

Number One
Air Conditioning
Maker

Carrier

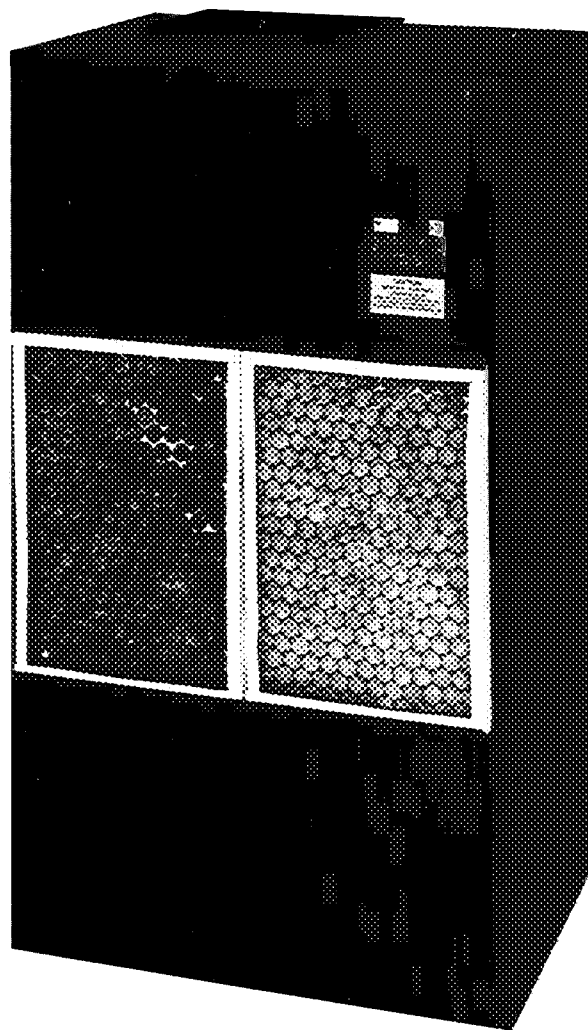
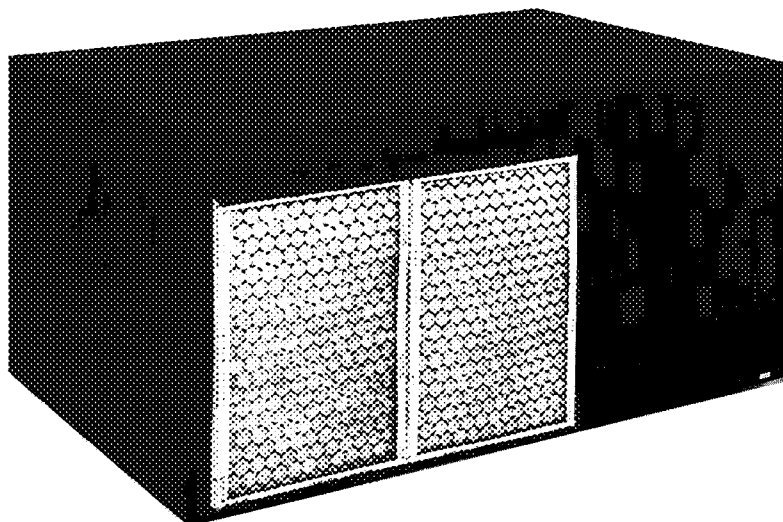
Advance Product Data 50HQ,VQ

Carrier Parkway • Syracuse, N.Y. 13221

CARRIER'S WATER SOURCE HEAT PUMPS

50VQ100,120,200,240

50HQ009,013,100,120



Book	1	4
Tab	5a	5a

3/85

PC 111

Form 50HQ,VQ-4APD New

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

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CARRIERS WATER SOURCE HEAT PUMPS BUILDING A BETTER SYSTEM

Water is an inexpensive energy source. Pound per pound, it carries approximately 4 times as much heat as air, that is the reason for the success of highly efficient Carrier water sourced heat pumps.

Carrier's packaged water source heat pumps operate in much the same manner as the conventional air source heat pumps, except that in lieu of an outdoor air coil and it's association to defrost cycles and uncontrolled ambient temperatures, there is a water-to-refrigerant heat exchanger. Water loop temperatures are controlled within a stable range by Carrier's accessory control systems. That means dependable, continuous and efficient system operation.

In the cooling mode, heat is extracted from the indoor space and transferred to the refrigerant which then rejects it to the water medium. In the heating mode, heat is absorbed by the water medium and transferred to the refrigerant which then rejects the heat into the conditioned space.

Dehumidification is achieved on the cooling cycle by removal of moisture from the air in the form of condensation.

The major components of the Carrier water source heat pump consists of a heat pump qualified hermetic compressor, coaxial tube-in-tube heat exchanger, highly efficient finned refrigerant to air heat exchanger, blower motor and metering device all leading to an almost maintenance and trouble free unit.

Spanning a range of 31 units, Carrier's complete line can match cooling capacities from 7,400 Btuh to 242,000 Btuh. Heating capacities range from 9,000 Btuh to 252,000 Btuh.

All units are acoustically lined for quiet operation. Console units include attractive beige cabinets which fit right in with room or office decor. The vertical unit is compact and easily tucks away in a closet or mechanical room. Horizontal units are ideal for a crawl space or above a suspended ceiling.

Installation is quick and easy...units are compact and self contained resulting in lower field installed cost. Units are wired, tested and charged at the factory...ready to operate upon reaching the job site. After unit placement, connect water piping, wiring, condensate drain and ductwork and the unit is ready to provide efficient, reliable cooling and heating. Console units do not require ductwork...place them in the conditioned space, make connections on the reversible chassis and they are ready to operate.

The 50HQ,VQ,BQ series water source heat pumps are very efficient on both heating and cooling. Energy efficiency ratios on cooling range to 11.9. The C.O.P.'s on heating are 3.9 which means heat pumps that deliver almost 4 units of heat energy for each unit of electrical energy consumed.

Carrier's full line of accessories and options provide the convenience and assurance of single source responsibility.

FEATURES THAT PROVIDE

EASY & LOW COST INSTALLATION

FACTORY FURNISHED FILTER BRACKETS & THROWAWAY FILTERS
FOR EXTRA ESP VARIABLE FAN SPEED SELECTION THRU DIRECT DRIVE
(009,013) OR BELT DRIVE (100-240)
FPT WATER CONNECTIONS
VERTICAL UNITS (100-240) DIMENSIONALLY FITS THRU ANY
COMMERCIAL DOORWAY
11 INCH HORIZONTAL HEIGHT (009,013) FIT ANY CEILING SPACE
FACTORY FURNISHED HANGER BRACKETS (009,013)

EASY MAINTENANCE

SERVICE PORTS FOR REFRIGERANT CHARGING AND PRESSURE CHECKS
ADEQUATELY SIZED ACCESS PANELS

QUIET OPERATION

COMPRESSOR MOUNTED OUTSIDE AIRSTREAM
INSULATED PANELS
RIGID CONSTRUCTION

LOW UTILITY BILLS

EER'S AND COP'S UP TO 11.0 AND 3.9 RESPECTIVELY

RELIABILITY

EXTENDED WARRANTY OPTION COVERAGE
HEAT PUMP QUALIFIED FULLY HERMETIC COMPRESSOR AND
REFRIGERATION COMPONENTS INCLUDING SAFETY CUTOUT CIRCUITS
DUAL INDEPENDENT REFRIGERATION CIRCUITS - VQ 200,240
CARRIER'S COMMITMENT TO QUALITY DESIGN

PERFORMANCE DATA

ARI RATINGS

UNIT SIZE	VOLT- AGE	COOLING					HEATING				NOMINAL	
		TQ	TSQ	THR	KW	EER	TQ	THA	KW	COP	CFM	GPM
009	208/230 265	9100	6825	12100	.825	11.0	12000	8900	.900	3.9	315	2.2
013	208/230 265	12800	8384	17400	1.26	10.2	16500	11800	1.40	3.5	365	3.3
100	208/230 30 460 30	102000	75000	132000	9.10	10.5	120000	68900	8.7	3.7	3500	28.0
120	208/230 30 460 30	121000	91000	159000	11.5	10.0	126000	80100	11.3	3.3	4200	34.0

TQ - TOTAL CAPACITY
 TSQ - TOTAL SENSIBLE CAPACITY
 THR - TOTAL HEAT OF REJECTION
 THA - TOTAL HEAT OF ABSORPTION
 KW - TOTAL POWER INPUT
 CFM - CUBIC FEET PER MINUTE
 GPM - GALLONS PER MINUTE
 EER - ENERGY EFFICIENCY RATIO
 COP - COEFFICIENT OF PERFORMANCE



Rated in accordance with
ARI Standard 320-81

Cooling Standard 80 F db, 67 F wb indoor entering air temperature
and 85 F entering, 95 F leaving water temperature

Heating Standard 70 F db indoor entering air temperature and 70 F
entering water temperature

PHYSICAL DATA

UNIT SIZE	009	013	100	120	200	240
R-22 FACTORY CHARGE (LB-OZ) ... CIRCUITS	0-15	0-18	8-0	11-0	8-0...2	11-0...2
METERING DEVICE	CAP. TUBE		THERMAL EXPANSION VALVE			
FAN MOTOR H.P. (QTY)	1/10	1/10	1.5	2.0	1.5 (2)	2.0 (2)
MOTOR RPM (NOMINAL)	1075		1725			
WATER-TO-REFRIGERANT HEAT EXCHANGER	TUBE-IN-TUBE					
WATER CONNECTIONS (INCH)	$\frac{1}{2}$	$\frac{1}{2}$	1.0	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
WATER FLOW RANGE	1.5-3.0	2.0-3.5	14.0-33.0	17.0-40.0	28.0-66.0	34.0-80.0
AIR-TO-REFRIGERANT HEAT EXCHANGER						
ROWS..FINS PER IN.	3.....14	5.....14	3.....12	4.....12	3.....12	4.....12
TUBE SIZE (IN)	3/8	3/8	1/2			
COMPRESSOR TYPE	FULLY HERMETIC					
QUANTITY	1				2	
R.P.M.	3500					
OPER. WHT. LBS. $\frac{HQ}{VQ}$	95 --	110 ---	960 960	1005 1005	---- 1800	---- 1960
FILTER SIZE. QTY $\frac{HQ}{VQ}$	10x16x1.1 ---	10x16x1.1 ---	20x28x2.2 20x28x2.2	20x28x2.2 20x28x2.2	--- 20x28x2.4	--- 20x28x2.4

ELECTRICAL DATA

UNIT MODEL		VOLTAGE-PH-HZ	OPERATING VOLTAGE		COMPRESSOR EACH		FAN EACH	MIN CIRCUIT AMPS	MAX FUSE SIZE
			MIN	MAX	FLA	LRA	FLA		
HQ	009	208/230-1-60	197	253	3.5	20.0	0.7	5.1	15
		265-1-60	249	305	3.1	16.0	0.7	4.6	15
HQ	013	208/230-1-60	197	253	5.5	31.2	0.7	7.6	15
		265-1-60	249	305	4.8	27.0	0.7	6.7	15
HQ VQ	100	208/230-1-60	187	253	27.0	194.0	5.2	38.9	60
		460-3-60	414	506	13.0	97.0	2.6	18.8	30
HQ VQ	120	208/230-1-60	187	253	32.0	194.0	6.8	46.8	70
		460-3-60	414	506	16.0	97.0	3.4	23.4	35
VQ	200	208/230-1-60	187	253	27.0	194.0	5.2	71.2	90
		460-3-60	414	506	13.0	97.0	2.6	34.5	45
VQ	240	208/230-1-60	187	253	32.0	194.0	6.8	85.6	110
		460-3-60	414	506	16.0	97.0	3.4	42.8	50

NOTE: MODEL 200 & 240 CONTAIN TWO COMPRESSORS AND FAN MOTORS

FLA - FULL LOAD AMPS
LRA - LOCKED ROTOR AMPS
RLA - RATED LOAD AMPS

WATER TABLE

PRESSURE DROP

UNIT SIZE	WATER FLOW RATE (G.P.M.)	WATER SIDE ΔP (FT. H ₂ O)
009	1.5	3.9
	2.0	6.7
	2.5	10.4
	3.0	14.8
013	2.0	1.7
	2.5	2.5
	3.0	3.5
	3.5	4.5
100	17.0	10.8
	22.0	14.0
	24.0	14.4
	27.0	14.9
	33.0	22.5
120	20.0	8.5
	26.0	11.5
	29.0	12.5
	33.0	13.3
	40.0	19.8
200	34.0	10.8
	44.0	14.0
	48.0	14.4
	54.0	14.9
	66.0	22.5
240	40.0	8.5
	52.0	11.5
	58.0	12.5
	66.0	13.3
	80.0	19.8

FAN PERFORMANCE

*RATED NOMINAL C.F.M.

SIZE	CFM	EXTERNAL STATIC PRESSURE (WET COIL)
9	350	.05
	*315	.10
	278	.15
	240	.20
	202	.25

SIZE	CFM	EXTERNAL STATIC PRESSURE (WET COIL)
13	375	.05
	* 365	.10
	348	.15
	325	.20
	292	.25
	255	.30

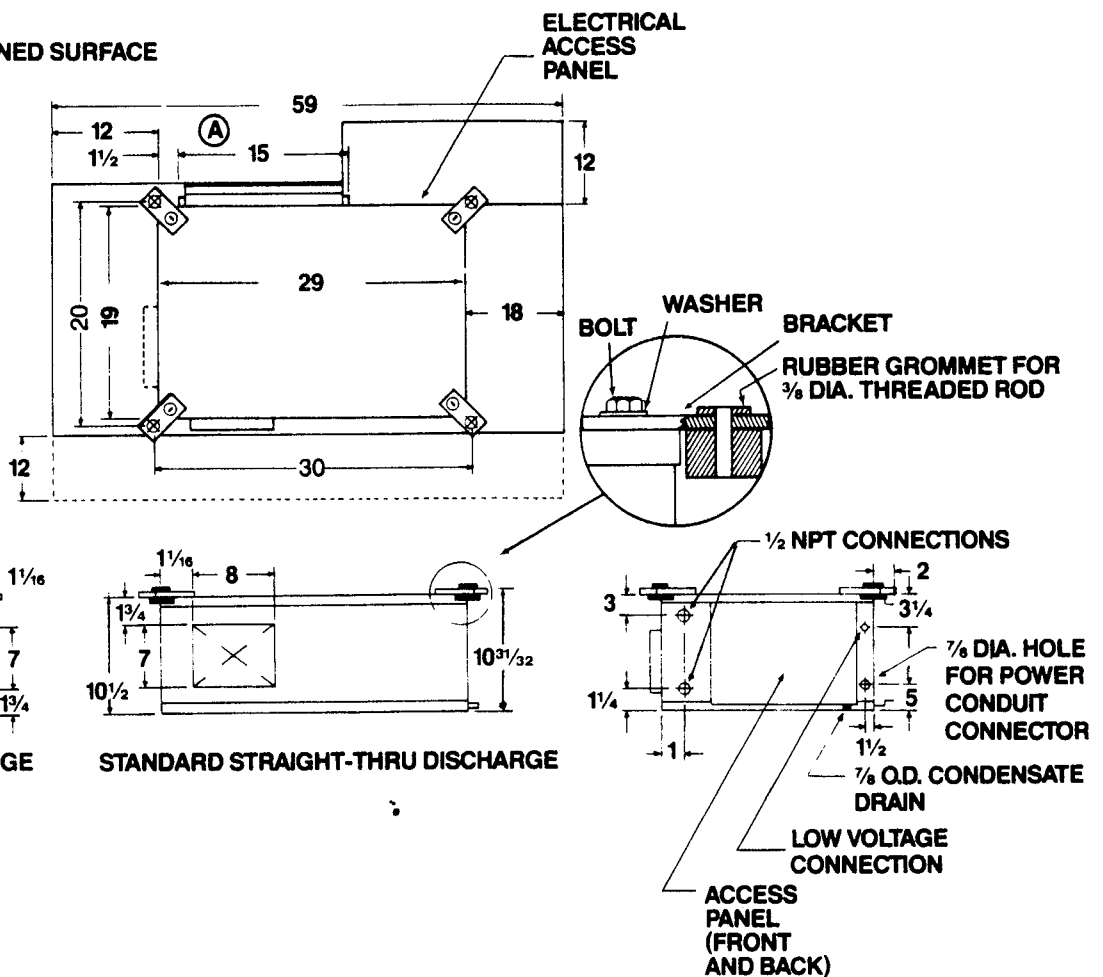
UNIT SIZE	MOTOR SHEAVE POSITION	EXTERNAL STATIC PRESSURE - INCHES OF WATER							
		.3	.4	.5	.6	.7	.8	.9	1.0
100	CLOSED	—	—	—	—	—	4090	3830	3560
	1 TURN OPEN	—	—	—	—	4075	3830	3540	3250
	2 TURNS OPEN	—	—	—	4030	3775	3500	—	—
	3 TURNS OPEN	—	—	4025	3750	3465	—	—	—
	4 TURNS OPEN	—	3980	3720	3430	—	—	—	—
	5 TURNS OPEN	3900	3625	3330	—	—	—	—	—
120	CLOSED	—	—	—	—	4475	4280	4040	3770
	1 TURN OPEN	—	—	—	4500	4260	4020	3750	—
	2 TURNS OPEN	—	—	4470	4250	4000	3750	—	—
	3 TURNS OPEN	4630	4430	4200	3940	3675	—	—	—
	4 TURNS OPEN	4375	4160	3930	3670	—	—	—	—
	5 TURNS OPEN	4100	3610	3580	—	—	—	—	—
200	CLOSED	—	—	—	—	—	8180	7660	7120
	1 TURN OPEN	—	—	—	—	8150	7660	7080	6500
	2 TURNS OPEN	—	—	—	8060	7550	7000	—	—
	3 TURNS OPEN	—	—	8050	7500	6930	—	—	—
	4 TURNS OPEN	—	7960	7440	6860	—	—	—	—
	5 TURNS OPEN	7800	7250	6660	—	—	—	—	—
240	CLOSED	—	—	—	—	8950	8560	8080	7540
	1 TURN OPEN	—	—	—	9000	8520	8040	7500	—
	2 TURNS OPEN	—	—	8940	8500	8000	7500	—	—
	3 TURNS OPEN	9260	8860	8400	7880	7350	—	—	—
	4 TURNS OPEN	8750	8330	7860	7340	—	—	—	—
	5 TURNS OPEN	8200	7220	7160	—	—	—	—	—

PHYSICAL DIMENSIONS

50HQ 009,013

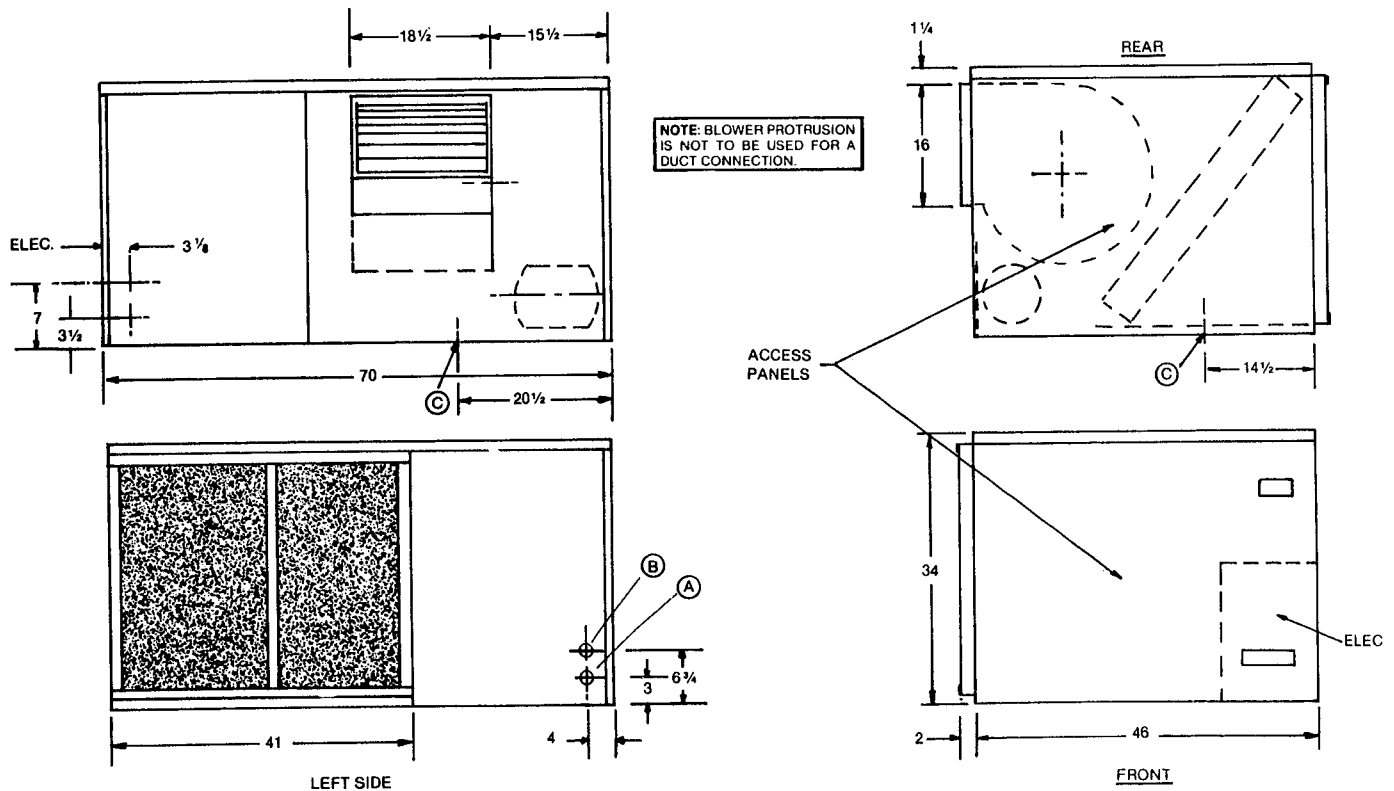
A

DIMENSION IS FINNED SURFACE
OF AIR COIL.



PHYSICAL DIMENSIONS (cont)

50HQ 100,120

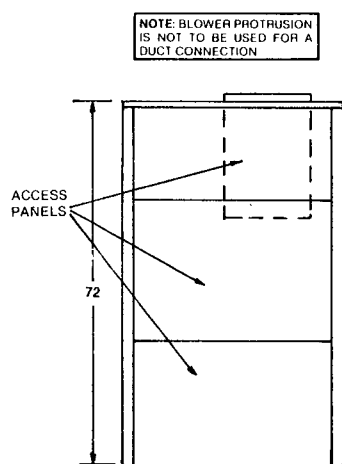


PIPING CONNECTIONS

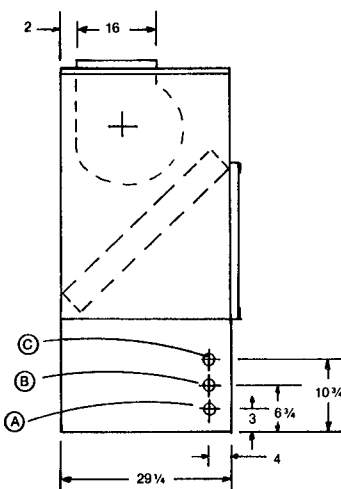
- (A) CONDENSER WATER INLET: MODEL 1000 1" F P T
MODEL 1200 1¼" F P T
- (B) CONDENSER WATER OUTLET: MODEL 1000 1" F P T
MODEL 1200 1¼" F P T
- (C) CONDENSATE DRAIN CONNECTION: 1" F P T (BOTH MODELS)

PHYSICAL 50VQ 100,120

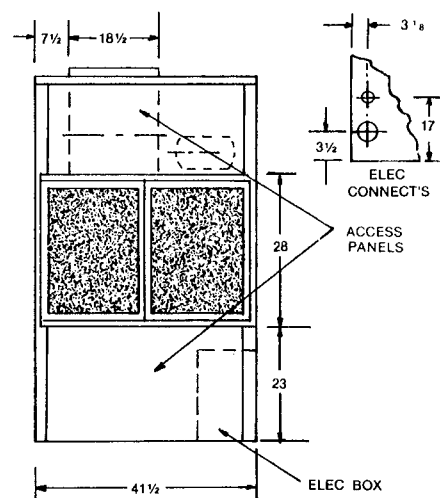
DIMENSIONS (cont)



REAR



SIDE



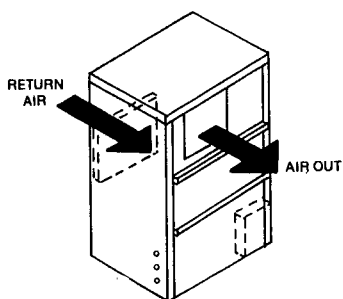
FRONT

PIPING CONNECTIONS

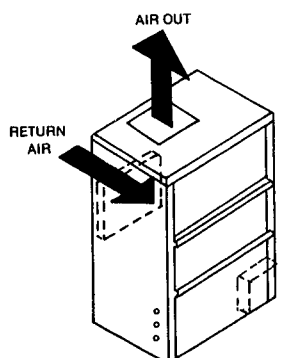
- A CONDENSER WATER INLET: MODEL 1000 1" F P T
MODEL 1200 1 1/4" F P T
- B CONDENSER WATER OUTLET: MODEL 1000 1" F P T
MODEL 1200 1 1/4" F P T
- C CONDENSATE DRAIN CONNECTION: 1" F P T (BOTH MODELS)

AIR CONFIGURATIONS

OPTIONAL MODELS

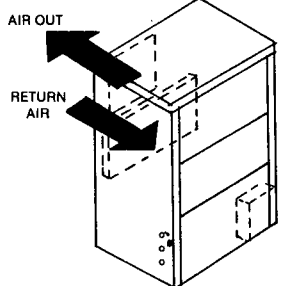


REAR RETURN FRONT BLOW

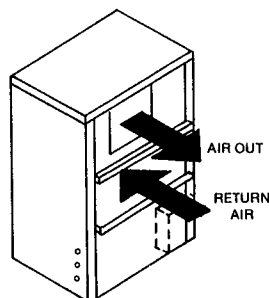


REAR RETURN TOP BLOW

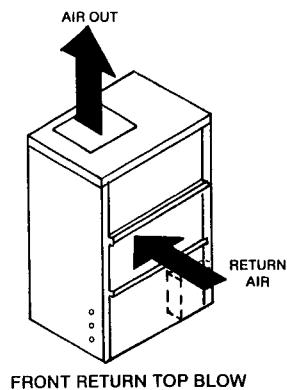
STANDARD MODELS



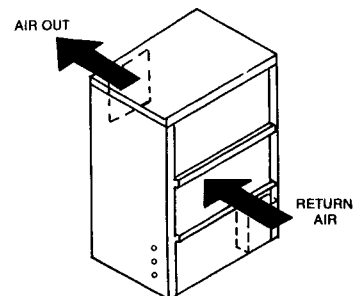
REAR RETURN REAR BLOW



FRONT RETURN FRONT BLOW



FRONT RETURN TOP BLOW

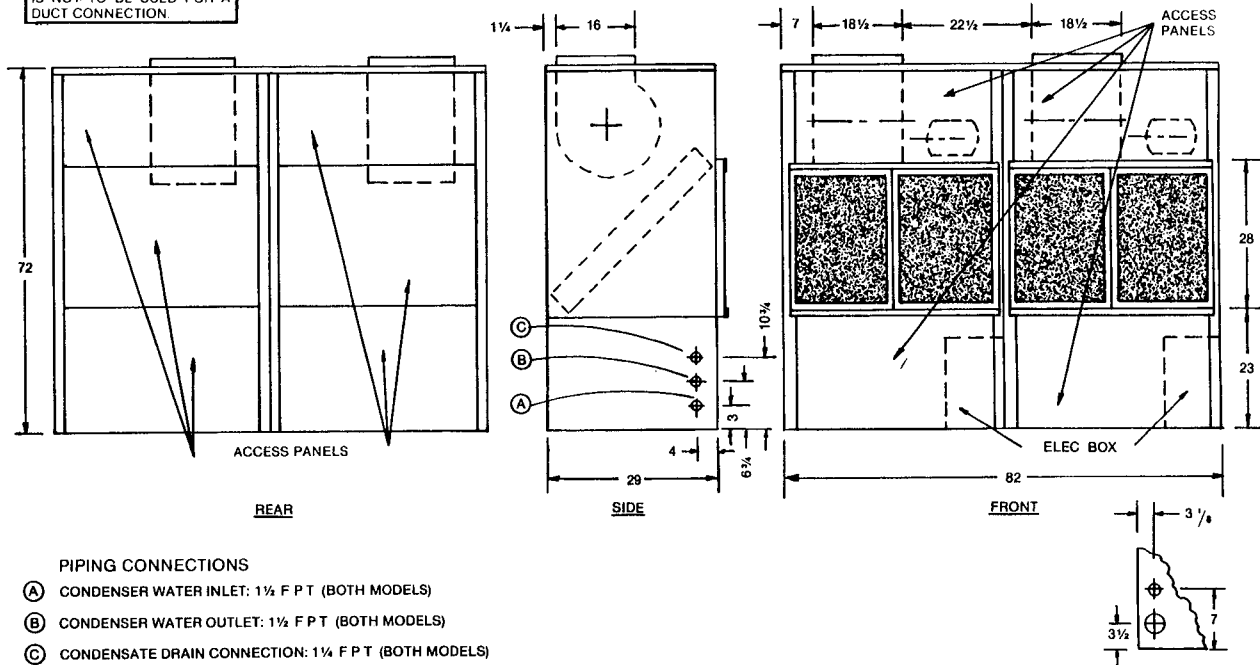


FRONT RETURN REAR BLOW

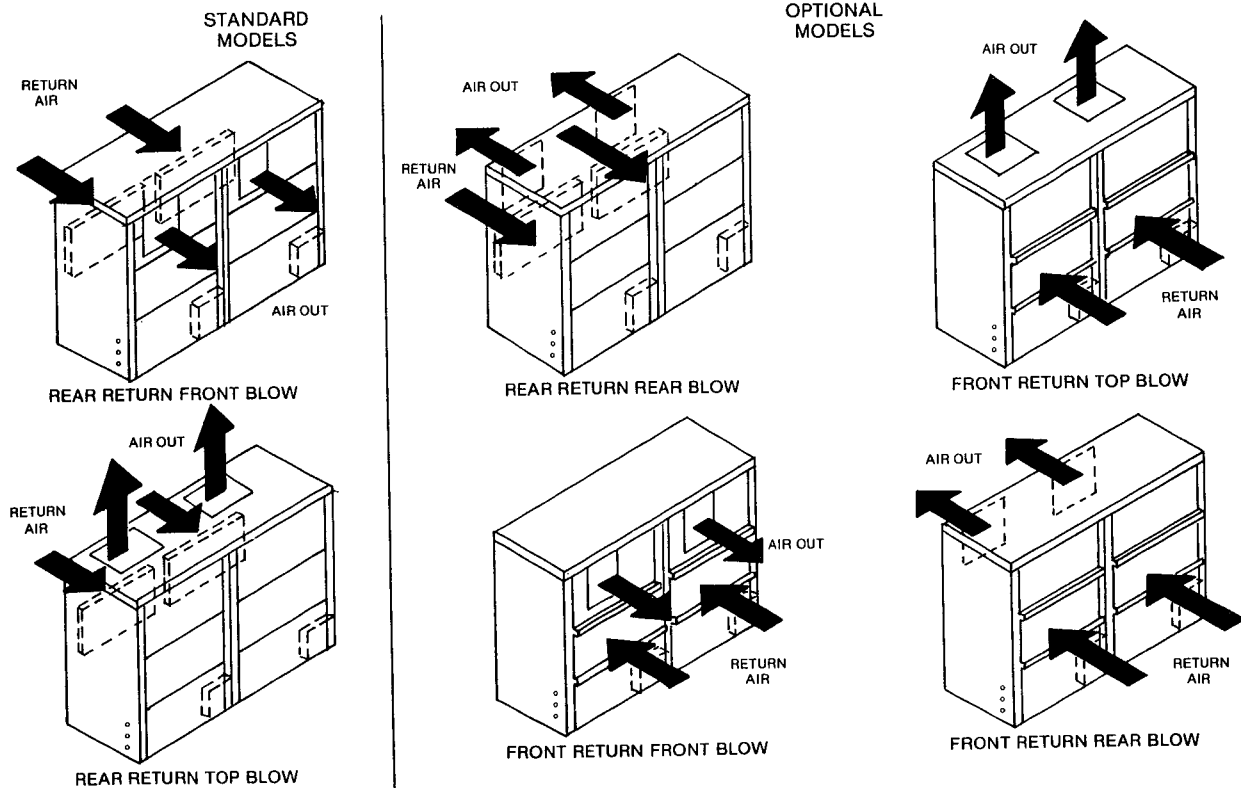
PHYSICAL 50VQ 200,240

DIMENSIONS (cont)

NOTE: BLOWER PROTRUSION IS NOT TO BE USED FOR A DUCT CONNECTION.



AIR CONFIGURATIONS



SELECTION PROCEDURE

50HQ009,013

(WITH EXAMPLE)

Given:

Total Cooling Capacity	11,925
Total Sensible Capacity	8,300
Total Heating Capacity	14,500
Required CFM	345
Required External Static Pressure	.15 Wg

Design Conditions:

Ent Water Temperature (Heating)	60 F
Ent Water Temperature (Cooling)	90 F
Ent Air Temperature Dry-Bulb (summer)	80 F
Ent Air Temperature Dry-Bulb (winter)	65 F
Ent Air Temperature Wet-Bulb	66 F
G.P.M. Per Ton	2.5
Location	Ceiling

I

Refer to Performance Data Table and reference the nearest capacities and CFM ratings for the given conditions.

Select: 50HQ013 (ceiling mounted)

II

Refer to Fan Performance Data Table (013 size). Determine rated nominal C.F.M. Calculate the percentage difference between nominal and required C.F.M.

50HQ013 = 365 cfm to 345 cfm = 95 % of nom.

III COOLING RATINGS

A. General Ratings:

Refer to Cooling Capacity Table and reference 90 EWT at 2.5 GPM

Total Capacity	12,100
Total Heat of Rej.	16,700
Total Kw	1.35

B. CFM Corrected Ratings:

Refer to curve 1 and determine correction factors for data collected in step III at 95 % of nominal Cfm the following is determined.

Total Capacity	- 12,100 x .985 = 11,919
Total Heat of Rej.	16,700 x .98 = 16,366
Total Kw	- 1.35 x .99 = 1.34

C. Wet-Bulb Corrected Ratings:

Refer to curve 2 and determine correction factors at design wet-bulb temperatures. Calculate into ratings established in step B.

The following is determined:

Total capacity	- 11,919 x .988 = 11,776
Total Heat of Rej	- 16,366 x .988 = 16,170
Total Kw	- 1.34 x .99 = 1.33

IV SENSIBLE RATINGS

Cooling Sensible Capacity:

Refer to Sensible Heat Ratio Table and determine correction factor for the given entering dry and wet bulb temperatures. Calculate this factor into the total capacity determined in (Step IIIA).

For the example, the following is established.

12,100 x .69 = 8349.00

V HEATING RATINGS

A. Heating Capacity

Refer to the Heating Capacity Table and reference 60°F E.W.T. at 2.5 GPM.

Establish:

Total Heating Capacity	- 15,100
Total Heat of Absorption	- 10,500
Total Kw	- 1.33

B. Refer to curve 3 and determine correction factors for data collected in Step V. At 95 % of nominal cfm the following is determined.

Total Heating Capacity	15,100 x .985 = 14,874
Total Heat of Rej.	10,500 x .97 = 10,185
Total Kw	1.33 x 1.025 = 1.36

C. Refer to curve 4 and determine dry-bulb correction factor for heating capacity only, determined in step B.

The following is obtained:

14,874 x 1.024 = 15,231

SELECTION PROCEDURE (cont.)

50HQ009,013

(WITH EXAMPLE)

VI Water Coil Pressure Drop

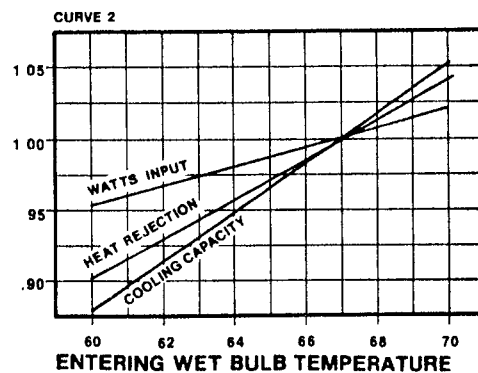
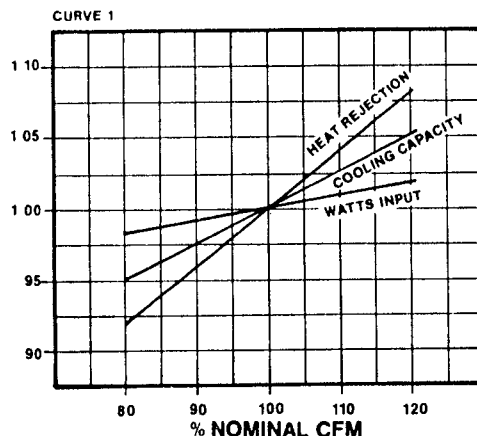
Refer to Water Table Pressure Drop and reference the GPM and unit selected (50HQ013).

The 50HQ013 at 2.5 gpm has a 2.5 Delta P in ft. of head.

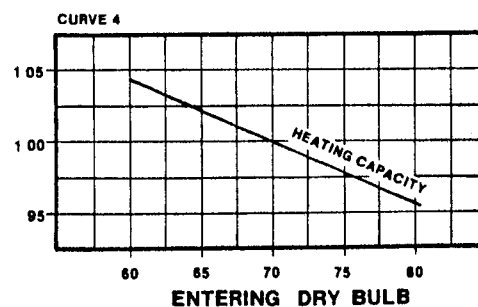
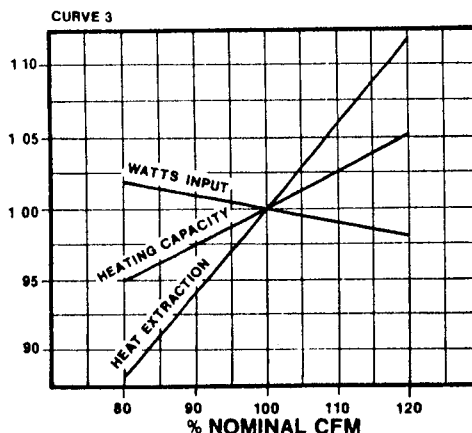
As a final result, the following has been determined at the given conditions:

Total Cooling Capacity	-	11,776
Total Sensible Capacity	-	8,349
Total Heating Capacity	-	15,231
Total Heat of Rejection	-	16,170
Total Heat of Absorption	-	10,185
Total Kw (cooling)	-	1.33
Total Kw (heating)	-	1.36

COOLING CORRECTION FACTOR



HEATING CORRECTION FACTOR



SELECTION PROCEDURE

50HQ,VQ100 - 240

(WITH EXAMPLE)

Given:

Total Cooling Capacity	110,000
Total Sensible Capacity	96,000
Total Heating Capacity	116,000
Required CFM	4,175
Required Ext. Static Pressure	.50

Design Conditions:

Ent Water Temperature (heating)	60 F
Ent Water Temperature (cooling)	95 F
Ent Air Temperature Dry-Bulb (summer)	85 F
Ent Air Temperature Dry-Bulb (winter)	65 F
Ent Air Temperature Wet-Bulb	73 F
G.P.M. Per Ton	3.5
Location	Mechanical Room

I

Refer to the Performance Data Table and reference the nearest capacity and cfm ratings for the given conditions.

Select: 50VQ120 (floor mounted)

II COOLING RATINGS

A. General Ratings

Refer to the Capacity Data Table for 50VQ120 and reference the entering water temperatures, entering wet bulb temperature and required cfm.

The following is established:

Total Cooling Capacity	110,400
Total Heat of Rejection	151,850
Total Kw	12.14

III SENSIBLE RATINGS

Refer again to the Capacity Data Table for 50VQ120 and reference the Design Conditions as in Step II.

The following is established:

Total Sensible Capacity	96,050
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IV HEATING RATINGS

A. Refer to the Heating Capacity Table and reference the 60 F entering water temperature and the required gpm points.

The following is established:

Total Heating Capacity	115,300
Total Heat of Absorption	80,250
Total Kw	11.40

B. Refer to the variation of Entering Air for Heat Table for Design Air Conditions other than 70 F.

In this example the design conditions require 65 F entering air dry-bulb for winter conditions.

As a result, the following is established:

Total Htg. Capacity	$115,300 \times 1.03 = 118,759$
Total Heat of Absorp.	$80,250 \times 1.04 = 83,460$
Total Kw	$11.40 \times .99 = 11.3$

50HQ009

CAPACITY DATA

COOLING

	60° EWT			70° EWT			80° EWT			90° EWT		
	TC	THR	KW	TC	THR	KW	TC	THR	KW	TC	THR	KW
1.5												
2.0	10.2	12.7	.728	9.5	12.1	.761	8.8	11.6	.808	8.4	11.4	.861
2.5	10.4	12.9	.721	9.8	12.4	.753	9.2	11.9	.800	8.7	11.6	.857
3.0	10.7	13.0	.716	10.1	12.7	.750	9.6	12.3	.794	9.1	12.0	.851
3.0	10.9	13.3	.710	10.5	13.0	.712	9.9	12.6	.791	9.4	12.3	.845

SENSIBLE HEAT RATIO TABLE

ENTERING AIR DRY BULB (F°)	ENTERING AIR WET BULB (F°)						
	60°	62°	64°	66°	67°	68°	70°
75°	.91	.80	.71	.63	.59	.55	.47
80°	1.00	.94	.86	.78	.75	.71	.64
85°	1.00	1.00	1.00	.96	.93	.89	.81

HEATING

GPM	60° EWT			70° EWT			80° EWT			90° EWT		
	TC	THA	KW	TC	THA	KW	TC	THA	KW	TC	THA	KW
1.5	10.5	7.7	.859	11.7	8.6	.893	12.8	9.7	.916	13.6	10.4	.926
2.0	10.7	7.8	.861	11.8	8.8	.898	13.0	9.8	.922	13.8	10.6	.931
2.5	10.8	7.9	.865	12.1	9.0	.903	13.1	9.9	.926	13.9	10.7	.936
3.0	11.0	8.0	.869	12.2	9.1	.907	13.2	10.0	.931	14.0	10.8	.940

50HQ013

CAPACITY DATA

COOLING

GPM	60° EWT			70° EWT			80° EWT			90° EWT		
	TC	THR	KW	TC	THR	KW	TC	THR	KW	TC	THR	KW
2.0	13.8	17.7	1.13	13.0	17.1	1.21	12.3	16.7	1.30	11.8	16.5	1.39
2.5	14.1	18.0	1.10	13.3	17.3	1.18	12.6	16.9	1.26	12.1	16.7	1.35
3.0	14.3	18.4	1.06	13.6	17.6	1.14	12.9	17.1	1.23	12.4	16.9	1.32
3.5	14.7	18.8	1.04	13.9	17.9	1.12	13.1	17.4	1.20	12.7	17.1	1.29

SENSIBLE HEAT RATIO TABLE

ENTERING AIR DRY BULB (F°)	ENTERING AIR WET BULB (F°)						
	60°	62°	64°	66°	67°	68°	70°
75°	.86	.74	.65	.57	.54	.50	.44
80°	.99	.88	.78	.69	.65	.62	.50
85°	1.00	.98	.90	.83	.80	.77	.72

HEATING

GPM	60° EWT			70° EWT			80° EWT			90° EWT		
	TC	THA	KW	TC	THA	KW	TC	THA	KW	TC	THA	KW
2.0	15.0	10.4	1.31	16.2	11.5	1.37	17.1	12.3	1.41	17.8	12.9	1.43
2.5	15.1	10.5	1.33	16.3	11.6	1.38	17.3	12.4	1.42	17.9	13.0	1.44
3.0	15.2	10.6	1.34	16.4	11.7	1.39	17.4	12.5	1.43	18.0	13.1	1.46
3.5	15.3	10.7	1.35	16.6	11.8	1.40	17.5	12.6	1.44	18.2	13.2	1.46

CAPACITY DATA

50VQ 100,120,200,240

50HQ 100,120

COOLING CAPACITY DATA

UNIT SIZE	Ent. Air Quantity BTUH	75°F ENTERING WATER										85°F ENTERING WATER										95°F ENTERING WATER										CFM	
		Heat Rejection BTUH	Power Input Wats	Sensible Capacity BTUH					Heat Rejection BTUH	Power Input Wats	Sensible Capacity BTUH					Heat Rejection BTUH	Power Input Wats	Sensible Capacity BTUH															
				75°	80°	85°	90°	95°			75°	80°	85°	90°	95°			75°	80°	85°	90°	95°											
100	61	98550	119300	9000	76150	85000	95000	105000	115000	125000	84400	118600	92100	72600	110900	131000	110900	118600	92100	72600	110900	131000	110900	118600	92100	72600	110900	131000	110900	118600	92100	72600	3150
	67	93550	112350	8230	71550	80500	89500	98500	107500	116500	80400	113600	87400	67000	105300	125400	105300	113600	87400	67000	105300	125400	105300	113600	87400	67000	105300	125400	105300	113600	87400	67000	2850
	73	90550	109350	7840	68550	77500	86500	95500	104500	113500	77400	110600	84400	64000	102300	122400	102300	110600	84400	64000	102300	122400	102300	110600	84400	64000	102300	122400	102300	110600	84400	64000	2550
	79	87550	106350	7430	65550	74500	83500	92500	101500	110500	74400	107600	81400	61000	99300	119400	99300	107600	81400	61000	99300	119400	99300	107600	81400	61000	99300	119400	99300	107600	81400	61000	2250
	79	84550	103350	7030	62550	71500	80500	89500	98500	107500	71400	104600	78400	58000	95700	115800	95700	104600	78400	58000	95700	115800	95700	104600	78400	58000	95700	115800	95700	104600	78400	58000	1950
120	61	118550	148000	10375	95100	106100	117100	128100	139100	150100	106300	141700	106300	90500	131100	151200	131100	141700	106300	90500	131100	151200	131100	141700	106300	90500	131100	151200	131100	141700	90500	90500	3750
	67	113550	140800	9660	90600	101600	112600	123600	134600	145600	101100	136500	101100	85300	125900	146000	125900	136500	101100	85300	125900	146000	125900	136500	101100	85300	125900	146000	125900	136500	85300	85300	3450
	73	110550	136800	91100	87600	98600	109600	120600	131600	142600	98000	133400	98000	82200	122500	142600	122500	133400	98000	82200	122500	142600	122500	133400	98000	82200	122500	142600	122500	133400	82200	82200	3150
	79	107550	132800	8660	84600	95600	106600	117600	128600	139600	95000	130400	95000	79200	119300	139600	119300	130400	95000	79200	119300	139600	119300	130400	95000	79200	119300	139600	119300	130400	79200	79200	2850
	79	104550	128800	8260	81600	92600	103600	114600	125600	136600	92000	126400	92000	76200	116300	136600	116300	126400	92000	76200	116300	136600	116300	126400	92000	76200	116300	136600	116300	126400	76200	76200	2550
200	61	177100	238600	18000	152000	162000	172000	182000	192000	202000	169800	231700	169800	184200	204300	224400	204300	231700	169800	184200	204300	224400	224400	231700	169800	184200	204300	224400	224400	231700	184200	184200	6500
	67	174100	234600	17680	149000	159000	169000	179000	189000	199000	166800	228700	166800	183200	203300	223400	203300	228700	166800	183200	203300	223400	223400	228700	166800	183200	203300	223400	223400	228700	183200	183200	6200
	73	171100	231600	17280	146000	156000	166000	176000	186000	196000	163800	225700	163800	181200	201300	221400	201300	225700	163800	181200	201300	221400	221400	225700	163800	181200	201300	221400	221400	225700	181200	181200	5800
	79	168100	228600	16880	143000	153000	163000	173000	183000	193000	160800	222700	160800	179200	199300	219400	199300	222700	160800	179200	199300	219400	219400	222700	160800	179200	199300	219400	219400	222700	179200	179200	5400
	79	165100	225600	16480	140000	150000	160000	170000	180000	190000	157800	219700	157800	177200	197300	217400	197300	219700	157800	177200	197300	217400	217400	219700	157800	177200	197300	217400	217400	219700	177200	177200	5000
240	61	221100	292000	22750	193200	203200	213200	223200	233200	243200	216600	288500	216600	231700	251800	271900	251800	288500	216600	231700	251800	271900	271900	288500	216600	231700	251800	271900	271900	288500	231700	231700	7500
	67	218100	289000	22450	190200	200200	210200	220200	230200	240200	213600	285500	213600	228700	248800	268900	248800	285500	213600	228700	248800	268900	268900	285500	213600	228700	248800	268900	268900	285500	228700	228700	7100
	73	215100	286000	22150	187200	197200	207200	217200	227200	237200	210600	282500	210600	225700	245800	265900	245800	282500	210600	225700	245800	265900	265900	282500	210600	225700	245800	265900	265900	282500	225700	225700	6700
	79	212100	283000	21850	184200	194200	204200	214200	224200	234200	207600	279500	207600	222700	242800	262900	242800	279500	207600	222700	242800	262900	262900	279500	207600	222700	242800	262900	262900	279500	222700	222700	6300
	79	209100	280000	21550	181200	191200	201200	211200	221200	231200	204600	276500	204600	219700	239800	259900	239800	276500	204600	219700	239800	259900	259900	276500	204600	219700	239800	259900	259900	276500	219700	219700	5900

HEATING CAPACITY DATA

UNIT SIZE	Ent. Air Dry Bulb °F	75°F Entering Water Temperature					80°F Entering Water Temperature					85°F Entering Water Temperature					CFM
		Heat Rejection BTUH	Power Input Wats	Heating Capacity BTUH	Heat of Absorption BTUH	Power Input Wats	Heat Rejection BTUH	Power Input Wats	Heating Capacity BTUH	Heat of Absorption BTUH	Power Input Wats	Heat Rejection BTUH	Power Input Wats	Heating Capacity BTUH	Heat of Absorption BTUH	Power Input Wats	
100	70°	22310	53160	5515	69320	78100	8360	18730	92015	10060	10650	10650	10650	10650	10650	10650	10650
	70°	92555	98885	9590	107165	79050	9590	122700	105555	10255	10255	10255	10255	10255	10255	10255	10255
	70°	94940	72500	5110	111875	87160	87160	97950	78110	105555	10555	10555	10555	10555	10555	10555	10555
	70°	111200	70710	11150	126615	95835	12720	150600	115330	13065	13065	13065	13065	13065	13065	13065	13065
	70°	120170	94150	11975	138555	95330	12535	156290	119760	13795	13795	13795	13795	13795	13795	13795	13795
120	70°	26710	61610	6360	79320	88100	9360	19730	92015	10060	10650	10650	10650	10650	10650	10650	10650
	70°	97555	103885	9990	107165	79050	9590	122700	105555	10255	10255	10255	10255	10255	10255	10255	10255
	70°	99940	72500	5110	111875	87160	87160	97950	78110	105555	10555	10555	10555	10555	10555	10555	10555
	70°	111200	70710	11150	126615	95835	12720	150600	115330	13065	13065	13065	13065	13065	13065	13065	13065
	70°	120170	94150	11975	138555	95330	12535	156290	119760	13795	13795	13795	13795	13795	13795	13795	13795
240	70°	22310	53160	5515	69320	78100	8360	18730	92015	10060	10650	10650	10650	10650	10650	10650	10650
	70°	92555	98885	9590	107165	79050	9590	122700	105555	10255	10255	10255	10255	10255	10255	10255	10255
	70°	94940	72500	5110	111875	87160	87160	97950	78110	105555	10555	10555	10555	10555	10555	10555	10555
	70°	111200	70710	11150	126615	95835	12720	150600	115330	13065	13065	13065	13065	13065	13065	13065	13065
	70°	120170	94150	11975	138555	95330	12535	156290	119760	13795	13795	13795	13795	13795	13795	13795	13795



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