are the same for all units. All mounting holes are 3/8" diameter.
All dimensions are in inches.

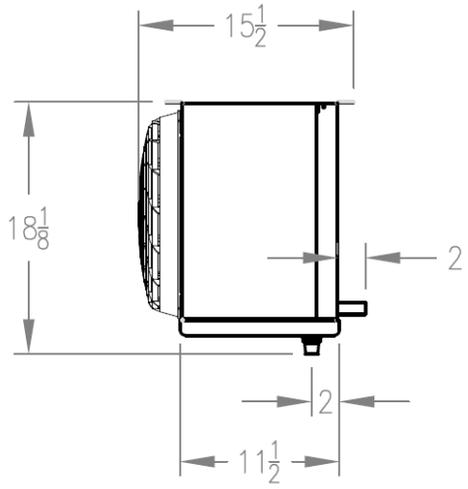
DIMENSIONAL DRAWINGS

Figure 4 - Four Fan

Front View



Side View

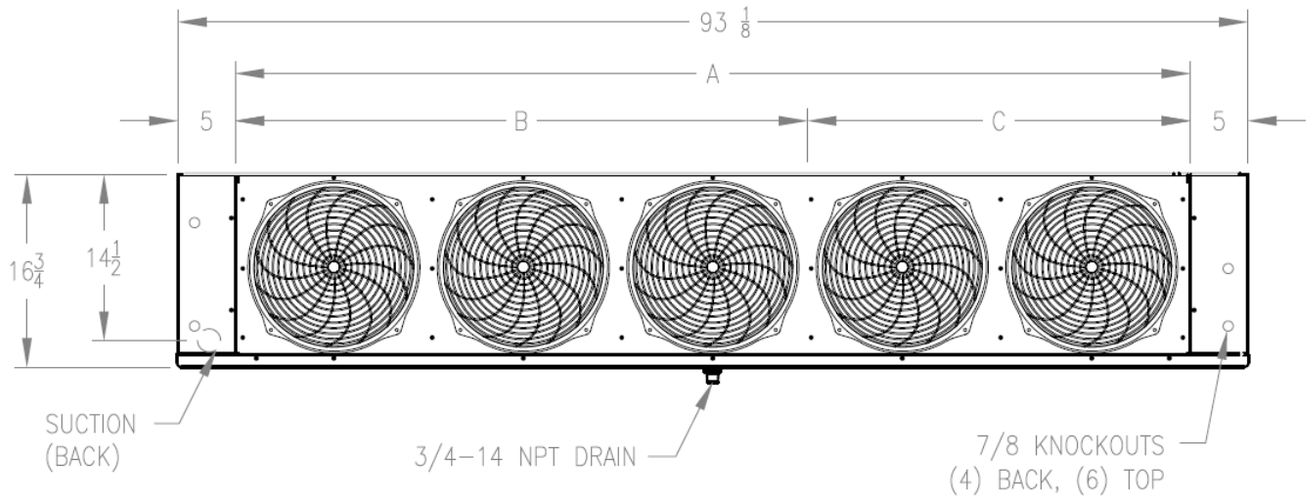


Measurements noted on the end view drawing are the same for all units. All mounting holes are 3/8" diameter.
All dimensions are in inches.

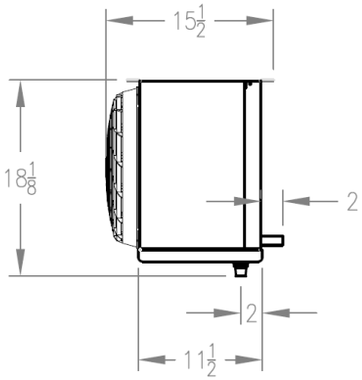
DIMENSIONAL DRAWINGS

Figure 5 - Five Fan

Front View



Side View

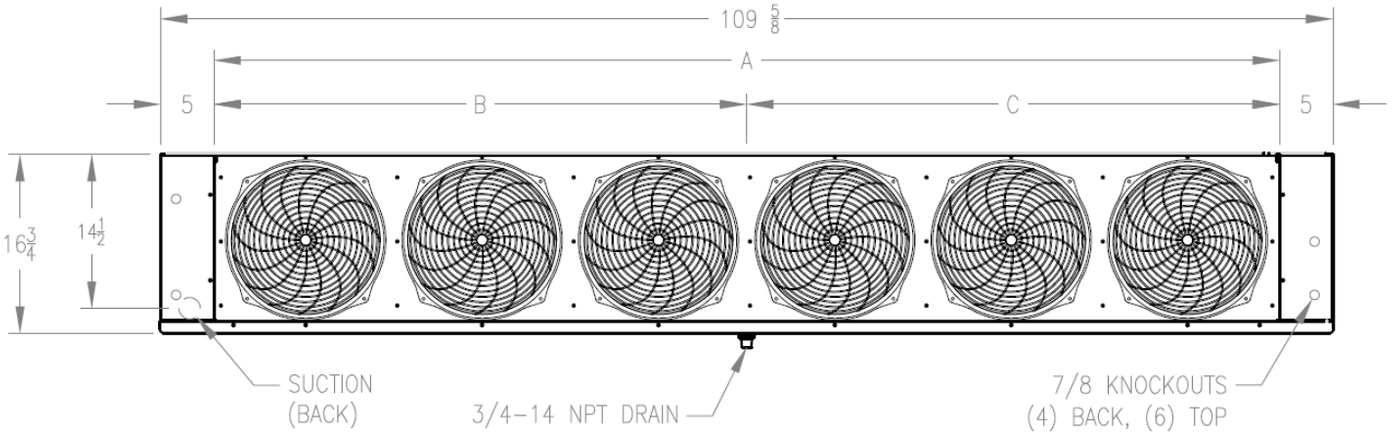


Measurements noted on the end view drawing are the same for all units. All mounting holes are 3/8" diameter.
All dimensions are in inches.

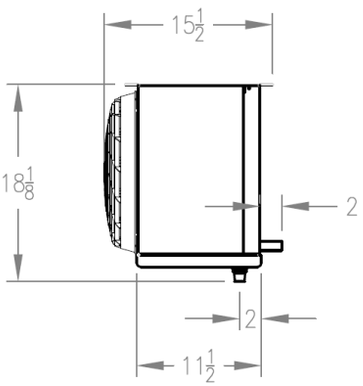
DIMENSIONAL DRAWINGS

Figure 6 - Six Fan

Front View



Side View



Measurements noted on the end view drawing are the same for all units. All mounting holes are 3/8" diameter.
All dimensions are in inches.

AWEF RATINGS // COOLER AND FREEZER MODELS

EVAPORATOR APPLICATION RATINGS

Multiple conditions combine to determine the application capacity of an evaporator. Walk-in space temperature, relative humidity, saturated suction temperature difference, and outdoor ambient temperature. All of the factors are considered when calculating an evaporator application rating. These ratings are considerably higher than the net capacity value used for DOE ratings (AWEF).

The AWEF of an evaporator is calculated using the dry coil capacity and the daily evaporator power consumption. Power consumption included fan and defrost power. Evaporator net capacity reported to the DOE database is dry coil capacity less the full power fan watts. DOE test conditions are at 10°F evaporator/SST temperature difference and less than 50% relative humidity and 96°F liquid temperature. These conditions create a uniform test method, but should not be used for equipment selection. The equipment selected would be too large for the application.

Kramer's published application ratings are a guideline for proper equipment selection. They account for true operating conditions experienced by equipment.

Cooler Models[1]

Base Model Number	Defrost Type	FPI	AWEF
KAL6A050*DA	Air Defrost	6	9.00
KAL6A062*DA	Air Defrost	6	9.00
KAL6A081*DA	Air Defrost	6	9.00
KAL6A088*DA	Air Defrost	6	9.00
KAL6A113*DA	Air Defrost	6	9.00
KAL6A141*DA	Air Defrost	6	9.00
KAL6A159*DA	Air Defrost	6	9.00
KAL6A177*DA	Air Defrost	6	9.00
KAL6A196*DA	Air Defrost	6	9.00
KAL6A220*DA	Air Defrost	6	9.00
KAL6A234*DA	Air Defrost	6	9.00
KAL6A289*DA	Air Defrost	6	9.00
KAL6A316*DA	Air Defrost	6	9.00
KAL6A375*DA	Air Defrost	6	9.00
KAL6A404*DA	Air Defrost	6	9.00
KAL6A477*DA	Air Defrost	6	9.00
KAL6E042DDA	Electric Defrost	6	9.00
KAL6E051DDA	Electric Defrost	6	9.00
KAL6E058DDA	Electric Defrost	6	9.00
KAL6E079DDA	Electric Defrost	6	9.00
KAL6E092DDA	Electric Defrost	6	9.00
KAL6E110DDA	Electric Defrost	6	9.00
KAL6E129DDA	Electric Defrost	6	9.00
KAL6E148DDA	Electric Defrost	6	9.00
KAL6E173DDA	Electric Defrost	6	9.00
KAL6E194DDA	Electric Defrost	6	9.00
KAL6E218DDA	Electric Defrost	6	9.00
KAL6E237*DA	Electric Defrost	6	9.00
KAL6E290*DA	Electric Defrost	6	9.00
KAL6E343*DA	Electric Defrost	6	9.00

* Each asterisk represents a variable character based on voltage ordered. See nomenclature on page 4 for details.

Freezer Models[2]

Base Model Number	Defrost Type	FPI	AWEF
KAL6E042DDA	Electric Defrost	6	3.95
KAL6E051DDA	Electric Defrost	6	3.98
KAL6E058DDA	Electric Defrost	6	3.99
KAL6E079DDA	Electric Defrost	6	4.00
KAL6E092DDA	Electric Defrost	6	4.04
KAL6E110DDA	Electric Defrost	6	4.06
KAL6E129DDA	Electric Defrost	6	4.09
KAL6E148DDA	Electric Defrost	6	4.12
KAL6E173DDA	Electric Defrost	6	4.15
KAL6E194DDA	Electric Defrost	6	4.15
KAL6E218DDA	Electric Defrost	6	4.15
KAL6E237*DA	Electric Defrost	6	4.15
KAL6E290*DA	Electric Defrost	6	4.15
KAL6E343*DA	Electric Defrost	6	4.15
KAL4E032DDA	Electric Defrost	4	3.95
KAL4E040DDA	Electric Defrost	4	3.97
KAL4E046DDA	Electric Defrost	4	3.98
KAL4E061DDA	Electric Defrost	4	3.99
KAL4E076DDA	Electric Defrost	4	4.02
KAL4E099DDA	Electric Defrost	4	4.05
KAL4E114DDA	Electric Defrost	4	4.08
KAL4E133DDA	Electric Defrost	4	4.12
KAL4E150DDA	Electric Defrost	4	4.13
KAL4E170DDA	Electric Defrost	4	4.15
KAL4E184*DA	Electric Defrost	4	4.15
KAL4E232*DA	Electric Defrost	4	4.15
KAL4E281*DA	Electric Defrost	4	4.15

1. If the model has a numerical value in the table above, the following statement applies: " The refrigeration system is designed and certified for use in walk-in cooler applications."

2. If the model has a numerical value in the table above, the following statement applies: " The refrigeration system is designed and certified for use in walk-in freezer applications."

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