

Selection Procedure

Heat of Rejection Method

The heat of rejection selection method is similar to the evaporator ton method in that once the heat of rejection is known, the factor for the specified operating conditions (condensing temperature and wet bulb temperature) is obtained from Table 5 or 6 and multiplied times the heat rejection. The resultant figure is used to select a unit from Table 4. Unit Capacities are given in Table 4 in thousands of BTU/Hr or MBH.

If the heat of rejection is not known it can be determined by one of the following formulas:

Open Compressors

$$\text{Heat of Rejection} = \text{Evaporator Load (BTU/Hr)} + \text{Compressor BHP} \times 2545$$

Hermetic Compressors

$$\text{Heat of Rejection} = \text{Evaporator Load (BTU/Hr)} + \text{K.W. Compressor Input} \times 3415$$

EXAMPLE

Given: 270 ton load, ammonia refrigerant 96.3° condensing temperature, 78° W.B. temperature and 300 compressor BHP

Selection: Heat of Rejection
 $270 \text{ tons} \times 12000 = 3,240,000 \text{ BTU/Hr}$
 $300 \text{ BHP} \times 2545 = 763,500 \text{ BTU/Hr}$
 Total 4,003,500 BTU/Hr

From Table 6 the capacity factor for 96.3° condensing and 78° W.B. = 1.37 $4,003,500 \times 1.37 = 5,484,795 \text{ BTU/Hr}$ or 5485 MBH.

Therefore, select PMCB-375, PMCB-385 or LSCB-385 depending upon layout, horsepower, and any other design considerations.

Note:

For screw compressor selections employing water cooled oil cooling, select a condenser for the total BTU/Hr as in the example. The condenser can then function in one of two ways:

- (1) Recirculating water from the water sump can be used directly in the oil cooler. A separate pump should be employed and the return water should be directed into the water sump at the opposite end from the pump suction.
- (2) The condenser coil can be circuited so that water or a glycol-water mixture for the oil cooler can be cooled in a separate section of the coil. Specify load and water flow required.

For refrigerant injection cooled screw compressors select the condenser in the same manner as shown in the example.

If the oil cooler is supplied by water from a separate source, then the oil cooling load should be deducted from the heat of rejection before making the selection.

TABLE 4 - Unit Heat Rejection Capacity

Power-Mizer Models					
Model No.	MBH Base	Model No.	MBH Base	Model No.	MBH Base
PMCB-190	2,793	PMCB-455	6,689	PMCB-960	14,112
210	3,087	480	7,056	1000	14,700
220	3,234	510	7,497	1015	14,921
235	3,455	535	7,865	1030	15,141
240	3,528	560	8,232	1080	15,876
250	3,675	580	8,526	1120	16,464
275	4,043	600	8,820	1175	17,273
295	4,337	630	9,261	1260	18,522
325	4,778	660	9,702	1320	19,404
350	5,145	690	10,143	1380	20,286
360	5,292	725	10,658	1410	20,727
375	5,513	755	11,099	1485	21,830
390	5,733	775	11,393	1540	22,638
415	6,101	815	11,981	1630	23,961
435	6,395	855	12,569	1710	25,137
		885	13,010	1770	26,019
Alternate Power-Mizer Models*					
PMCB-175	2,573	PMCB-475	6,983	PMCB-805	11,834
290	4,263	495	7,277	850	12,495
330	4,851	540	7,938	910	13,377
335	4,925	585	8,600	950	13,965
385	5,660	645	9,482	1060	15,582
425	6,248	705	10,364	1110	16,317
450	6,615	770	11,319	1510	22,197
				1550	22,785

* Alternate Power Mizer models represent selections for alternate plan area or low horsepower applications. Standard models should be used for the lowest first-cost selection.

Centrifugal Fan Models			
Model No.	MBH Base	Model No.	MBH Base
LSCB-36	529	LSCB-400	5,880
41	603	430	6,321
48	706	450	6,615
54	794	480	7,056
65	956	500	7,350
70	1,029	515	7,571
75	1,103	550	8,085
80	1,176	590	8,673
90	1,323	625	9,188
100	1,470	650	9,555
110	1,617	690	10,143
120	1,764	720	10,584
135	1,985	755	11,099
150	2,205	800	11,760
155	2,279	805	11,834
170	2,499	860	12,642
185	2,720	900	13,230
200	2,940	960	14,112
210	3,087	1000	14,700
225	3,308	1030	15,141
240	3,528	1100	16,170
250	3,675	1180	17,346
280	4,118	1250	18,375
300	4,410	1310	19,257
315	4,631	1380	20,286
335	4,925	1440	21,168
355	5,219	1510	22,197
370	5,439	1610	23,667
385	5,660		



TABLE 5 - HCFC-22 and HFC-134a Heat Rejection Factors

Condensing Pres. psig		Cond. Temp. °F.	WET BULB TEMPERATURE, °F.																	
HCFC-22	HFC-134a		50	55	60	62	64	66	68	70	72	74	75	76	77	78	80	82	84	86
156	95	85	1.10	1.22	1.39	1.50	1.61	1.75	1.93	2.13	2.42	2.78	3.02	3.29	3.64	4.00	—	—	—	—
168	104	90	.93	1.02	1.14	1.21	1.28	1.36	1.45	1.57	1.71	1.89	2.00	2.12	2.25	2.38	2.85	3.50	—	—
182	114	95	.80	.87	.95	1.00	1.05	1.10	1.15	1.22	1.31	1.40	1.45	1.50	1.56	1.64	1.82	2.07	2.37	2.77
196	124	100	.71	.76	.82	.85	.88	.91	.94	.98	1.03	1.09	1.12	1.15	1.20	1.24	1.34	1.46	1.63	1.82
211	135	105	.63	.66	.70	.72	.75	.77	.80	.83	.87	.91	.93	.95	.97	1.00	1.06	1.13	1.23	1.35
226	146	110	.56	.59	.62	.64	.65	.67	.69	.71	.74	.77	.78	.80	.82	.84	.88	.93	.98	1.04

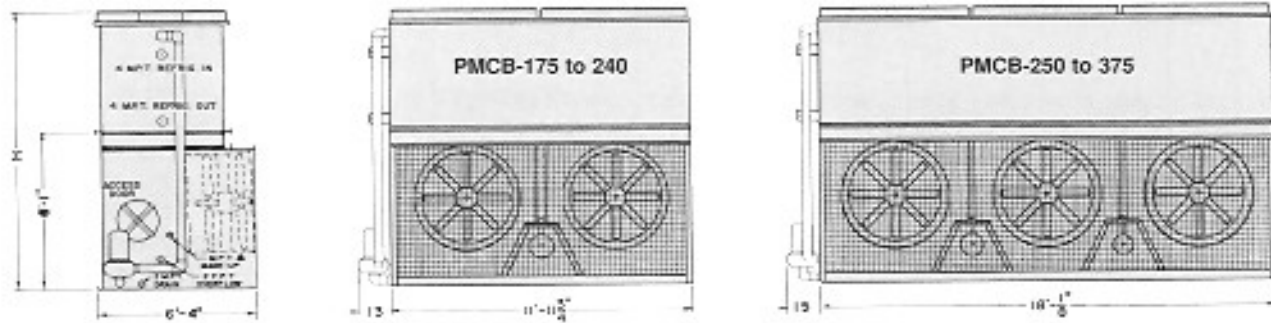
TABLE 6 - Ammonia (R-717) Heat Rejection Factors

Condensing Pres. psig		Cond. Temp. °F.	WET BULB TEMPERATURE, °F.																	
			50	55	60	62	64	66	68	70	72	74	75	76	77	78	80	82	84	86
152		85	.98	1.09	1.24	1.34	1.44	1.56	1.72	1.90	2.16	2.48	2.70	2.94	3.25	3.57	—	—	—	—
166		90	.83	.91	1.02	1.08	1.14	1.21	1.29	1.40	1.53	1.69	1.79	1.89	2.01	2.12	2.54	3.12	—	—
181		95	.71	.78	.85	.89	.94	.98	1.03	1.09	1.17	1.25	1.29	1.34	1.39	1.47	1.63	1.85	2.12	2.47
185		96.3	.69	.75	.82	.86	.90	.94	.98	1.03	1.10	1.18	1.22	1.26	1.31	1.37	1.51	1.71	1.94	2.25
197		100	.63	.68	.73	.76	.79	.81	.84	.87	.92	.97	1.00	1.03	1.07	1.11	1.20	1.30	1.46	1.63
214		105	.56	.59	.62	.64	.67	.69	.71	.74	.78	.81	.83	.85	.87	.89	.95	1.01	1.10	1.21
232		110	.50	.53	.55	.57	.58	.60	.62	.63	.66	.69	.70	.71	.73	.75	.79	.83	.87	.93

NOTE: Table 4 presents only the current standard model line selections. Other models exist for special horsepower or layout applications. Please consult the factory or your EVAPCO representative for these special situations.

Engineering Dimensions & Data

Power Miser Models PMCB-175 to 375



▲ NOTE: MAKE-UP 1" M.P.T. ON
PMCB-175 to PMCB-240
MAKE-UP 1½" M.P.T. ON
PMCB-250 to PMCB-375

TABLE 7 - Engineering Data

UNIT NO.*	R-717 Tons*	FANS		WEIGHTS			R-717 Operating Charge	SPRAY PUMP		REMOTE SUMP		HEIGHT
		HP	CFM	Shipping	Operating	Heaviest Section		HP	GPM	Gallons Req'd**	Conn. Size	
PMCB-175	124	7½	31,300	7,850	10,120	5,470	220	2	345	240	8"	10' 9¼"
190	135	10	34,000	7,980	10,250	5,470	220	2	345	240	8"	10' 9¼"
210	149	10	33,500	9,090	11,420	6,580	275	2	345	240	8"	11' 5¼"
220	156	10	33,000	10,110	12,490	7,700	330	2	345	240	8"	12' 2¼"
235	167	15	36,600	9,220	11,550	6,580	275	2	345	240	8"	11' 5¼"
240	170	15	35,500	10,240	12,620	7,700	330	2	345	240	8"	12' 2¼"
PMCB-250	177	10 & 5	54,000	10,480	13,330	6,690	245	3	515	350	10"	10' 3¼"
275	196	7½ & 5	48,500	12,030	14,970	8,330	330	3	515	350	10"	10' 9¼"
295	209	10 & 5	51,900	12,120	15,060	8,330	330	3	515	350	10"	10' 9¼"
325	230	10 & 5	50,900	13,830	16,860	9,990	410	3	515	350	10"	11' 5¼"
335	238	10 & 5	50,300	15,390	18,520	11,660	495	3	515	350	10"	12' 2¼"
360	255	15 & 7½	57,000	14,040	17,070	9,990	410	3	515	350	10"	11' 5¼"
375	266	15 & 7½	56,300	15,600	18,730	11,660	495	3	515	350	10"	12' 2¼"

* Tons at standard conditions: HCFC-22 and HFC-134a, 105° condensing, 40° suction and 70° W.B.; ammonia 96.3° condensing, 20° suction and 78° W.B.

** Gallons shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (12" would normally be sufficient.)



Power Miser Models
PMCB-290 to 1550

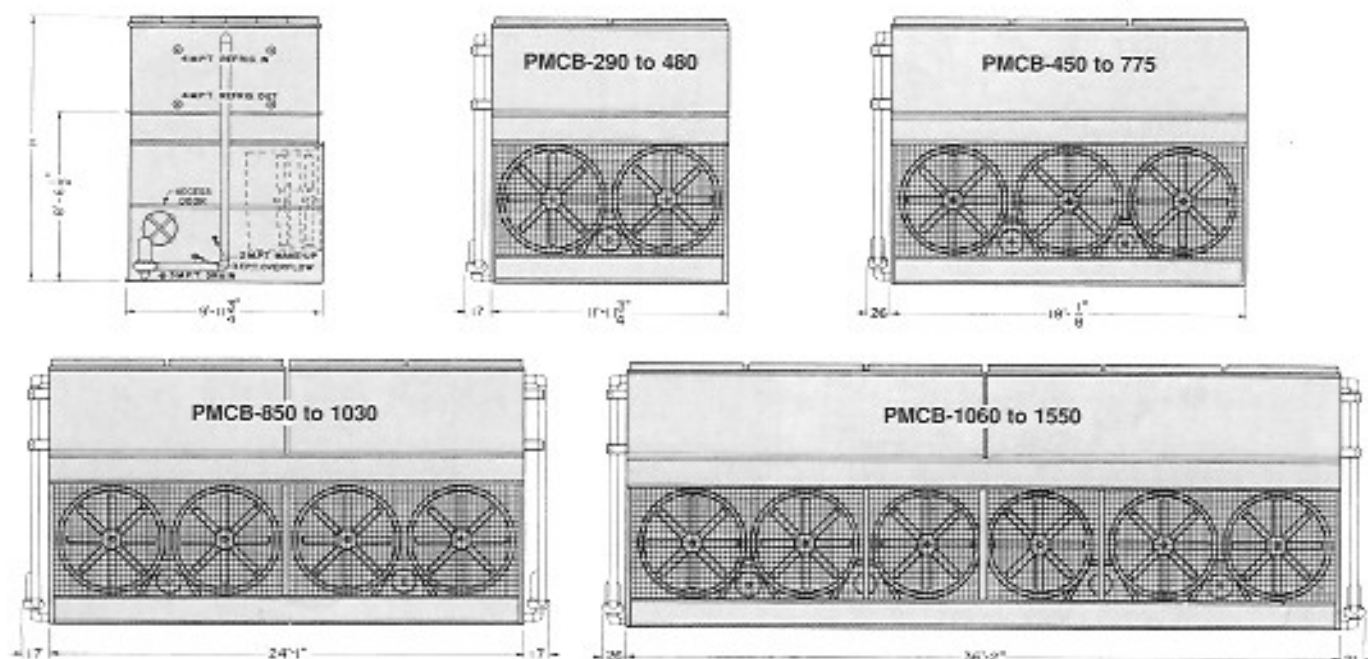


TABLE 8 - Engineering Data

UNIT NO.*	R-717 Tons*	FANS		WEIGHTS			R-717 Operating Charge	SPRAY PUMP		REMOTE SUMP		HEIGHT
		HP	CFM	Shipping	Operating	Heaviest Section		HP	GPM	Gallons Req'd**	Conn. Size	
PMCB- 290	206	10	62,300	12,870	18,530	8,530	330	5	685	420	10"	12' 6 1/4"
330	234	7 1/2	56,500	14,890	20,740	10,740	440	5	685	420	10"	13' 2 3/4"
350	248	10	61,600	14,980	20,830	10,740	440	5	685	420	10"	13' 2 3/4"
385	273	10	60,400	17,090	23,170	12,940	550	5	685	420	10"	13' 11 1/4"
390	277	15	67,800	15,130	20,980	10,740	440	5	685	420	10"	13' 2 3/4"
→ 415	294	20	74,000	15,250	21,100	10,740	440	5	685	420	10"	13' 2 3/4"
425	301	15	66,100	17,240	23,320	12,940	550	5	685	420	10"	13' 11 1/4"
455	323	20	72,500	17,360	23,440	12,940	550	5	685	420	10"	13' 11 1/4"
480	340	25	76,500	17,500	23,580	12,940	550	5	685	420	10"	13' 11 1/4"
PMCB- 450	319	10 & 5	96,500	19,030	27,180	12,380	490	7 1/2	1,030	620	12"	12' 6 1/4"
585	415	10 & 5	92,500	25,570	34,420	18,680	820	7 1/2	1,030	620	12"	13' 11 1/4"
630	447	20 & 10	112,700	22,710	31,210	15,500	660	7 1/2	1,030	620	12"	13' 2 3/4"
645	457	15 & 7 1/2	102,000	25,760	34,610	18,680	820	7 1/2	1,030	620	12"	13' 11 1/4"
690	489	20 & 10	109,300	25,910	34,760	18,680	820	7 1/2	1,030	620	12"	13' 11 1/4"
725	514	25 & 15	114,800	26,450	35,300	18,680	820	7 1/2	1,030	620	12"	13' 11 1/4"
755	535	25 & 15	114,000	29,390	38,590	21,870	990	7 1/2	1,030	620	12"	14' 7 3/4"
775	550	30 & 15	117,000	29,930	39,130	21,870	990	7 1/2	1,030	620	12"	14' 7 3/4"
PMCB- 850	603	(2)15	132,200	34,020	46,270	12,940	1,100	(2)5	1,370	850	12"	13' 11 1/4"
910	645	(2)20	145,000	34,260	46,510	12,940	1,100	(2)5	1,370	850	12"	13' 11 1/4"
950	674	(2)20	142,400	38,480	51,100	15,150	1,320	(2)5	1,370	850	12"	14' 7 3/4"
960	681	(2)25	153,000	34,540	46,790	12,940	1,100	(2)5	1,370	850	12"	13' 11 1/4"
1000	709	(2)25	150,000	38,760	51,380	15,150	1,320	(2)5	1,370	850	12"	14' 7 3/4"
1030	730	(2)30	154,200	39,080	51,700	15,150	1,320	(2)5	1,370	850	12"	14' 7 3/4"
PMCB-1060	752	(2)10 & (2)5	185,700	44,260	61,380	15,500	1,320	(2)7 1/2	2,060	1,620	14"	13' 2 3/4"
1175	833	(2)15 & (2)7 1/2	209,000	44,640	61,760	15,500	1,320	(2)7 1/2	2,060	1,620	14"	13' 2 3/4"
1260	894	(2)20 & (2)10	225,400	44,960	62,080	15,500	1,320	(2)7 1/2	2,060	1,620	14"	13' 2 3/4"
1380	979	(2)20 & (2)10	218,600	51,360	69,180	18,680	1,640	(2)7 1/2	2,060	1,620	14"	13' 11 1/4"
1510	1,071	(2)25 & (2)15	228,000	58,320	76,820	21,870	1,980	(2)7 1/2	2,060	1,620	14"	14' 7 3/4"
1550	1,100	(2)30 & (2)15	234,000	59,400	77,900	21,870	1,980	(2)7 1/2	2,060	1,620	14"	14' 7 3/4"

* Tons at standard conditions: HCFC-22 and HFC-134a, 105° condensing, 40" suction and 78" W.B.; ammonia 96.3° condensing, 20" suction and 78" W.B.

** Gallons shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (12" would normally be sufficient.)

Engineering Dimensions & Data

Power Miser Models PMCB-435 to 1770

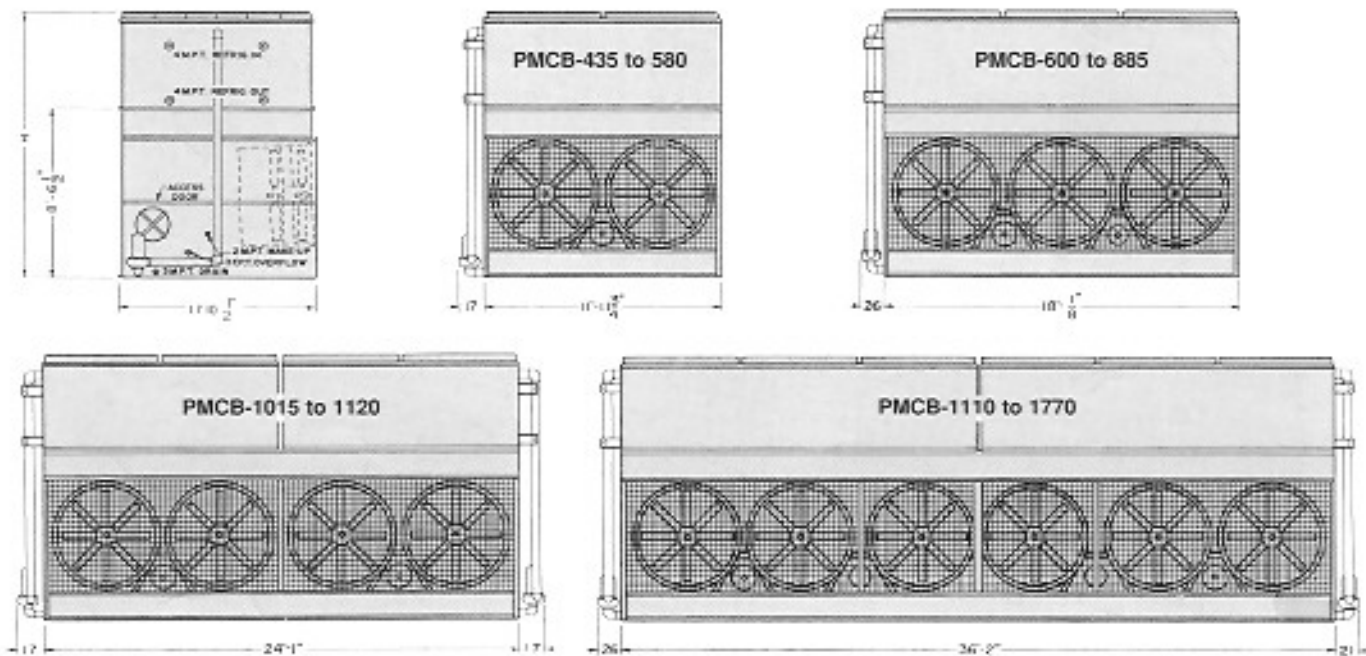


TABLE 9 - Engineering Data

UNIT NO.*	R-717 Tons*	FANS		WEIGHTS			R-717 Operating Charge	SPRAY PUMP		REMOTE SUMP		HEIGHT
		HP	CFM	Shipping	Operating	Heaviest Section		HP	GPM	Gallons Req'd**	Conn. Size	
PMCB- 435	309	15	74,100	18,000	24,410	13,150	530	5	800	500	10"	14' 2 3/4"
475	337	15	73,900	20,650	27,320	15,790	660	5	800	500	10"	14' 11 1/4"
495	351	25	87,200	18,260	24,670	13,150	530	5	800	500	10"	14' 2 3/4"
510	362	30	89,900	18,420	24,830	13,150	530	5	800	500	10"	14' 2 3/4"
535	379	25	85,000	20,910	27,580	15,790	660	5	800	500	10"	14' 11 1/4"
540	383	20	79,400	23,330	30,240	18,440	790	5	800	500	10"	15' 7 3/4"
560	397	25	84,000	23,470	30,380	18,440	790	5	800	500	10"	15' 7 3/4"
580	411	30	86,900	23,630	30,540	18,440	790	5	800	500	10"	15' 7 3/4"
PMCB- 600	426	20 & 10	129,000	22,700	31,520	15,180	600	7 1/2	1,200	730	12"	13' 6 1/4"
660	468	15 & 7 1/2	118,000	26,550	35,870	18,920	800	7 1/2	1,200	730	12"	14' 2 3/4"
705	500	20 & 10	125,500	26,710	36,030	18,920	800	7 1/2	1,200	730	12"	14' 2 3/4"
770	546	20 & 10	121,900	30,710	40,510	22,740	1,000	7 1/2	1,200	730	12"	14' 11 1/4"
805	571	20 & 10	120,800	34,350	44,650	26,560	1,200	7 1/2	1,200	730	12"	15' 7 3/4"
815	578	25 & 15	128,800	31,250	41,050	22,740	1,000	7 1/2	1,200	730	12"	14' 11 1/4"
855	606	30 & 15	135,000	31,410	41,210	22,740	1,000	7 1/2	1,200	730	12"	14' 11 1/4"
885	628	30 & 15	132,800	35,430	45,730	26,560	1,200	7 1/2	1,200	730	12"	15' 7 3/4"
PMCB-1015	720	(2)20	160,000	40,990	54,600	15,790	1,320	(2)5	1,600	1,000	14"	14' 11 1/4"
1080	766	(2)20	158,800	46,110	60,210	18,440	1,580	(2)5	1,600	1,000	14"	15' 7 3/4"
1120	794	(2)25	168,000	46,390	60,490	18,440	1,580	(2)5	1,600	1,000	14"	15' 7 3/4"
PMCB-1110	787	(2)15 & (2)7 1/2	238,000	44,550	62,460	15,180	1,200	(2)7 1/2	2,400	1,460	16"	13' 6 1/4"
1320	936	(2)15 & (2)7 1/2	236,000	52,550	71,460	18,920	1,600	(2)7 1/2	2,400	1,460	16"	14' 2 3/4"
1410	1,000	(2)20 & (2)10	251,000	52,870	71,780	18,920	1,600	(2)7 1/2	2,400	1,460	16"	14' 2 3/4"
1485	1,053	(2)25 & (2)15	264,000	53,950	72,860	18,920	1,600	(2)7 1/2	2,400	1,460	16"	14' 2 3/4"
1540	1,092	(2)30 & (2)15	274,000	54,270	73,180	18,920	1,600	(2)7 1/2	2,400	1,460	16"	14' 2 3/4"
1630	1,156	(2)25 & (2)15	257,600	61,950	81,820	22,740	2,000	(2)7 1/2	2,400	1,460	16"	14' 11 1/4"
1710	1,213	(2)30 & (2)15	270,000	62,270	82,140	22,740	2,000	(2)7 1/2	2,400	1,460	16"	14' 11 1/4"
1770	1,255	(2)30 & (2)15	265,600	70,310	91,180	26,560	2,400	(2)7 1/2	2,400	1,460	16"	15' 7 3/4"

* Tons at standard conditions: HCFC 22 and HFC-134a, 105° condensing, 40° suction and 78° W.B.; ammonia 96.3° condensing, 20° suction and 78° W.B.

** Gallons shown is water in suspension in unit and piping. Allow for additional water in bottom of remote sump to cover pump suction and strainer during operation. (12" would normally be sufficient.)