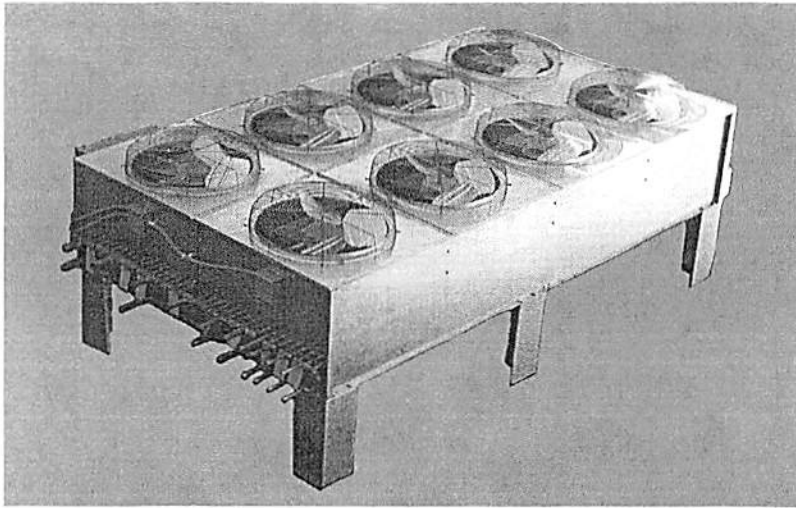


AIR COOLED  
CONDENSER

AC

TECHNICAL BULLETIN 9402

CITY OF L.A. E.T.L.



REMOTE  
DIRECT DRIVE  
1 THRU 50 TONS

## REMOTE AIR COOLED CONDENSER FEATURES

- Very efficient units designed for optimum heat transfer.
- Available in 16 models from 1 ton to 50 nominal tons, with corrosion resistant casing!
- All condensers are made with high grade seamless copper tubing, mechanically expanded into collared aluminum fins and tube sheets, providing maximum heat transfer.
- AC-10 thru AC-30 are made of 3/8 O.D. tubes, all other models are made with 1/2" O.D. tubing in staggered pattern.
- All headers are made of heavy wall copper tubing brazed by high temperature process.
- Vertical or horizontal air discharge on AC-10 thru AC-250, AC-300 thru AC-500 are available with vertical discharge only.
- Balanced fans and motors combination are sized for best efficiency, minimum noise level and minimized vibrations.
- All fan guards are epoxy coated for long life. Multiple fans are baffled to avoid any short circuiting during fan cycling.
- All motors are thermally protected. AC-10 thru AC-100 are available in 115 or 208-230/1/60. AC-125 thru AC-500 are available in 208-230/1/60 or optional 460/1/60.
- All coils are tested at 300 psig minimum.
- Available optional features includes:  
Multiple circuits - Integral subcooling - Fan cycling by ambient control - Fan cycling by pressure control - Flooded type head pressure control - Phenolic coated coil - Copper fins.

**LRC**

COIL CO. 9435 SORENSEN AVE., SANTA FE SPRINGS, CA 90670

310-944-1969  
FAX 310-944-4979

# SELECTION PROCEDURE

## A. SINGLE CIRCUIT

**Design condition:**

Compressor Capacity: 150,000 BTUH  
 Condensing Temperature: 115°F  
 Evaporator Temperature: +20°F  
 Refrigerant: R-22  
 Ambient Air Temperature: 95°F  
 Compressor is open type. (Table 1)

2. Multiply the compressor capacity by 1.26.  
 $150,000 \text{ BTUH} \times 1.26 \times 1.00 \text{ (ref. factor)} = 189,000 \text{ BTUH}$
3. Determine the TD:  
 $115^\circ\text{F} - 95^\circ\text{F} = 20^\circ\text{F TD.}$
4. Go to the Performance Data Table 4 under 20°F TD. The closest total heat of rejection above 189,000 is 203,800 BTUH.
5. The right selection is: AC-200.

### SOLUTION:

1. Determine the correction factor from Table 1 below at 115°F condensing temperature and +20°F evaporator temperature we read 1.26.

Compressor capacity multiplied by heat of compression factor equals total heat of rejection.

TABLE 1	OPEN COMPRESSOR									
Condensing Temperature	Evaporator Temperature									
	+45	+40	+30	+20	+10	0	-10	-20	-30	-40
90°	1.10	1.12	1.13	1.17	1.21	1.24	1.28	1.33	1.37	1.43
95°	1.12	1.14	1.15	1.19	1.23	1.26	1.30	1.35	1.40	1.45
100°	1.13	1.15	1.17	1.20	1.24	1.28	1.32	1.37	1.42	1.47
105°	1.15	1.16	1.18	1.22	1.26	1.30	1.35	1.40	1.45	1.50
110°	1.16	1.17	1.20	1.24	1.28	1.32	1.37	1.42	1.47	1.54
115°	1.17	1.18	1.22	1.26	1.30	1.35	1.40	1.45	1.50	--
120°	1.19	1.20	1.24	1.28	1.32	1.37	1.42	1.47	1.53	--
125°	1.20	1.22	1.26	1.30	1.34	1.39	1.45	1.50	--	--
130°	1.21	1.23	1.27	1.32	1.36	1.41	1.47	1.53	--	--

TABLE 2	SUCTION COOLED HERMETIC COMPRESSOR									
Condensing Temperature	Evaporator Temperature									
	+45	+40	+30	+20	+10	0	-10	-20	-30	-40
90°	1.16	1.18	1.22	1.26	1.31	1.36	1.42	1.49	1.58	1.67
95°	1.17	1.19	1.23	1.27	1.32	1.38	1.44	1.51	1.60	1.70
100°	1.19	1.21	1.25	1.29	1.34	1.40	1.46	1.53	1.62	1.73
105°	1.20	1.22	1.27	1.30	1.36	1.42	1.48	1.56	1.65	1.77
110°	1.22	1.24	1.28	1.33	1.38	1.44	1.50	1.58	1.68	1.80
115°	1.23	1.26	1.30	1.35	1.41	1.47	1.54	1.64	1.74	1.90
120°	1.25	1.27	1.32	1.37	1.43	1.50	1.57	1.65	1.80	2.00
125°	1.27	1.29	1.35	1.40	1.46	1.53	1.61	1.68	--	--
130°	1.28	1.31	1.37	1.43	1.49	1.56	1.64	--	--	--

## B. MULTI-CIRCUITS SELECTION

**Given: Compressor type is suction cooled hermetic (Table 2). Altitude is 2000 ft., Ambient air is 95°F.**

System #	Ref.	Evap. °F	Cond. °F	Compr. BTUH @Evap. (10°TD)	Heat of Compr. Factor (Table 2)	Altitude Factor (Table 6)	Refrig. Factor (Table 5)	Design TD.	Adjusted THR BTUH/1° TD
1	22	10	110	64800	x 1.38	x 1.05	1.00 ÷	15 =	6260
2	12	20	115	26900	x 1.35	x 1.05	.95 ÷	20 =	1811
3	502	-20	105	39100	x 1.56	x 1.05	.98 ÷	10 =	6276
4	502	-10	110	23900	x 1.50	x 1.05	.98 ÷	15 =	2459

**TOTAL = 16,806**

Go to Table 4 @ 1° TD and select condenser with equal or more capacity than total: use AC-350

<b>TABLE 3</b>		<b>SPECIFICATIONS</b>					
<b>Model #</b>	<b>CFM</b>	<b>HP Motor</b>	<b>Amps/Unit 230V</b>	<b>Fan Dia.</b>	<b>Inlet O.D.</b>	<b>Outlet O.D.</b>	<b>Approx. Net Wt.</b>
<b>AC 10</b>	1800	1/6	2.6	16	1/2	1/2	80
<b>AC 15</b>	1650	1/6	2.6	16	1/2	1/2	90
<b>AC 20</b>	2250	1/6	2.6	18	1/2	1/2	160
<b>AC 30</b>	2300	1/4	2.5	18	1/2	1/2	200
<b>AC 50</b>	5000	(2) 1/4	5.0	(2) 18	1-1/8	7/8	300
<b>AC 75</b>	4500	(2) 1/4	5.0	(2) 18	1-1/8	7/8	360
<b>AC 100</b>	6800	(3) 1/4	7.5	(3) 18	1-3/8	7/8	450
<b>AC 125</b>	6500	(3) 1/2	12.3	(3) 18	1-5/8	1-1/8	510
<b>AC 150</b>	11000	(3) 1/2	12.3	(3) 22	1-5/8	1-1/8	630
<b>AC 175</b>	9800	(3) 1/2	12.3	(3) 22	1-5/8	1-1/8	710
<b>AC 200</b>	13200	(3) 1/2	12.3	(3) 22	2-1/8	1-3/8	800
<b>AC 250</b>	14000	(4) 1/2	16.4	(4) 22	2-1/8	1-3/8	900
<b>AC 300</b>	22000	(6) 1/2	24.6	(6) 22	(2) 1-5/8	(2) 1-1/8	1190
<b>AC 350</b>	19600	(6) 1/2	24.6	(6) 22	(2) 1-5/8	(2) 1-1/8	1350
<b>AC 400</b>	26400	(6) 1/2	24.6	(6) 22	(2) 2-1/8	(2) 1-3/8	1520
<b>AC 500</b>	28000	(8) 1/2	32.8	(8) 22	(2) 2-1/8	(2) 1-3/8	1710

<b>TABLE 4</b>		<b>PERFORMANCE DATA</b>				
<b>Model #</b>	<b>Total Heat of Rejection (THR) — R22 (MBH) @ TD:</b>					
	<b>1°</b>	<b>10°</b>	<b>15°</b>	<b>20°</b>	<b>25°</b>	<b>30°</b>
<b>AC 10</b>	.58	5.80	8.70	11.60	14.50	17.40
<b>AC 15</b>	.83	8.30	12.45	16.60	20.80	24.90
<b>AC 20</b>	1.09	10.90	16.35	21.80	27.30	32.70
<b>AC 30</b>	1.68	16.80	25.20	33.60	42.00	50.40
<b>AC 50</b>	2.52	25.20	37.80	50.40	63.00	75.60
<b>AC 75</b>	3.78	37.80	57.70	75.60	94.50	113.4
<b>AC 100</b>	5.04	50.40	75.60	100.80	126.00	151.20
<b>AC 125</b>	6.30	63.00	94.50	126.00	157.50	189.00
<b>AC 150</b>	7.56	75.60	113.40	151.20	189.00	226.80
<b>AC 175</b>	8.87	88.70	133.00	177.40	221.80	266.10
<b>AC 200</b>	10.19	101.90	152.90	203.80	254.80	305.70
<b>AC 250</b>	12.70	127.00	190.50	254.00	317.50	381.00
<b>AC 300</b>	14.80	148.00	222.00	296.00	370.00	444.00
<b>AC 350</b>	17.72	177.20	265.80	354.40	443.00	531.60
<b>AC 400</b>	20.71	207.10	310.60	414.20	517.80	621.30
<b>AC 500</b>	25.32	253.20	379.80	506.40	633.00	759.60

<b>TABLE 5</b>	
<b>Refrig. Factor</b>	
<b>R22</b>	1.00
<b>R502</b>	.98
<b>R12</b>	.95

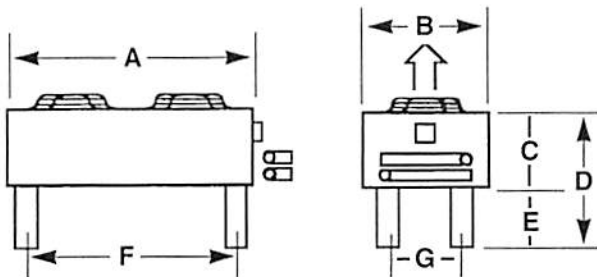
<b>TABLE 6</b>	
<b>Altitude Correction Factor</b>	
<b>sea level</b>	1.000
<b>1000 ft.</b>	1.030
<b>2000 ft.</b>	1.050
<b>3000 ft.</b>	1.075
<b>4000 ft.</b>	1.100
<b>5000 ft.</b>	1.125
<b>6000 ft.</b>	1.150
<b>7000 ft.</b>	1.175
<b>8000 ft.</b>	1.205
<b>9000 ft.</b>	1.230
<b>10000 ft.</b>	1.260

<b>TABLE 7</b>						
<b>T.D. SELECTIONS</b>						
<b>Ambient Temp. Recommended T.D.</b>	<b>85°</b>	<b>90°</b>	<b>95°</b>	<b>100°</b>	<b>105°</b>	<b>110°</b>
	25/30	20/25	20	15/20	15	10

## DIMENSIONAL DATA

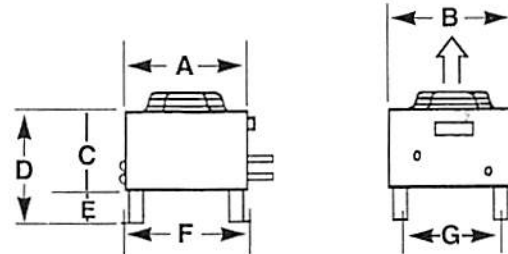
Model #	A	B	C	D	E	F	G	H	J
AC 10	22	20	11-1/2	17-1/2	6	23	19		
AC 15	22	20	11-1/2	17-1/2	6	23	19		
AC 20	25	26-3/4	16	22	6	26	25-3/4		
AC 30	25	26-3/4	16	22	6	26	25-3/4		
AC 50	53-1/2	26-3/4	16	28	12	48-1/8	25-1/4	52-1/2	11-1/4
AC 75	53-1/2	26-3/4	16	28	12	48-1/2	25-1/4	52-1/2	11-1/4
AC 100	80-1/4	26-3/4	16	28	12	74-5/8	25-1/4	79-1/4	11-1/4
AC 125	80-1/4	26-3/4	21	33	12	74-5/8	25-1/4	79-1/4	16-1/4
AC 150	88-1/2	33-3/4	21	36	15	83-1/2	32-3/8	87	16-1/4
AC 175	88-1/2	33-3/4	21	36	15	83-1/2	32-3/8	87	16-1/4
AC 200	101	33-3/4	21	36	15	96	32-3/8	99-1/2	16-1/4
AC 250	118	33-3/4	21	39	18	113	32-3/8	116-1/2	16-1/4
AC 300	88-1/2	67-1/2	21	39	18	83-1/2	66		
AC 350	88-1/2	67-1/2	21	39	18	83-1/2	66		
AC 400	101	67-1/2	21	39	18	96	66		
AC 500	118	67-1/2	21	39	18	113	66		

### AC-50 thru AC-250 Vertical Air Flow

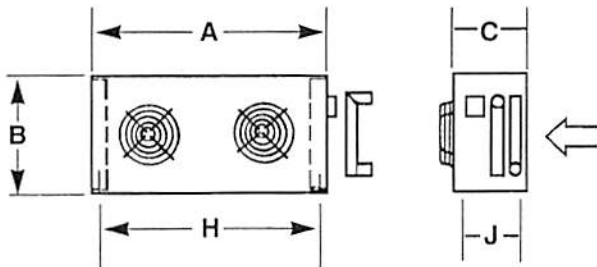


### AC-10 thru AC-30 Vertical or Horizontal Air Flow (Vert. shown)

For Horiz. Air Flow: C X A = Base; B = Height



### AC-50 thru AC-250 Horizontal Air Flow



### AC-300 thru AC-500 Vertical Only

