

**DSA, CSA, MSA,
CSE, AND MSE SERIES**



MEDIUM SILHOUETTE UNIT COOLERS

AIR AND ELECTRIC DEFROST MODELS

MEDIUM TO LARGE WALK-INS
COOLER & FREEZER APPLICATIONS



Air Defrost
12,600 to 76,700 BTUH

Electric Defrost
10,500 to 55,600 BTUH



Features

Kramer's Medium Silhouette Unit Coolers are the perfect solution for a broad range of medium to large walk-in coolers and freezers. Models can be used with multiple refrigerants. The units feature powerful heavy duty fans that are individually balanced to provide vibration free operation and include UL/cUL-approved epoxy coated guards for corrosion resistance. Two and three fan models are available with air, electric and hot gas defrost configurations. For hot gas defrost models, see publications KM-CSG-1014A and KM-MSG-1014A.

SIZES

There are a wide array of sizes available with capacities ranging from 10,500 to 76,700 BTUH at a 10° TD. Two and three fan models are available with air flow spanning a range of 3,320 to 9,130 CFM.

HOUSING

Each unit is constructed with a rust-free, heavy gauge, textured, aluminum housing which is light weight yet extremely durable. Air and electric defrost models have hinged drain pans to allow for convenient servicing and maintenance (Hot Gas drain pans are not hinged). Slotted hangers are provided on all units for fast installation.

COIL

Seamless copper tubes are staggered and mechanically expanded into heavy gauge corrugated aluminum fins to assure maximum heat transfer. Die formed fin collars are provided for accurate fin spacing. Heavy gauge hangers are fastened directly to the tube sheet of the coil to provide high structural strength.

MOTORS

Standard models feature permanently lubricated, high efficiency PSC (Permanent Split Capacitor) or Electronically Commutated (EC) motors. Single speed EC motors are available for 115V and 230V. Dual Speed EC motors are available as an option for 115V, 208/230V or 460V and are compliant with California Title 24 regulations. PSC motors are available for 115V, 208/230V, 460V and 575V requirements. All motors include thermal overload protection. Medium Silhouette unit coolers use either 1/8 HP, 1050 RPM or 1/3 HP, 1075 RPM motors.

FANS & FAN GUARDS

Powerful heavy duty aluminum fans are individually balanced to provide vibration free operation. Standard heavy gauge wire fan guards are UL/cUL-approved epoxy coated for corrosion resistance. Optional air straighteners are available for increased air throw when required.

REFRIGERANTS

Medium Silhouette unit coolers are designed for multiple refrigerants including R404A, R407A, R448A, R449A/B, R507, and R134A. Please specify system refrigerant requirements when ordering. A separate compartment is provided for all refrigerant connections which allows ample room for internal mounting of expansion valves. The units can also be used with chilled water or glycol solutions — contact factory for selection.

ELECTRICAL

Available in 115V/1, 208/230V/1, 208-230V/3, 460V/1 or 575V/1. Medium Silhouette unit coolers can also be operated on 220V/1/50, 220V/3/50, 380V/1/50 and 380V/3/50 power. A large compartment is supplied for all electrical components and is easily accessible by removing the end panel. All models are UL and cUL listed.

AIR DEFROST

Air Defrost models (CSA, DSA, MSA) are designed for use in coolers at +35°F and warmer. All components are factory wired to convenient screw-type terminal strips. Complete air defrost systems are available from Kramer.

ELECTRIC DEFROST

Electric Defrost models (CSE, MSE) are designed for use in coolers and freezers between 35°F to -30°F. The placement of heaters within the refrigeration coil allows for a more efficient and rapid defrost cycle than other designs. This arrangement enables the energy from the heaters to be conducted from the center of the core out, providing an even defrost pattern. All heaters are factory installed and wired to screw type terminal blocks, allowing for quick field hook up or change over from 1 to 3 phase with the installation of jumper wires. Separate, fixed defrost termination, fan delay and heater safety controls are factory mounted for optimum performance of each control function. Drain pans are heated for fast, reliable drainage. Timer and contactors are available as options. Complete electric defrost systems are available from Kramer. Contact the factory for details.

Air Throw

Air throw is greatly affected by installation variables. Optimum air throw is obtained by high ceiling with no interference from beams, or return air restrictions. Medium Silhouette unit coolers will throw air up to 50 feet under ideal conditions, 60 to 70 feet with air straighteners.

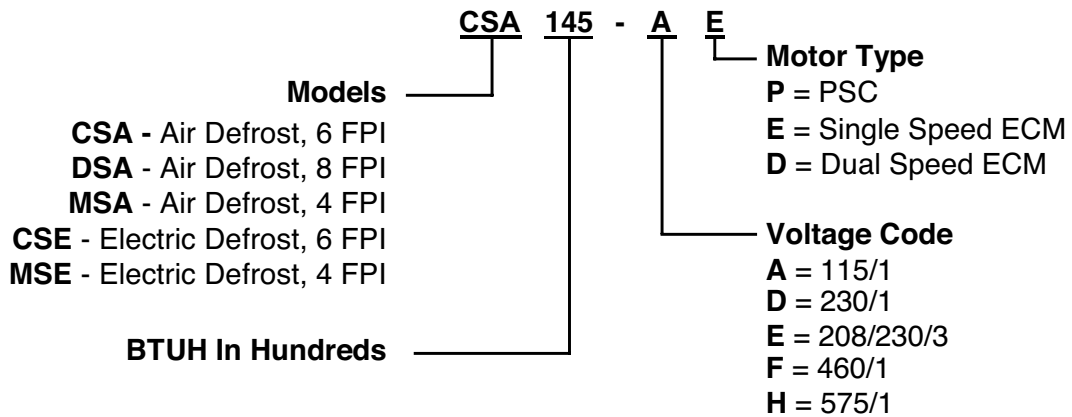
Standard Features

- Lightweight and durable embossed aluminum housing
- Permanently lubricated, high efficiency ECM or PSC motors with thermal overload protection
- Hinged drain pans for easy access
- Heavy duty fans individually balanced to provide vibration free operation
- UL/cUL-approved epoxy coated guards for corrosion resistance
- UL certified for use with multiple refrigerants

Optional Features

- Dual Speed EC motors
- Coated fins
- Copper fins
- Coated coil
- High throw fan guards (air straighteners)
- Galvanized steel housing
- Insulated drain pans
- Adjustable defrost terminator and fan delay control

MODEL NUMBER NOMENCLATURE



Performance 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				
		R404A	R407A/ R448A/ R449A/B			EC* Motors		PSC Motors		
						115V	208-230V	115V	208-230V	460V
8 FPI	DSA-151	15,100	16,400	3,530	2	2.4	1.2	4.0	1.8	1.0
	DSA-210	21,000	22,900	3,320	2	2.4	1.2	4.0	1.8	1.0
	DSA-260	26,000	28,300	5,300	3	3.6	1.8	6.0	2.7	1.5
	DSA-320	32,000	35,100	4,750	3	3.6	1.8	6.0	2.7	1.5
	DSA-410	41,000	44,900	5,250	2	6.0	4.2	14.2	6.4	2.6
	DSA-450	45,000	49,400	8,620	2	6.0	4.2	14.2	6.4	2.6
	DSA-540	54,000	59,100	8,250	3	9.0	6.3	21.3	9.6	3.9
DSA-690	69,000	76,700	7,470	3	9.0	6.3	21.3	9.6	3.9	
6 FPI	CSA-145	14,500	15,700	3,680	2	2.4	1.2	4.0	1.8	1.0
	CSA-191	19,100	20,800	3,470	2	2.4	1.2	4.0	1.8	1.0
	CSA-240	24,000	26,000	5,510	3	3.6	1.8	6.0	2.7	1.5
	CSA-305	30,500	33,300	4,960	3	3.6	1.8	6.0	2.7	1.5
	CSA-370	37,000	40,400	5,460	2	6.0	4.2	14.2	6.4	2.6
	CSA-415	41,500	45,000	8,620	3	9.0	6.3	21.3	9.6	3.9
	CSA-490	49,000	53,200	8,580	3	9.0	6.3	21.3	9.6	3.9
CSA-620	62,000	67,700	7,770	3	9.0	6.3	21.3	9.6	3.9	
4 FPI	MSA-126	12,600	13,600	3,830	2	2.4	1.2	4.0	1.8	1.0
	MSA-169	16,900	18,300	3,620	2	2.4	1.2	4.0	1.8	1.0
	MSA-224	22,400	24,200	5,750	3	3.6	1.8	6.0	2.7	1.5
	MSA-287	28,700	31,200	5,200	3	3.6	1.8	6.0	2.7	1.5
	MSA-340	34,000	36,900	5,710	2	6.0	4.2	14.2	6.4	2.6
	MSA-395	39,500	43,000	9,370	2	6.0	4.2	14.2	6.4	2.6
	MSA-465	46,500	50,700	8,990	3	9.0	6.3	21.3	9.6	3.9
MSA-585	58,500	63,700	8,140	3	9.0	6.3	21.3	9.6	3.9	

*These Electronically Commutated (EC) Motors are not available for 460V. Dual Speed EC motors are available as an option for 115V, 208/230V or 460V and are compliant with California Title 24 regulations.

For 50 HZ applications, multiply BTUH capacity by .94 correction factor.

Performance and Electrical Data - Electric Defrost Models

	Model Number	BTUH Capacity @ -20°F S.T. & 10°F T.D.		CFM	No. of Fans	Total Fan Motor Amps - 1 Phase				
		R404A	R407A/ R448A/ R449A/B			EC* Motors		PSC Motors		
						115V	208-230V	115V	208-230V	460V
6 FPI	CSE-130	13,000	13,700	3,780	2	2.4	1.2	4.0	1.8	1.0
	CSE-150	15,000	15,900	3,470	2	2.4	1.2	4.0	1.8	1.0
	CSE-185	18,500	19,600	5,510	3	3.6	1.8	6.0	2.7	1.5
	CSE-270	27,000	28,800	5,720	2	6.0	4.2	14.2	6.4	2.6
	CSE-320	32,000	34,200	5,480	2	6.0	4.2	14.2	6.4	2.6
	CSE-385	38,500	40,900	9,130	3	9.0	6.3	21.3	9.6	3.9
	CSE-460	46,000	49,300	9,090	3	9.0	6.3	21.3	9.6	3.9
4 FPI	CSE-520	52,000	55,600	8,190	3	9.0	6.3	21.3	9.6	3.9
	MSE-105	10,500	11,200	3,940	2	2.4	1.2	4.0	1.8	1.0
	MSE-140	14,000	14,900	3,620	2	2.4	1.2	4.0	1.8	1.0
	MSE-175	17,500	18,600	5,750	3	3.6	1.8	6.0	2.7	1.5
	MSE-230	23,000	24,400	5,930	2	6.0	4.2	14.2	6.4	2.6
	MSE-325	32,500	34,700	5,430	2	6.0	4.2	14.2	6.4	2.6
	MSE-390	39,000	41,400	8,990	3	6.0	6.3	21.3	9.6	3.9
MSE-510	51,000	54,900	8,150	3	9.0	6.3	21.3	9.6	3.9	

	Model Number	Heater Amps						Heater Watts
		208V		230V		460V		
		1 PH	3 PH	1 PH	3 PH	1 PH	3 PH	
6 FPI	CSE-130	18.3	10.5	20.3	11.7	10.1	5.9	4,685
	CSE-150	18.3	10.5	20.3	11.7	10.1	5.9	4,685
	CSE-185	-	15.3	-	17.0	14.7	8.5	6,774
	CSE-270	-	15.3	-	17.0	14.7	8.5	6,774
	CSE-320	-	15.3	-	17.0	14.7	8.5	6,774
	CSE-385	-	22.1	-	24.5	21.2	12.2	9,747
	CSE-460	-	22.1	-	24.5	21.2	12.2	9,747
4 FPI	CSE-520	-	22.1	-	24.5	21.2	12.2	9,747
	MSE-105	18.3	10.5	20.3	11.7	10.1	5.9	4,685
	MSE-140	18.3	10.5	20.3	11.7	10.1	5.9	4,685
	MSE-175	-	15.3	-	17.0	14.7	8.5	6,774
	MSE-230	-	15.3	-	17.0	14.7	8.5	6,774
	MSE-325	-	15.3	-	17.0	14.7	8.5	6,774
	MSE-390	-	22.1	-	24.5	21.2	12.2	9,747
MSE-510	-	22.1	-	24.5	21.2	12.2	9,747	

- Not available.

*These Electronically Commutated (EC) Motors are not available for 460V. Dual Speed EC motors are available as an option for 115V, 208/230V or 460V and are compliant with California Title 24 regulations.

For 50 HZ applications, multiply BTUH capacity by .94 correction factor.

Energy Independence and Security Act of 2007 specifies that walk-in coolers and freezers under 3,000 square feet that are manufactured after January 1, 2009 shall have evaporators with EC motors when they are single phase, less than 460 volt and less than 1 HP.

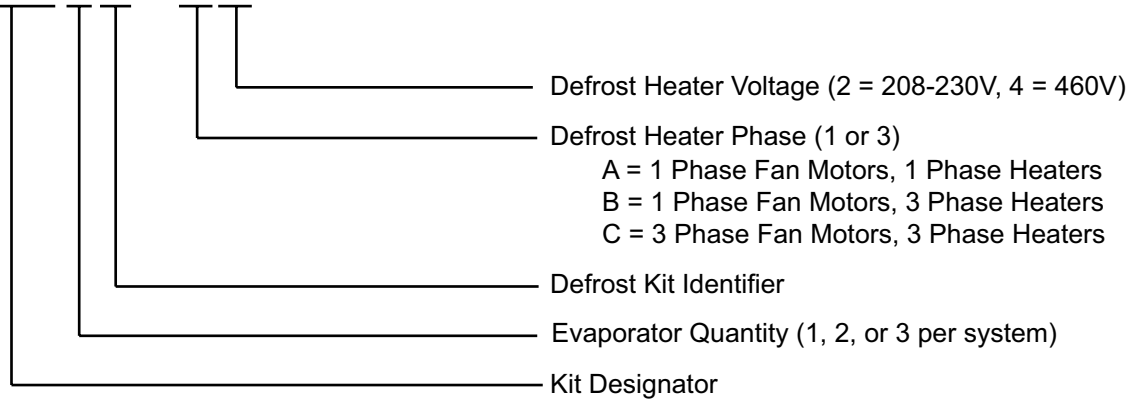
Electric Defrost Kits

	MODEL NUMBER	1 UNIT COOLER PER SYSTEM				2 UNIT COOLERS PER SYSTEM				3 UNIT COOLERS PER SYSTEM			
		230V/1	230V/3	460V/1	460V/3	230V/1	230V/3	460V/1	460V/3	230V/1	230V/3	460V/1	460V/3
6 FPI	CSE-130	ED-10	ED-11	ED-12	ED-12	ED-23	ED-21	ED-22	ED-22	ED-35	ED-33	ED-34	ED-32
	CSE-150	ED-10	ED-11	ED-12	ED-12	ED-23	ED-21	ED-22	ED-22	ED-35	ED-33	ED-34	ED-32
	CSE-185	-	-	ED-12	ED-12	ED-25	ED-23	ED-22	ED-22	ED-35	ED-35	ED-34	ED-32
	CSE-270	-	-	ED-12	ED-12	ED-25	ED-23	ED-22	ED-22	ED-35	ED-35	ED-34	ED-32
	CSE-320	-	-	ED-12	ED-12	ED-25	ED-23	ED-22	ED-22	ED-35	ED-35	ED-34	ED-32
	CSE-385	-	-	ED-12	ED-12	ED-25	ED-23	ED-22	ED-22	ED-35	ED-35	ED-34	ED-32
	CSE-460	-	-	ED-12	ED-12	ED-25	ED-23	ED-24	ED-22	ED-37	ED-35	ED-36	ED-34
	CSE-520	-	-	ED-12	ED-12	ED-25	ED-23	ED-24	ED-22	ED-37	ED-35	ED-36	ED-34
4 FPI	MSE-105	ED-10	ED-11	ED-12	ED-12	ED-23	ED-21	ED-22	ED-22	ED-35	ED-33	ED-34	ED-32
	MSE-140	ED-10	ED-11	ED-12	ED-12	ED-23	ED-21	ED-22	ED-22	ED-35	ED-33	ED-34	ED-32
	MSE-175	-	-	ED-12	ED-12	ED-25	ED-23	ED-22	ED-22	ED-35	ED-35	ED-34	ED-32
	MSE-230	-	-	ED-12	ED-12	ED-25	ED-23	ED-22	ED-22	ED-35	ED-35	ED-34	ED-32
	MSE-325	-	-	ED-12	ED-12	ED-25	ED-23	ED-24	ED-22	ED-35	ED-35	ED-34	ED-32
	MSE-390	-	-	ED-12	ED-12	ED-25	ED-23	ED-24	ED-22	ED-37	ED-35	ED-36	ED-34
	MSE-510	-	-	ED-12	ED-12	ED-25	ED-23	ED-24	ED-22	ED-37	ED-35	ED-36	ED-34

- Not available.

ELECTRIC DEFROST KIT NOMENCLATURE

ED 12 - A 2



Electric Defrost Kit Components

KIT NUMBER	TIMER	AUXILIARY SWITCH	BLOCK-OUT RELAY	DEFROST CONTACTOR	FAN CONTACTOR	SEQUENCING RELAY
ED-10	1	–	1-30A	–	–	–
ED-11	1	1	–	1-30A	–	–
ED-12	1	1	–	1-30A	1-25A	–
ED-13	1	1	–	1-50A	–	–
ED-14	1	1	–	1-50A	1-25A	–
ED-15	1	1	–	2-50A	–	–
ED-16	1	1	–	2-50A	1-25	–
ED-20	1	–	1-30A	–	–	2
ED-21	1	1	–	2-15A	–	2
ED-22	1	1	–	2-15A	1-25A	2
ED-23	1	1	–	2-25A	–	2
ED-24	1	1	–	2-25A	1-25	2
ED-25	1	1	–	2-50A	–	2
ED-26	1	1	–	2-50A	1-25A	2
ED-27	1	1	–	2-75A	–	2
ED-28	1	1	–	2-75A	1-25A	2
ED-30	1	–	1-30A	–	–	3
ED-32	1	1	–	3-10A	1-25A	3
ED-33	1	1	–	3-15A	–	3
ED-34	1	1	–	3-15A	1-25A	3
ED-35	1	1	–	3-30A	–	3
ED-36	1	1	–	3-30A	1-25A	3
ED-37	1	1	–	3-50A	–	3
ED-38	1	1	–	3-50A	1-25A	3

Electric defrost kits consist of components that are necessary to control the defrost cycle. The kits are available as a factory installed option when ordered with a condensing unit. Not all Ed-Kits are available for all condensing unit models. The contents of each kit is described above, along with the function of each component below.

Timer: Initiates the defrost cycle. Also used as an override protection for defrost termination.

Auxiliary Switch: It's mounted on the compressor contactor and prevents the defrost contactor from operating whenever the compressor is energized.

Block-Out Relay: Serves the same function as auxiliary switch. Used when defrost contactor is not required (lower wattage single phase only).

Defrost Contactor: Carries amperage load for heaters.

Fan Contactor: Used with 460V motors or when 230V motors are wired 3 phase.

Sequencing Relays: Provides interconnection of multiple unit coolers on a single system so that each unit cooler is allowed to individually terminate defrost on temperature.

– Not available.



CSA, DSA, MSA, CSE & MSE SERIES

Distributor Nozzle - Air Defrost Models

Model Number	Part Numbers						Number of Circuits
	R404A			R407A, R448A, R449A/B			
	Distributor @ 100°F & 50°F Liquid	Nozzle @ 100°F Liquid	Nozzle @ 50°F Liquid	Distributor @ 100°F & 50°F Liquid	Nozzle @ 100°F Liquid	Nozzle @ 50°F Liquid	

+25°F Suction Temperature

8 FPI	DSA-151	D260	L, #1-1/2	L, #1/2	D260	L, #1	L, #1/2	2
	DSA-210	D260	L, #2	L, #3/4	D260	L, #1-1/2	L, #3/4	3
	DSA-260	D260	L, #2	L, #3/4	D260	L, #2	L, #3/4	3
	DSA-320	D262	L, #2-1/2	L, #1	D262	L, #2-1/2	L, #1	5
	DSA-410	1112	G, #3	G, #1-1/2	1112	G, #3	G, #1-1/2	5
	DSA-450	1112	G, #4	G, #1-1/2	1112	G, #3	G, #1-1/2	6
	DSA-540	1113	G, #5	G, #1-1/2	1113	G, #4	G, #2	8
DSA-690	1135	G, #6	G, #2	1135	G, #5	G, #2-1/2	12	
6 FPI	CSA-145	D260	L, #1-1/2	L, #1/2	D260	L, #1	L, #1/2	2
	CSA-191	D260	L, #2	L, #3/4	D260	L, #1-1/2	L, #3/4	3
	CSA-240	D260	L, #2	L, #3/4	D260	L, #2	L, #3/4	3
	CSA-305	D262	L, #2-1/2	L, #1	D262	L, #2-1/2	L, #1	5
	CSA-370	1112	G, #3	G, #1	1112	G, #2-1/2	G, #1-1/2	5
	CSA-415	1112	G, #4	G, #1-1/2	1112	G, #3	G, #1-1/2	6
	CSA-490	1113	G, #4	G, #1-1/2	1113	G, #4	G, #1-1/2	8
CSA-620	1113	G, #5	G, #2	1113	G, #5	G, #2	8	
4 FPI	MSA-126	D260	L, #1	L, #1/3	D260	L, #1	L, #1/3	2
	MSA-169	D260	L, #1-1/2	L, #1/2	D260	L, #1-1/2	L, #1/2	3
	MSA-224	D260	L, #2	L, #3/4	D260	L, #1-1/2	L, #3/4	3
	MSA-287	D262	L, #2-1/2	L, #1	D262	L, #2	L, #1	5
	MSA-340	1112	G, #3	G, #1	1112	G, #2-1/2	G, #1	5
	MSA-395	1112	G, #4	G, #1-1/2	1112	G, #3	G, #1-1/2	6
	MSA-465	1113	G, #4	G, #1-1/2	1113	G, #4	G, #1-1/2	8
MSA-585	1113	G, #5	G, #2	1113	G, #4	G, #2	8	

Note: The distributor lines are 1/4" tube & 21" long; R448A & R449A/B will have same selections as R407A.

Distributor Nozzle - Electric Defrost Models

Model Number	Part Numbers						Number of Circuits
	R404A			R407A, R448A, R449A/B			
	Distributor @ 100°F & 50°F Liquid	Nozzle @ 100°F Liquid	Nozzle @ 50°F Liquid	Distributor @ 100°F & 50°F Liquid	Nozzle @ 100°F Liquid	Nozzle @ 50°F Liquid	

-20°F Suction Temperature

6 FPI	CSE-130	D260	L, #2	L, #3/4	D260	L, #1-1/2	L, #3/4	3
	CSE-150	D260	L, #2	L, #1	D260	L, #2	L, #1	4
	CSE-185	D260	L, #2-1/2	L, #1-1/2	D260	L, #2	L, #1-1/2	4
	CSE-270	1112	G, #4	G, #2	1112	G, #3	G, #2	6
	CSE-320	1135	G, #4	G, #2	1135	G, #4	G, #2	9
	CSE-385	1113	G, #5	G, #2-1/2	1113	G, #4	G, #2-1/2	7
	CSE-460	1135	G, #6	G, #3	1135	G, #5	G, #3	10
	CSE-520	1135	G, #8	G, #3	1135	G, #6	G, #3	12
4 FPI	MSE-105	D260	L, #1-1/2	L, #3/4	D260	L, #1-1/2	L, #3/4	2
	MSE-140	D260	L, #2	L, #1	D260	L, #1-1/2	L, #1	3
	MSE-175	D260	L, #2-1/2	L, #1	D260	L, #2	L, #1	4
	MSE-230	1112	G, #3	G, #1-1/2	1112	G, #2-1/2	G, #1-1/2	6
	MSE-325	1135	G, #4	G, #2	1135	G, #4	G, #2	9
	MSE-390	1135	G, #5	G, #2-1/2	1135	G, #4	G, #2-1/2	10
	MSE-510	1135	G, #6	G, #3	1135	G, #6	G, #3	11

Note: The distributor lines are 1/4" tube & 21" long.

Specifications - All Models

Model Number	Fan Dia. (In.)	Motor Data			Refrigerant Connections				Fig.	Dimensions (Inches)			Approx. Ship Wt. (LBS)
		Qty.	HP	RPM	Liquid Line (ODS)	Suction (ODS)	H.G. (ODS)	Drain MPT		W	A	B	

Air Defrost Models

8 FPI	DSA-151	14	2	1/8	1,050	1/2	7/8	-	3/4	1	55	42	-	125
	DSA-210	14	2	1/8	1,050	1/2	7/8	-	3/4	1	55	42	-	145
	DSA-260	14	3	1/8	1,050	1/2	1-1/8	-	3/4	1	76	63	-	295
	DSA-320	14	3	1/8	1,050	1/2	1-1/8	-	3/4	1	76	63	-	330
	DSA-410	20	2	1/3	1,075	7/8	1-1/8	-	3/4	2	76	63	31-1/2	370
	DSA-450	20	2	1/3	1,075	7/8	1-3/8	-	3/4	2	76	63	31-1/2	390
6 FPI	DSA-540	20	3	1/3	1,075	7/8	1-3/8	-	3/4	2	106	93	31	430
	DSA-690	20	3	1/3	1,075	7/8	1-3/8	-	3/4	2	106	93	31	540
	CSA-145	14	2	1/8	1,050	1/2	7/8	-	3/4	1	55	42	-	120
	CSA-191	14	2	1/8	1,050	1/2	7/8	-	3/4	1	55	42	-	140
	CSA-240	14	3	1/8	1,050	1/2	7/8	-	3/4	1	76	63	-	290
	CSA-305	14	3	1/8	1,050	1/2	1-1/8	-	3/4	1	76	63	-	320
4 FPI	CSA-370	20	2	1/3	1,075	7/8	1-1/8	-	3/4	2	76	63	31-1/2	360
	CSA-415	20	3	1/3	1,075	7/8	1-1/8	-	3/4	2	106	93	31	395
	CSA-490	20	3	1/3	1,075	7/8	1-3/8	-	3/4	2	106	93	31	415
	CSA-620	20	3	1/3	1,075	7/8	1-3/8	-	3/4	2	106	93	31	520
	MSA-126	14	2	1/8	1,050	1/2	7/8	-	3/4	1	55	42	-	115
	MSA-169	14	2	1/8	1,050	1/2	7/8	-	3/4	1	55	42	-	130
4 FPI	MSA-224	14	3	1/8	1,050	1/2	7/8	-	3/4	1	76	63	-	280
	MSA-287	14	3	1/8	1,050	1/2	1-1/8	-	3/4	1	76	63	-	310
	MSA-340	20	2	1/3	1,075	7/8	1-1/8	-	3/4	2	76	63	31-1/2	345
	MSA-395	20	2	1/3	1,075	7/8	1-1/8	-	3/4	2	76	63	31-1/2	375
	MSA-465	20	3	1/3	1,075	7/8	1-3/8	-	3/4	2	106	93	31	400
	MSA-585	20	3	1/3	1,075	7/8	1-3/8	-	3/4	2	106	93	31	505

Electric Defrost Models

6 FPI	CSE-130	14	2	1/8	1,050	1/2	1-1/8	7/8	3/4	1	55	42	-	125
	CSE-150	14	2	1/8	1,050	1/2	1-1/8	7/8	3/4	1	55	42	-	140
	CSE-185	14	3	1/8	1,050	1/2	1-1/8	7/8	3/4	1	76	63	-	295
	CSE-270	20	2	1/3	1,075	1/2	1-3/8	7/8	3/4	2	76	63	31-1/2	320
	CSE-320	20	2	1/3	1,075	7/8	1-3/8	7/8	3/4	2	76	63	31-1/2	365
	CSE-385	20	3	1/3	1,075	7/8	1-5/8	7/8	3/4	2	106	93	31	450
4 FPI	CSE-460	20	3	1/3	1,075	7/8	1-5/8	7/8	3/4	2	106	93	31	490
	CSE-520	20	3	1/3	1,075	7/8	1-5/8	7/8	3/4	2	106	93	31	535
	MSE-105	14	2	1/8	1,050	1/2	1-1/8	7/8	3/4	1	55	42	-	120
	MSE-140	14	2	1/8	1,050	1/2	1-1/8	7/8	3/4	1	55	42	-	135
	MSE-175	14	3	1/8	1,050	1/2	1-1/8	7/8	3/4	1	76	63	-	285
	MSE-230	20	2	1/3	1,075	1/2	1-3/8	7/8	3/4	2	76	63	31-1/2	315
4 FPI	MSE-325	20	2	1/3	1,075	7/8	1-3/8	7/8	3/4	2	76	63	31-1/2	350
	MSE-390	20	3	1/3	1,075	7/8	1-5/8	7/8	3/4	2	106	93	31	435
	MSE-510	20	3	1/3	1,075	7/8	1-5/8	7/8	3/4	2	106	93	31	530

Physical Dimensions

Figure 1

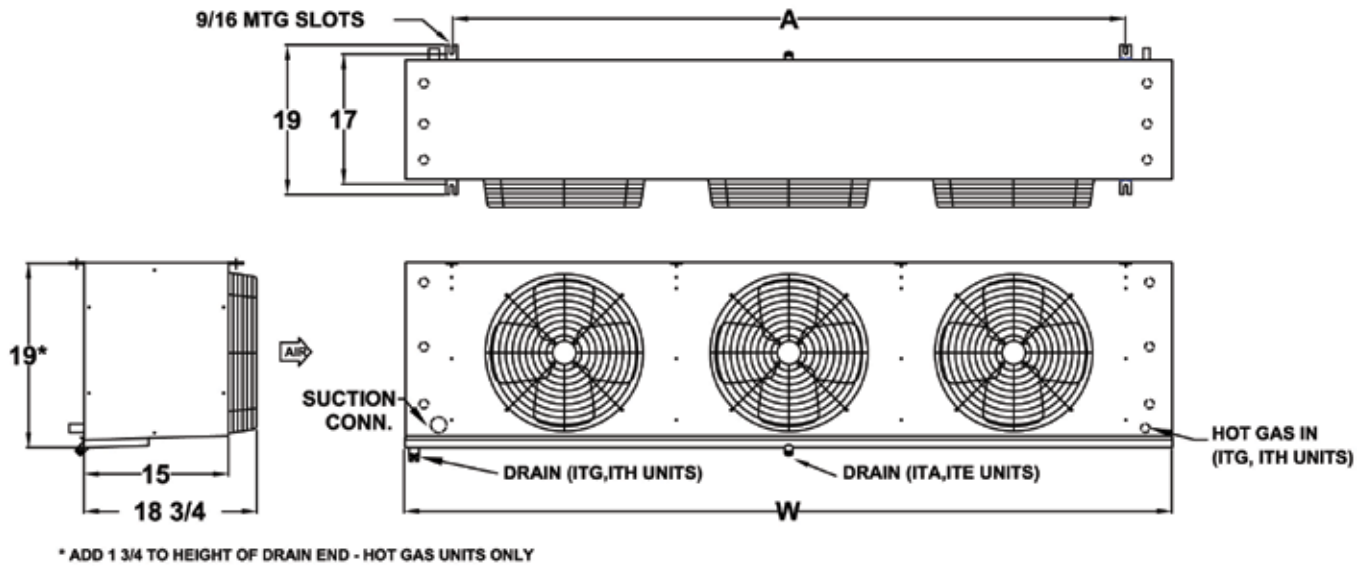
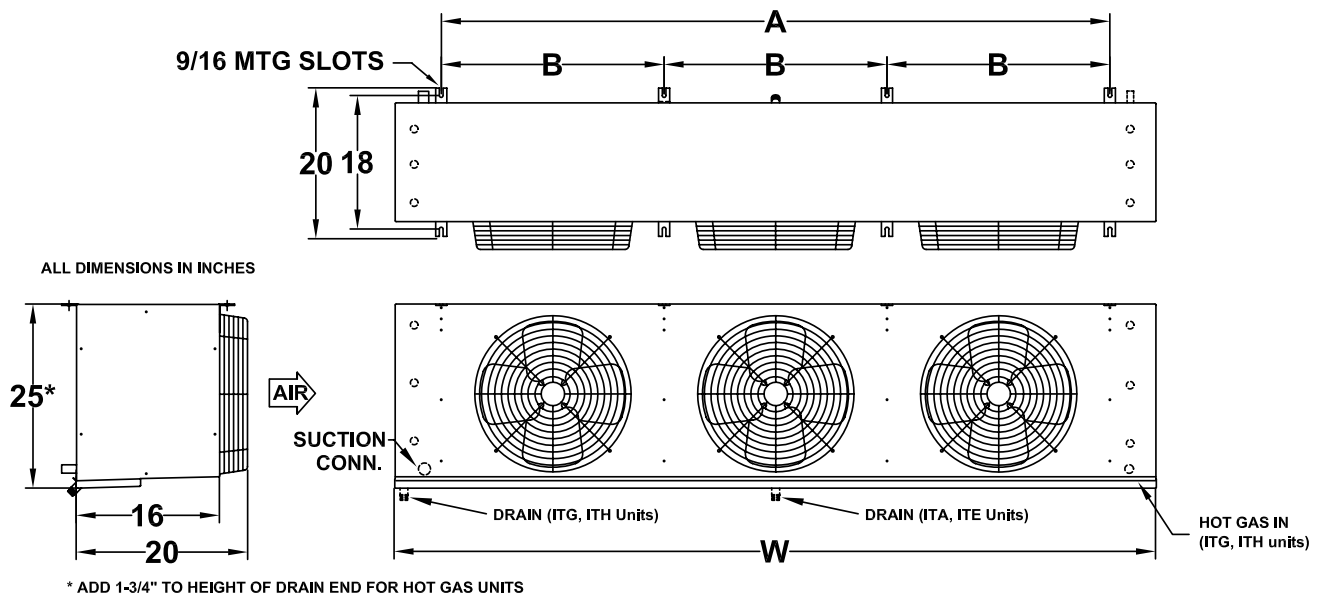


Figure 2



All dimensions are in inches.

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