



Publication No. RU-RLV-0221A  
Replaces RU-RLV-0720A and all previous versions

# LOW VELOCITY CENTER MOUNT UNIT COOLER

Small to Medium Walk-In  
Cooler Applications

Air and Electric Defrost  
4,300 to 32,500 BTUH



# LOW VELOCITY CENTER MOUNT

## Features

Low Velocity Center Mount Unit Coolers mount flush to the ceiling to provide extra storage space. Units are ideal for florist boxes; produce storage; meat cutting, holding and packing rooms; and similar applications. Features include two-way air flow to provide for even circulation and temperature, easy serviceability, usability with multiple refrigerants, and are available in air and electric defrost models.

### SIZES

There are a wide array of sizes available with capacities ranging from 4,300 to 32,500 BTUH at a 10°TD. One through five fan models are available with air flow spanning a range of 632 to 3,160 CFM.

### HOUSING

The embossed aluminum casing is lightweight yet durable. Each fan section is baffled to prevent short cycling of the discharge air. The units are designed to mount flush to the ceiling and are compliant with NSF requirements. Top panel contains 3/8" mounting holes to simplify installation. The housing is sloped to provide more efficient condensate draining. A uniquely shaped control access cover allows for easy access for service in confined spaces.

### 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. All models are available with 6 fins per inch (FPI). Sweat connections are standard on all models.

### FANS

Aluminum 12" fans are balanced to provide vibration-free operation. Improved black plastic fan guard design and deep draw venturi achieve optimal air pattern. Fan motors and blades can be easily accessed by removing the fan guard.

### MOTORS

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

### ELECTRICAL

Available for 115V, and 208/230V. All components are factory wired to terminal strips and are UL and cUL listed.

### AIR DEFROST

Air Defrost models (RV6A) are designed for use in coolers down to 35°F.

### ELECTRIC DEFROST

Electric Defrost models (RV6E) are designed for use in coolers and freezers down to 28°F.

## Optional Features

- EcoNet® Enabled Controller<sup>1</sup> 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)
- Liquid Line Solenoid Valve (mounted or loose)
- Insulated Drain Pan
- Painted Cabinet (White or Black)
- Stainless Steel Cabinet
- Coated Coil (Russproof, Heresite, Bronz-Glow, or Electrofin®)
- Heat Exchanger (loose)

### Notes

1. 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, liquid line solenoid valve, room thermostat, defrost termination and fan delay, and time clock.)

## MODEL NUMBER NOMENCLATURE

### CONFIGURABLE BASE MODEL

R	V	6	A	043	A	D	A
Brand	Style	Fins Per Inch	Defrost Type	BTUH in Hundreds	Unit Voltage <sup>^</sup>	Motor Type	Revision
R - Russell	V - Low Velocity Center Mount	6 FPI	A - Air E - Electric		A - 115/1/60 D - 208-230/1/60	D - Dual Speed EC	

### Note

<sup>^</sup> 50 Hz available. Contact Factory for additional information.

# UNIT COOLER

## Highlighted Features and Options



### FANS AND HOUSING

- Extra low height — mounts flush to ceiling
- Two-way air flow for even air circulation and consistent temperature
- 12" aluminum fans are balanced for vibration-free operation
- High efficiency fan guard design and deep draw venturi provide optimal air flow
- Easy access to fan motors
- Sloped housing for efficient condensate draining
- UL and NSF approved



### COILS AND DEFROST HEATERS

- Available in 6 FPI
- Electric defrost heaters are mounted on the air intake coil face to provide optimal performance and are easily accessible by removing the venturi panel
- Independent defrost termination on each coil slab for efficient defrosting
- Independent drain pan per coil

## ECONET ENABLED UNIT COOLERS (Optional)

Developed in conjunction with Rheem Manufacturing specifically for walk-in coolers and freezers — it builds on 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

## ELECTRICAL AND PIPING



Unit shown with EcoNet option installed

- Unique design of control access cover allows for service in confined spaces
- Ample room in electrical and piping compartments for easy access

# LOW VELOCITY CENTER MOUNT

## 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.

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

## Application Rating and Electrical Data - Air Defrost Models

	Model Number	BTUH Capacity @ 25°F S.T. & 10°F TD		CFM	No. of Fans	Total Fan Motor AMPS - 1 Phase		MCA		MOPD			
		R404A	R407A/ R448A/ R449A/B <sup>^</sup>			Dual Speed EC Motors <sup>†</sup>		115V	208- 230V	115V	208- 230V	115V	208- 230V
						115V	208- 230V						
6 FPI	RV6A043*DA	4,300	5,100	654	1	0.8	0.5	15.0	15.0	20.0	20.0		
	RV6A053*DA	5,300	6,300	632	1	0.8	0.5	15.0	15.0	20.0	20.0		
	RV6A085*DA	8,500	10,100	1,308	2	1.6	1.0	15.0	15.0	20.0	20.0		
	RV6A106*DA	10,600	12,600	1,264	2	1.6	1.0	15.0	15.0	20.0	20.0		
	RV6A129*DA	12,900	15,300	1,962	3	2.4	1.5	15.0	15.0	20.0	20.0		
	RV6A158*DA	15,800	18,800	1,896	3	2.4	1.5	15.0	15.0	20.0	20.0		
	RV6A176*DA	17,600	20,800	2,616	4	3.2	2.0	15.0	15.0	20.0	20.0		
	RV6A218*DA	21,800	26,000	2,528	4	3.2	2.0	15.0	15.0	20.0	20.0		
RV6A271*DA	27,100	32,500	3,160	5	4.0	2.5	15.0	15.0	20.0	20.0			

## AWEF Ratings - Air Defrost Models

Air Defrost Department of Energy Annual Walk-In Energy Factor (AWEF) Ratings			
Base Model Number	Defrost Type	FPI	AWEF

### Cooler Models<sup>1</sup>

RV6A043*DA	Air Defrost	6	9.0
RV6A053*DA	Air Defrost	6	9.0
RV6A085*DA	Air Defrost	6	9.0
RV6A106*DA	Air Defrost	6	9.0
RV6A129*DA	Air Defrost	6	9.0
RV6A158*DA	Air Defrost	6	9.0
RV6A176*DA	Air Defrost	6	9.0
RV6A218*DA	Air Defrost	6	9.0
RV6A271*DA	Air Defrost	6	9.0

Consult Factory for 50Hz Operation

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

<sup>^</sup> Refrigerants with large glides are rated at dew point temperature. Use R407A capacity ratings for R407C and R407F.

<sup>†</sup> Dual-speed EC motors are compliant with California Title 24 regulations.

Models were designed in anticipation of the July 2020 Department of Energy AWEF regulations for evaporators for Walk-in Coolers and Freezers in boxes less than 3,000 sq. ft. See below for AWEF compliance ratings.

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

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## Application Rating and Electrical Data - Electric Defrost Models

	Model Number	BTUH Capacity @ 25°F S.T. & 10°F TD		CFM	No. of Fans	208-230V/1				
		R404A	R407A/ R448A/ R449A/B <sup>^</sup>			Dual Speed EC Motors <sup>†</sup>	MCA		MOPD	
							Total Fan Motor AMPS	Base Model	EcoNet Enabled	Base Model
6 FPI	RV6E043DDA	4,300	5,100	654	1	0.5	15.0	15.0	20	20
	RV6E053DDA	5,300	6,300	632	1	0.5	15.0	15.0	20	20
	RV6E085DDA	8,500	10,100	1,308	2	1.0	15.0	15.0	20	20
	RV6E106DDA	10,600	12,600	1,264	2	1.0	15.0	15.0	20	20
	RV6E129DDA	12,900	15,300	1,962	3	1.5	15.0	15.0	20	20
	RV6E158DDA	15,800	18,800	1,896	3	1.5	15.0	15.0	20	20
	RV6E176DDA	17,600	20,800	2,616	4	2.0	15.0	15.0	20	20
	RV6E218DDA	21,800	26,000	2,528	4	2.0	15.0	15.0	20	20
	RV6E271DDA	27,100	32,500	3,160	5	2.5	15.0	15.0	20	20

	Model Number	Heater Amps	Heater Watts
		230V/1	
6 FPI	RV6E043DDA	2.6	600
	RV6E053DDA	2.6	600
	RV6E085DDA	5.2	1,200
	RV6E106DDA	5.2	1,200
	RV6E129DDA	7.8	1,800
	RV6E158DDA	7.8	1,800
	RV6E176DDA	7.8	1,800
	RV6E218DDA	10.4	2,400
	RV6E271DDA	13.0	3,000

Consult Factory for 50Hz Operation

<sup>^</sup> Refrigerants with large glides are rated at dew point temperature. Use R407A capacity ratings for R407C and R407F.

<sup>†</sup> Dual-speed EC motors are compliant with California Title 24 regulations.

Models were designed in anticipation of the July 2020 Department of Energy AWEF regulations for evaporators for Walk-in Coolers and Freezers in boxes less than 3,000 sq. ft. See below for AWEF compliance ratings.

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

## AWEF Ratings - Electric Defrost Models

Electric Defrost Department of Energy Annual Walk-In Energy Factor (AWEF) Ratings			
Base Model Number	Defrost Type	FPI	AWEF

### Cooler Models<sup>1</sup>

RV6E043DDA	Electric Defrost	6	9.0
RV6E053DDA	Electric Defrost	6	9.0
RV6E085DDA	Electric Defrost	6	9.0
RV6E106DDA	Electric Defrost	6	9.0
RV6E129DDA	Electric Defrost	6	9.0
RV6E158DDA	Electric Defrost	6	9.0
RV6E176DDA	Electric Defrost	6	9.0
RV6E218DDA	Electric Defrost	6	9.0
RV6E271DDA	Electric Defrost	6	9.0

Electric Defrost Department of Energy Annual Walk-In Energy Factor (AWEF) Ratings			
Base Model Number	Defrost Type	FPI	AWEF

### Freezer Models<sup>2</sup>

RV6E043DDA	Electric Defrost	6	4.15
RV6E053DDA	Electric Defrost	6	4.15
RV6E085DDA	Electric Defrost	6	4.15
RV6E106DDA	Electric Defrost	6	4.15
RV6E129DDA	Electric Defrost	6	4.15
RV6E158DDA	Electric Defrost	6	4.15
RV6E176DDA	Electric Defrost	6	4.15
RV6E218DDA	Electric Defrost	6	4.15
RV6E271DDA	Electric Defrost	6	4.15

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## Distributor Nozzle - All Models

Model Number		Part Numbers						Number of Circuits
Air Defrost	Electric Defrost	Nozzle @ Liq. Temp.		TXV <sup>^</sup> @ Liq. Temp.		EEV @ Liq. Temp.		
		50°F	100°F	50°F	100°F	50°F	100°F	

### R404A

6 FPI	RV6A043*DA	RV6E043DDA	L, #1/6	L, #1/2	SBFSE-AA-C	SBFSE-AA-C	SER-AA	SER-A	2
	RV6A053*DA	RV6E053DDA	L, #1/6	L, #1/2	SBFSE-AA-C	SBFSE-AA-C	SER-AA	SER-A	2
	RV6A085*DA	RV6E085DDA	L, #1/4	L, #3/4	SBFSE-A-C	SBFSE-A-C	SER-A	SER-B	2
	RV6A106*DA	RV6E106DDA	L, #1/3	L, #1	SBFSE-A-C	SBFSE-A-C	SER-A	SER-B	4
	RV6A129*DA	RV6E129DDA	L, #1/2	L, #1-1/2	SBFSE-A-C	SBFSE-B-C	SER-B	SER-B	6
	RV6A158*DA	RV6E158DDA	L, #1/2	L, #1-1/2	SBFSE-A-C	SBFSE-B-C	SER-B	SER-B	6
	RV6A176*DA	RV6E176DDA	L, #3/4	L, #2	SBFSE-A-C	SBFSE-B-C	SER-B	SER-C	6
	RV6A218*DA	RV6E218DDA	L, #3/4	L, #2	SBFSE-B-C	SBFSE-C-C	SER-B	SER-C	8
RV6A271*DA	RV6E271DDA	G, #1	G, #2-1/2	SBFSE-B-C	SBFSE-C-C	SER-C	SER-C	12	

### R407A/ R448A/ R449A/B<sup>†</sup>

6 FPI	RV6A043*DA	RV6E043DDA	L, #1/6	L, #1/2	SBFDE-AAA-C	SBFDE-AA-C	SER-AA	SER-AA	2
	RV6A053*DA	RV6E053DDA	L, #1/4	L, #1/2	SBFDE-AA-C	SBFDE-AA-C	SER-AA	SER-A	2
	RV6A085*DA	RV6E085DDA	L, #1/3	L, #3/4	SBFDE-AA-C	SBFDE-A-C	SER-A	SER-A	2
	RV6A106*DA	RV6E106DDA	L, #1/2	L, #1	SBFDE-A-C	SBFDE-A-C	SER-A	SER-B	4
	RV6A129*DA	RV6E129DDA	L, #1/2	L, #1-1/2	SBFDE-A-C	SBFDE-A-C	SER-A	SER-B	6
	RV6A158*DA	RV6E158DDA	L, #3/4	L, #1-1/2	SBFDE-A-C	SBFDE-B-C	SER-B	SER-B	6
	RV6A176*DA	RV6E176DDA	L, #3/4	L, #2	SBFDE-A-C	SBFDE-B-C	SER-B	SER-B	6
	RV6A218*DA	RV6E218DDA	L, #1	L, #2	SBFDE-B-C	SBFDE-B-C	SER-B	SER-C	8
RV6A271*DA	RV6E271DDA	G, #1	G, #2-1/2	SBFDE-B-C	SBFDE-C-C	SER-C	SER-C	12	

Distributor lines are 3/16" diameter and 14" long. Distributor connection size is 1/2" for Air and Electric Defrost models with "L" nozzle and 7/8" for models with "G" nozzle.

\* Each asterisk represents a variable character based on voltage ordered. See page 2 for nomenclature.

<sup>^</sup> TXV selections are based on +25°F suction temp., 8°F to 12°F evaporator TD. Contact factory for operating conditions outside of this range.

<sup>†</sup> SBFDE expansion valves are compatible with R407A, R448A and R449A/B. For other valves, follow manufacturers selection guidelines.

If unit is not configured with a factory installed TXV, unit will include shipped-loose nozzles sized for 100°F liquid temperature.

# UNIT COOLER

## Specifications

Model Number		TXV <sup>†</sup> Type	Refrigerant Connections		No. of Hanger Slot Locations	Dimensions (Inches)				Approx. Weight (Lbs.)	
Air Defrost	Electric Defrost		Liquid Line <sup>1</sup>	Suction		Length	Width	Height	Figure	Net	Ship

6 FPI	RV6A043**A	RV6E043D*A	EXT	3/8	5/8	2	32	28-3/8	13-3/4	1	60	195
	RV6A053**A	RV6E053D*A	EXT	3/8	5/8	2	32	28-3/8	13-3/4	1	60	195
	RV6A085**A	RV6E085D*A	EXT	3/8	5/8	3	52	28-3/8	13-3/4	2	80	215
	RV6A106**A	RV6E106D*A	EXT	3/8	5/8	3	52	28-3/8	13-3/4	2	80	215
	RV6A129**A	RV6E129D*A	EXT	3/8	7/8	4	72	28-3/8	13-3/4	3	100	235
	RV6A158**A	RV6E158D*A	EXT	3/8	7/8	4	72	28-3/8	13-3/4	3	100	235
	RV6A176**A	RV6E176D*A	EXT	3/8	7/8	5	92	28-3/8	13-3/4	4	125	285
	RV6A218**A	RV6E218D*A	EXT	3/8	7/8	5	92	28-3/8	13-3/4	4	125	285
	RV6A271**A	RV6E271D*A	EXT	3/8	1-1/8	6	112	28-3/8	13-3/4	5	155	340

\* Each asterisk represents a variable character based on voltage and motor ordered. See page 2 for nomenclature.

† Externally equalized.

1 For units with mounted TXV components. See Nozzle/TXV table for distributor connection size when TXV is field installed.



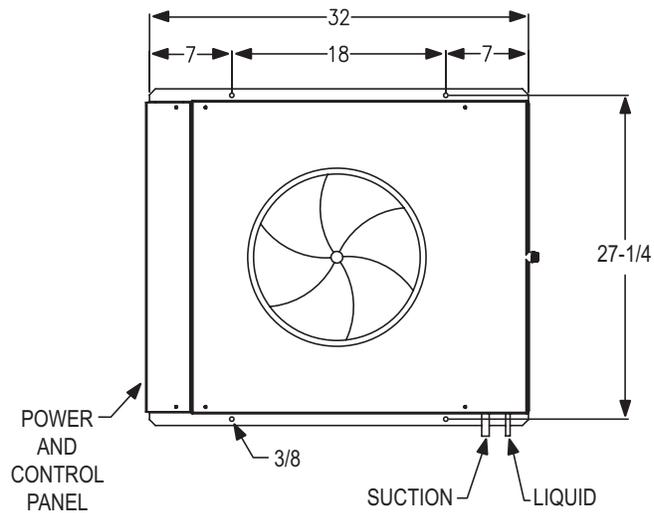
## Applications

# LOW VELOCITY CENTER MOUNT

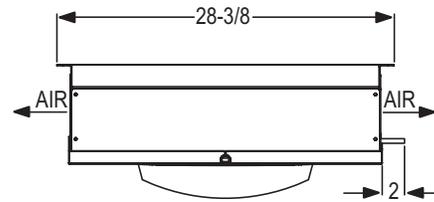
## Physical Dimensions

Figure 1 - Single Fan

Bottom View



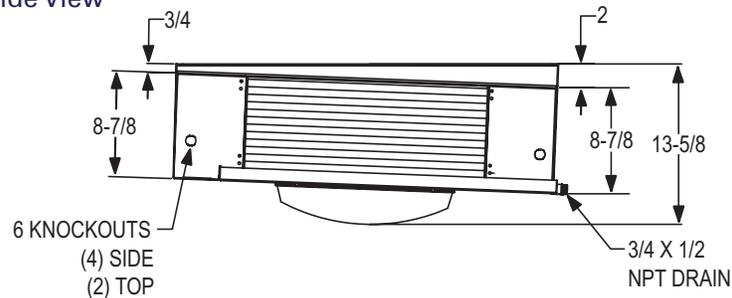
End View



**Notes:**

- Measurements noted on the end view drawing are the same for all units.
- All mounting holes are 3/8" diameter.
- Mounting holes on four and five fan units are located 20" on center at each tube sheet.
- All dimensions are in inches.

Side View



Mounts flush to ceiling to maximize storage space

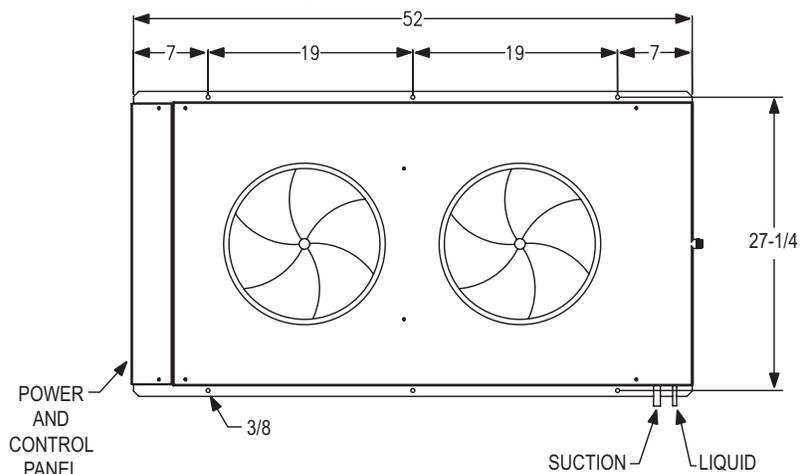
Easy access to fan motors  
Sloped housing for efficient condensate draining

# UNIT COOLER

## Physical Dimensions

Figure 2 - Two Fan

Bottom View



Side View

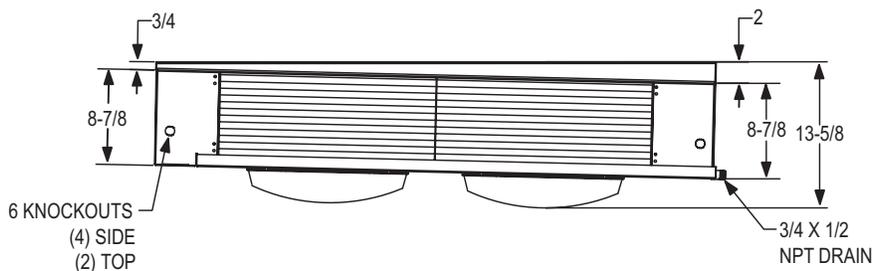
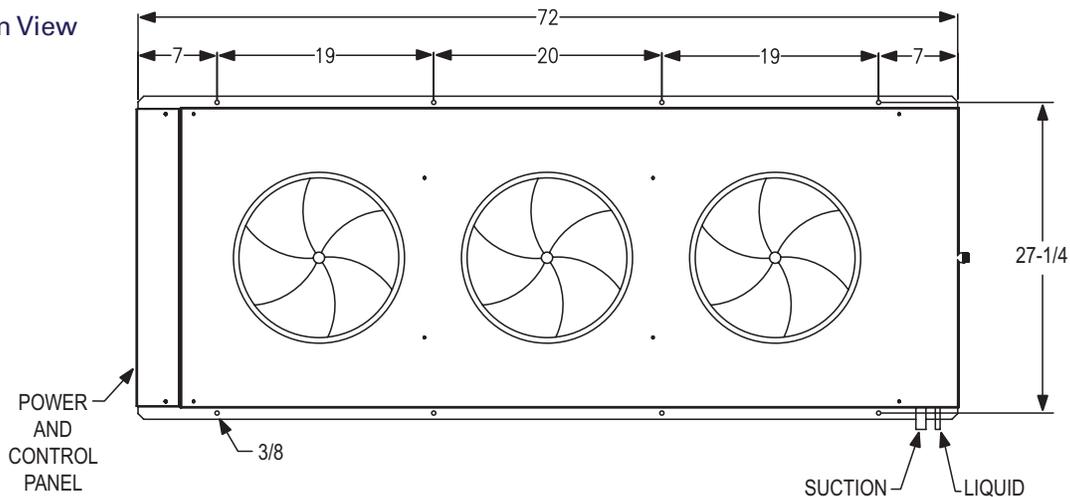
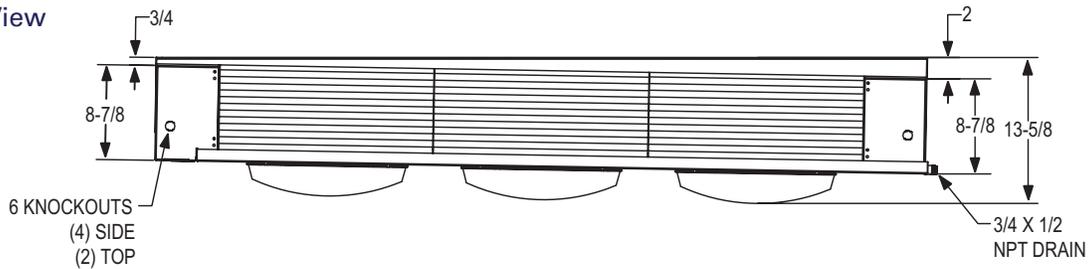


Figure 3 - Three Fan

Bottom View

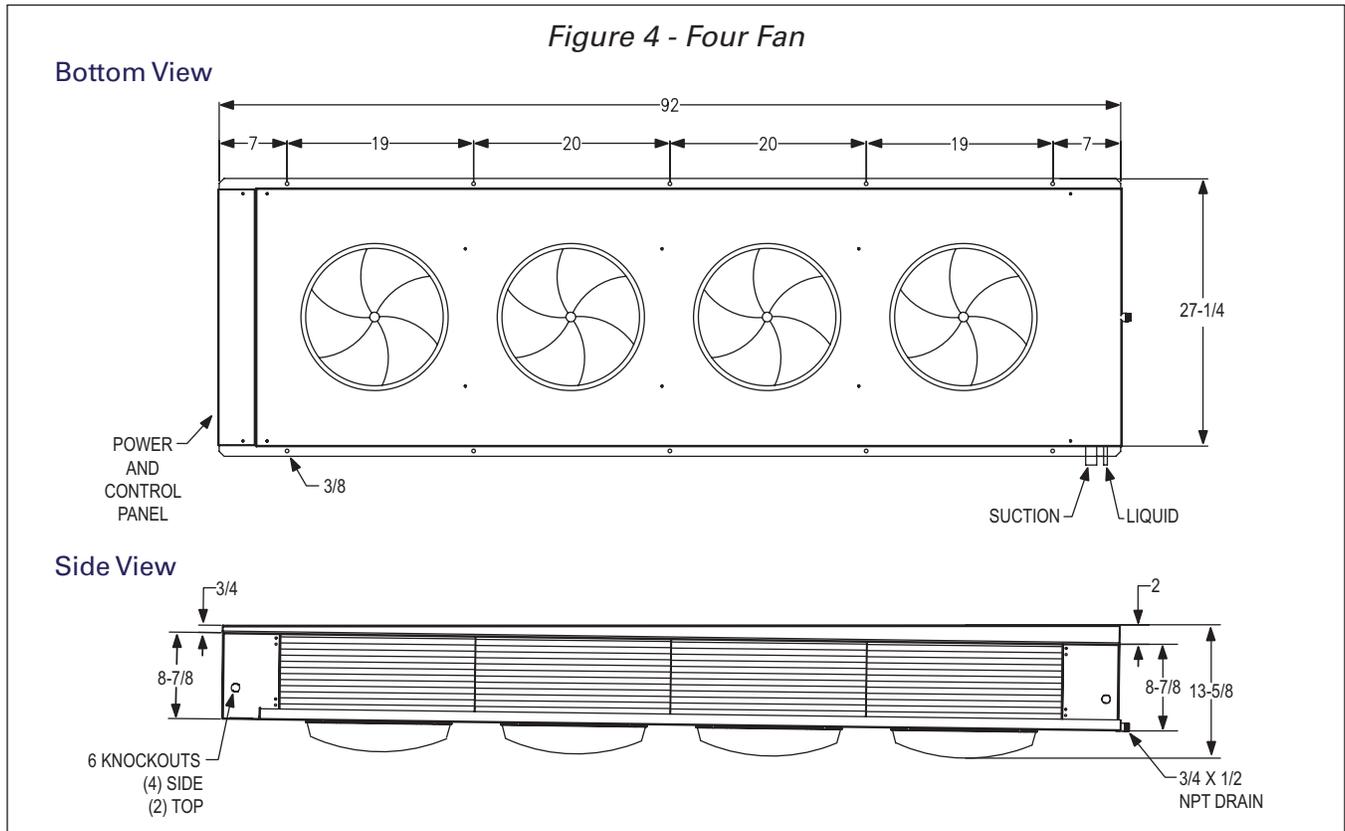


Side View



# LOW VELOCITY CENTER MOUNT

## Physical Dimensions

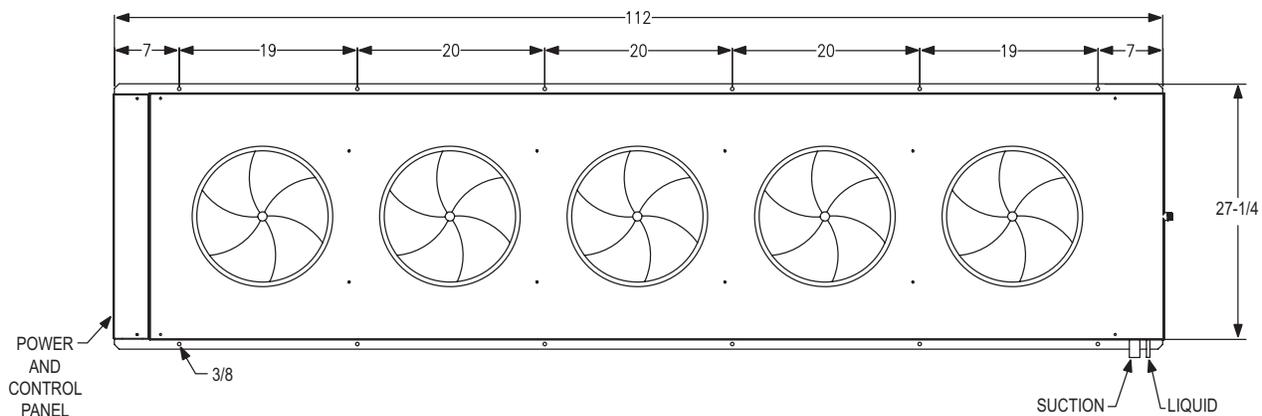


# UNIT COOLER

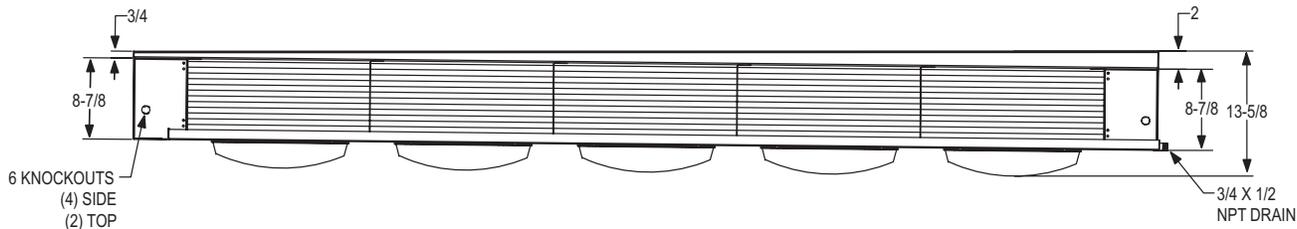
## Physical Dimensions

Figure 5 - Five Fan

### Bottom View



### Side View



# LOW VELOCITY CENTER MOUNT

*Due to continuing product development, specifications are subject to change without notice.*

