KRAMER

Catalog
C-806C
FEB 1997
Supercedes
C-806B

THERMOBANK

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Model CTT
Hot Gas Defrost
Refrigeration System

COMPLETE AUTOMATIC SYSTEMS

STANDARD FEATURES

- ALL WELDED THERMOBANK
- LIQUID SUB-COOLING CIRCUIT
- MANUAL PUMPDOWN SWITCH
- CRANKCASE HEATER(S)
- LIQUID LINE FILTER-DRIER
- SEMI-HERMETIC COMPRESSOR(S)
- MOISTURE INDICATING SIGHTGLASSES
- LOW AMBIENT START MODULE
- ROOM THERMOSTAT (LOOSE)
- ENVIRONMENTALLY SAFE REFRIGERANTS
- SUCTION SOLENOID VALVE
- LIQUID LINE SOLENOID VALVE (LOOSE)
- FLOATING HEAD PRESSURE
- SUB-CIRCUIT FUSING
- HOT GAS SOLENOID (LOOSE)
- REPLACEABLE CORE FILTERS 15hp & LARGER
- SUCTION LINE FILTER
- BANK WATER LEVEL GAUGE
- ADJUSTABLE FAN CYCLING
- COPPER TUBE-ALUMINUM FIN COILS
- HI-LO PRESSURE SWITCH
- FUSIBLE PLUG OR RELIEF VALVE
- THERMOLATOR (LOOSE)
- OIL PRESSURE SAFETY CONTROL
- WEATHERPROOF OUTDOOR HOUSING
- MANUAL COMPRESSOR SWITCH
- MINIMUM CHARGE MONITOR (PATENTED)
- RECEIVER WITH SERVICE VALVES
- EVAPORATOR(S)
- EXPANSION VALVE(S) (LOOSE)
- COMPLETE DEFROST CONTROLS
- X-BRAIDED PRESSURE CONTROL HOSE
- SUCTION & DISCHARGE VIBRATION ELIM.
- CONTROL CIRCUIT TRANSFORMER-460V.

OPTIONS

- OIL SEPARATOR
- NON FUSED DISCONNECT
- PHASE LOSS MONITOR
- PRESSURE RELIEF VALVE
- OVERSIZE CONDENSER
- OVERSIZE LIQUID RECEIVER
- SUCTION ACCUMULATOR
- ANTI-SHORT CYCLE TIMER
- SINGLE POINT ALARM
- HIGH, LOW, AND OIL PRESSURE GAUGES
- COPPER FIN COIL
- COATED FIN COIL

FLOATING HEAD PRESSURE - HOT GAS DEFROST

KRAMER
THERMOBANK

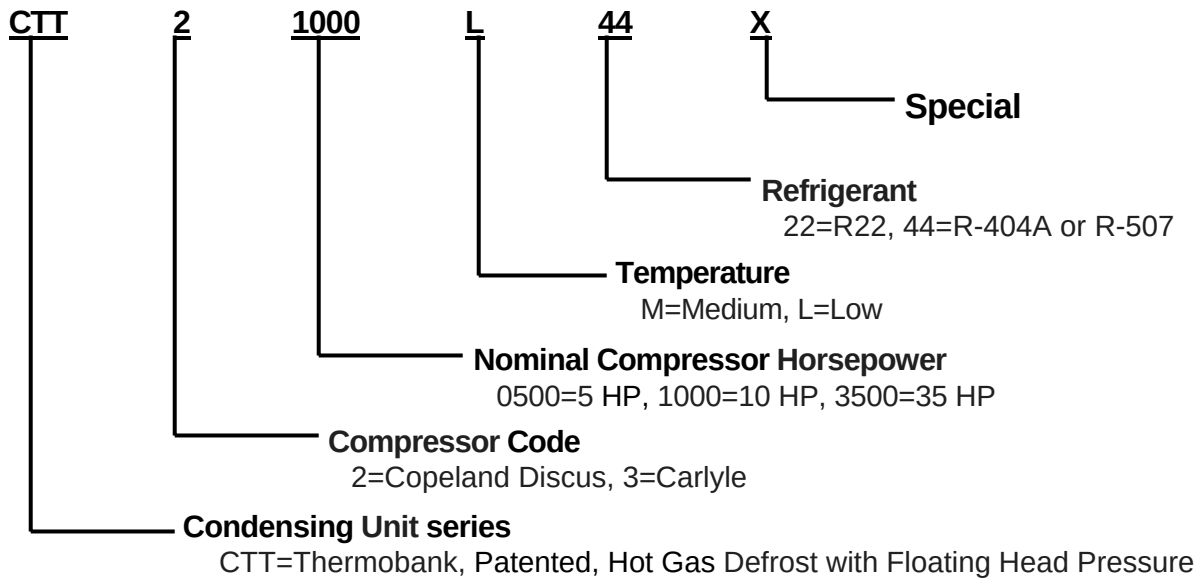
(PATENTED)

The THERMOBANK delivers more refrigeration with less energy consumption, less equipment, less installation and lower operating cost than any other refrigeration package now on the market or likely to be in the foreseeable future!

This **THERMOBANK** is an improved and enhanced version of the original Thermobank. Each **THERMOBANK** Condensing Unit is delivered factory assembled and run tested complete with matching evaporator(s) and controls for easy and economical on site installation.

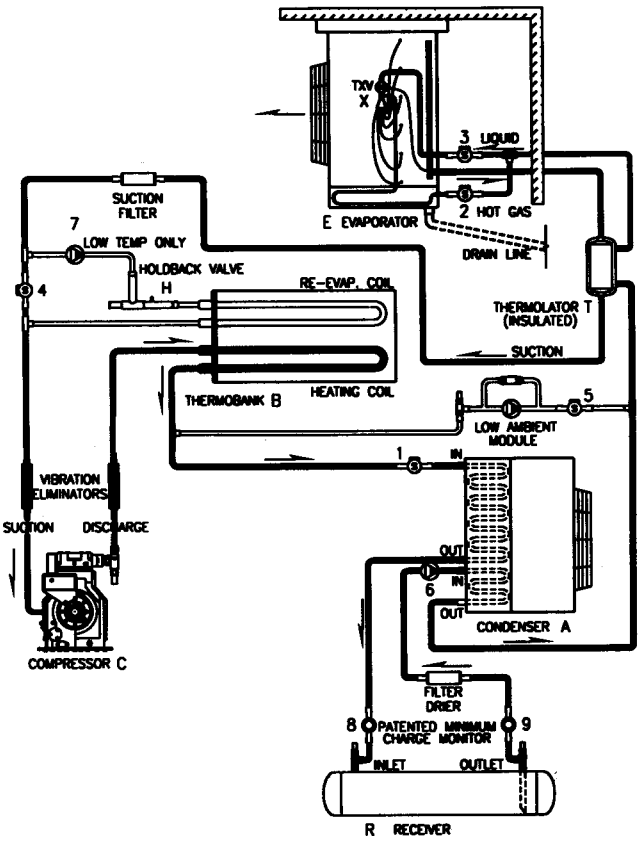
THERMOBANK is available for all commercial and industrial applications from -30°F to +35°F. It is the only factory packaged air-cooled, completely automatic refrigeration system with hot gas defrost employing a re-evaporator, no head pressure controls, no reversing valves and no hot gas line from condensing unit to evaporator. With **THERMOBANK** there is a continuous energy saving as the outdoor temperature drops; the BTU per Hour increases and the compressor watts decrease resulting in more BTU's and less wattage for each operating hour. Less equipment is needed with **THERMOBANK** because it does more refrigeration in 24 hours than any other package system. With the fastest defrost period (typically 5 to 10 minutes) **THERMOBANK** is refrigerating while others are still defrosting. With the lowest possible, floating head pressure there is a marked increase in BTU per Hour capacity.

MODEL CTT - NOMENCLATURE



THERMOBANK SYSTEM

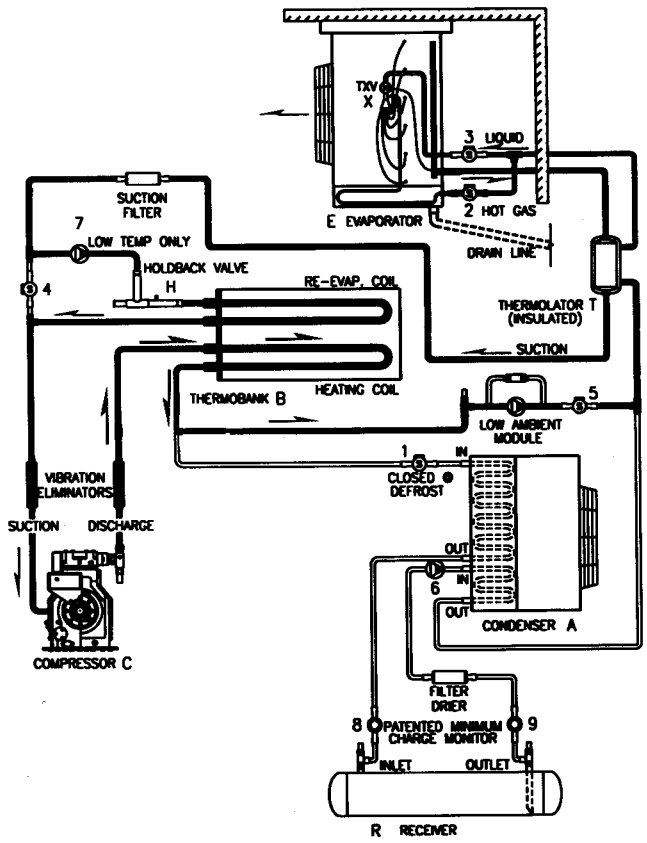
Refrigeration Cycle



SCHEMATIC LEGEND

A = CONDENSER
B = THERMO BANK
C = COMPRESSOR
E = EVAPORATOR
H = HOLDBACK VALVE
R = RECEIVER
T = THERMOLATOR
X = EXPANSION VALVE
1 = DISCHARGE SOLENOID
2 = HOT GAS SOLENOID
3 = LIQUID SOLENOID
4 = SUCTION SOLENOID
5 = BY-PASS VALVE
6 = CHECK VALVE
7 = CHECK VALVE
8 = SIGHT GLASS
9 = SIGHT GLASS

Defrost Cycle



NEW - IMPROVED HOT GAS DEFROST

HOW THERMOBANK WORKS

Every refrigeration system discharges the heat picked up from the evaporator and the compressor. This waste heat is normally rejected by the condenser. With Thermobank, the Compressor (C) discharge passes through a heating loop that is submerged in the water filled Bank (B), and then on through the Condenser (A). The bank stores sufficient heat to fully re-evaporate all the liquid resulting from the defrost of the Evaporator (E).

THE REFRIGERATION CYCLE

The compressor discharge refrigerant, after heating the Bank water, flows to the air cooled Condenser and then to the Receiver (R). From the Receiver the liquid refrigerant flows through a sub-cooling circuit in the condenser and on to the Thermolator (T), the Expansion Valve (X), and the Evaporator (E). The refrigerant returns to the Compressor as in any standard system.

To prevent excessive superheating of the refrigerant vapor returning to the compressor and maintain the water temperature in the Bank, the refrigerant flow bypasses the Bank through the Suction Line Solenoid (4) during the refrigeration cycle. This Suction Line Solenoid is generously sized for minimum pressure drop and is of the normally closed type providing an extra margin of safety. On low temperature systems a spring loaded hold back Check Valve (7) is installed upstream of the Holdback Valve (H) to ensure no refrigerant flows through the Bank during the refrigeration cycle.

THE DEFROST CYCLE

A time clock automatically puts the Thermobank system into a defrost cycle and initiates the following: Discharge Solenoid Valve (1) closes; the Evaporator (E) fans stop; Hot Gas Solenoid Valve (2) opens; Liquid Solenoid Valve (3) closes; Suction Solenoid Valve (4) closes.

The Compressor discharge gas goes directly into the liquid line because By-Pass Solenoid Valve (5) is open when Discharge Solenoid (1) is closed. All the warm liquid refrigerant in the liquid line flows into and through the Evaporator. This liquid refrigerant insures a rapid defrost and charges the defrost circuit. Additional hot gas condenses in the Evaporator providing an unusually rapid defrost at all ambient conditions.

During the defrost cycle the hot gas passes through the liquid side of the Thermolator (T) and the suction from the Evaporator goes through the inner core. The heat transfer in the Thermolator reduces the superheat of the hot gas and minimizes coil steaming and temperature rise in the refrigerated room.

With the Suction Solenoid (4) closed, the liquid refrigerant flows through the Holdback Valve (H) which controls the rate of refrigerant flow and the pressure in the Bank. The Bank becomes an evaporator and absorbs the stored heat. The Thermobank system utilizes a high pressure safety control which will function to momentarily open the Discharge Line Solenoid (1) if discharge pressures rise to a high level.

The defrost cycle is terminated by a pressure switch that senses Evaporator pressure and starts the post-defrost period. During post-defrost the Discharge Solenoid (1) is open; By-Pass Solenoid Valve (5) is closed and Hot Gas Solenoid (2) is closed. Suction Solenoid (4) and Liquid Solenoid (3) remain closed. At the end of the pressure terminated post-defrost period both Suction Solenoid (4) and Liquid Solenoid (3) open and the Evaporator fan motors start. During defrost the hot gas by-passes the receiver so after defrost the receiver contains ample liquid refrigerant to begin refrigerating immediately and prevent compressor short cycling. The system then returns to the normal refrigeration cycle.

IMPROVED THERMOBANK SYSTEM

EVAPORATOR DESIGN

Evaporator designs were developed to fulfill the ruggedness and reliability requirements of the industrial and commercial refrigeration industry. Heavy gauge aluminum tube sheets virtually eliminate the potential for refrigerant leaks at the tube sheets caused by thermal expansion and contraction. Corrosion resistant construction will give maximum performance. All **THERMOBANK** evaporators feature mechanically expanded coils for positive fin-tube bond to insure maximum heat transfer. All coils are custom circuited for the exact requirements of each application thereby providing maximum efficiency and performance during both refrigeration and defrost mode.

Four fin per inch coils are used in low and medium temperature levels. Four fin per inch coils will allow the defrost water to clear the coil faster and allows more time between defrost. Four fin per inch coils should be used for the minimum number of defrost per day and the shortest defrost time. They should always be used if heavy frost loading is possible.

Six fin per inch coils are available and may provide optimum performance for a specific area. They are often used in confined spaces where other coils will not fit. They are sometimes used when light frost loads are expected.

THERMOLATOR

The Thermolator is a unique Kramer engineering development and plays a significant part in the Kramer **THERMOBANK** System. It has no moving parts to wear out. It consists of a round vessel with convolute interior that will turbulate the refrigerant flow for maximum heat transfer. The suction stream from the evaporator moves through this convolute interior on the way to the compressor. Surrounding the outside of this convolute interior is the liquid on the way to the expansion valve. Should the suction stream contain any liquid mist it would be boiled off. The liquid is sub-cooled and feeds liquid to the expansion valve at a considerably lower temperature.

The Thermolator has a dual purpose and its function differs during the defrost cycle. During defrost the hot discharge gas passes through the liquid side of the Thermolator and the suction from the evaporator goes through the convolute core of the Thermolator. The heat transfer in the Thermolator reduces the superheat of the hot gas and minimizes coil steaming and temperature rise in the refrigerated room.

The Thermolator improves system efficiency, stabilizes the defrost, and provides additional insurance that only vapor is returned to the compressor. The complete Thermolator assembly is insulated to insure high efficiency heat transfer.

MINIMUM-CHARGE-MONITOR (Patented)

Thermobank uses the unique Minimum-Charge-Monitor for charging simply, accurately and quickly. Incorporating the use of two sight glasses, one glass shows system undercharge while the other sight glass indicates system overcharge.

DEPENDABLE HOT GAS DEFROST

SMALLEST REFRIGERANT CHARGE

Ton for ton, THERMOBANK'S refrigerant charge is much lower than any conventional equipment. This is made possible by applying a receiver in combination with the Minimum-Charge-Monitor and the elimination of condenser liquid flooding for head pressure control. The same charge works for all seasons - summer or winter. The Minimum-Charge-Monitor allows the contractor to easily fine tune the refrigerant charge and prevents overcharging. With the Minimum-Charge-Monitor and floating head pressure combination a Thermobank system will only use about 70 to 80% of the refrigerant required by a conventional flooded condenser system. Saving 20 to 30% on refrigerant cost can amount to substantial $$ savings.

FASTEST DEFROST - ADEQUATE HEAT

Thermobank has the fastest defrost, typically 5 to 10 minutes, of any outdoor packaged refrigeration system. In addition, the defrost is uniform throughout the coil, and minimizes the heat and vapor added to the room during defrost. The defrosting evaporator receives the full heat of rejection of the refrigerant. This is the sum of the compressor heat while operating at maximum suction pressure during the defrost cycle and the heat extracted from the BANK. There is always an adequate supply of refrigerant for defrosting.

EXTRA COMPRESSOR PROTECTION

Many factors are incorporated in Thermobank to protect the compressor and insure long life. To prevent refrigerant migration to the compressor during the off-cycle, all units have a pumpdown cycle. During the defrost cycle the BANK is protection against floodback. The holdback valve protects against overloading the compressor motor by regulating the inlet pressure to the compressor. The reduced refrigerant charge is additional protection for the compressor.

NEW IMPROVED BANK DESIGN

The BANK has a totally new welded hermetic design to insure a long, leak free life. The heavy gauge steel shell has a bulls-eye water level gauge. Checking the water level is quick and easy. The shell is insulated with closed cell foam to maintain proper water temperature at any ambient condition and provide optimum system performance. The internal heat transfer loops are die formed from extra heavy wall, seamless, copper tube. The BANK contains a thermostat controlled immersion heater for stabilizing water temperature and automatic freeze protection. The new heavy duty welded design makes the BANK durable, reliable, safe and service free.

EXTRA LARGE CONDENSERS

Ratings for ambient temperatures to 105°F are given for all Thermobank systems. Many competitive systems are limited to 100°F ambient. Special systems are available for ambient design temperatures above 110°F. All condensers have a maximum fin spacing of 10 FPI to help prevent coil fouling and increase the time between coil cleanings. The generous coil surface keeps head pressures lower, saves energy, and extends the life of the equipment. An integral sub-cooling circuit is standard to prevent flash gas in liquid risers and increase system efficiency. Fan cycle controls allow some adjustability to the head pressure and will minimize fan motor energy consumption in low ambients. A pressure control on the header end fan assures sufficient head pressure is available for a good cold ambient re-start.

ENERGY SAVING SYSTEMS

DESIGN TEMPERATURE

The Design Temperature is used to calculate the refrigeration load and to select the refrigeration equipment. The equipment must have enough capacity to take care of the installation if all the maximum design loads occur at the same time.

OPERATING HOURS

In selecting equipment the length of defrost must be taken into account. The defrosting of Thermobank is very rapid, typically 5 to 10 minutes, and for this reason the equipment can be selected on the basis of Twenty Hours Per Day Operation. Other systems require thirty to forty minutes for a complete defrost and the general practice is to select this equipment on eighteen hours per day operation. For the same job, Thermobank equipment requirement is 10% less than others. To illustrate, if the installation requires ten 15 H.P. systems with electric defrost, the same installation would require only nine 15 H.P. systems with Thermobank. Thermobank will be refrigerating while others are still defrosting.

AVERAGE OUTDOOR TEMPERATURE

The Average Outdoor Temperature is considerably less than the design outdoor temperature. The outdoor temperature may vary hourly during a twenty-four hour day. It varies day to day, month to month, and season to season. It is the average outdoor temperature that dictates the number of hours of equipment operation. As the outdoor temperature drops, the capacity of Thermobank increases. With more BTU's per hour the equipment operates less time to handle the twenty-four hour refrigeration load. Page 9 shows the Annual Average Outdoor Temperature for locations throughout the U.S.A. and Canada. Select the location nearby or similar in temperature. The estimated annual electrical savings can be calculated from Table 1.

SELECT – CALCULATE –BUY -SAVE

ANNUAL AVERAGE OUTDOOR TEMPERATURE - °F (AAOT-°F)

STATE-CITY	AAOT-°F
ALABAMA	63
Birmingham	62
Huntsville	60
Mobile	67
ALASKA	26
Anchorage	36
Fairbanks	27
Juneau	41
ARIZONA	60
Flagstaff	46
Phoenix	72
ARKANSAS	61
Little Rock	61
CALIFORNIA	59
Fresno	63
Los Angeles	65
Redding	62
San Francisco	57
Stockton	61
COLORADO	45
Colorado Springs	49
Denver	50
Grand Junction	53
CONNECTICUT	49
Hartford	50
DELAWARE	55
Wilmington	54
D.C.	55
Washington	57
FLORIDA	71
Gainesville	68
Jacksonville	68
Miami	75
Orlando	72
Tampa	72
W. Palm Beach	74
GEORGIA	64
Atlanta	61
Macon	64
Savannah	66
HAWAII	76
Honolulu	77
IDAHO	45
Boise	51
ILLINOIS	52
Chicago	49
Peoria	51
INDIANA	52
Fort Wayne	50
Indianapolis	52

STATE-CITY	AAOT-°F
IOWA	48
Des Moines	50
KANSAS	55
Goodland	51
Wichita	56
KENTUCKY	56
Louisville	56
LOUISIANA	66
New Orleans	68
Shreveport	65
MAINE	41
Portland	45
MARYLAND	54
Baltimore	55
MASSACHUSETTS	48
Boston	51
Blue Hill Obs.	48
MICHIGAN	45
Detroit	49
Grand Rapids	47
Marquette	39
MINNESOTA	41
Duluth	38
Minneapolis	45
MISSISSIPPI	63
Jackson	64
Tupelo	62
MISSOURI	55
Kansas City	54
St. Louis	56
MONTANA	43
Billings	47
Glasgow	42
Great Falls	45
Helena	44
NEBRASKA	49
North Platte	48
Omaha	50
Scottsbluff	48
Valentine	47
NEVADA	50
Las Vegas	67
Reno	51
NEW HAMPSHIRE	44
Concord	45
NEW JERSEY	53
Newark Trenton	55
	54
NEW MEXICO	54
Albuquerque	56

STATE-CITY	AAOT-°F
NEW YORK	46
Albany	47
Buffalo	48
New York	55
Syracuse	47
NORTH CAROLINA	59
Asheville	55
Charlotte	60
Raleigh	59
NORTH DAKOTA	41
Bismarck	41
OHIO	51
Akron	50
Cincinnati	53
Cleveland	50
Columbus	51
Youngstown	48
OKLAHOMA	60
Oklahoma City	60
OREGON	49
Portland	53
PENNSYLVANIA	49
Allentown	51
Erie	49
Philadelphia	54
Pittsburgh	50
Scranton	49
RHODE ISLAND	50
Providence	50
SOUTH CAROLINA	63
Charleston	65
Greer	60
SOUTH DAKOTA	46
Huron	45
TENNESSEE	58
Bristol	55
Knoxville	57
Memphis	62
TEXAS	65
Amarillo	57
Dallas	65
El Paso	63
Houston	68
Lubbock	60
San Antonio	68
Wichita Falls	63
UTAH	49
Salt Lake City	52
VERMONT	43
Burlington	44

STATE-CITY	AAOT-°F
VIRGINIA	55
Norfolk	59
Richmond	58
Roanoke	56
WASHINGTON	48
Seattle	53
Spokane	47
PUERTO RICO	76
San Juan	79
WEST VIRGINIA	52
Beckley	51
Charleston	55
Elkins	49
WISCONSIN	43
Green Bay	44
Milwaukee	46
WYOMING	43
Cheyenne	46
Sheridan	45

CANADA

PROVINCE - CITY	AAOT-°F
ALBERTA	
Calgary	35
Edmonton	34
BRITISH COLUMBIA	
Vancouver	51
Victoria	51
MANITOBA	
Brandon	35
Winnipeg	36
NEW BRUNSWICK	
Saint John	42
NEWFOUNDLAND	
Gander	43
St. John's	44
NOVA SCOTIA	
Halifax	46
ONTARIO	
Ottawa	42
Sault Ste. Marie	40
Thunder Bay	37
Toronto	47
Windsor	49
QUEBEC	
Montreal	43
Quebec	39
SASKATCHEWAN	
Regina	35
Saskatoon	34

U.S.A. data compiled from data supplied by the U.S. Department of Commerce, National Climatic Data Center.

CALCULATE YOUR SAVINGS

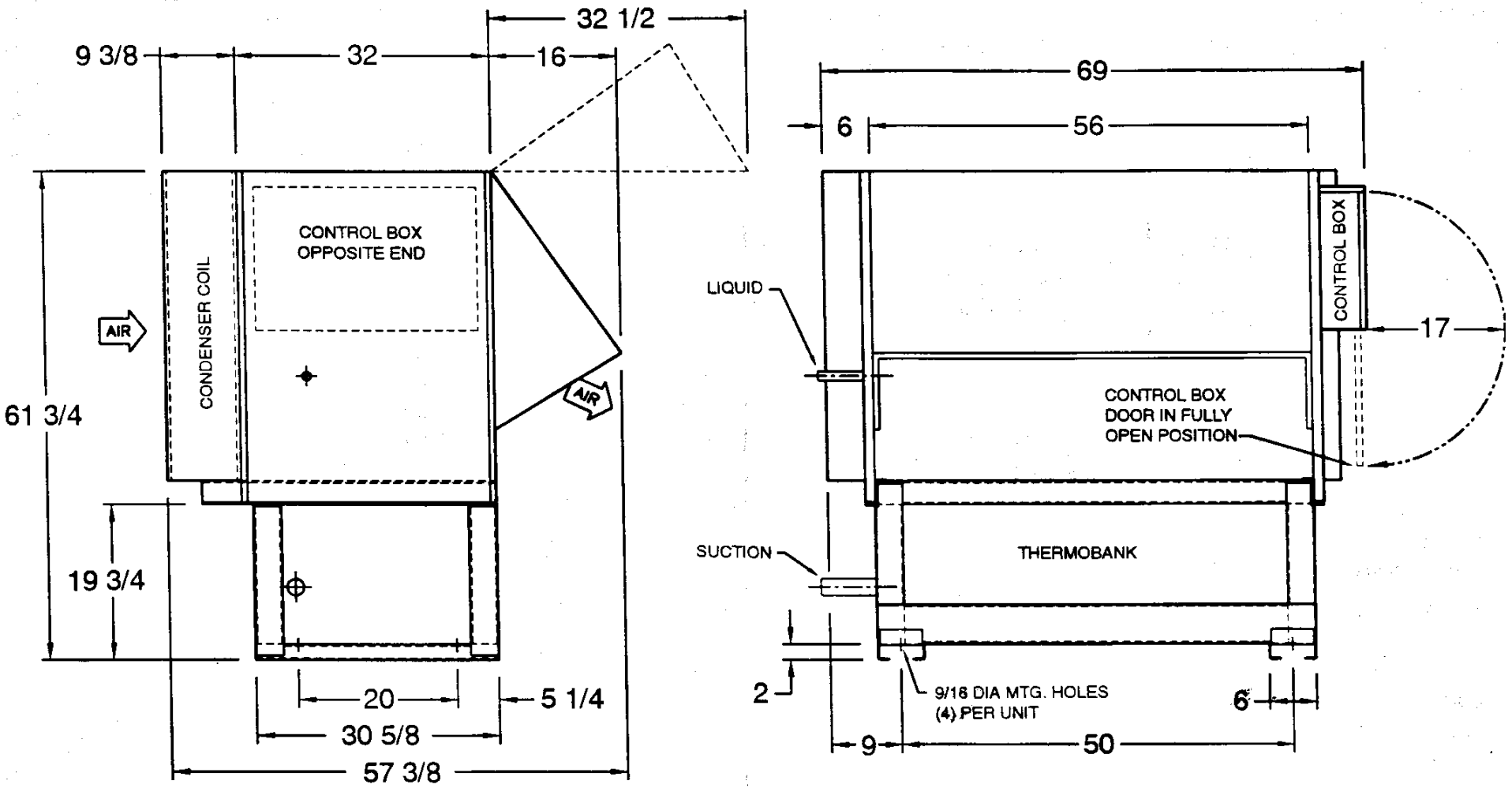
KRAMER THERMOBANK SYSTEM

ANNUAL AVERAGE OUTDOOR TEMPERATURE	75° F	70°F	65° F	60°F	55° F	50°F	45°F	40° F
ESTIMATED ANNUAL ELECTRICAL SAVINGS	5%	10%	15%	20%	25%	30%	35%	40%
FACTOR TO COST FOR CONVENTIONAL SYSTEM	0.95	0.90	0.85	0.80	0.75	0.70	0.65	0.60

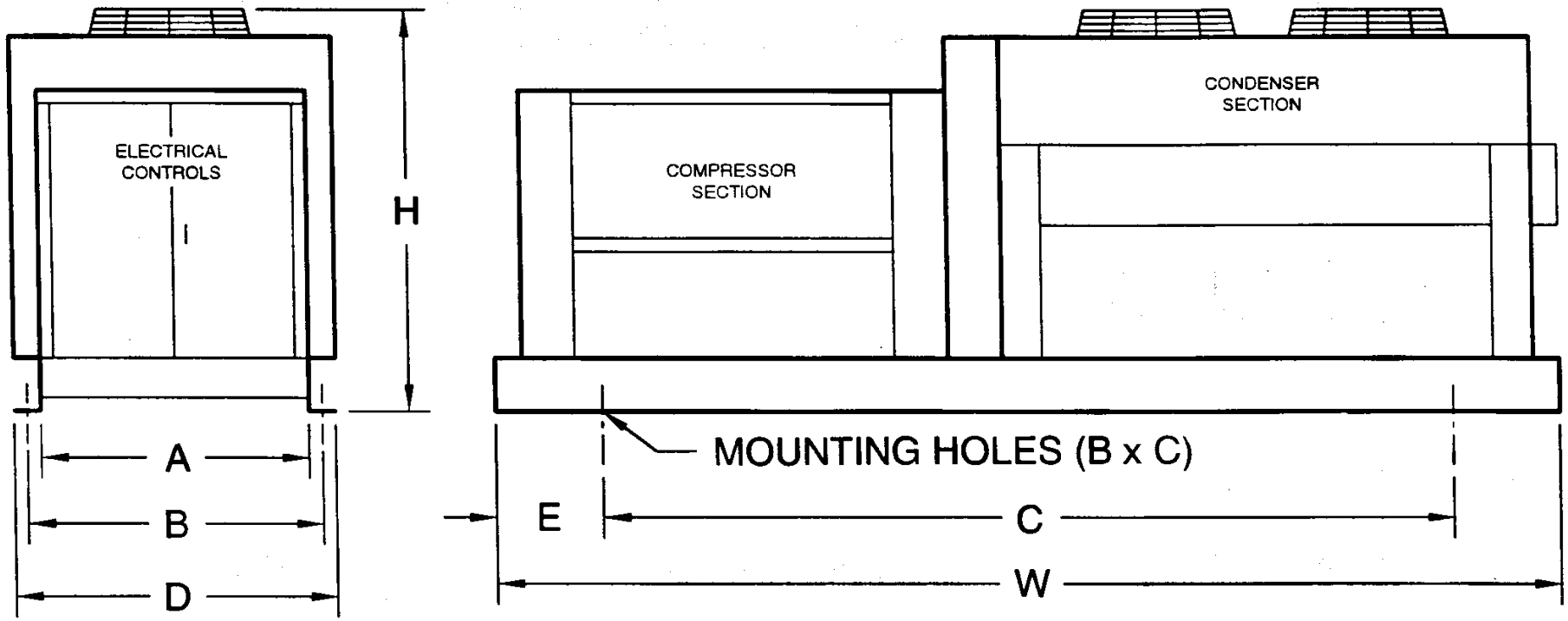
Conventional System Operating Cost x Factor = Thermobank Operating Cost. For temperature between those shown, interpolate to obtain the savings.

LOW TEMPERATURE HOT GAS DEFROST

MODEL CTT DIMENSIONS SIZE 0400-1200



MODEL CTT DIMENSIONS SIZE 1500-6200



SIZE	OVERALL			MOUNTING		REFERENCE	
	H	W	D	B	C	A	E
1500L, 2200L, 2700L, 3100L	45	164	43 1/8	41	144 1/2	39	9
4400L	52 1/2	260	43 1/8	41	238	39	11
5400L, 6200L	64 1/2	276	57 7/8	56	256	53 1/4	10

Specifications, weights and dimensions subject to change without notice. All dimensions in inches.

For your convenience the diagram(s) originally here has(have) been enlarged, and can be found just prior to this page in the Adobe document.

THERMOBANK

0°F TO -40°F
SUCTION TEMPERATURE

PHYSICAL DATA - R-404A & R-507

MODEL	COMPRESSOR		COND FANS			CONNECTIONS		CHARGE LBS.		APPROX.
CTT	QTY	MODEL NO.	QTY	DIA	HP	SUC OD	LIQ OD	UNIT[2]	RECV[1]	NET LBS.
0400L44	1	2DF-030E	2	24	1/2	1 1/8	1/2	8	30	700
0500L44	1	2DA-060E	2	24	1/2	1 3/8	1/2	8	30	880
0600L44	1	3DA-060E	2	24	1/2	1 3/8	1/2	10	30	950
0800L44	1	3DB-075E	2	24	1/2	1 5/8	5/8	10	30	1100
0900L44	1	3DF-090E	2	24	1/2	1 5/8	5/8	19	64	1120
1000L44	1	3DS-100E	2	24	1/2	1 5/8	5/8	19	64	1150
1200L44	1	4DA-101E	2	24	1/2	1 5/8	5/8	20	64	1230
1500L44	1	4DL-150E	3	24	1/2	1 5/8	7/8	21	71	1500
2200L44	1	4DT-220E	3	24	1/2	2 1/8	7/8	24	71	1870
2700L44	1	6DL-270E	3	24	3/4	2 1/8	7/8	27	71	2240
3100L44	1	6DT-300E	3	24	3/4	2 1/8	7/8	31	103	2890
4400L44	2a	4DT-220E	4	30	3/4	2 1/8	1 1/8	44	103	4030
5400L44	2a	6DL-270E	5	30	3/4	2 5/8	1 1/8	49	103	4580
6200L44	2a	6DT-300E	5	30	3/4	2 5/8	1 1/8	57	103	5930

[a] 2 Compressors piped in parallel. [1] Receiver at 90% full. [2] Estimated refrigerant charge is for a condensing unit only. It does not include evaporators, interconnecting piping or other accessories.

ELECTRICAL DATA - R-404A & R-507

	230 - 3 - 60					460-3-60				
MODEL	COMPRESSOR		COND	UNIT		COMPRESSOR		COND	UNIT	
CTT	RLA	LRA	FLA	AMPS	MCA[3]	RLA	LRA	FLA	AMPS	MCA[3]
0400L44	16.8	102	8.0	25.8	30	8.1	52	4.0	12.6	15
0500L44	28.8	161	8.0	37.8	45	10.2	60	4.0	14.7	18
0600L44	30.3	150	8.0	39.3	47	13.7	77	4.0	18.2	22
0800L44	31.5	161	8.0	40.5	49	16.1	83	4.0	20.6	25
0900L44	39.0	215	8.0	48.0	58	16.9	106	4.0	21.4	26
1000L44	42.0	215	8.0	51.0	62	18.6	106	4.0	23.1	28
1200L44	45.2	220	8.0	54.2	66	22.6	110	4.0	27.6	34
1500L44	52.6	278	5.4	59.0	73	26.3	139	2.7	29.5	37
2200L44	66.0	374	5.4	72.4	89	33.0	187	2.7	36.2	45
2700L44	80.8	450	10.2	92.0	113	40.4	225	5.1	46.0	57
3100L44	95.6	470	10.2	106.8	131	47.8	235	5.1	53.4	66
4400L44	(2) 66.0	(2) 374	13.6	146.6	164	(2) 33.0	(2) 187	6.8	73.3	83
5400L44	(2) 80.8	(2) 450	17.0	179.6	200	(2) 40.4	(2) 225	8.5	89.8	101
6200L44	(2) 95.6	(2) 470	17.0	209.2	234	(2) 47.8	(2) 235	8.5	104.6	118

[3] MCA does not include evaporator motors.

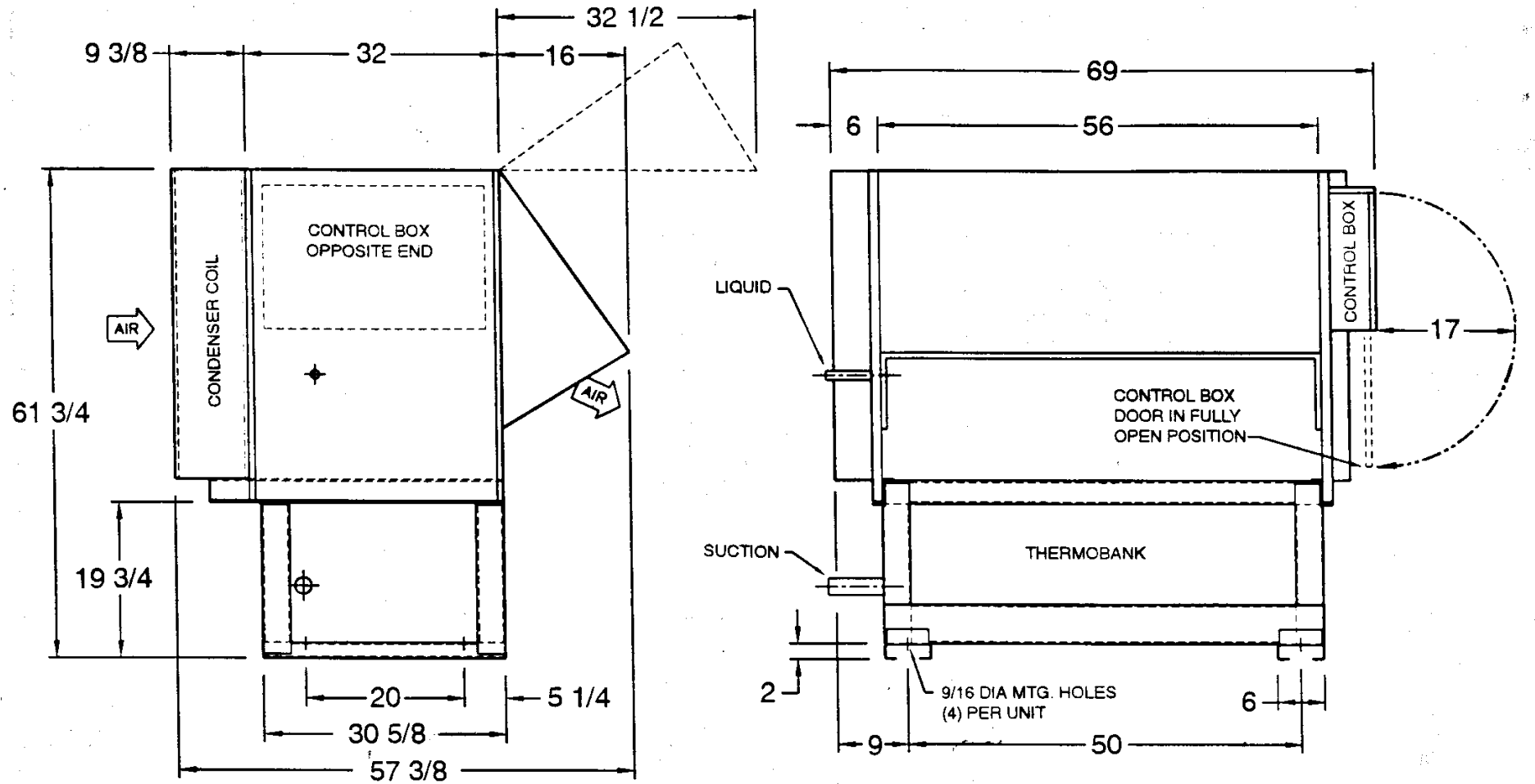
CAPACITY- BTUH @ 95°F AMBIENT

MODEL CTT	SUCTION TEMPERATURE							
	0°F	-5°F	-10°F	-15°F	-20°F	-25°F	-30°F	-40°F
0400L44	32700	29100	25700	22600	19700	17100	14700	10400
0500L44	42800	38400	34300	30400	26900	23600	20500	14900
0600L44	52500	47100	42000	37200	32800	28700	24900	18500
0800L44	60800	54600	48800	43400	38400	33700	29400	21600
0900L44	78100	69900	62300	55300	48700	42600	37100	27400
1000L44	82900	74700	67000	59700	52800	46400	40400	29800
1200L44	96100	86000	76800	68400	60700	53400	46500	33200
1500L44	113700	102400	92200	82700	73900	65700	57800	42400
2200L44	132000	119800	109200	98100	87500	77300	67600	49100
2700L44	169800	153700	138100	123100	108700	95200	82600	60400
3100L44	187300	169600	153900	136300	121700	106400	92700	69350
4400L44	267000	242100	218600	196300	175100	154800	135300	98300
5400L44	340500	307900	279100	248500	219400	192000	166400	121700
6200L44	373300	338000	306700	271650	242600	212100	184750	138200

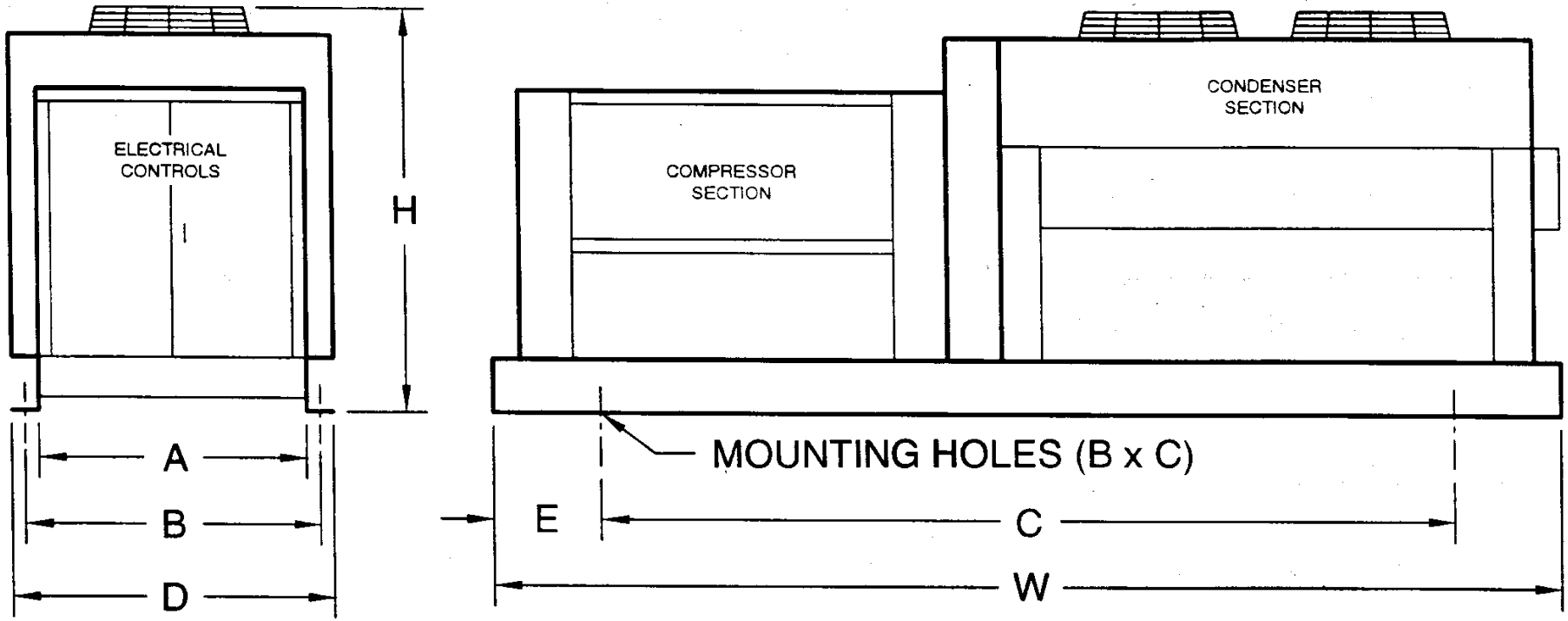
AMBIENT CORR. FACTOR	
AMB.	404A
80°F	1.15
85°F	1.10
90°F	1.05
95°F	1.00
100°F	0.95
105°F	0.90

MEDIUM TEMPERATURE HOT GAS DEFROST

MODEL CTT DIMENSIONS SIZE 0500-1200



MODEL CTT DIMENSIONS SIZE 1500-7000



SIZE	OVERALL			MOUNTING		REFERENCE	
	H	W	D	B	C	A	E
1500M, 2000M, 2500M	45	164	43 1/8	41	144 1/2	39	9
3000M	48 1/2	192	43 1/8	41	170	39	11
3500M, 4000M	50 1/2	230	43 1/8	41	208	39	11
5000M, 6000M, 7000M	64 1/2	276	57 7/8	56	256	53 1/4	10

For your convenience the diagram(s) originally here has(have) been enlarged, and can be found just prior to this page in the Adobe document.

THERMOBANK +10°F TO+25°F

SUCTION TEMPERATURE

PHYSICAL DATA - R-22, R-404A & R-507

MODEL CTT	COMPRESSOR		COND FANS			CONNECTIONS				CHARGE LBS.				APPX NET LBS.
						R-22		R-404A & R-507		R-22		R-404A & R-S07		
	QTY	MODEL NO.	QTY	DIA	HP	SUC OD	LIQ OD	SUC OD	LIQ OD	UNIT[2]	RECV[1]	UNIT[2]	RECV[1]	
0500M**	1	2DD-050*	2	24	1/2	1 3/8	1/2	1 1/8	1/2	7	35	8	30	820
0700M**	1	2DA-075*	2	24	1/2	1 3/8	5/8	1 3/8	5/8	9	35	10	30	980
0800M**	1	3DA-075*	2	24	1/2	1 3/8	5/8	1 3/8	5/8	15	74	14	64	1030
1000M**	1	3DB-100*	2	24	1/2	1 3/8	5/8	1 3/8	5/8	19	74	17	64	1150
1200M**	1	3DF-120*	2	24	1/2	1 3/8	7/8	1 3/8	5/8	21	74	19	64	1225
1500M**	1	3DS-150*	3	24	1/2	1 5/8	7/8	1 3/8	5/8	25	103	23	88	1450
2000M**	1	4DA-200*	3	24	1/2	1 5/8	7/8	1 5/8	7/8	29	103	26	88	1850
2500M**	1	4DH-250*	3	24	3/4	2 1/8	7/8	2 1/8	7/8	32	103	29	88	2190
3000M**	1	4DJ-300*	3	30	3/4	2 1/8	7/8	2 1/8	7/8	46	120	33	103	3030
3500M**	1	6DH-350*	4	30	3/4	2 1/8	1 1/8	2 1/8	1 1/8	49	120	42	103	4130
4000M**	1	6DJ-400*	4	30	3/4	2 1/8	1 3/8	2 1/8	1 1/8	60	120	53	103	3630
5000M**	2[a]	4DH-250*	5	30	3/4	2 5/8	1 3/8	2 5/8	1 1/8	65	120	57	103	4130
6000M**	2[a]	4DJ-300*	5	30	3/4	2 5/8	1 5/8	2 5/8	1 1/8	74	120	65	103	4480
7000M**	2[a]	6DH-350*	5	30	3/4	2 5/8	1 5/8	2 5/8	1 1/8	89	182	78	157	6130

* 0=Mineral Oil, R-22. E=POE Synthetic Lubricant. **22 = R-22, 44 = R-404A or R-507.
[a] 2 Compressors piped in parallel. [1] Receiver at 90% full. [2] Estimated refrigerant charge is for a condensing unit only. It does not include evaporators, interconnecting piping or other accessories.

ELECTRICAL DATA - R-22, R-404A & R-507

MODEL CTT	230 - 3 - 60					460 - 3 - 60				
	COMPRESSOR		COND	UNIT		COMPRESSOR		COND	UNIT	
	RLA	LRA	FLA	AMPS	MCA[3]	RLA	LRA	FLA	AMPS	MCA[3]
0500M**	22.3	120	8.0	31.3	37	10.5	60	4.0	15.0	18
0700M**	32.0	169	8.0	41.0	49	14.1	85	4.0	18.7	23
0800M**	41.0	215	8.0	50.0	61	20.0	106	4.0	24.5	30
1000M**	43.6	215	8.0	52.6	64	20.0	106	4.0	24.5	30
1200M**	48.2	275	8.0	57.2	70	23.6	138	4.0	28.1	34
1500M**	59.6	275	5.4	66.0	81	29.0	138	2.7	32.2	40
2000M**	66.6	308	5.4	73.0	90	33.0	154	2.7	36.2	45
2500M**	82.2	428	10.2	93.4	114	41.1	214	5.1	46.7	57
3000M**	94.0	470	10.2	105.2	129	47.0	235	5.1	52.6	65
3500M**	107.0	565	13.6	121.6	149	53.5	283	6.8	60.8	75
4000M**	142.0	594	13.6	156.6	193	71.0	297	6.8	78.3	97
5000M**	(2) 82.2	(2) 428	17.0	182.4	203	(2) 41.1	(2) 214	8.5	91.8	103
6000M**	(2) 94.0	(2) 470	17.0	206.0	230	(2) 47.0	(2) 235	8.5	103.5	115
7000M**	(2) 107.0	(2) 565	17.0	232.0	259	(2) 53.5	(2) 283	8.5	116.5	130

**22 = R-22, 44 = R-404A or R-507. 3 MCA does not include evaporator motors

CAPACITY- BTUH @ 95°F AMBIENT

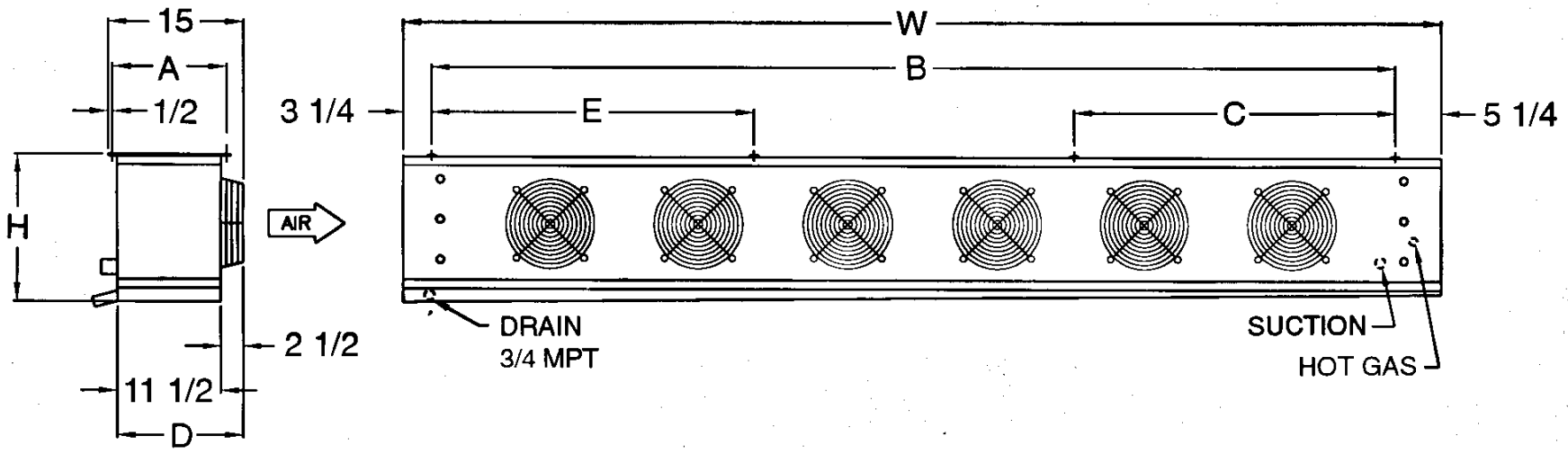
MODEL CTT	R-22 SUCTION TEMPERATURE				R-404A & R-507 SUCTION TEMPERATURE			
	+25°F	+20°F	+15°F	+10°F	+25°F	+20°F	+15°F	+10°F
0500M**	52100	46600	41300	36500	52800	47700	42900	38400
0700M**	72300	65000	57900	51200	74600	67900	61600	55700
0800M**	89300	80500	72300	64600	91000	82800	75100	67700
1000M**	105200	95200	85900	77300	107800	98300	89300	80700
1200M**	116000	105200	95000	85500	125300	114700	104600	95000
1SOOM**	136600	123000	111300	100200	144300	130700	119100	108000
2000M**	152500	137600	125900	112500	157900	143500	132200	118900
2500M**	192100	172200	154900	128200	201000	183200	167700	151200
3000M**	216700	196200	177000	159200	228100	207700	188400	170100
3500M**	278800	252200	227700	205200	298900	272000	246700	222900
4000M**	319800	290800	263800	238900	339400	310000	282000	255400
5000M**	374100	338800	306100	275800	384800	350400	317300	285900
6000M**	433600	392600	353900	317200	455400	414900	376300	339800
7000M**	555000	502700	454400	410200	584100	533700	485700	440300

"22 = R-22, 44 = R-404A or R-507

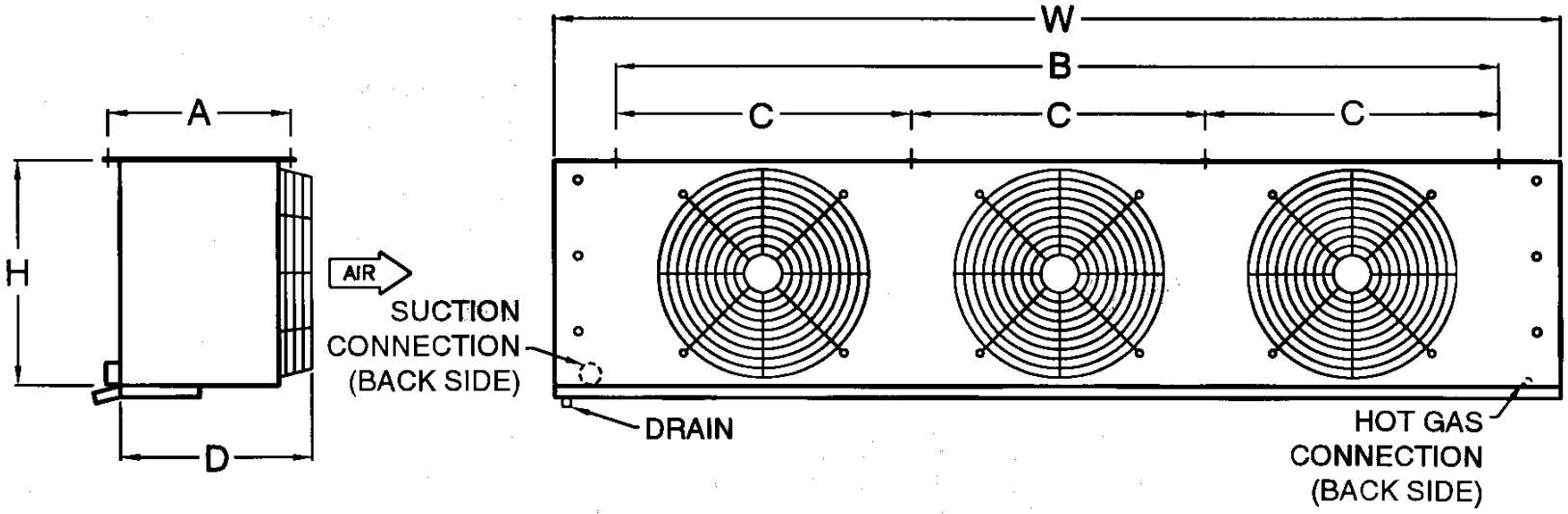
AMBIENT CORR. FACTOR		
AMB.	404A	22
80°F	1.15	1.10
85°F	1.10	1.07
90°F	1.05	1.03
95°F	1.00	1.00
100°F	0.95	0.96
105°F	0.90	0.92

HOT GAS DEFROST EVAPORATORS

MODEL LPG

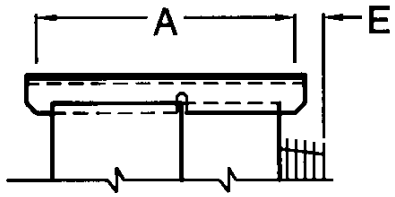


MODEL MSG - CSG

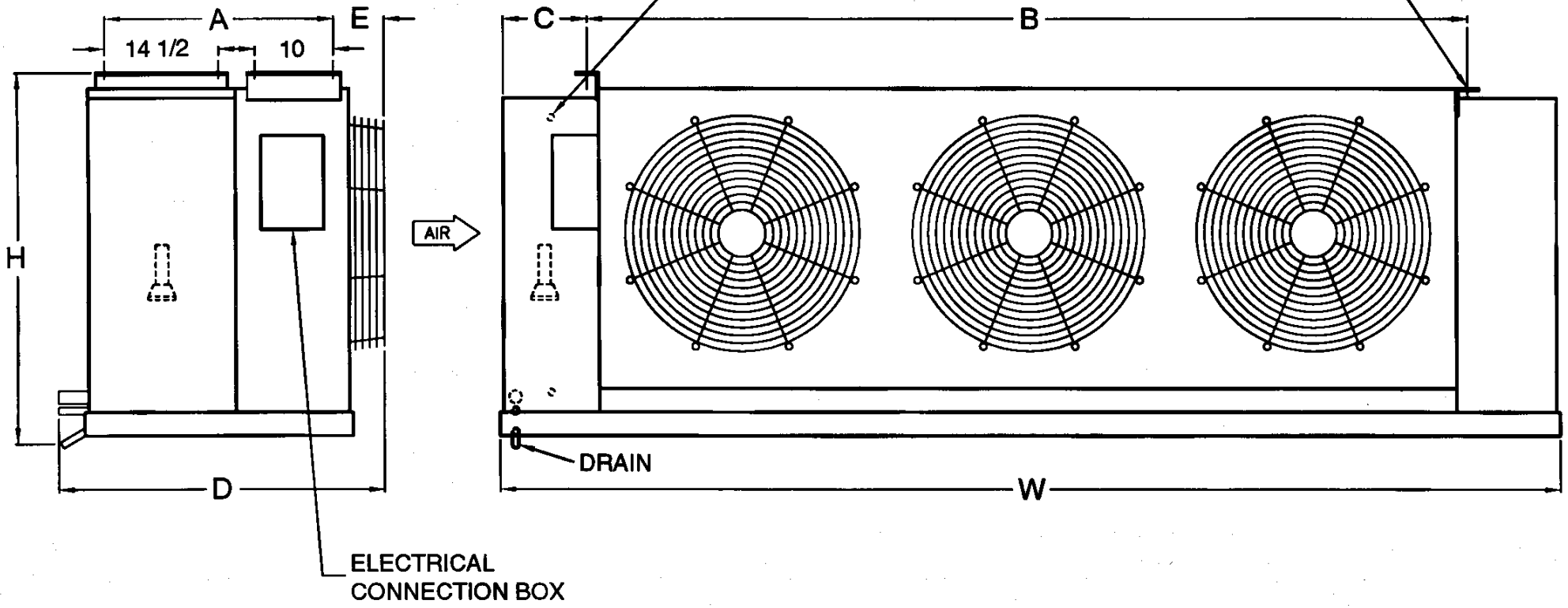


MODEL TV - CTV

* TV400-1100, CTV450-1220
HAVE (4) MOUNTING HOLES



** TV1200 - 1900, CTV1360-2100
HAVE (8) MOUNTING HOLES



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HOT GAS DEFROST EVAPORATORS

4 FPI EVAPORATORS WITH HOT GAS DRAIN PAN

EVAP MODEL	BTUH © 10°TD		FAN MOTORS				CFM	DIMENSIONS							APPX NET LBS.
					TOTAL AMPS			OVERALL			MOUNTING				
	+10°F SST	-20°F SST	QTY	HP	230 V	460 V		H	W	D	A	B	C	E	
LPG142T	15700	14200	4	1/20	4.0	2.0	3050	16 1/4	82	15	12 5/8	73	-	36 1/2	85
LPG182T	20200	18200	5	1/20	5.0	2.5	3550	16 1/4	100	15	12 5/8	91	-	54 1/2	105
LPG214T	23600	21400	6	1/20	6.0	3.0	4290	16 1/4	118	15	12 5/8	109	36 1/2	36 1/2	125
MSG140T	15900	14000	2	1/8	1.8	0.9	3620	19	55	19	17	42	-		110
MSG175T	19800	17500	3	1/8	2.7	1.4	5750	19	76	19	17	63	-	-	150
MSG230T	26200	23000	2	1/3	6.4	2.6	5930	25	76	20	18	63	-	-	165
MSG325T	36800	32500	2	1/3	6.4	2.6	5430	25	76	20	18	63	-	-	220
MSG390T	44100	39000	3	1/3	9.6	3.9	8890	25	106	20	18	93	31	-	275
MSG510T	57700	51000	3	1/3	9.6	3.9	8150	25	106	20	18	93	31		300
TV400D	44000	40000	2	1/2	3.6	1.8	8600	43	75	32	26	58	7 1/2	3 1/4	305
TV550D	60500	55000	2	1/2	3.6	1.8	8400	43	75	32	26	58	7 1/2	3 1/4	430
TV750D	83000	75000	2	3/4	7.0	3.5	13100	43	111	33	26	94	7 1/2	4	500
TV950D	104500	95000	2	3/4	7.0	3.5	15000	43	111	33	26	94	7 1/2	4	535
TV1100D	119000	108000	2	3/4	7.0	3.5	14500	44	111	36	28	94	7 1/2	5 3/4	580
TV1200D	132000	120000	3	3/4	10.5	5.3	20200	48	136	42	28 1/4	113 1/4	11 3/8	7 1/2	1120
TV1400D	154000	140000	3	3/4	10.5	5.3	19500	48	136	42	28 1/4	113 1/4	11 3/8	7 1/2	1265
TV1600D	176000	160000	4	3/4	14.0	7.0	26900	48	174	42	28 1/4	151 1/4	11 3/8	7 1/2	1660
TV1900D	205000	186000	4	3/4	14.0	7.0	26000	48	174	42	28 1/4	151 1/4	14 1/2	7 1/2	1700

All dimensions in inches.
Connection sizes may vary and will be determined when actual site operating conditions are provided.

6 FPI EVAPORATORS WITH HOT GAS DRAIN PAN

EVAP MODEL	BTUH @ 10°TD		FAN MOTORS				CFM	DIMENSIONS							APPX NET LBS.
					TOTAL AMPS			OVERALL			MOUNTING				
	+10°F SST	-20°F SST	QTY	HP	230 V	460 V		H	W	D	A	B	C	E	
LPG184T	20400	18400	4	1/20	4.0	2.0	2650	16 1/4	82	15	12 5/8	73	-	36 1/2	110
LPG220T	24600	22000	5	1/20	5.0	2.5	3410	16 1/4	100	15	12 5/8	91	-	54 1/2	125
LPG240T	26700	24000	6	1/20	6.0	3.0	4110	16 1/4	118	15	12 5/8	109	36 1/2	36 1/2	135
LPG265T	29500	26500	6	1/20	6.0	3.0	3980	16 1/4	118	15	12 5/8	109	36 1/2	36 1/2	145
CSG185T	21000	18500	3	1/8	2.7	1.4	5510	19	76	19	17	63	-	-	160
CSG270T	29200	27000	2	1/3	6.4	2.6	5720	25	76	20	18	63	-	-	175
CSG320T	35600	32000	2	1/3	6.4	2.6	5480	25	76	20	18	63	-	-	200
CSG385T	43600	38500	3	1/3	9.6	3.9	9130	25	106	20	18	93	31	-	270
CSG460T	52000	46000	3	1/3	9.6	3.9	9090	25	106	20	18	93	31	-	285
CSG520T	58800	52000	3	1/3	9.6	3.9	8190	25	106	20	18	93	31	-	300
CTV450	49800	45200	2	1/2	3.6	1.8	8400	43	75	32	26	58	7 1/2	3 1/4	305
CTV620	68400	62200	2	1/2	3.6	1.8	8200	43	75	32	26	58	7 1/2	3 1/4	430
CTV850	93200	84800	2	3/4	7.0	3.5	12800	43	111	33	26	94	7 1/2	4	500
CTV1070	118700	107400	2	3/4	7.0	3.5	14600	43	111	33	26	94	7 1/2	4	535
CTV1220	134500	122000	2	3/4	7.0	3.5	14100	44	111	36	28	94	7 1/2	5 3/4	580
CTV1360	149200	135600	3	3/4	10.5	5.3	19700	48	136	42	28 1/4	113 1/4	11 3/8	7 1/2	1120
CTV1580	174900	158200	3	3/4	10.5	5.3	19000	48	136	42	28 1/4	113 1/4	11 3/8	7 1/2	1265
C7V1800	200700	180800	4	3/4	14.0	7.0	21500	48	174	42	28 1/4	151 1/4	11 3/8	7 1/2	1660
CTV2100	231700	210270	4	3/4	14.0	7.0	21200	48	174	42	28 1/4	151 1/4	14 1/2	7 1/2	1700

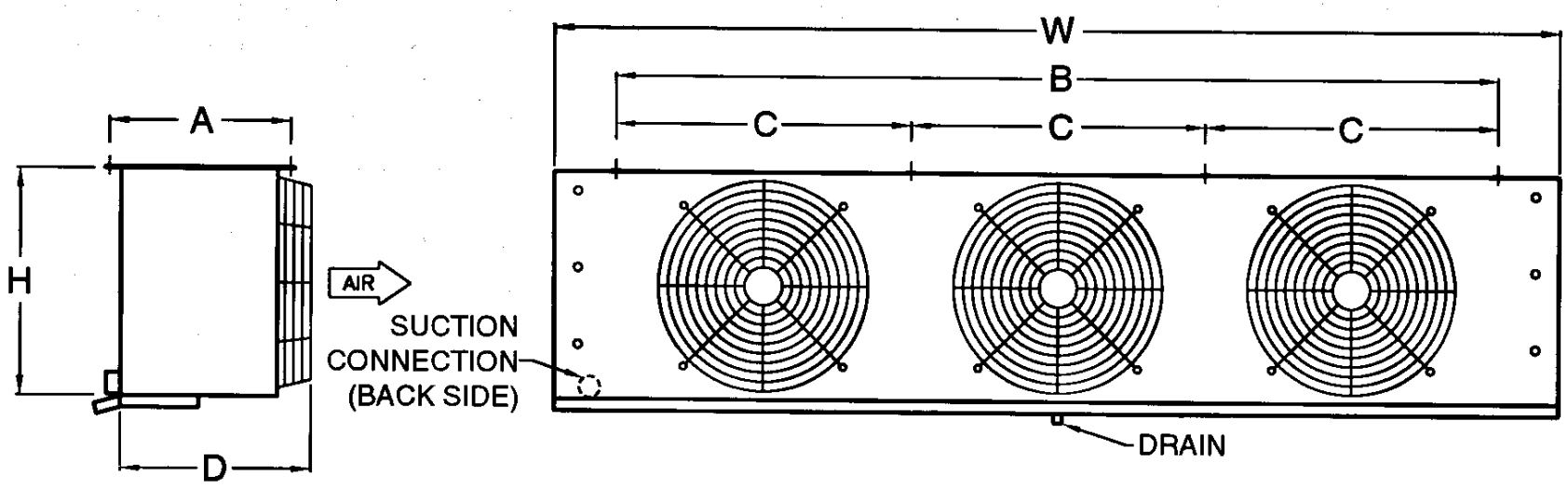
All dimensions in inches.
Connection sizes may vary and will be determined when actual site operating conditions are provided.
For complete details of evaporators' refer to the following submittals: LPG-812; MSG-830; TV-789; MSA-834; CM-788; CSG-855; CTV-853; CSA-867; CCM-870

KRAMER

THERMOBANK

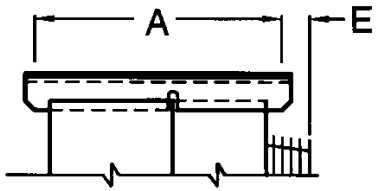
EVAPORATORS FOR +35°F ROOMS

MODEL MSA - CSA

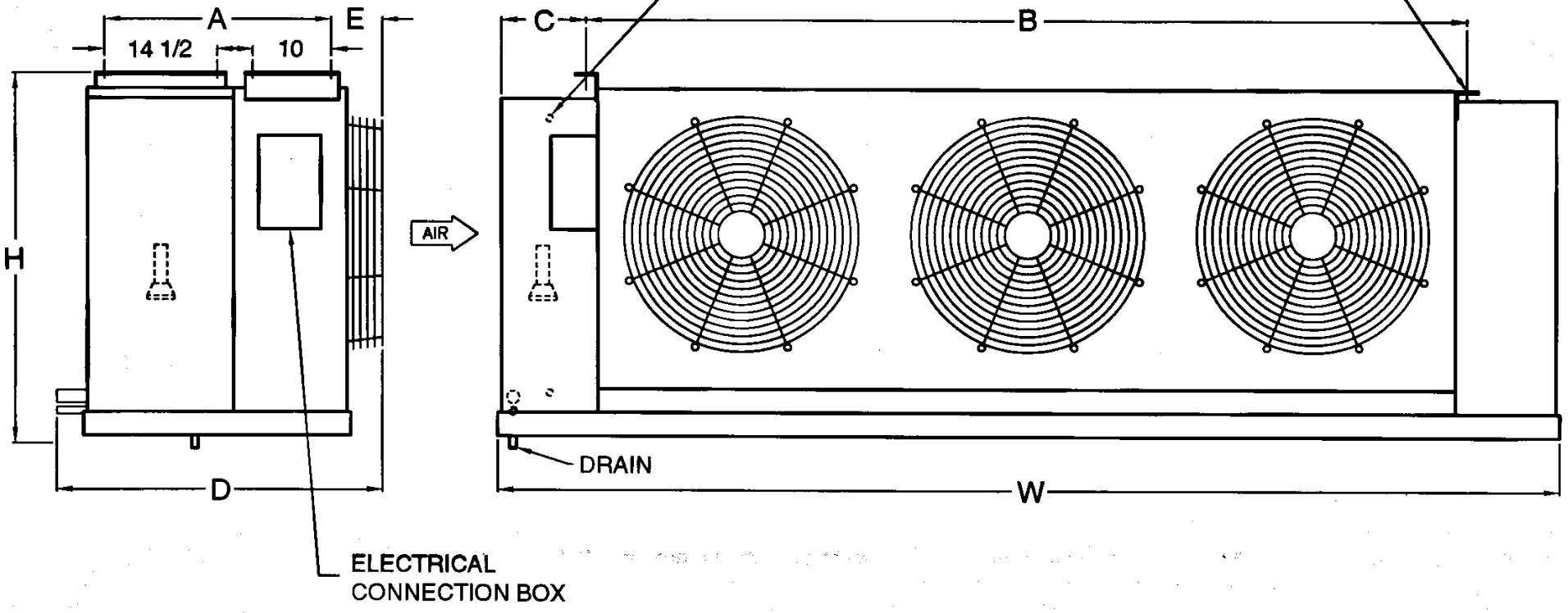


MODEL CM - CCM

* CM450-1250, CCM520-1390
HAVE (4) MOUNTING HOLES



** CM1350-2100, CCM1550-2400
HAVE (8) MOUNTING HOLES



CONTINUOUS IMPROVEMENT AND INNOVATION ARE A TRADITION AT KRAMER

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HOT GAS DEFROST EVAPORATORS

4 FPI EVAPORATORS WITHOUT HEATED DRAIN PAN

EVAP MODEL	BTUH @ 10°TD +25°F SST	FAN MOTORS				CFM	DIMENSIONS							APPX NET LBS.
				TOTAL AMPS			OVERALL			MOUNTING				
		QTY	HP	230 V	460 V		H	W	D	A	B	C	E	
MSA340	34000	2	1/3	6.4	2.6	5710	25	76	20	18	63	-	-	200
MSA395	39500	2	1/3	6.4	2.6	5430	25	76	20	18	63	-	-	215
MSA465	46500	3	1/3	9.6	3.9	8990	25	106	20	18	93	31	-	270
MSA585	58500	3	1/3	9.6	3.9	8140	25	106	20	18	93	31	-	295
CM450	45500	2	1/2	3.6	1.8	8600	43	75	32	26	58	7 1/2	3 1/4	300
CM620	62700	2	1/2	3.6	1.8	8400	43	75	32	26	58	7 1/2	3 1/4	425
CM850	85500	2	3/4	7.0	3.5	13100	43	111	33	26	94	7 1/2	4	495
CM1100	107900	2	3/4	7.0	3.5	15000	43	111	33	26	94	7 1/2	4	530
CM1250	123500	2	3/4	7.0	3.5	14500	44	111	36	28	94	7 1/2	5 3/4	575
CM1350	136600	3	3/4	10.5	5.3	20200	48	136	42	28 1/4	113 1/4	11 3/8	7 1/2	1110
CM1600	159900	3	3/4	10.5	5.3	19500	48	136	42	28 1/4	113 1/4	11 3/8	7 1/2	1255
CM1800	182200	4	3/4	14.0	7.0	25200	48	174	42	28 1/4	151 1/4	11 3/8	7 1/2	1650
CM2100	212500	4	3/4	14.0	7.0	24300	48	174	42	28 1/4	151 1/4	14 1/2	71/2	1690

All dimensions in inches.
Connection sizes may vary and will be determined when actual site operating conditions are provided.

6 FPI EVAPORATORS WITHOUT HEATED DRAIN PAN

EVAP MODEL	BTUH @ 10°TD +25°F SST	FAN MOTORS				CFM	DIMENSIONS							APPX NET LBS.
				TOTAL AMPS			OVERALL			MOUNTING				
		QTY	HP	230 V	460 V		H	W	D	A	B	C	E	
CSA370	37000	2 3	1/3	6.4	2.6	5460	25	76	20	18	63	-	-	210
CSA415	41500		1/3	6.4	2.6	8620	25	76	20	18	63			230
CSA490	49000	3	1/3	9.6	3.9	8580	25	106	20	18	93	31		275
CSA620	62000	3	1/3	9.6	3.9	7770	25	106	20	18	93	31		300
CCM520	51400	2	1/2	3.6	1.8	8385	43	75	32	26	58	7 1/2	3 1/4	305
CCM710	70825	2	1/2	3.6	1.8	8190	43	75	32	26	58	7 1/2	3 1/4	430
CCM970	97125	2	3/4	7.0	3.5	12800	43	111	33	26	94	7 1/2	4	510
CCM1220	122250	2	3/4	7.0	3.5	14600	43	111	33	26	94	7 1/2	4 5	540
CCM1390	139400	2	3/4	7.0	3.5	14100	44	111	36	28	94	7 1/2	3/4	590
CCM1550	154500	3	3/4	10.5	5.3	19700	48	136	42	28 1/4	113 1/4	11 3/8	7 1/2	1125
CCM1810	180450	3	3/4	10.5	5.3	19000	48	136	42	28 1/4	113 1/4	11 3/8	7 1/2	1265
CCM2060	205560	4	3/4	14.0	7.0	24600	48	174	42	28 1/4	151 1/4	11 3/8	7 1/2	1660
CCM2400	239900	4	3/4	14.0	7.0	23700	48	174	42	28 1/4	151 1/4	14 1/2	7 1/2	1700

All dimensions in inches.
Connection sizes may vary and will be determined when actual site operating conditions are provided.
For complete details of evaporators' refer to the following submittals:
LPG-812; MSG-830; TV-789; MSA-834; CM-788; CSG-855; CTV-853; CSA-867; CCM-870

THERMOBANK SYSTEMS WITH 4 FPI EVAPORATORS

LOW TEMPERATURE THERMOBANK SYSTEMS WITH 4 FPI EVAPORATORS

MODEL	MBH @ -	EVAP FOR -10°F ROOM			MBH @	EVAP FOR -20°F ROOM			MBH @	FOR -30°F ROOM
		LPG-T	MSG-T	TV		LPG-T	MSG-T	TV		TV
0400L44	19.7	182,214	175		14.7	182	175		10.	
0500L44	26.9	214	230		20.5	214	175, 230		4	
0600L44	32.8	(2) 182	325		24.9	(2) 142	230		18.	
0800L44	38.4	(2) 214	390	400	29.4	(2) 182	325		5	
0900L44	48.7		510	550	37.1	(2) 214	390, (2) 175	400	27.	400
1000L44	52.8		510	550	40.4		390	400	4	400
1200L44	60.7		(2) 325	550	46.5		510, (2) 230	550	29.	400
1500L44	73.9		(2) 390	750	57.8		510, (2) 390	550 750, (2)	42.	550
2200L44	87.5		(2) 510	950, (2) 550	67.6		(2) 390	400	4	550
2700L44	108.7		(2) 510	1100, (2) 550	82.6		(2) 510	950, (2) 550	60.	750, (2) 400
3100L44	121.7			1200,1400	92.7		(2) 510	1100, (2) 550	4	950, (2) 550
4400L44	175.1			1900, (2) 950	135.3			1400, (2) 750	98.3	1200
5400L44	219.4			(2) 1100, (2) 1200	166.4			1900, (2) 950	121.7	1400, (2) 750
6200L44	242.6			(2) 1400	184.8			(2) 1100, (2) 1200	138.2	1900, (2) 950

MEDIUM TEMPERATURE THERMOBANK SYSTEMS WITH 4 FPI EVAPORATORS

MODEL	MBH @ +10° SST		EVAP FOR +20°F ROOM			MBH @ +20° SST		EVAPORATOR FOR +30°F ROOM		
CTT	M22	M44	LPG-T	MSG-T	TV	M22	M44	LPG-T	MSG-T	TV
0500M	36.5	38.4	(2) 182, (2) 214	390	400	46.6	47.7	(2) 214	390, 510	400
0700M	51.2	55.7	(2) 214	510	400, 550	65.0	67.9		510, (2) 325	550
0800M	64.6	67.7		510, (2) 325	550	80.5	82.8		(2) 390	750, (2) 400
1000M	77.3	80.7		(2) 390	750, (2) 400	95.2	98.3		(2) 390	950, (2) 400
1200M	85.5	95.0		(2) 390	950, (2) 400	105.2	114.7		(2) 510	1100, (2) 550
1SOOM	100.2	108.0		(2) 510	1100, (2) 550	123.0	130.7			1200, (2) 550
2000M	112.5	118.9		(2) 510	1100, (2) 550	137.6	143.5			1400, (2) 750
2500M	128.2	151.2			1400, (2) 750	172.2	183.2			1600, (2) 750
3000M	159.2	170.1			1600, (2) 750	196.2	207.7			1900, (2) 950
3500M	205.2	222.9			1900, (2) 950	252.2	272.0			(2) 1200
4000M	238.9	255.4			(2) 1100	290.8	310.0			(2) 1400
5000M	275.8	285.9			(2) 1400	338.8	350.4			(2) 1600
6000M	317.2	339.8			(2) 1600	392.6	414.9			(2) 1900
7000M	410.2	440.3			(2) 1900	502.7	533.7			(2) 1900

MEDIUM TEMP THERMOBANK SYSTEMS

MODEL	MBH @ +25°F SST		EVAPORATOR FOR +35°F ROOM	
CTT	M22	M44	MSA (4 FPI)	CM (4 FPI)
0500M	52.1	52.8	465, 585	450
0700M			585, (2) 340	620
0800M			(2) 465	850, (2) 450
1000M	77.3	80.7	(2) 585	1100, (2) 450
1200M	85.5	95.0	(2) 585	1250, (2) 620
1500M	100.2	108.0		1350, 1600, (2) 850
2000M	112.5	118.9		1600, (2) 850
2500M	128.2	151.2		1800, 2100, (2) 1100
3000M	159.2	170.1		21,00, (2) 1100
3500M	205.2	222.9		(2) 1600
4000M	238.9	255.4		(2) 1600
5000M	275.8	285.9		(2) 1800
6000M	317.2	339.8		(2) 2100
7000M	555.0	584.1		(3) 1800

System selections are based on 95°F ambient and approximately 9 to 11° TD. Other balanced systems are available and can be customized for your specific application.

THERMOBANK SYSTEMS WITH 6 FPI EVAPORATORS

LOW TEMPERATURE THERMOBANK SYSTEMS WITH 6 FPI EVAPORATORS

MODEL CTT		EVAP FOR -10°F ROOM				EVAP FOR -20°F ROOM		
	-20° SST	LPG-T	CSG-T	CTV	-30°SST	LPG-T	CSG-T	CTV
0400L44	19.7	220	185		14.7	184	185	
0500L44	26.9	240, 265	270		20.5	220, 240	270	
0600L44	32.8	(2) 184	320		24.9	265	270	
0800L44	38.4	(2) 210	385	450	29.4	(2) 184	320	
0900L44	48.7	(2) 240	460	620	37.1	(2) 220	385	
1000L44	52.8	(2) 265	520	620	40.4	(2) 240	460	450
1200L44	60.7		(2) 320	620	46.5	(2) 265	520	450
1500L44	73.9		(2) 385	850	57.8		(2) 320	620
2200L44	87.5		(2) 460	850, (2) 450	67.6		(2) 385	620
2700L44	108.7		(2) 520	1070, (2) 620	82.6		(2) 460	850, (2) 450
3100L44	121.7			1220, 1360	92.7		(2) 520	1070, (2) 620
4400L44	175.1			1800, (2) 850	135.3			1360, (2) 620
5400L44	219.4			2100, (2) 1220	166.4			1800, (2) 850
6200L44	242.6			(2) 1360, (2) 1580	184.8			2100, (2) 1070

MEDIUM TEMPERATURE THERMOBANK SYSTEMS WITH 6 FPI EVAPORATORS

MODEL	MBH @ +10°SST		EVAPORATOR FOR +20°F ROOM			MBH @ +20° SST		EVAPORATOR FOR 430°F ROOM		
CTT	M22	M44	LPG-T	CSG-T	CTV	M22	M44	LPG-T	CSG-T	CTV
0500M	36.5	38.4	(2) 184, (2) 220	385	450	46.6	47.7	(2) 240	460 520,	450
0700M	51.2	55.7	(2) 240, (2) 265	520	450, 620	65.0	67.9	(2) 265	(2) 320	620
800M	64.6	67.7	(2) 265	520, (2) 320	620 850	80.5	82.8		(2) 385	850
1000M	77.3	80.7		(2) 385	850, (2) 450	95.2	98.3		(2) 460	1070, (2) 450
1200M	85.5	95.0		(2) 460		105.2	114.7		(2) 520	1070
1500M	100.2	108.0		(2) 520	1070 1220,	123.0	130.7			1220, (2) 620
2000M	112.5	118.9		(2) 520	(2) 620	137.6	143.5			1360, 1580
2500M	128.2	151.2			1360,1580	172.2	183.2			1800, (2) 850
3000M	159.2	170.1			1580, (2) 850	196.2	207.7			2100, (2) 1070
3500M	205.2	222.9			2100, (2) 1070	252.2	272.0			(2) 1360
4000M	238.9	255.4			(2) 1220	290.8	310.0			(2) 1580
5000M	275.8	285.9			(2) 1360	338.8	350.4			(2) 1800
6000M	317.2	339.8			(2) 1580	392.6	414.9			(2) 2100
7000M	410.2	440.3			(2) 2100	502.7	533.7			(2) 2100

MEDIUM TEMP THERMOBANK SYSTEMS

MODEL	MBH @ +25°F SST		EVAPORATOR FOR +35°F ROOM |	
CTT	M22	M44	MSA (6 FPI)	CM (6 FPI)
0500M	52.1	52.8	490, 620	520
0700M	72.3	74.6	620, (2) 370	710
0800M	89.3	91.0	(2) 415	970
1000M	77.3	80.7	(2) 490	970, (2) 520
1200M	85.5	95.0	(2) 620	1220, (2) 520
1500M	100.2	108.0	(2) 620	1390, (2) 710
2000M	112.5	118.9		1550, (2) 710
2500M	128.2	151.2		1810, 2060, (2) 970
3000M	159.2	170.1		2060, 2400, (2) 1220
3500M	205.2	222.9		2400, (2) 1390
4000M	238.9	255.4		(2) 1550
5000M	275.8	285.9		(2) 1810 (2) 2060,
6000M	317.2	339.8		(2) 2400 (2) 2400
7000M	555.0	584.1		

System selections are based on 95°F ambient and approximately 9 to 11° TD. Other balanced systems are available and can be customized for your specific application.