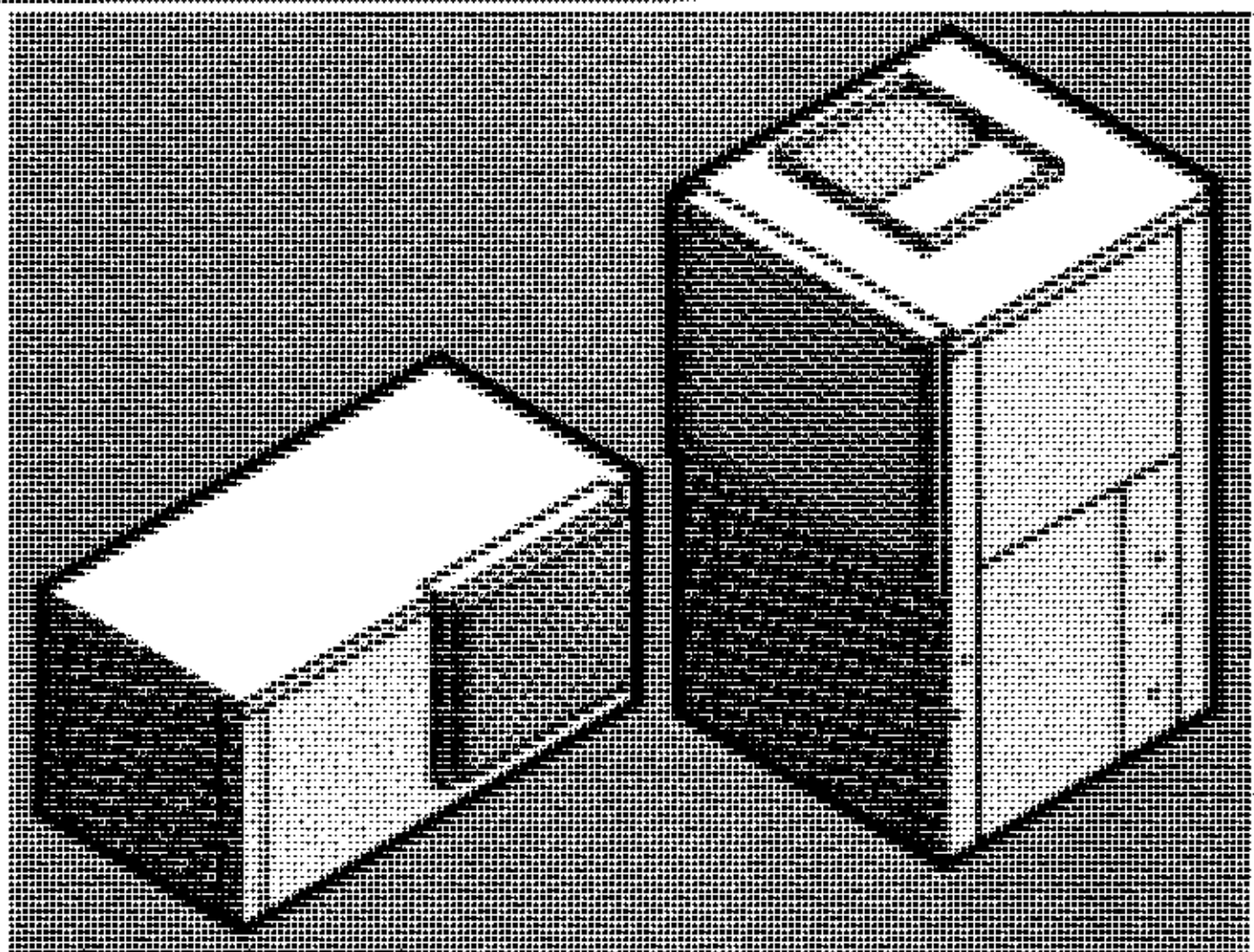


# SPECIFICATIONS



Climate Master

**803/804**

VERTICAL

HORIZONTAL

SERIES

WATER-TO-AIR  
HEAT PUMPS

**Friedrich**  
Climate Master

# ARI RATINGS

## 803/804 SERIES PERFORMANCE DATA AT ARI RATING CONDITIONS (ARI STD. 320-81)

Model Number**	Cooling							Heating					
	Net BTUH	Sensible BTUH	Power Input Watts	EER Rating	Heat of Reject. BTUH	Water GPM	Air CFM	Net BTUH	Power Input Watts	ODP	Heat of Absorp. BTUH	Water GPM	Air CFM
803-009 804-009	9100*	6461	825	11.0	11915	2.4	350	10800*	850	3.7	7900	2.4	350
803-012 804-012	12500	8625	1225	10.2	16680	3.34	400	15700	1325	3.5	11179	3.34	400
803-015 804-015	14500	10295	1400	10.4	19300	3.90	500	19000	1525	3.7	13800	3.90	500
803-019 804-019	19000	13870	1750	10.9	25000	5.0	650	23000	1875	3.6	16600	5.0	650
803-024 804-025	25400	17580	2275	11.2	33162	6.6	800	35000	2850	3.9	25960	6.6	800
803-030 804-031	30000	21860	2900	10.3	39900	8.0	1000	40500	3200	3.7	29580	8.0	1000
803-036 804-037	35600	24400	3360	10.6	47064	9.4	1250	42500	3550	3.5	30400	9.4	1250
803-042 804-043	43000 42000	32170 31400	4000 4050	10.8 10.4	56652 55819	11.3 11.2	1500 1450	57000 57000	4200 4450	4.0 3.8	40665 41987	11.3 11.2	1500 1450
803-048 804-048	48000	37250	4750	10.1	64212	12.8	1700	59000	4650	3.7	43130	12.8	1700
803-060 804-060	62000	46800	6100	10.2	82819	16.6	2000	68000	5600	3.6	48892	16.6	2000
804-096	96000	74950	9400	10.2	128082	25.6	3400	112000	9100	3.6	80950	25.6	3400
804-120	124000	93550	12200	10.2	165639	33.1	4000	137000	11500	3.5	97762	33.1	4000

\*For Units operating at 208V, deduct 200 BTUH from capacity ratings (009 Models only).

\*\*Cooling only: Units available 903/904.

## GENERAL DATA CHART

Model Number	Voltage	PH	Min. Wire	Min. CIRC Ampacity	Max. Fuse	Comp LRA	Comp RLA	Blower FLA	Total FLA	Blower Whl. Dia.	Blower Whl. Lth.	Blower HP	Ref. to Air Face Area	Coil Depth	Fins /in.	Blower Type	Shipping Wt. Lbs.
803-009 804-009	208/230 265	1 1	#14 #14	4.6 4.0	15 15	20.0 16.0	3.3 2.8	.50 .50	3.8 3.3	5.5	5.0	1/20	.97	3.00	14	DDMS	118 108
803-012 804-012	208/230 265	1 1	#14 #14	6.7 6.9	15 15	31.0 27.0	6.3 4.9	.80 .81	7.1 5.71	6.0	4.0	1/10	.97	3.75	14	DDMS	123 117
803-015 804-015	208/230 265	1 1	#14 #14	8.25 7.35	15 15	36.0 33.0	5.9 5.0	.86 .82	6.76 5.82	6.0	5.0	1/12	2.22	2.25	14	DDMS	150 153
803-019 804-019	208/230 265	1 1	#14 #14	11.1 8.7	15 15	40.6 34.0	7.6 6.0	1.5 1.2	9.1 7.2	9.0	4.0	1/6	2.22	3.0	14	DDMS	173 180
803-024 804-025	208/230 265	1 1	#10 #12	16.4 14.4	25 20	54.0 45.0	11.8 9.3	1.6 1.5	13.4 10.8	9.0	7.0	1/4	2.50	2.25	13	DDMS	210 213
803-030 804-031	208/230 265 460	1 3 3	#10 #12 #14	19.5 13.9 17.2 6.5	30 20 25 15	65.0 60.0 55.0 28.0	14.0 9.2 11.2 4.4	2.0 2.0 1.6 1.0	16.0 17.2 12.8 5.4	10.0	6.0	1/4	2.50	3.0	13	DDMS	225
803-036 804-037	208/230 265 460	1 3 3	#8 #10 #8 #14	23.0 16.7 21.6 8.3	35 25 35 15	75.8 65.0 70.0 32.0	15.8 10.4 13.5 5.2	3.2 3.2 3.2 1.8	19.0 13.6 16.7 7.0	9.0	7.0	1/2	3.33	2.25	14	DDMS	248 235
803-042 804-043	208/230 208/230 460	1 3 3	#6 #10 #14	28.7 19.4 9.6	45 30 15	93.0 74.0 41.0	19.4 12.5 6.3	3.4 3.4 1.8	22.8 15.9 8.1	10.0 9.0	8.0 7.0	1/2	3.33	3.00 2.25	14	DDMS	278 240
803-048 804-048	208/230 208/230 460	1 3 3	#6 #8 #14	30.0 23.0 11.0	45 35 15	104.0 72.0 35.0	19.8 14.1 7.0	5.4 5.4 2.2	25.2 19.5 9.2	10.0	10.0	3/4	4.17	3.25	14	DDMS	312 300
803-060 804-060	208/230 208/230 460	1 3 3	#4 #8 #12	39.8 26.4 12.5	60 40 20	132.0 103.0 54.0	26.0 16.1 7.9	5.8 5.8 2.6	31.8 21.9 10.5	12.0	10.0	1	4.17	4.33	13	DDMS	339 357
804-096	208/230 460	3 3	#6 #10	37.4 18.4	50 25	72.0 35.0	14.1 7.0	5.7 2.6	33.9 16.6	(2) 10.0	(2) 10.0	1-1/2	8.33	3.25	14	BDVP	680
804-120	208/230 460	3 3	#4 #10	44.6 21.2	60 25	103.0 54.0	16.1 7.9	7.5 3.4	39.7 19.2	(2) 12.0	(2) 10.0	2	8.33	4.33	13	BDVP	800

# OPTION FLOW CHART

## OPTIONS

### CABINETRY

RETURN AIR  
DUCT COLLAR

HANGER/VIBRATION  
ISOLATOR KIT

803 UNITS  
VERTICAL

PIPING  
PREASSEMBLED  
HOSEKITS

804 UNITS  
HORIZONTAL

### AIR FLOW CONFIGURATIONS

029 THRU 060

BOTTOM  
DISCHARGE\*

009 THRU 043

045 THRU 120

TOP  
DISCHARGE

STRAIGHT  
BLOW

END  
BLOW

STRAIGHT  
BLOW

LEFT HAND  
RETURN

RIGHT HAND  
RETURN

REAR  
RETURN

FRONT  
RETURN

LEFT HAND  
RETURN\*

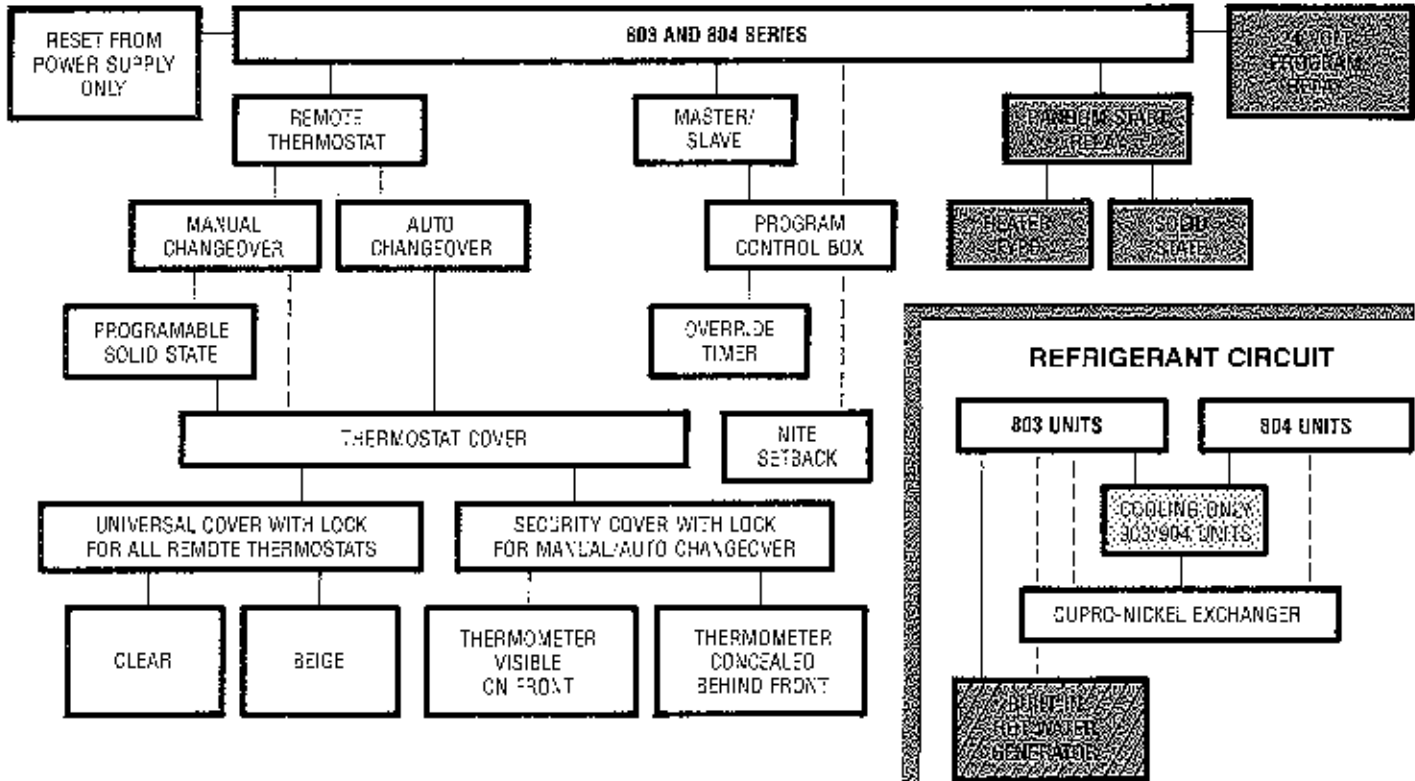
RIGHT HAND  
RETURN\*

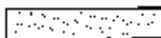


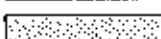
LEFT HAND  
RETURN

RIGHT HAND  
RETURN

LEFT HAND  
RETURN

## ELECTRICAL—CONTROL



-  Not available for Unit 804-031.
-  Non-UL and Non-CSA.
-  803-024 thru 060 208/230 Volt Models only.
-  CSA approved only.

\*Pending—available upon release  
(024 thru 060 models only)

# PERFORMANCE CHARTS

803-009/804-009

COOLING PERFORMANCE TABLE

HEATING PERFORMANCE TABLE

Water Flow GPM	Ent. Wat. Temp. °F	Cooling Totals BTUH	Sensible BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F	Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorp. BTUH	Power Input Watts	Leaving Wat. Temp. °F	P.D. % of Water
1.50	65°	9300	8400	11860	750	80.8	60°	9000	5855	750	51.1	1.7
2.00	65°	9300	8400	11860	750	79.9	60°	9800	8870	800	60.1	2.9
2.50	65°	9300	8400	11774	725	74.4	60°	9800	7070	800	54.3	4.3
3.00	65°	9300	8400	11774	725	72.3	60°	9900	7170	800	55.2	6.0
1.50	75°	9200	8400	11950	800	50.9	65°	9900	7370	500	56.2	1.7
2.00	75°	9200	8400	11930	800	40.9	65°	10100	7284	825	57.7	2.9
2.50	75°	9200	8400	11845	775	34.5	65°	10300	7484	825	59.0	4.3
3.00	75°	9300	8400	11945	775	53.0	65°	10400	7531	825	59.0	6.0
1.50	85°	8500	6400	11821	850	150.7	70°	10400	7531	825	59.9	1.7
2.00	85°	9000	6400	11816	825	36.6	70°	10700	7799	850	62.2	2.9
2.50	85°	9100	6400	11910	825	44.5	70°	10900	7889	850	63.7	4.3
3.00	85°	9100	6400	11916	825	92.3	70°	10900	7999	850	64.7	6.0
1.50	90°	8800	6400	11786	875	105.7	80°	11300	8314	875	68.9	1.7
2.00	90°	8900	6400	11800	850	101.8	80°	11500	8514	875	71.5	2.9
2.50	90°	9000	6400	11800	840	109.6	80°	11600	8514	875	73.1	4.3
3.00	90°	9000	6400	11900	850	97.3	80°	11600	8514	875	74.5	6.0
1.50	95°	5600	5300	11572	900	115.9	90°	11800	8825	900	78.2	1.7
2.00	95°	5700	5400	11586	875	136.7	90°	12000	9025	900	81.0	2.9
2.50	95°	5800	5400	11788	875	104.4	90°	12000	9025	900	82.8	4.3
3.00	95°	5900	5400	11888	875	102.3	90°	12200	9125	900	85.9	6.0

CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F WB	Total Cooling Capacity	Sensible Capacity/Entering Air Dry Bulb					Heat of Reject	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorp.	Power Input
		70°DB	75°DB	80°DB	85°DB	90°DB						
61°	0.870	0.871	1.098	1.302	1.517	1.732	0.986	0.980	80°	1.003	1.018	0.982
64°	0.934	0.718	0.925	1.150	1.365	1.580	0.986	0.981	85°	1.003	1.009	0.981
67°	1.000	0.570	0.785	1.000	1.215	1.430	1.000	1.000	70°	1.000	1.000	1.000
70°	1.065		0.637	0.852	1.067	1.282	1.000	1.000	75°	0.999	0.999	1.000
73°	1.130		0.490	0.706	0.921	1.136	1.004	1.000	80°	0.998	0.992	1.009

CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Reject	Power Input	Total Heating Capacity	Heat of Absorp.	Power Input
250	0.960	0.911	0.959	0.954	0.982	0.987	1.023
275	0.970	0.718	0.959	0.958	0.987	0.975	1.017
300	0.990	0.958	0.975	0.977	0.981	0.984	1.000
325	0.980	0.978	0.980	0.980	0.986	0.989	1.006
350	1.050	1.020	1.000	1.000	1.000	1.000	1.000
375	1.010	1.022	1.010	1.011	1.004	1.006	0.994

803-012/804-012

COOLING PERFORMANCE TABLE

HEATING PERFORMANCE TABLE

Water Flow GPM	Ent. Wat. Temp. °F	Cooling Totals BTUH	Sensible BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F	Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorp. BTUH	Power Input Watts	Leaving Wat. Temp. °F	P.D. % of Water
1.75	65°	12900	8600	16725	1150	84.1	60°	13200	9104	1200	49.6	1.3
2.50	65°	12900	8600	16534	1100	78.2	60°	13800	9619	1225	62.3	2.4
3.25	65°	12900	8500	16489	1075	75.1	60°	14200	9804	1250	53.9	3.9
4.00	65°	12900	8400	16560	1075	73.2	60°	14400	10134	1250	54.9	5.7
1.75	75°	12500	8600	16880	1225	84.1	65°	14100	9394	1250	53.8	1.3
2.50	75°	12700	8600	16710	1175	80.4	65°	14700	10345	1275	56.7	2.4
3.25	75°	12700	8600	16825	1150	85.2	65°	15000	10603	1300	58.5	3.9
4.00	75°	12800	8600	16725	1150	83.1	65°	15100	10663	1300	59.7	5.7
1.75	85°	12200	8600	16937	1300	104.9	70°	15000	10963	1300	67.9	1.3
2.50	85°	12400	8600	16665	1250	95.3	70°	15400	10963	1300	61.2	2.4
3.25	85°	12500	8600	16681	1225	95.3	70°	15700	11178	1325	63.1	3.9
4.00	85°	12500	8600	16681	1225	93.3	70°	15800	11278	1325	64.4	5.7
1.75	90°	12000	8600	16822	1325	105.9	80°	15300	11682	1325	66.9	1.3
2.50	90°	12200	8600	16637	1300	100.0	80°	15600	11907	1350	70.2	2.4
3.25	90°	12500	8600	16162	1275	100.2	80°	15800	12107	1375	72.5	3.9
4.00	90°	12400	8500	16656	1250	98.3	80°	15900	12207	1375	73.0	5.7
1.75	95°	11700	8400	16593	1375	113.7	90°	17300	12522	1400	73.7	1.3
2.50	95°	12000	8500	16522	1325	109.2	90°	17500	12722	1400	79.8	2.4
3.25	95°	12100	8400	16537	1300	103.2	90°	17600	12822	1400	82.1	3.9
4.00	95°	12200	8600	16637	1300	103.3	90°	17700	12922	1400	83.5	5.7

CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F WB	Total Cooling Capacity	Sensible Capacity/Entering Air Dry Bulb					Heat of Reject	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorp.	Power Input
		70°DB	75°DB	80°DB	85°DB	90°DB						
61°	0.879	0.871	1.098	1.302	1.517	1.732	0.984	0.977	80°	1.003	1.003	0.929
64°	0.940	0.718	0.925	1.150	1.365	1.580	0.982	0.989	85°	1.001	1.016	0.964
67°	1.000	0.570	0.785	1.000	1.215	1.430	1.000	1.000	70°	1.000	1.000	1.000
70°	1.060		0.637	0.852	1.067	1.282	1.000	1.001	75°	0.999	0.994	1.006
73°	1.121		0.490	0.706	0.921	1.136	1.005	1.023	80°	0.998	0.988	1.012

CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Reject	Power Input	Total Heating Capacity	Heat of Absorp.	Power Input
320	0.970	0.971	0.966	0.966	0.984	0.984	1.021
360	0.985	0.989	0.986	0.984	0.985	0.982	1.012
400	1.000	1.000	1.000	1.000	1.000	1.000	1.000
440	1.014	1.031	1.015	1.015	1.002	1.007	0.986
480	1.028	1.062	1.029	1.029	1.002	1.015	0.978
520	1.042	1.093	1.044	1.042	1.005	1.021	0.964

Based upon ARI Standard 320-81.

# PERFORMANCE CHARTS

## 803-015/804-015

COOLING PERFORMANCE TABLE							HEATING PERFORMANCE TABLE					P.D. Fl. of Water
Water Flow GPM	Ent. Wat. Temp. °F	Cooling Total BTUH	Sensi- ble BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F	Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorp. BTUH	Power Input Watts	Leaving Wat. Temp. °F	
2.00	65°	14800	10200	4600	1300	81.2	80°	15000	1200	1275	48.8	8
3.00	65°	14900	10100	4800	1250	77.5	80°	15800	1950	1425	53.0	3.4
4.00	65°	14900	10100	4800	1225	74.9	80°	17200	2250	1450	53.9	5.7
5.00	65°	14900	10000	4900	1200	72.6	80°	17000	2350	1450	55.0	8.5
2.00	75°	14500	10300	4200	1400	94.3	95°	17000	2130	1420	47.9	1.5
3.00	75°	14700	10200	4500	1350	87.9	95°	17800	2760	1475	56.5	3.4
4.00	75°	14900	10200	4700	1300	84.6	95°	18200	3050	1500	55.5	5.7
5.00	75°	14900	10200	4700	1300	82.7	95°	18400	3250	1500	59.7	8.5
2.00	85°	14100	10200	3900	1475	104.1	70°	18000	2400	1475	57.0	1.5
3.00	85°	14100	10200	3900	1425	97.8	70°	18700	3150	1525	61.0	3.4
4.00	85°	14500	10200	4300	1400	94.6	70°	19000	3735	1525	65.1	5.7
5.00	85°	14900	10200	4700	1375	92.7	70°	19200	3950	1525	64.4	8.5
2.00	95°	13600	10100	3500	1525	129.1	80°	19300	4410	1550	65.6	1.5
3.00	95°	14200	10200	4000	1475	122.8	80°	20200	4825	1575	70.1	3.4
4.00	95°	14300	10200	4100	1425	119.6	80°	20400	5025	1575	72.5	5.7
5.00	95°	14400	10200	4200	1425	117.7	80°	20600	5130	1600	73.9	8.5
2.00	95°	13600	10000	3600	1500	125.9	90°	21600	5320	1600	74.7	1.5
3.00	95°	13900	10200	3700	1500	121.7	90°	21200	5650	1620	79.6	3.4
4.00	95°	14100	10200	3900	1475	118.6	90°	21400	5850	1625	82.1	5.7
5.00	95°	14200	10200	4000	1475	116.7	90°	21400	5950	1625	83.7	8.5

### CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F DB	Total Cooling Capacity	Sensible Capacity Entering Air Dry Bulb					Heat of Reject.	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorb.	Power Input
		70°DB	75°DB	80°DB	85°DB	90°DB						
65°	0.900	1.086	1.302	1.517	1.732	0.919	0.975	60°	1.032	1.018	0.960	
64°	0.951	0.719	0.935	1.150	1.365	0.950	0.988	65°	1.021	1.009	0.980	
63°	1.000	0.570	0.785	1.000	1.215	1.000	1.000	70°	1.000	1.000	1.000	
70°	1.04		0.637	0.852	1.067	1.282	1.038	75°	0.980	0.981	1.020	
75°	1.081		0.490	0.706	0.921	1.135	1.075	80°	0.958	0.983	1.040	

### CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Reject.	Power Input	Total Heating Capacity	Heat of Absorp.	Power Input
350	0.956	0.907	0.957	0.952	0.950	0.981	1.042
400	0.972	0.926	0.971	0.964	0.960	0.988	1.028
450	0.986	0.940	0.985	0.974	0.960	0.994	1.014
500	1.000	1.000	1.000	1.000	1.000	1.000	1.000
550	1.014	1.014	1.014	1.014	1.000	1.005	0.986
600	1.028	1.028	1.028	1.022	0.999	1.010	0.970

## 803-019/804-019

COOLING PERFORMANCE TABLE							HEATING PERFORMANCE TABLE					P.D. Fl. of Water
Water Flow GPM	Ent. Wat. Temp. °F	Cooling Total BTUH	Sensi- ble BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F	Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorp. BTUH	Power Input Watts	Leaving Wat. Temp. °F	
2.50	65°	19400	13600	5800	1050	65.0	80°	19100	13200	1700	49.4	2.5
3.75	65°	19500	13700	5800	1075	78.3	80°	23200	14227	1700	52.4	5.2
5.00	65°	19500	13600	5900	1025	74.9	80°	25800	14742	1775	54.1	9.7
6.25	65°	19500	13500	6000	1025	72.9	80°	27000	14942	1775	55.2	13.0
2.50	75°	19200	13900	5300	1750	85.0	85°	22000	14427	1750	53.5	2.5
3.75	75°	19200	13800	5400	1675	88.3	85°	21400	15257	1800	55.9	5.2
5.00	75°	19400	13800	5600	1625	85.0	85°	22000	15771	1825	58.7	9.7
6.25	75°	19400	13800	5600	1625	83.0	85°	22200	15866	1825	59.9	13.0
2.50	85°	18500	13900	4600	1850	104.9	70°	21000	15071	1825	57.7	2.5
3.75	85°	18900	13900	5000	1775	98.3	70°	22600	15966	1850	61.3	5.2
5.00	85°	19200	13900	5300	1725	95.0	70°	23000	16601	1875	63.4	9.7
6.25	85°	19100	13900	5200	1725	93.0	70°	23200	16801	1875	64.6	13.0
2.50	90°	18100	13700	4400	1900	109.7	80°	23000	17115	1900	66.3	2.5
3.75	90°	18800	13800	5000	1825	103.2	80°	24400	17830	1925	70.5	5.2
5.00	90°	18300	13500	4800	1750	100.0	80°	24600	17945	1950	72.8	9.7
6.25	90°	18900	13500	5400	1775	96.0	80°	24800	18145	1950	74.2	13.0
2.50	95°	17700	13500	4200	1950	114.5	90°	25200	18459	1975	75.2	2.5
3.75	95°	18200	13700	4500	1875	108.1	90°	26000	18969	1975	79.9	5.2
5.00	95°	18500	13800	4700	1825	104.5	90°	25800	19974	2000	82.4	9.7
6.25	95°	18600	13800	4800	1825	102.3	90°	26000	19174	2000	83.9	13.0

### CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F DB	Total Cooling Capacity	Sensible Capacity Entering Air Dry Bulb					Heat of Reject.	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorb.	Power Input
		70°DB	75°DB	80°DB	85°DB	90°DB						
61°	0.916	0.871	1.085	1.302	1.517	1.732	0.922	0.942	60°	1.021	1.020	0.980
64°	0.950	0.719	0.935	1.150	1.365	1.562	0.980	0.971	65°	1.000	1.014	0.954
67°	1.000	0.570	0.785	1.000	1.215	1.430	1.000	1.000	70°	1.000	1.000	1.000
70°	1.047		0.637	0.852	1.067	1.282	1.048	1.023	75°	0.980	0.986	1.026
75°	1.098		0.490	0.706	0.921	1.135	1.089	1.058	80°	0.958	0.971	1.040

### CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Reject.	Power Input	Total Heating Capacity	Heat of Absorp.	Power Input
470	0.961	0.914	0.910	0.966	0.951	0.946	1.000
500	0.974	0.943	0.973	0.970	0.974	0.951	1.000
550	0.987	0.971	0.987	0.985	0.987	0.982	1.000
600	1.000	1.000	1.000	1.000	1.000	1.000	1.000
710	1.013	1.023	1.013	1.015	1.013	1.018	1.000
775	1.028	1.037	1.027	1.030	1.026	1.008	1.000

Based upon ARI Standard 330-81.

# PERFORMANCE CHARTS

803-024/804-025

COOLING PERFORMANCE TABLE							HEATING PERFORMANCE TABLE					R.O. Ft. of Water
Water Flow GPM	Ent. Wat. Temp. °F	Cooling Total BTUH	Sensible BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F	Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorb. BTUH	Power Input Watts	Leaving Wat. Temp. °F	
3.25	55°	26000	17500	33538	2130	95.5	50°	29000	20804	2370	47.1	3.5
5.00	55°	25200	17300	30137	2530	78.3	50°	32600	22353	2475	51.1	7.6
6.75	55°	25200	17300	33026	2300	74.6	50°	31600	23089	2520	53.7	13.1
8.50	55°	25200	17300	32941	1975	72.8	50°	32200	23497	2550	51.5	19.8
3.25	75°	25450	17600	33165	2275	91.4	50°	31000	22953	2475	51.1	3.5
5.00	75°	25820	17500	33228	2175	38.3	55°	32600	23897	2530	55.4	7.6
6.75	75°	28030	17500	30253	2125	54.9	55°	33400	24526	2600	57.7	13.1
8.50	75°	26000	17400	33167	2100	22.6	50°	32800	24936	2600	59.1	19.8
3.25	85°	24600	17500	32577	2425	100.2	70°	33000	24297	2550	55.0	3.5
5.00	85°	25200	17500	33135	2325	98.3	70°	34400	25526	2600	59.4	7.6
6.75	85°	25400	17500	33165	2275	91.8	70°	35000	25956	2650	62.3	13.1
8.50	85°	25600	17600	33279	2265	92.5	70°	35400	26358	2650	63.8	19.8
3.25	90°	24300	17300	32947	2475	110.1	80°	33000	26795	2700	63.5	3.5
5.00	90°	24400	17300	32981	2430	103.2	80°	33000	27114	2750	65.0	7.6
6.75	90°	25200	17500	33221	2380	95.2	80°	33600	28211	2750	71.6	13.1
8.50	90°	25200	17600	33135	2325	97.8	80°	33800	28414	2750	73.3	19.8
3.25	95°	23600	17100	32003	2550	114.9	90°	33600	28944	2800	72.2	3.5
5.00	95°	24400	17400	32763	2490	108.1	90°	33000	29444	2800	75.2	7.6
6.75	95°	24800	17500	32991	2450	104.8	90°	33500	29944	2900	81.1	13.1
8.50	95°	24900	17500	32906	2375	102.7	90°	33500	29773	2850	83.0	19.8

CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F DB	Total Cooling Capacity	Sensible Capacity: Entering Air Dry Bulb					Heat of Reject.	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorb.	Power Input
		70°DB	75°DB	80°DB	85°DB	90°DB						
51°	0.835	0.871	1.086	1.302	1.517	1.732	0.862	0.915	90°	1.003	1.026	0.934
54°	0.822	0.779	0.935	1.152	1.355	1.562	0.834	0.875	85°	1.003	1.014	0.967
57°	1.000	0.576	0.785	1.000	1.215	1.430	1.000	1.000	70°	1.000	1.000	1.000
70°	1.000		0.637	0.852	1.067	1.282	1.000	1.000	75°	0.999	0.987	1.033
73°	1.31		0.490	0.705	0.921	1.136	1.112	1.049	80°	0.998	0.974	1.067

CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Reject.	Power Input	Total Heating Capacity	Heat of Absorb.	Power Input
725	0.987	0.971	0.966	0.965	0.993	0.980	1.007
800	1.005	1.000	1.000	1.000	1.000	1.000	1.000
875	1.013	1.029	1.011	1.015	1.007	1.011	0.993
950	1.028	1.058	1.027	1.030	1.013	1.022	0.987
1025	1.030	1.097	1.041	1.045	1.019	1.033	0.980

803-030/804-031

COOLING PERFORMANCE TABLE							HEATING PERFORMANCE TABLE					R.O. Ft. of Water
Water Flow GPM	Ent. Wat. Temp. °F	Cooling Total BTUH	Sensible BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F	Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorb. BTUH	Power Input Watts	Leaving Wat. Temp. °F	
4.00	55°	30600	21600	39980	2710	85.0	50°	33800	23800	2600	48.0	2.2
5.00	55°	30500	21500	39574	2600	78.2	50°	35600	25261	3000	51.5	4.6
6.00	55°	30500	21400	39508	2550	71.9	50°	36600	26180	3050	53.5	7.6
10.00	55°	30800	21400	39333	2500	72.9	50°	37200	26790	3050	54.6	17.7
4.00	75°	30000	21300	39998	2900	94.9	55°	36200	25661	3000	52.0	2.2
5.00	75°	30400	21300	39955	2800	88.5	55°	37800	27220	3100	55.9	4.6
6.00	75°	30600	21300	39885	2750	85.0	55°	38500	27719	3150	58.1	7.6
10.00	75°	30500	21300	39915	2700	83.3	55°	39000	28243	3150	59.4	17.7
4.00	85°	29200	21300	39780	3100	104.9	70°	38500	27930	3100	56.0	2.2
6.00	85°	29900	21300	39848	2950	98.3	70°	40300	29078	3200	60.5	4.6
8.00	85°	30000	21300	39892	2900	95.0	70°	40500	29378	3250	62.6	7.6
10.00	85°	30200	21300	39927	2850	93.2	70°	41000	29908	3250	64.0	17.7
4.00	90°	28600	21200	39351	3150	109.7	80°	42000	30920	3250	64.5	2.2
6.00	90°	29400	21200	39270	3050	103.3	80°	43000	31737	3300	69.4	4.6
8.00	90°	29600	21200	39339	3000	100.0	80°	43500	32066	3350	72.0	7.6
10.00	90°	29600	21200	39368	2950	98.0	80°	43500	32066	3350	73.6	17.7
4.00	95°	28000	21000	39022	3250	114.5	90°	44500	32066	3350	73.5	2.2
6.00	95°	28600	21000	39551	3150	108.2	90°	46000	33366	3400	78.9	4.6
8.00	95°	29200	21000	39790	3100	104.9	90°	45500	33896	3450	81.5	7.6
10.00	95°	29400	21000	39810	3050	103.0	90°	46000	34396	3400	83.1	17.7

CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F DB	Total Cooling Capacity	Sensible Capacity: Entering Air Dry Bulb					Heat of Reject.	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorb.	Power Input
		70°DB	75°DB	80°DB	85°DB	90°DB						
61°	0.835	0.871	1.086	1.302	1.517	1.732	0.862	0.915	90°	1.004	1.030	0.932
64°	0.923	0.719	0.955	1.150	1.365	1.580	0.905	0.970	85°	1.001	1.015	0.966
67°	1.000	0.570	0.785	1.000	1.215	1.430	1.000	1.000	70°	1.000	1.000	1.000
73°	1.066		0.637	0.852	1.067	1.282	1.055	1.027	75°	0.999	0.986	1.034
73°	1.120		0.490	0.706	0.921	1.136	1.104	1.055	80°	0.998	0.972	1.069

CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Reject.	Power Input	Total Heating Capacity	Heat of Absorb.	Power Input
920	0.989	0.975	0.988	0.987	0.993	0.985	1.004
1000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1080	1.011	1.025	1.012	1.013	1.007	1.011	0.996
1160	1.022	1.060	1.023	1.025	1.014	1.023	0.982
1240	1.034	1.074	1.035	1.035	1.021	1.034	0.988

Based upon ARI Standard 320-31.

# PERFORMANCE CHARTS

803-036/804-037

COOLING PERFORMANCE TABLE							HEATING PERFORMANCE TABLE					
Water Flow GPM	Ent. Wat. Temp. °F	Cooling Total BTUH	Sensible BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F	Ent. Wat. Temp. °F	Heat ng Total BTUH	Heat of Absorb. BTUH	Power Input Watts	Leaving Wat. Temp. °F	P.D. Ft. of Water
5.00	85°	35400	24200	47151	3130	83.9	60°	35500	24678	3200	50.1	3.9
7.00	85°	38820	24000	48939	3000	78.4	60°	37400	26137	3000	52.5	7.2
9.00	85°	39600	24000	46688	2950	75.4	60°	38300	27066	3350	54.0	11.3
11.00	85°	36600	23800	45438	2900	73.5	60°	39000	27566	3350	55.0	18.2
5.00	75°	35600	24400	47034	3350	83.8	55°	38000	26566	3350	54.4	3.9
7.00	75°	38000	24400	46922	3200	80.4	55°	39500	27395	3400	57.0	7.2
9.00	75°	36300	24200	46951	3150	80.4	55°	40600	28275	3450	58.6	11.3
11.00	75°	36400	24200	46930	3100	83.5	55°	41000	29225	3450	59.7	18.2
5.00	85°	34800	24200	46916	3550	103.8	70°	40500	25725	3450	55.5	3.9
7.00	85°	35200	24400	46804	3400	96.4	70°	41500	26555	3500	61.6	7.2
9.00	85°	35000	24400	47034	3350	95.5	70°	42500	27395	3550	63.2	11.3
11.00	85°	35600	24400	47063	3300	93.5	70°	43000	28344	3600	64.4	18.2
5.00	90°	34500	24200	46457	3650	108.6	80°	44000	31713	3600	67.3	3.9
7.00	90°	34800	24200	46746	3500	103.4	80°	45000	32543	3650	70.7	7.2
9.00	90°	35000	24400	46775	3450	100.4	80°	46000	33372	3700	72.7	11.3
11.00	90°	35200	24400	46504	3400	96.5	80°	46000	34322	3700	73.9	18.2
5.00	95°	35400	23800	46199	3750	113.5	90°	47000	34201	3750	76.3	3.9
7.00	95°	34200	24200	46487	3600	108.2	90°	47500	34701	3750	80.1	7.2
9.00	95°	34600	24200	46716	3550	105.4	90°	48000	35201	3750	82.2	11.3
11.00	95°	34300	24200	46745	3500	103.5	90°	48000	36031	3800	83.6	18.2

CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F WB	Total Cooling Capacity	Sensible Capacity-Entering Air Dry Bulb					Heat of Reject.	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorb.	Power Input
		70°FDB	75°FDB	80°FDB	85°FDB	90°FDB						
61°	0.915	0.871	1.085	1.302	1.517	1.732	0.928	0.968	60°	1.001	1.011	0.979
64°	0.956	0.719	0.935	1.150	1.365	1.580	0.983	0.984	65°	1.001	1.006	0.989
67°	1.000	0.570	0.785	1.000	1.215	1.430	1.000	1.000	70°	1.000	1.000	1.000
70°	1.048		0.637	0.852	1.067	1.282	1.040	1.018	75°	0.999	0.995	1.011
73°	1.099		0.490	0.708	0.921	1.136	1.083	1.032	80°	0.998	0.989	1.021

CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Reject.	Power Input	Total Heating Capacity	Heat of Absorb.	Power Input
900	0.966	0.925	0.965	0.982	0.957	0.940	0.900
1050	0.978	0.950	0.977	0.971	0.971	0.952	0.894
1200	0.989	0.975	0.983	0.967	0.968	0.961	0.897
1350	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1500	1.011	1.025	1.012	1.018	1.014	1.019	1.003
1650	1.022	1.050	1.023	1.026	1.029	1.038	1.006

803-042

COOLING PERFORMANCE TABLE							HEATING PERFORMANCE TABLE					
Water Flow GPM	Ent. Wat. Temp. °F	Cooling Total BTUH	Sensible BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F	Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorb. BTUH	Power Input Watts	Leaving Wat. Temp. °F	P.D. Ft. of Water
5.00	85°	44000	32000	56709	3750	63.7	60°	47000	34001	3800	47.6	4.0
7.00	85°	44000	31800	56287	3600	78.2	60°	50000	36689	3900	51.4	10.4
9.00	85°	44000	31400	55946	3500	74.7	60°	51500	37248	4000	53.4	18.0
14.50	85°	44000	31400	55775	3450	72.7	60°	52500	38048	4000	54.6	27.3
5.00	75°	43000	32200	56050	4000	95.8	55°	50500	37019	3950	51.5	4.6
7.00	75°	43500	32000	56140	3850	88.3	55°	52000	38177	4050	55.6	10.4
9.00	75°	44000	32000	56793	3750	84.9	55°	54500	40507	4100	58.0	18.0
14.50	75°	44000	32000	56628	3700	82.8	55°	55000	40938	4150	59.4	27.3
5.00	85°	41500	32000	55005	4250	105.4	70°	53500	38677	4050	55.6	4.6
7.00	85°	42500	32200	55489	4100	93.3	70°	56000	41856	4150	60.2	10.4
9.00	85°	43000	32200	56852	4020	94.9	70°	57000	42865	4200	62.6	18.0
14.50	85°	43000	32200	56481	3950	92.8	70°	57500	43395	4250	64.7	27.3
5.00	90°	41000	31600	55847	4350	110.3	80°	58500	43995	4250	64.0	4.6
7.00	90°	42000	32000	56326	4200	103.3	80°	60500	45653	4350	69.3	10.4
9.00	90°	42500	32200	56493	4100	95.9	80°	61000	46153	4350	72.0	18.0
14.50	90°	42500	32200	56323	4050	97.8	80°	61500	46483	4400	73.6	27.3
5.00	95°	40000	31400	56309	4500	113.1	90°	62500	47463	4400	72.7	4.6
7.00	95°	41500	31600	56176	4300	108.2	90°	63500	48312	4450	78.6	10.4
9.00	95°	42000	32000	56505	4250	104.0	90°	64000	48842	4500	81.5	18.0
14.50	95°	42000	32000	56395	4200	102.8	90°	64500	49142	4500	83.2	27.3

CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F WB	Total Cooling Capacity	Sensible Capacity-Entering Air Dry Bulb					Heat of Reject.	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorb.	Power Input
		70°FDB	75°FDB	80°FDB	85°FDB	90°FDB						
61°	0.912	0.871	1.085	1.302	1.517	1.732	0.926	0.968	60°	1.002	1.025	0.931
64°	0.960	0.719	0.935	1.150	1.365	1.580	0.986	0.985	65°	1.001	1.013	0.965
67°	1.000	0.570	0.785	1.000	1.215	1.430	1.000	1.000	70°	1.000	1.000	1.000
70°	1.033		0.637	0.852	1.067	1.282	1.029	1.015	75°	1.000	0.985	1.035
73°	1.060		0.490	0.708	0.921	1.136	1.053	1.031	80°	0.999	0.976	1.070

CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Reject.	Power Input	Total Heating Capacity	Heat of Absorb.	Power Input
1125	0.955	0.923	0.964	0.960	0.950	0.946	0.895
1250	0.977	0.948	0.976	0.975	0.973	0.965	0.897
1375	0.988	0.974	0.983	0.967	0.981	0.983	0.898
1500	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1625	1.012	1.026	1.012	1.018	1.013	1.017	1.002
1750	1.023	1.052	1.024	1.027	1.027	1.035	1.003

Based upon ARI Standard 320-6:

# PERFORMANCE CHARTS

804-043

COOLING PERFORMANCE TABLE

Water Flow GPM	Ent. Wat. Temp. °F	Cooling Total BTUH	Sensible BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F
5.00	65°	42500	31400	55540	3850	87.3
8.00	65°	43000	31000	55457	3850	78.8
11.00	65°	43000	30900	55116	3550	75.0
14.00	65°	42000	32600	54946	3600	72.8
5.00	75°	42000	31400	55092	4100	87.4
8.00	75°	42500	31400	55811	3900	80.0
11.00	75°	43000	31200	55969	3800	85.2
14.00	75°	43000	31200	55799	3750	83.0
5.00	85°	43500	31200	55447	4350	127.7
8.00	85°	41500	31400	55654	4100	88.9
11.00	85°	42000	31400	55823	4050	85.1
14.00	85°	42000	31400	55832	4000	83.0
5.00	90°	39000	30900	54826	4450	111.9
8.00	90°	41000	31200	55005	4250	103.9
11.00	90°	41500	31400	55664	4150	100.1
14.00	90°	41500	31400	55493	4100	97.9
5.00	95°	38500	30400	54200	4500	116.7
8.00	95°	40000	31000	55017	4400	108.6
11.00	95°	41000	31200	55576	4300	105.1
14.00	95°	41000	31200	55505	4250	102.9

HEATING PERFORMANCE TABLE

Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorb. BTUH	Power Input Watts	Leaving Wat. Temp. °F	P.D. Fl. of Water
80°	46500	35018	3950	46.8	4.0
80°	53000	35358	4180	51.9	9.4
80°	53000	37185	4250	53.2	16.0
80°	52500	37995	4250	51.6	25.6
65°	50000	36328	4150	50.7	4.0
65°	53000	36496	4250	55.4	9.4
65°	54500	36953	4350	57.5	16.0
65°	55000	40150	4350	59.9	26.0
70°	53500	36924	4300	54.5	4.0
70°	56000	40163	4400	59.6	9.4
70°	57000	41812	4400	62.4	16.0
70°	57500	42142	4500	64.0	26.0
80°	58500	43142	4500	62.7	4.0
80°	60000	44320	4600	65.9	9.4
80°	61000	45320	4600	71.8	16.0
80°	61500	45620	4600	73.6	26.0
90°	62000	45130	4550	71.5	4.0
90°	63500	47459	4700	75.1	9.4
90°	64000	47788	4750	81.0	16.0
90°	64500	48228	4750	83.1	26.0

CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F WB	Total Cooling Capacity	Sensible Capacity Entering Air Dry Bulb					Heat of Reject	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorb.	Power Input
		70°DB	75°DB	80°DB	85°DB	90°DB						
61°	0.860	0.871	1.066	1.302	1.517	1.732	0.890	0.961	60°	1.004	1.022	0.953
64°	0.937	0.719	0.935	1.150	1.365	1.580	0.950	0.991	65°	1.002	1.011	0.975
67°	1.000	0.570	0.785	1.000	1.215	1.430	1.050	1.000	70°	1.000	1.000	1.000
70°	1.050		0.637	0.852	1.067	1.282	1.040	1.005	75°	0.999	0.999	1.024
73°	1.087		0.490	0.706	0.921	1.136	1.070	1.019	80°	0.998	0.982	1.015

CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Reject	Power Input	Total Heating Capacity	Heat of Absorb.	Power Input
1075	0.954	0.820	0.958	0.959	0.955	0.956	1.005
1200	0.976	0.947	0.975	0.972	0.979	0.970	1.003
1325	0.988	0.979	0.986	0.986	0.980	0.985	1.002
1450	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1575	1.012	1.027	1.012	1.014	1.010	1.015	0.998
1700	1.024	1.055	1.025	1.028	1.021	1.029	0.997

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COOLING PERFORMANCE TABLE

Water Flow GPM	Ent. Wat. Temp. °F	Cooling Total BTUH	Sensible BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F
5.00	65°	49000	37200	54559	4500	86.5
8.25	65°	49000	36900	63976	4300	76.8
12.50	65°	49500	36600	63835	4200	75.2
16.75	65°	49500	36400	63498	4100	73.1
5.00	75°	48000	37200	61382	4800	96.5
8.25	75°	48500	37200	64029	4550	86.9
12.50	75°	48000	37000	64186	4450	85.3
16.75	75°	49000	37000	64017	4400	83.1
5.00	85°	48500	37000	63906	5100	106.3
8.25	85°	47500	37200	64053	4850	98.8
12.50	85°	48000	37200	64212	4750	95.9
16.75	85°	48000	37200	64041	4700	93.1
5.00	90°	45500	36600	63248	5200	111.1
8.25	90°	47000	37000	64085	5000	103.9
12.50	90°	47500	37200	64274	4900	100.3
16.75	90°	47500	37200	64053	4850	95.1
5.00	95°	44500	36200	62932	5400	116.0
8.25	95°	45000	36900	63408	5100	108.7
12.50	95°	45500	37000	63565	5000	105.9
16.75	95°	47000	37000	64065	5000	103.1

HEATING PERFORMANCE TABLE

Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorb. BTUH	Power Input Watts	Leaving Wat. Temp. °F	P.D. Fl. of Water
50°	45500	34165	4200	48.6	4.2
50°	52000	37152	4350	52.0	9.3
60°	53000	36463	4400	53.9	15.9
60°	54000	36812	4450	55.1	24.1
65°	53000	37159	4350	49.9	4.2
65°	53000	39812	4450	56.4	9.3
65°	56000	40071	4550	58.5	15.9
65°	57000	41471	4600	59.7	24.1
70°	53500	40142	4500	56.0	4.2
70°	59000	42300	4600	60.9	9.3
70°	60000	43190	4650	63.1	15.9
70°	59500	43458	4700	64.5	24.1
80°	60500	44450	4700	65.0	4.2
80°	62500	42118	4800	70.0	9.3
80°	63000	43447	4850	72.5	15.9
80°	63500	43947	4900	74.0	24.1
90°	54500	47776	4900	74.7	4.2
90°	60000	49108	4950	79.4	9.3
90°	60000	48108	4950	82.1	15.9
90°	67000	50106	4950	83.6	24.1

CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F WB	Total Cooling Capacity	Sensible Capacity Entering Air Dry Bulb					Heat of Reject	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorb.	Power Input
		70°DB	75°DB	80°DB	85°DB	90°DB						
61°	0.895	0.871	1.066	1.302	1.517	1.732	0.907	0.957	60°	1.001	1.019	0.954
64°	0.951	0.719	0.935	1.152	1.365	1.580	0.955	0.989	65°	1.001	1.009	0.977
67°	1.000	0.570	0.785	1.000	1.215	1.430	1.000	1.000	70°	1.000	1.000	1.000
70°	1.043		0.637	0.852	1.067	1.282	1.040	1.031	75°	1.000	0.999	1.022
73°	1.081		0.490	0.706	0.921	1.136	1.075	1.053	80°	1.000	0.982	1.047

CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Reject	Power Input	Total Heating Capacity	Heat of Absorb.	Power Input
1250	0.963	0.818	0.962	0.958	0.945	0.932	0.981
1400	0.975	0.845	0.974	0.972	0.963	0.952	0.968
1550	0.988	0.973	0.987	0.986	0.961	0.977	0.954
1700	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1850	1.012	1.027	1.013	1.014	1.019	1.023	1.056
2000	1.025	1.055	1.025	1.028	1.037	1.047	1.012

Based upon ARI Standard 321-8.



# PERFORMANCE CHARTS

803-050;804-050

COOLING PERFORMANCE TABLE							HEATING PERFORMANCE TABLE					P.D. Fl. of Water
Water Flow GPM	Ent. Wat. Temp. °F	Cooling Total BTUH	Sensi- ble BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F	Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorp. BTUH	Power Input Watts	Leaving Wat. Temp. °F	
8.00	65°	82000	46500	82795	5800	85.7	60°	56100	33430	3200	50.1	4.1
12.00	65°	123000	69000	124193	8700	73.7	60°	59500	41752	3200	55.2	5.5
16.00	65°	164000	91500	165391	11600	75.2	60°	61500	43411	3500	54.6	14.3
20.00	65°	205000	114000	206589	15000	73.2	60°	62500	44411	3900	55.8	21.4
8.00	75°	62000	47000	82519	6100	85.7	65°	40500	42752	3200	51.2	4.1
12.00	75°	93000	70000	123137	9000	88.9	65°	63500	45070	3400	57.5	5.5
16.00	75°	124000	93000	16464	12000	85.3	65°	85000	46229	3500	59.2	14.3
20.00	75°	165000	116000	20594	16000	83.3	65°	106000	47229	3500	60.0	21.4
8.00	35°	60000	46000	82185	6500	105.5	70°	64000	45500	5400	58.6	4.1
12.00	35°	91000	70000	122861	9200	98.9	70°	97000	48229	5600	62.0	5.5
16.00	35°	122000	93000	16419	12300	96.4	70°	128000	48887	5600	63.9	14.3
20.00	35°	163000	116000	205478	16500	93.2	70°	169000	49887	5600	65.2	21.4
8.00	90°	59000	46000	81867	6700	110.5	80°	70000	50548	5700	67.4	4.1
12.00	90°	88000	69000	12340	9400	103.7	80°	105000	52905	5800	71.3	5.5
16.00	90°	117000	92000	16409	12500	101.3	80°	135000	53905	5800	73.3	14.3
20.00	90°	156000	115000	20561	16700	98.3	80°	175000	55205	5800	74.7	21.4
8.00	95°	57500	45500	81850	6900	115.3	90°	75000	54863	5900	70.3	4.1
12.00	95°	86500	68500	12328	9600	108.7	90°	105000	56863	5900	70.7	5.5
16.00	95°	115500	91500	164185	12500	103.3	90°	135000	58222	6000	73.1	14.3
20.00	95°	154500	114500	20543	16400	103.2	90°	174000	59522	6000	74.3	21.4

## CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F WB	Total Cooling Capacity	Sensible Capacity: Entering Air Dry Bulb					Heat of Reject.	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorb.	Power Input
		70°DB	75°DB	80°DB	85°DB	90°DB						
61°	0.897	0.871	1.208	1.302	1.517	1.732	0.912	0.957	60°	1.002	1.021	0.950
64°	0.847	0.719	0.936	1.010	1.186	1.380	1.355	0.970	65°	1.001	1.011	0.975
67°	1.000	0.570	0.785	1.000	1.215	1.430	1.000	1.000	70°	1.000	1.000	1.000
70°	1.258		0.537	0.852	1.067	1.282	1.048	1.021	75°	0.999	0.999	1.024
73°	1.120		0.490	0.706	0.921	1.136	1.100	1.043	80°	0.998	0.979	1.048

## CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Rej. etc.	Power Input	Total Heating Capacity	Heat of Absorp.	Power Input
1600	0.972	0.938	0.977	0.968	0.962	0.951	0.990
1800	0.986	0.959	0.985	0.984	0.981	0.976	0.995
2000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2200	1.014	1.031	1.015	1.016	1.019	1.025	1.005
2400	1.028	1.062	1.029	1.032	1.032	1.039	1.010
2600	1.042	1.093	1.044	1.048	1.058	1.074	1.015

804-056

COOLING PERFORMANCE TABLE							HEATING PERFORMANCE TABLE					P.D. Fl. of Water
Water Flow GPM	Ent. Wat. Temp. °F	Cooling Total BTUH	Sensi- ble BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F	Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorp. BTUH	Power Input Watts	Leaving Wat. Temp. °F	
12.00	65°	98000	75000	128376	9300	86.4	60°	92000	64013	8200	49.3	4.7
16.00	65°	129000	100000	17011	12000	79.1	60°	123000	83351	9400	52.8	9.7
24.00	65°	193000	140000	25328	18000	75.5	60°	185000	11648	13600	54.0	16.3
30.00	65°	247000	175000	32987	23000	73.5	60°	240000	15307	17000	55.2	24.3
12.00	75°	98000	75000	128424	9500	86.4	65°	99000	65990	8500	50.0	4.7
16.00	75°	129000	100000	17058	12100	80.2	65°	124500	74307	9700	56.7	9.7
24.00	75°	193000	140000	25376	18000	85.7	65°	186000	10624	13600	58.7	16.3
30.00	75°	247000	175000	32783	23000	83.5	65°	240000	14324	17000	59.6	24.3
12.00	85°	93000	74000	127730	10000	106.2	70°	105000	70066	9800	57.5	4.7
16.00	85°	124000	95000	17795	13000	98.2	70°	140000	79253	11000	61.2	9.7
24.00	85°	188000	135000	25882	19000	95.7	70°	205000	10942	13000	63.5	16.3
30.00	85°	242000	170000	32771	23000	93.5	70°	260000	14942	17000	64.5	24.3
12.00	90°	91000	74000	128154	10300	111.0	80°	115000	83620	9200	66.7	4.7
16.00	90°	122000	95000	17839	13000	104.1	80°	146000	96918	9400	70.5	9.7
24.00	90°	186000	135000	25806	19000	100.7	80°	210000	10918	13000	72.7	16.3
30.00	90°	240000	170000	32785	23000	98.5	80°	270000	14577	17000	74.1	24.3
12.00	95°	89000	73000	128178	10600	115.9	90°	123000	80235	9800	75.3	4.7
16.00	95°	120000	94000	17813	12200	109.1	90°	165000	92235	10000	79.9	9.7
24.00	95°	184000	134000	25730	19000	105.6	90°	225000	10894	13000	82.3	16.3
30.00	95°	238000	169000	32783	23000	103.5	90°	285000	14594	17000	83.8	24.3

## CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F WB	Total Cooling Capacity	Sensible Capacity: Entering Air Dry Bulb					Heat of Reject.	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorb.	Power Input
		70°DB	75°DB	80°DB	85°DB	90°DB						
61°	0.896	0.871	1.208	1.302	1.517	1.732	0.907	0.937	60°	1.001	1.019	0.954
64°	0.951	0.719	0.935	1.010	1.185	1.380	1.355	0.989	65°	1.000	1.010	0.977
67°	1.000	0.570	0.785	1.000	1.215	1.430	1.000	1.000	70°	1.000	1.000	1.000
70°	1.043		0.537	0.852	1.067	1.282	1.040	1.031	75°	1.000	0.991	1.023
73°	1.081		0.490	0.706	0.921	1.136	1.083	1.063	80°	1.000	0.981	1.047

## CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sensible Capacity	Heat of Rej. etc.	Power Input	Total Heating Capacity	Heat of Absorp.	Power Input
2500	0.963	0.912	0.962	0.968	0.946	0.931	0.981
2800	0.975	0.945	0.974	0.972	0.963	0.954	0.988
3100	0.988	0.970	0.987	0.986	0.981	0.977	0.994
3400	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3700	1.012	1.027	1.013	1.014	1.018	1.023	1.006
4000	1.025	1.055	1.026	1.028	1.037	1.047	1.011

# PERFORMANCE CHARTS

## 804-120

### COOLING PERFORMANCE TABLE

Water Flow GPM	Ent. Wat. Temp. °F	Cooling Total BTUH	Sensible BTUH	Heat of Reject. BTUH	Power Input Watts	Leaving Wat. Temp. °F
15.00	65°	126000	93000	16599	11800	87.1
23.00	65°	127000	92000	16484	11100	79.3
31.00	65°	127000	92000	16360	10800	75.6
39.00	65°	127000	91000	16378	12620	73.4
15.00	75°	125000	94000	15532	12420	97.3
23.00	75°	125000	93000	15523	11820	89.4
31.00	75°	126000	92000	15529	11500	85.7
39.00	75°	127000	93000	15505	11500	83.5
15.00	85°	125000	93000	164710	13100	107.0
23.00	85°	123000	90000	163862	12500	99.4
31.00	85°	124000	94000	16439	12300	95.7
39.00	85°	124000	94000	165297	12700	93.5
15.00	90°	117000	92000	162794	13400	111.7
23.00	90°	121000	90000	165029	12900	104.4
31.00	90°	123000	93000	166004	12900	100.6
39.00	90°	123000	93000	165663	12500	98.5
15.00	95°	114000	91000	161099	13600	116.5
23.00	95°	113000	92500	163333	13500	109.2
31.00	95°	120000	93000	164389	13000	105.6
39.00	95°	121000	93000	164656	12600	103.4

### HEATING PERFORMANCE TABLE

Ent. Wat. Temp. °F	Heating Total BTUH	Heat of Absorp. BTUH	Power Input Watts	Leaving Wat. Temp. °F	P.S. % of Water
60°	120000	78848	10500	49.8	4.5
60°	120000	83481	10700	52.7	5.5
60°	123000	86140	10500	54.4	14.7
60°	125000	87789	10300	55.5	22.2
65°	121000	84481	10700	53.7	4.5
65°	127000	88487	11000	57.2	5.5
65°	130000	91771	11200	59.1	14.7
65°	132000	93433	11300	60.2	22.2
70°	129000	90166	11100	55.0	4.5
70°	134000	95092	11400	61.7	5.5
70°	137000	97731	11500	63.7	14.7
70°	138000	98751	11500	64.9	22.2
80°	140200	100285	11700	65.7	4.5
80°	145200	104727	11800	70.9	5.5
80°	147000	106385	11900	73.1	14.7
80°	148200	107544	12000	74.5	22.2
90°	150200	108705	12100	75.5	4.5
90°	153000	111081	12200	80.3	5.5
90°	154000	112361	12300	82.8	14.7
90°	155000	113361	12300	84.2	22.2

### CORRECTION FACTORS FOR VARIATION IN ENTERING AIR TEMPERATURE

Ent. Air °F WB	Total Cooling Capacity	Sensible Capacity Entering Air: Dry Bulb					Heat of Rej. BTUH	Power Input	Ent. Air °F DB	Total Heating Capacity	Heat of Absorb.	Power Input
		70°DB	75°DB	80°DB	85°DB	90°DB						
61°	0.897	0.871	1.062	1.302	1.517	1.732	0.917	0.957	1.027	1.022	0.952	
64°	0.947	0.719	0.938	1.150	1.355	1.580	0.955	0.979	1.051	1.011	0.976	
67°	1.000	0.570	0.785	1.000	1.215	1.430	1.000	1.000	1.020	1.020	1.020	
70°	1.058		0.637	0.852	1.057	1.262	1.049	1.021	0.989	0.989	1.024	
73°	1.120		0.490	0.706	0.901	1.136	1.100	1.043	0.958	0.958	1.048	

### CORRECTION FACTORS FOR VARIATION IN AIR FLOW

Air Flow CFM	Total Cooling Capacity	Sens. Cap. Capacity	Heat of Reject.	Power Input	Total Heating Capacity	Heat of Absorb.	Power Input
3200	0.972	0.938	0.971	0.958	0.982	0.951	0.980
3600	0.886	0.959	0.983	0.954	0.981	0.975	0.995
4000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4400	1.014	1.037	1.016	1.016	1.015	1.025	1.005
4800	1.028	1.052	1.029	1.032	1.028	1.035	1.010
5200	1.042	1.093	1.044	1.048	1.018	1.075	1.015

Based upon AHJ Standard 322-61.

### SAMPLE PROBLEM

To estimate the performance of a Model 804-043 under the following conditions:

**COOLING MODE**—Return Air at 90°F DB/70°F WB, Air Flow 1325 CFM, Supply Water at 75°F and with a Supply Water rate of 11 GPM.

**HEATING MODE**—Same conditions except the Supply Water at 65°F, Return Air is 75°F.

To calculate leaving water temperature

**COOLING MODE** Lvg. Water Temp. = Entering Water Temp. °F +  $\left[ \frac{\text{Heat of Rejection BTUH}}{\text{GPM} \times 500} \right] = 75^\circ\text{F} + \left[ \frac{55969}{11 \times 500} \right] = 75^\circ\text{F} + 10.18 = 85.18^\circ\text{F}$

**HEATING MODE** Lvg. Water Temp. = Entering Water Temp. °F -  $\left[ \frac{\text{Heat of Absorption BTUH}}{\text{GPM} \times 500} \right] = 65^\circ\text{F} - \left[ \frac{39653}{11 \times 500} \right] = 65^\circ\text{F} - 7.20 = 57.80^\circ\text{F}$

### COOLING

	From Performance Chart	Correction Factors		Actual Performance
		Ent. Air Temp.	Air Flow	
Total Capacity BTUH	43000	< 1.050	× .988	= 44608
Sensible Capacity BTUH	31200	> 1.282	× .973	= 38918
Heat of Reject. BTUH	55969	> 1.040	× .988	= 57509
Power Input Watts	3800	× 1.009	× .986	= 3781

### HEATING

Total Capacity BTUH	54500	× .999	× .990	= 53901
Heat of Absorp. BTUH	39653	× .990	× .985	= 38668
Power Input Watts	4350	× 1.024	> 1.002	= 4463

# BLOWER PERFORMANCE

With wet coil and clean filter

## BLOWER PERFORMANCE CHART

Model Numbers	Fan Speed	CFM at External Static Pressure I.W.G.									Minimum CFM
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	
803-009 804-009	High Medium Low	356 330 300	332 306 280	306 280 260	254 250 240						240
803-012 804-012	High Medium Low	450 430 410	410 412 395	406 392 378	384 372 356	360 350 334	325 320				320
803-015 804-015	High Medium Low	560 540 516	545 528 507	528 510 493	507 492 478	486 473 460					460
803-019 804-019	High Medium Low	800 700 650	760 675 625	715 635 600	665 600 560	600 550 520					520
803-024 804-025	High Medium Low	1150 1020 890	1070 945 825	970 880 760	895 775 690	780 730 620					620
803-030 804-031	High Medium Low	1110 1020	1165 1055 965	1100 990 910	1035 930 850	955 865	880 805				800
803-036 804-037	High Medium Low	1500 1360 1290	1420 1310 1240	1340 1250 1190	1250 1190 1120	1170 1110 1030	1080 1000				1000
803-042	High Medium Low	1780 1670 1540	1700 1610 1500	1620 1540 1450	1540 1460 1400	1440 1370 1330	1340 1260				1200
804-043	High Medium Low	1620 1475 1385	1545 1415 1335	1465 1340 1275	1375 1270 1205	1275 1190					1150
803-048 804-048	High Medium Low	2130 1980 1810	2050 1900 1730	1960 1810 1650	1860 1720 1570	1750 1620 1490	1630 1520 1400				1400
803-060 804-060	High Medium Low	2200 2110 2060	2140 2050 2000	2080 2000 1940	2010 1940 1880	1940 1870 1820	1860 1800 1760	1700			1700
804-096	Closed 1 Turn 2 Turns 3 Turns 4 Turns 5 Turns		4150 3960 3770 3590 3340	4200 4000 3800 3580 3370 3090	4040 3840 3600 3380 3090 2800	3880 3650 3400 3140 2800	3700 3450 3200 2890	3500 3220 2940	3270 2980	3040	2800
804-120	Closed 1 Turn 2 Turns 3 Turns 4 Turns 5 Turns		4190 3980 3770	4240 4010 3820 3610	4360 4060 3860 3670 3400	4400 4160 3900 3710 3520	4230 3990 3740 3560	4035 3830 3590 3400	3850 3680	3660	3400

CAUTION: Unit should not be operated at CFM below minimum specified above.

### 208 VOLT CFM CORRECTION FACTORS FOR THE FOLLOWING MODELS ONLY

Model Numbers	High Speed	Medium Speed	Low Speed
803-009/804-009	.931	.914	.892
803-024/804-025	.958	.899	.854
803-036/804-037	.965	.935	.905
803-042	.984	.935	.886
804-043	.971	.937	.927
803-048/804-048	.980	.945	.918
803-060/804-060	.975	.944	.912

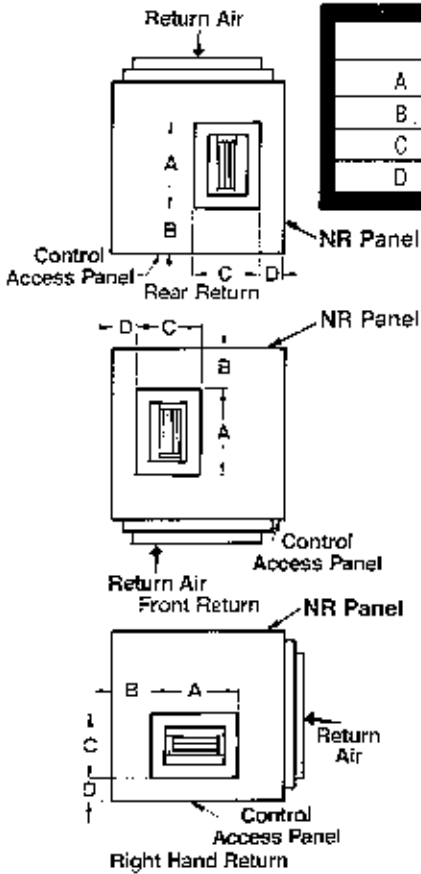
Units should not be operated below minimum CFM in Blower Performance Chart.

Air flow data is based on rated voltage and the most restrictive unit air flow arrangement. Duct system design should allow balancing for actual job requirements.

# DIMENSIONS

# 803

803-009 & 012



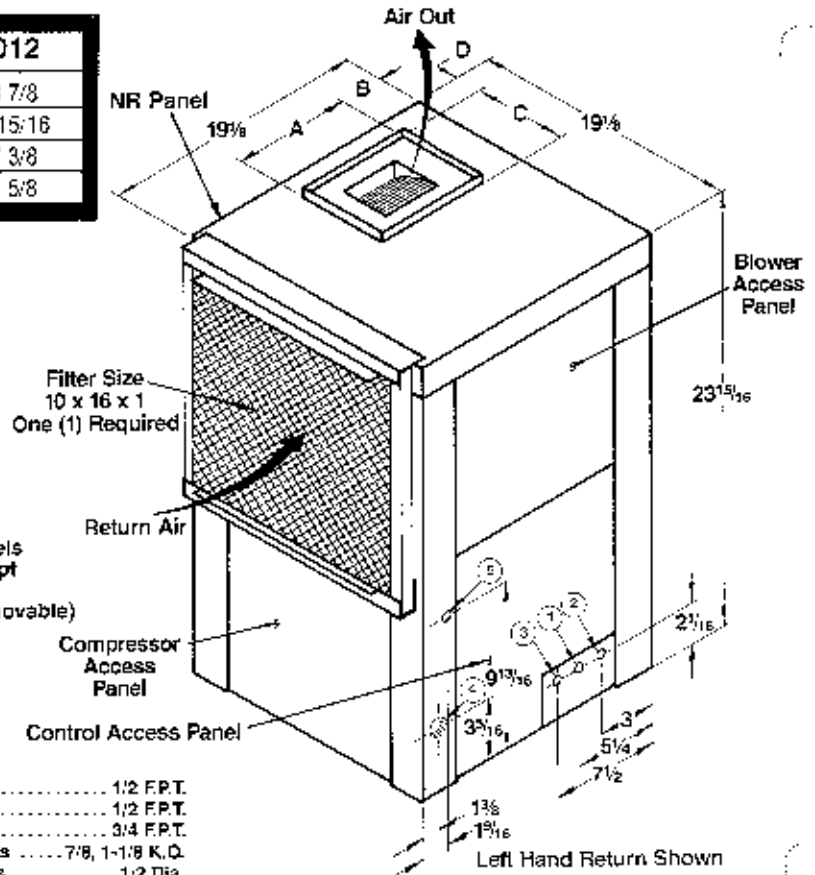
	009	012
A	9 7/8	9 7/8
B	3 13/16	3 15/16
C	7	7 3/8
D	1 13/16	1 5/8

NOTE: All side panels are removable except those identified by NR panel (Non-Removable)

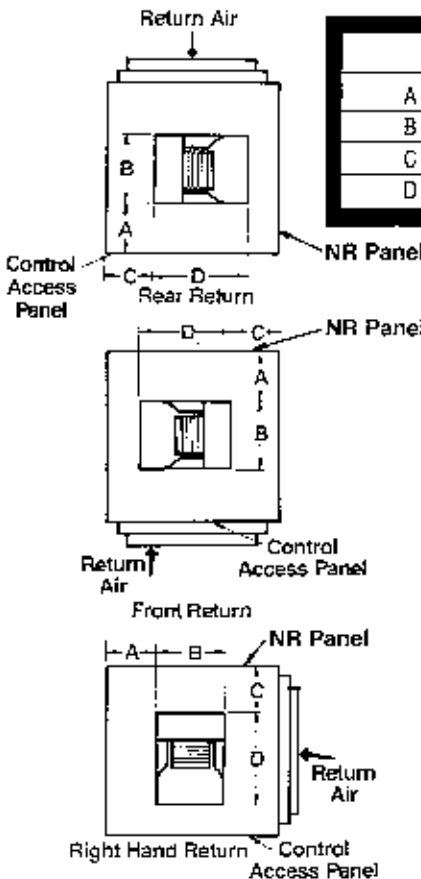
Return Air Duct Size  
9" H x 15 1/8" W

Legend:

1. Water Inlet ..... 1/2 F.P.T.
2. Water Outlet ..... 1/2 F.P.T.
3. Condensate Drain ..... 3/4 F.P.T.
4. High Voltage Access ..... 7/8, 1-1/8 K.O.
5. Low Voltage Access ..... 1/2 Dia.



803-015 & 019



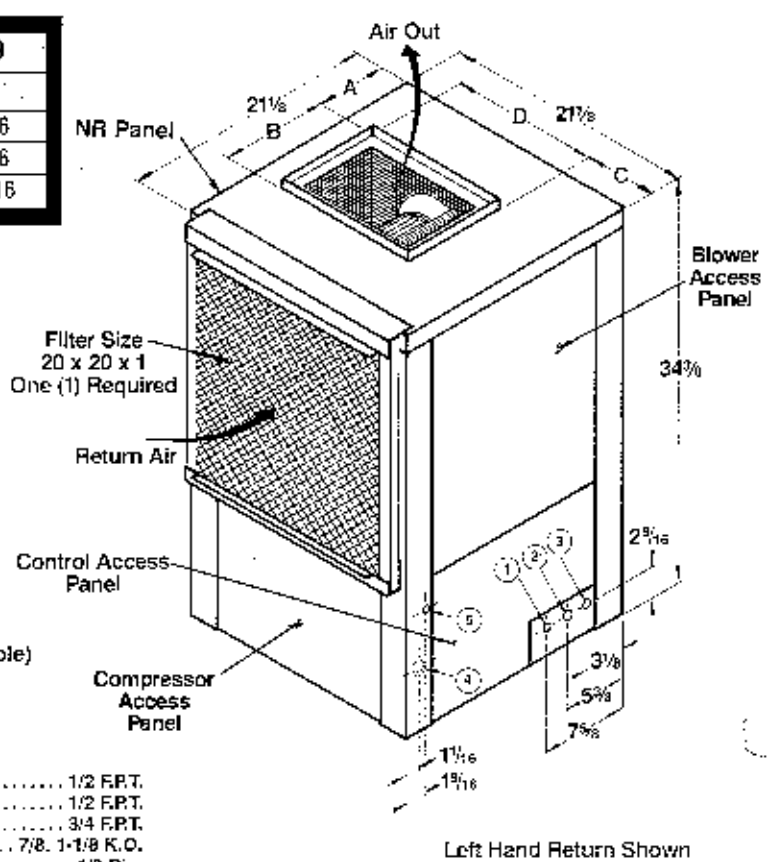
	015	019
A	5 1/2	6
B	7 5/8	9 1/16
C	9 1/4	5 9/16
D	10 1/8	12 9/16

NOTE: All side panels are removable except those identified by NR panel (Non-Removable)

Return Air Duct Size  
18 3/4" H x 18 1/8" W

Legend:

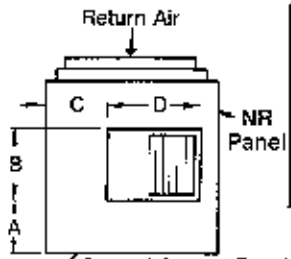
1. Water Inlet ..... 1/2 F.P.T.
2. Water Outlet ..... 1/2 F.P.T.
3. Condensate Drain ..... 3/4 F.P.T.
4. High Voltage Access ..... 7/8, 1-1/8 K.O.
5. Low Voltage Access ..... 1/2 Dia.



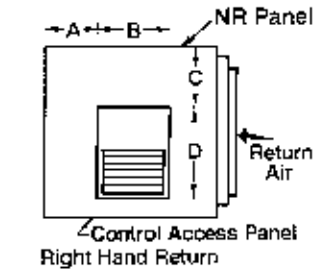
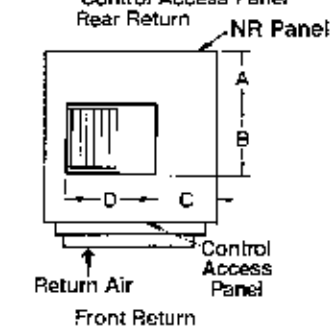
# DIMENSIONS

# 803

803-024 & 030



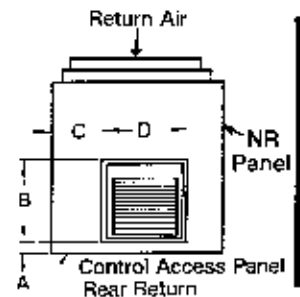
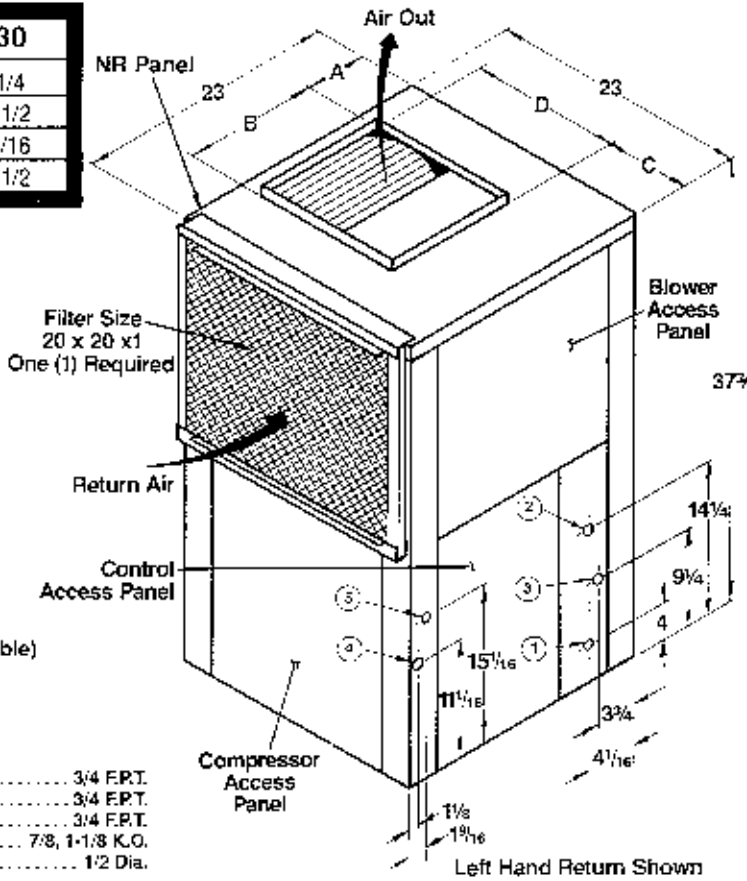
	024	030
A	5 3/4	6 1/4
B	11 11/16	10 1/2
C	7 7/16	8 7/16
D	12 11/16	13 1/2



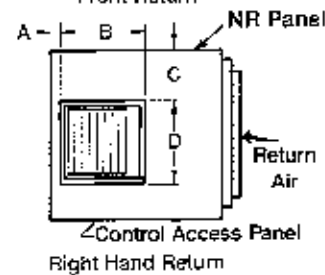
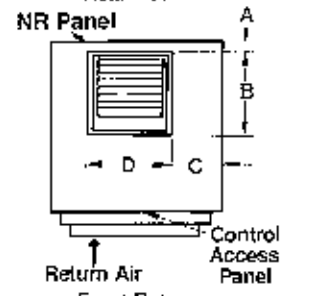
**NOTE: All side panels are removable except those identified by NR panel (Non-Removable)**

Return Air Duct Size  
18 3/4" H x 18 1/8" W

- Legend:
- 1. Water Inlet ..... 3/4 F.P.T.
  - 2. Water Outlet ..... 3/4 F.P.T.
  - 3. Condensate Drain ..... 3/4 F.P.T.
  - 4. High Voltage Access ..... 7/8, 1-1/8 K.O.
  - 5. Low Voltage Access ..... 1/2 Dia.



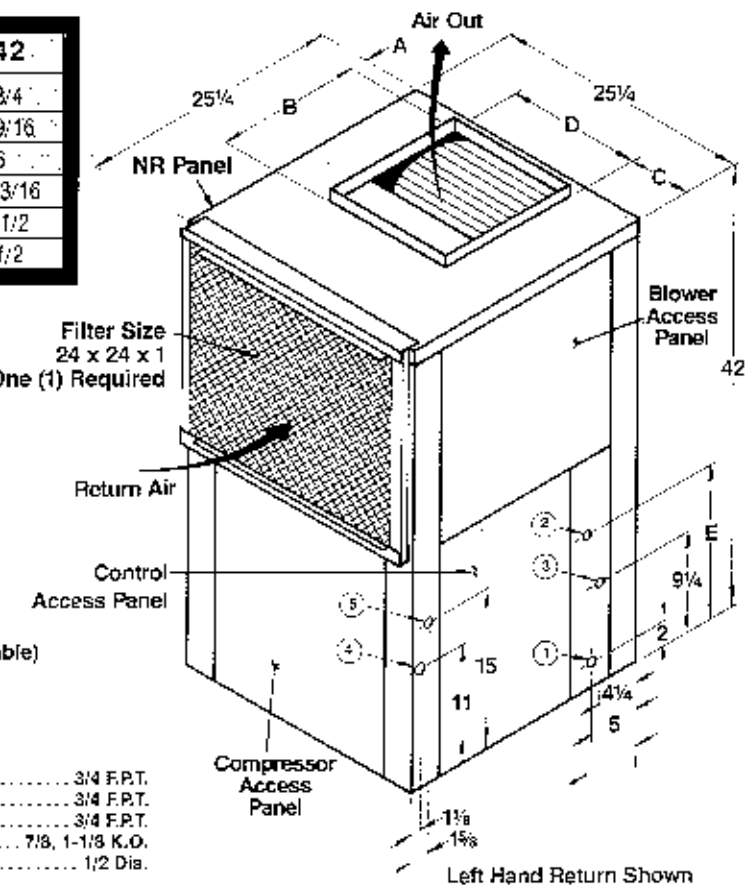
	036	042
A	4 1/4	1 3/4
B	12 5/8	13 9/16
C	6 3/4	6
D	11 5/8	12 13/16
E	13 1/4	14 1/2
F	5 3/8	5 1/2



**NOTE: All side panels are removable except those identified by NR panel (Non-Removable)**

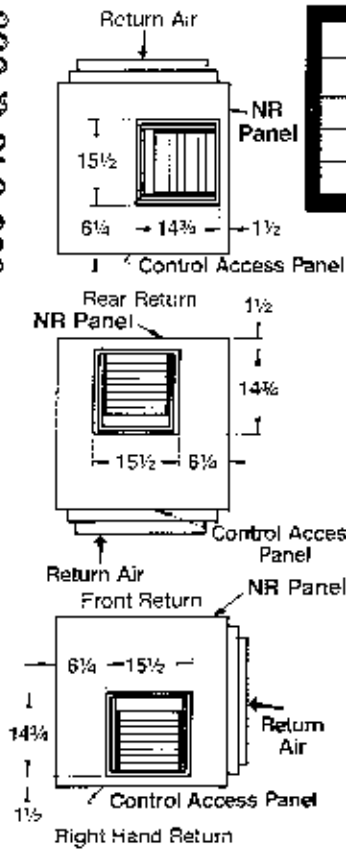
Return Air Duct Size  
23" H x 22" W

- Legend:
- 1. Water Inlet ..... 3/4 F.P.T.
  - 2. Water Outlet ..... 3/4 F.P.T.
  - 3. Condensate Drain ..... 3/4 F.P.T.
  - 4. High Voltage Access ..... 7/8, 1-1/8 K.O.
  - 5. Low Voltage Access ..... 1/2 Dia.



803-036 & 042

803-048 & 060

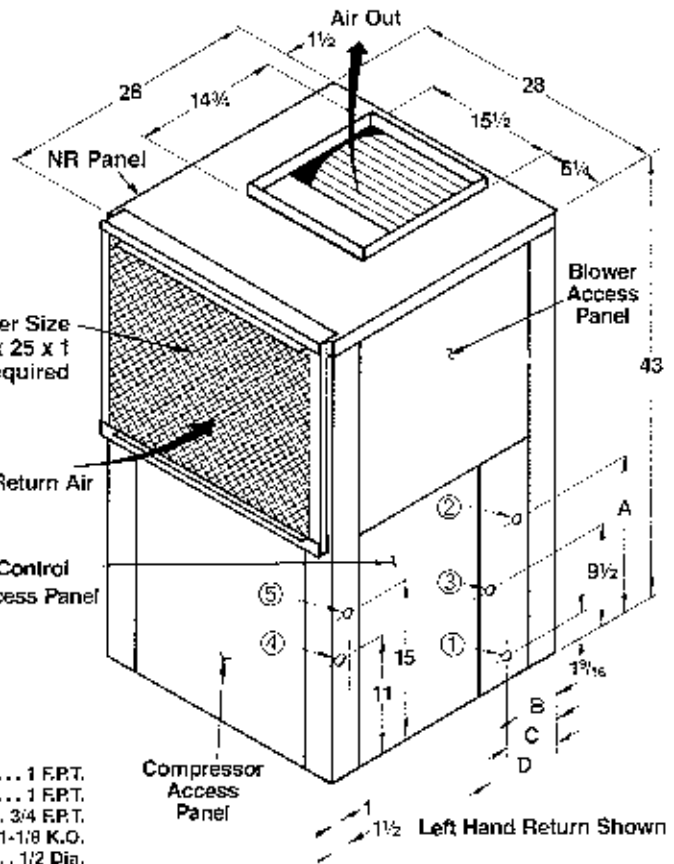


	048	060
A	16 9/16	14 7/8
B	2 5/8	3 3/8
C	4 1/4	5 1/8
D	5 1/2	5

NOTE: All side panels are removable except those identified by NR panel (Non-Removable)

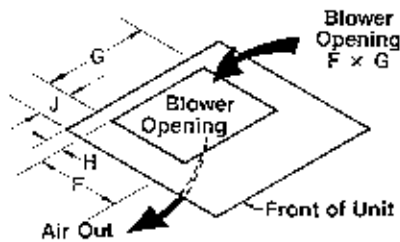
Return Air Duct Size  
24" H x 26" W

- Legend:
- 1. Water Inlet ..... 1 F.P.T.
  - 2. Water Outlet ..... 1 F.P.T.
  - 3. Condensate Drain ..... 3/4 F.P.T.
  - 4. High Voltage Access ..... 7/8, 1-1/8" K.O.
  - 5. Low Voltage Access ..... 1/2 Dia.



## 803/903 BOTTOM DISCHARGE (DOWN FLOW)

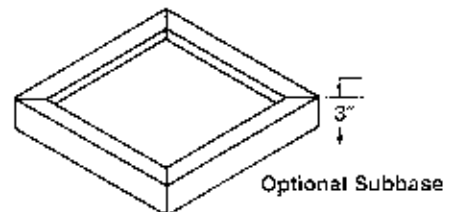
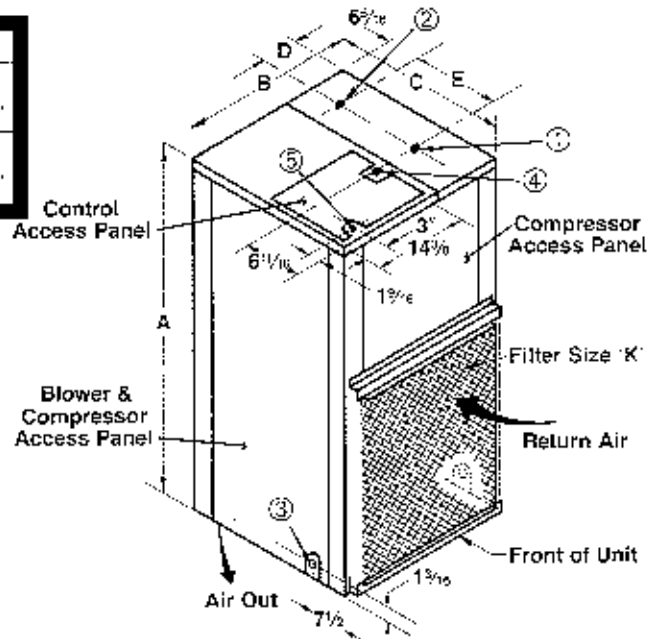
Model	A	B	C	D	E	F	G	H	J	K
803/903-024						9 1/4	10 3/16	2	9 3/8	(1)
803/903-030	38 3/8	23 1/8	23 1/8	4 3/8	7 1/2	8 3/8	11 1/4	2 3/4	9 3/8	20" x 20" x 1"
803/903-036						9 1/4	10 3/16	9 3/8	2 1/2	7 3/8
803/903-042	43 1/8	25 1/16	25 1/16	5 1/16	10 1/2	11 1/16	10 3/8	2 1/2	7 1/4	24" x 24" x 1"



NOTE: ONE STYLE AVAILABLE ONLY—Rotate unit on job for left, right, front or back return.

NOTE: All side panels are removable.

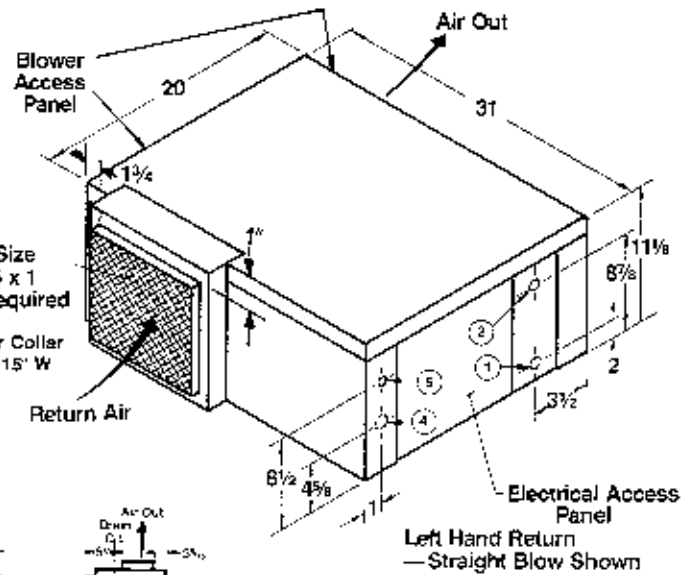
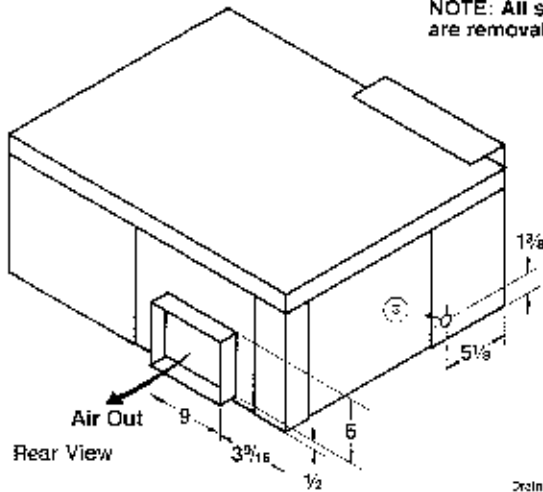
- Legend:
- 1. Water Inlet ..... 3/4" F.P.T.
  - 2. Water Outlet ..... 3/4" F.P.T.
  - 3. Condensate Drain ..... 3/4" F.P.T.
  - 4. High Voltage Access ..... 7/8, 1-1/8" K.O.
  - 5. Low Voltage Access ..... 1/2" Dia.



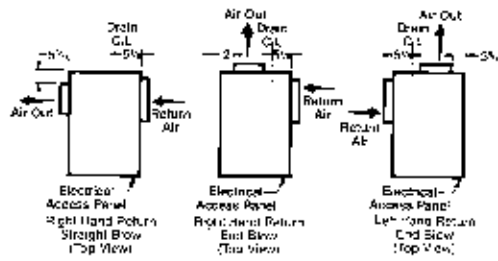
# DIMENSIONS

# 804

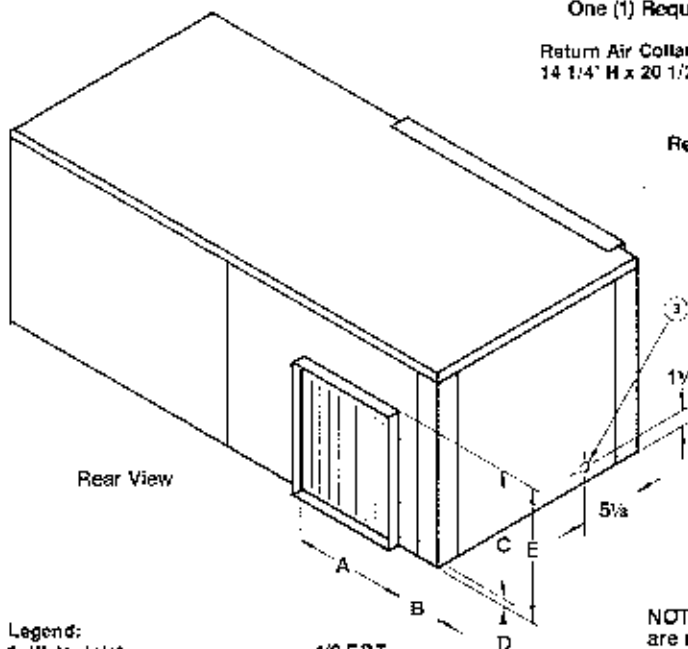
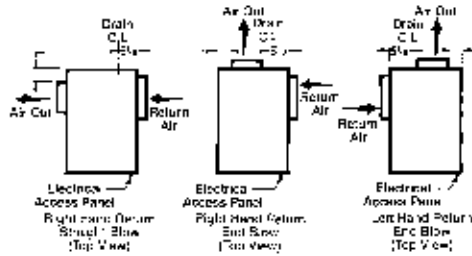
NOTE: All side panels are removable.



804-009 & 012

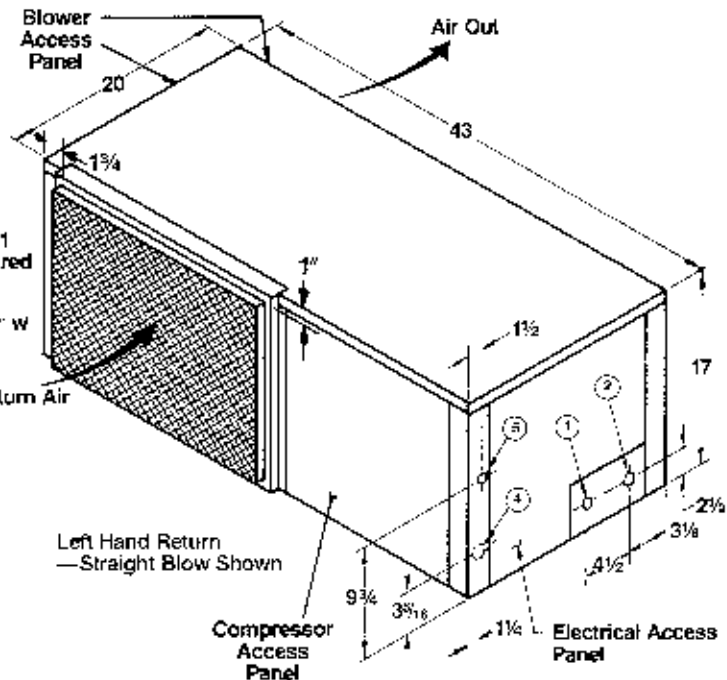


- Legend:
- 1. Water Inlet ..... 1/2 F.P.T.
  - 2. Water Outlet ..... 1/2 F.P.T.
  - 3. Condensate Drain ..... 3/4 F.P.T.
  - 4. High Voltage Access ..... 7/8, 1-1/8 K.O.
  - 5. Low Voltage Access ..... 1/2 Dia.



- Legend:
- 1. Water Inlet ..... 1/2 F.P.T.
  - 2. Water Outlet ..... 1/2 F.P.T.
  - 3. Condensate Drain ..... 3/4 F.P.T.
  - 4. High Voltage Access ..... 7/8, 1-1/8 K.O.
  - 5. Low Voltage Access ..... 1/2 Dia.

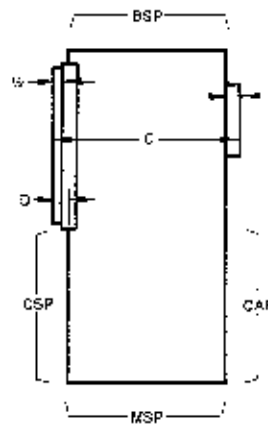
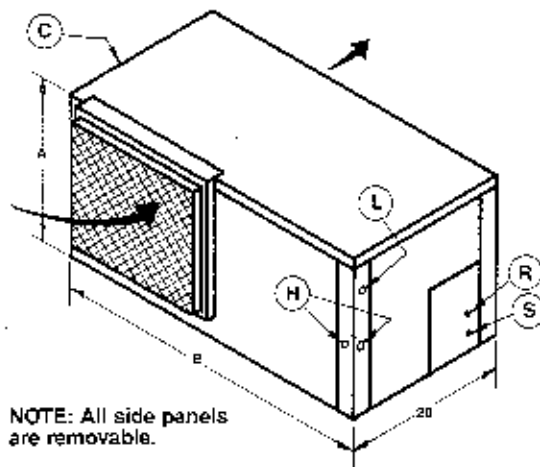
NOTE: All side panels are removable.



804-015 & 019

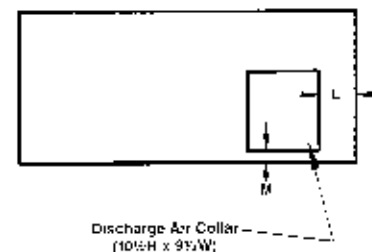
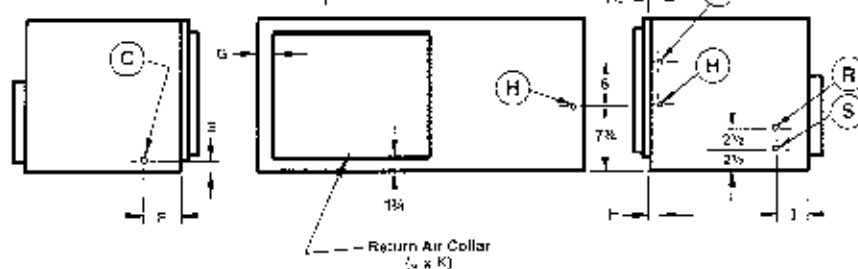
	015	019
A	10	9
B	3 5/8	3 1/8
C	7 1/2	12 1/2
D	1 1/4	-0-
E	8 3/4	12 1/2
F	6 3/8	7 7/8

## Left Hand Return—Straight Blow



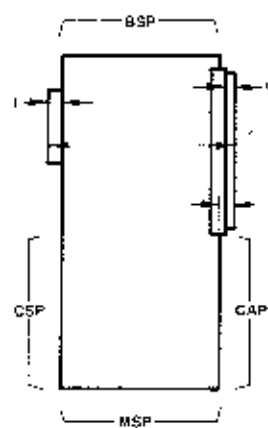
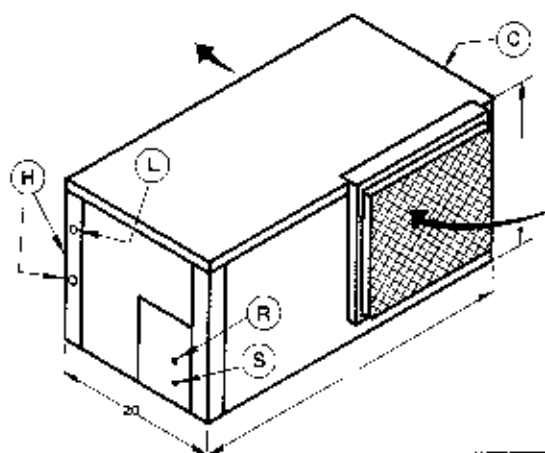
	025	037/043
A	19	21
B	43	47
C	22 $\frac{3}{4}$	22 $\frac{1}{2}$
D	1 $\frac{3}{4}$	1 $\frac{1}{2}$
E	1 $\frac{1}{8}$	1 $\frac{1}{4}$
F	5 $\frac{1}{8}$	5
G	1 $\frac{3}{4}$	2 $\frac{1}{4}$
H	1 $\frac{1}{4}$	1
I	4 $\frac{1}{8}$	5 $\frac{1}{4}$
J	16 $\frac{1}{4}$ H	18 $\frac{1}{4}$ H
K	20 $\frac{1}{2}$ W	23W
L	7 $\frac{3}{4}$	6 $\frac{1}{4}$
M	1 $\frac{1}{16}$	2 $\frac{1}{10}$

NOTE: All side panels are removable.

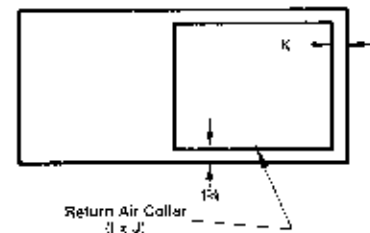
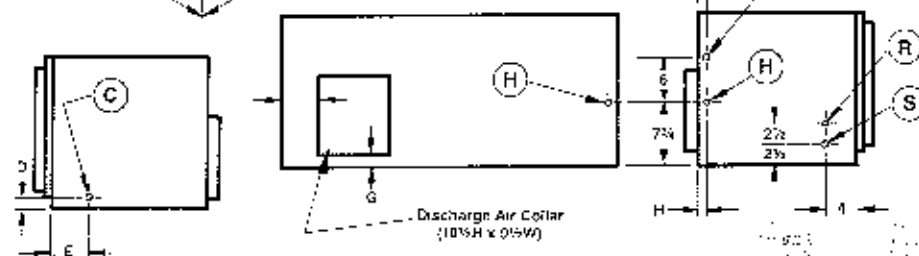


804-025/037/043

## Right Hand Return—Straight Blow



	025	037/43
A	43	47
B	22 $\frac{3}{4}$	22 $\frac{1}{2}$
C	1 $\frac{3}{4}$	1 $\frac{1}{2}$
D	1 $\frac{1}{8}$	1 $\frac{1}{4}$
E	5 $\frac{1}{8}$	5
F	2 $\frac{5}{8}$	4
G	11 $\frac{1}{16}$	21 $\frac{1}{16}$
H	1 $\frac{1}{4}$	1
I	16 $\frac{1}{4}$ H	18 $\frac{1}{4}$ H
J	20 $\frac{1}{2}$ W	23W
K	1 $\frac{3}{4}$	2 $\frac{1}{4}$
L	19	21



NOTE: All side panels are removable.

### Service Access

**MSP**—Main Service Panel—High & Low Voltage Connection, Controls, Service Trouble Shooting, Compressor/Condenser Replacement.

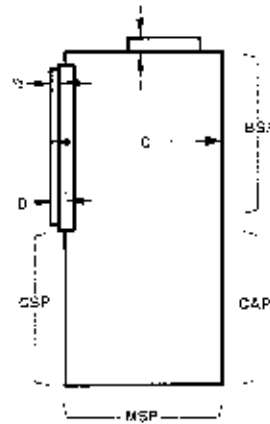
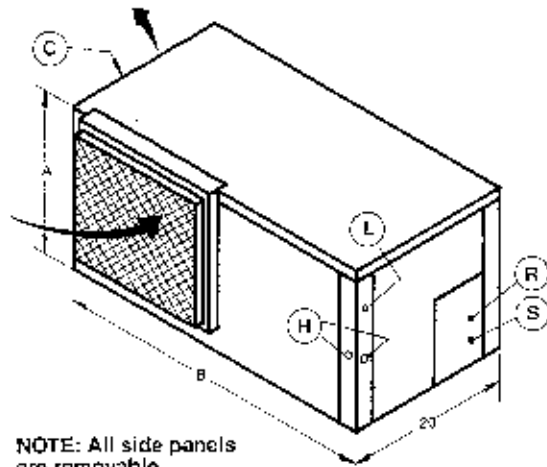
**BSP**—Blower Service Panel—Access to Blower Assembly; Condensate Pan & Air Coil Inspection.

**CSP**—Compressor Service Panel—Facilitates Compressor Replacement.

**CAP**—Condenser Access Panel—Facilitates Condenser Coil Replacement.



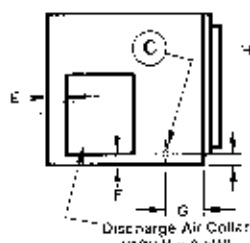
## Left Hand Return — End Blow



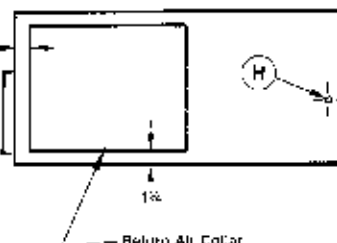
	025/031	037/043
A	19	21
B	43	47
C	21 $\frac{3}{4}$	21 $\frac{1}{2}$
D	1 $\frac{3}{4}$	1 $\frac{1}{2}$
E	2 $\frac{3}{8}$	4
F	1 $\frac{1}{16}$	2 $\frac{1}{16}$
G	5 $\frac{1}{8}$	5
H	1 $\frac{3}{4}$	2 $\frac{1}{4}$
I	4 $\frac{1}{8}$	5 $\frac{1}{4}$
J	16 $\frac{3}{4}$ H	18 $\frac{3}{4}$ H
K	20 $\frac{1}{2}$ W	23W

\*031 — 11 $\frac{1}{2}$ H x 8 $\frac{1}{2}$ W

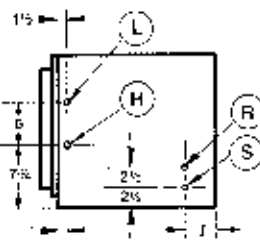
NOTE: All side panels are removable.



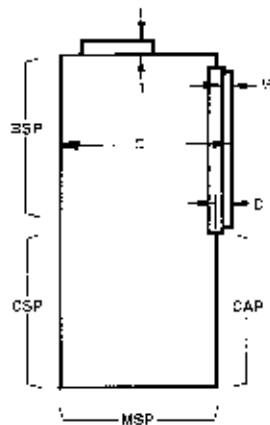
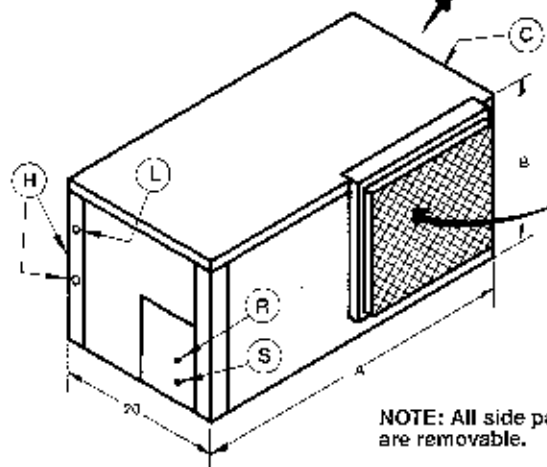
Discharge Air Collar  
(10 $\frac{1}{2}$ H x 9 $\frac{3}{4}$ W)



Return Air Collar  
(2 x K)



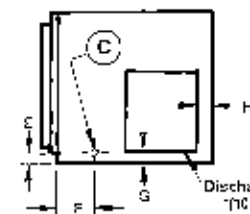
## Right Hand Return — End Blow



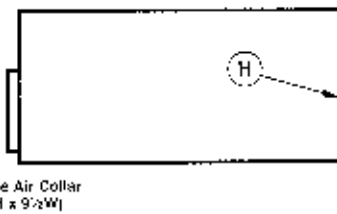
	025/031	037/043
A	43	47
B	19	21
C	21 $\frac{3}{4}$	21 $\frac{1}{2}$
D	1 $\frac{3}{4}$	1 $\frac{1}{2}$
E	1 $\frac{1}{8}$	1 $\frac{1}{4}$
F	5 $\frac{1}{8}$	5
G	1 $\frac{1}{16}$	2 $\frac{1}{16}$
H	2 $\frac{3}{8}$	4
I	4 $\frac{1}{8}$	5 $\frac{1}{4}$
J	1 $\frac{3}{8}$	2 $\frac{1}{4}$
K	16 $\frac{3}{4}$ H	18 $\frac{3}{4}$ H
L	20 $\frac{1}{2}$ W	23W

\*031 — 11 $\frac{1}{2}$ H x 8 $\frac{1}{2}$ W

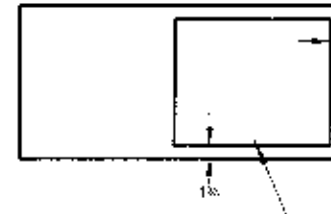
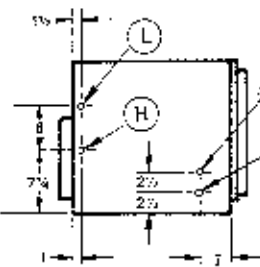
NOTE: All side panels are removable.



Discharge Air Collar  
(10 $\frac{1}{2}$ H x 9 $\frac{3}{4}$ W)



Return Air Collar  
(X x L)



Condensate Trapping: Differential Trapping Required

Filter Size: 025 and 031 Models: 18 x 22 $\frac{1}{4}$  x 1" (1 Req.) 037 and 043 Models: 20 x 25 x 1" (1 Req.)

Filter Access: Left and Right on Inlet By Removing Side Clip.

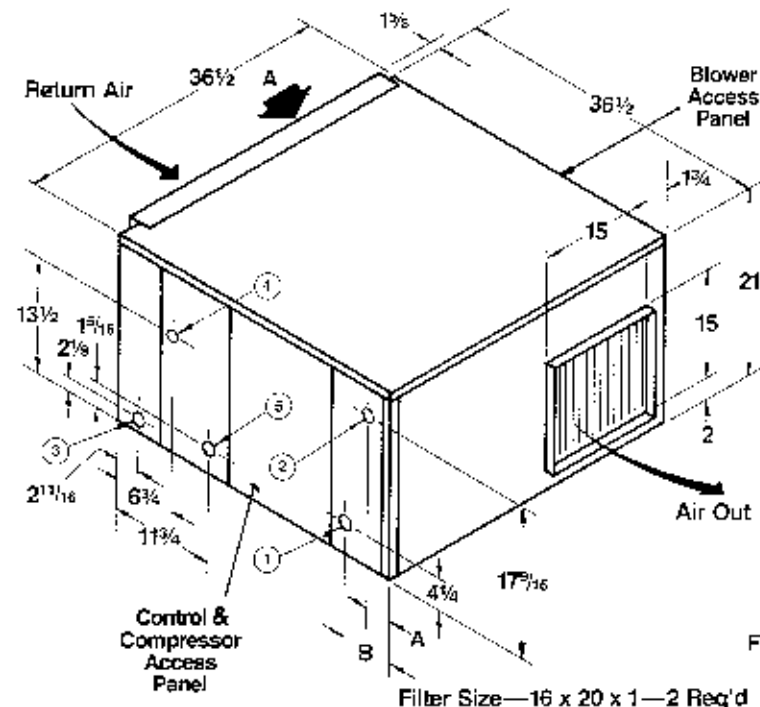
- ⓐ —  $\frac{3}{8}$  FPT — Supply & Return Water Connections
- ⓑ —  $\frac{3}{8}$  FPT — Condensate Connection
- ⓒ — Hi Voltage —  $\frac{1}{2}$  —  $\frac{3}{8}$  — Combination Knockout; (Optional Location On Side)
- ⓓ — Lo Voltage —  $\frac{1}{2}$  Dia.

804-025/031/037/043

# DIMENSIONS

# 804

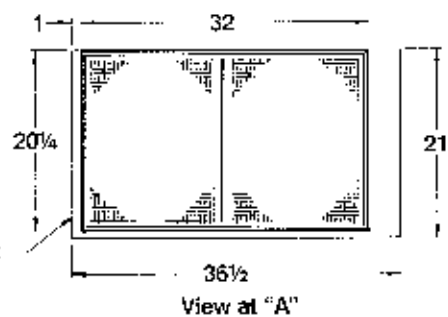
804-048 & 060



	048	060
A	3	4 1/8
B	6	5 3/8

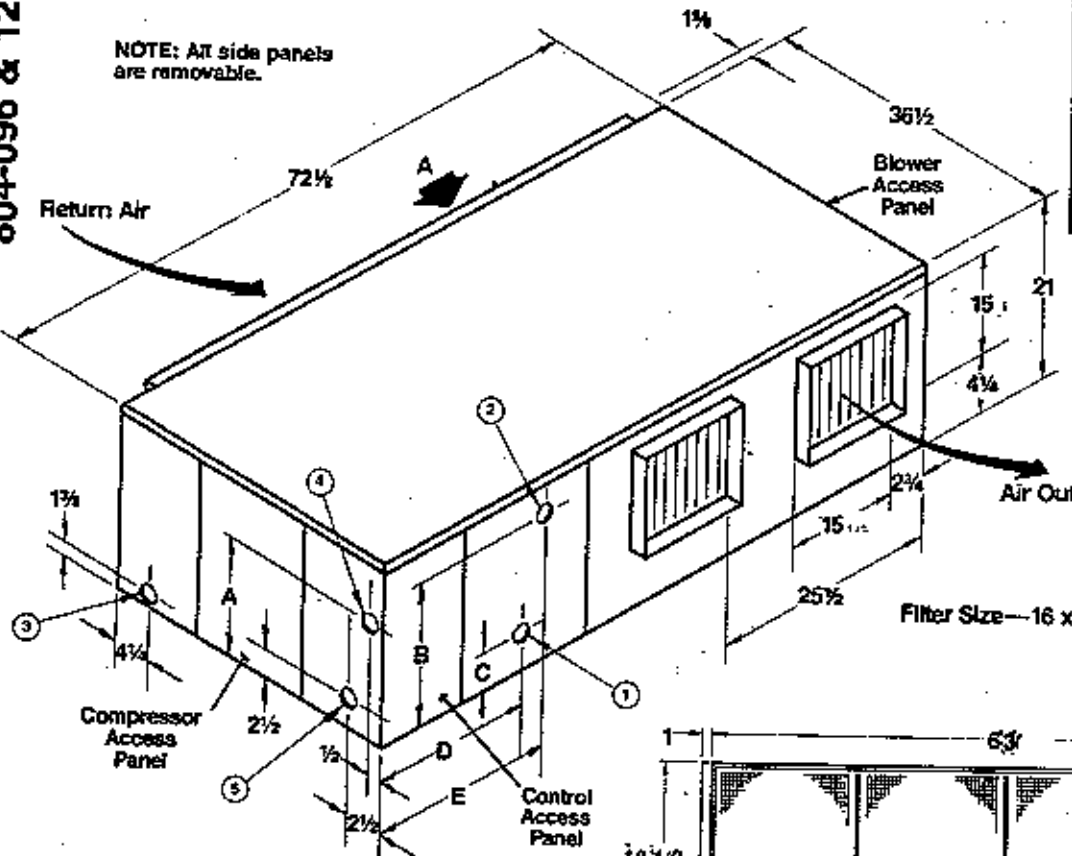
NOTE: All side panels are removable.

- Legend:
- 1. Water Inlet ..... 1 F.P.T.
  - 2. Water Outlet ..... 1 F.P.T.
  - 3. Condensate Drain ..... 3/4 F.P.T.
  - 4. Low Voltage Access ..... 1/2 Dia.
  - 5. High Voltage Access ..... 7/8 Dia.



Filter Size—16 x 20 x 1—2 Req'd

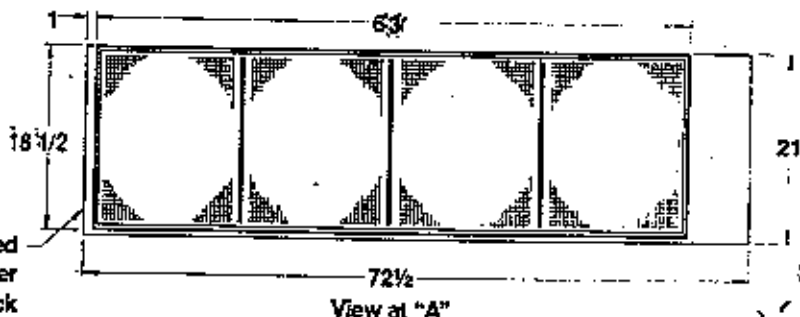
804-096 & 120



	096	120
A	13 9/16	13 13/16
B	17 1/2	16 3/16
C	4 5/8	4 1/8
D	19	19 1/2
E	21 5/16	20 5/8

NOTE: All side panels are removable.

Filter Size—16 x 20 x 1—4 Req'd



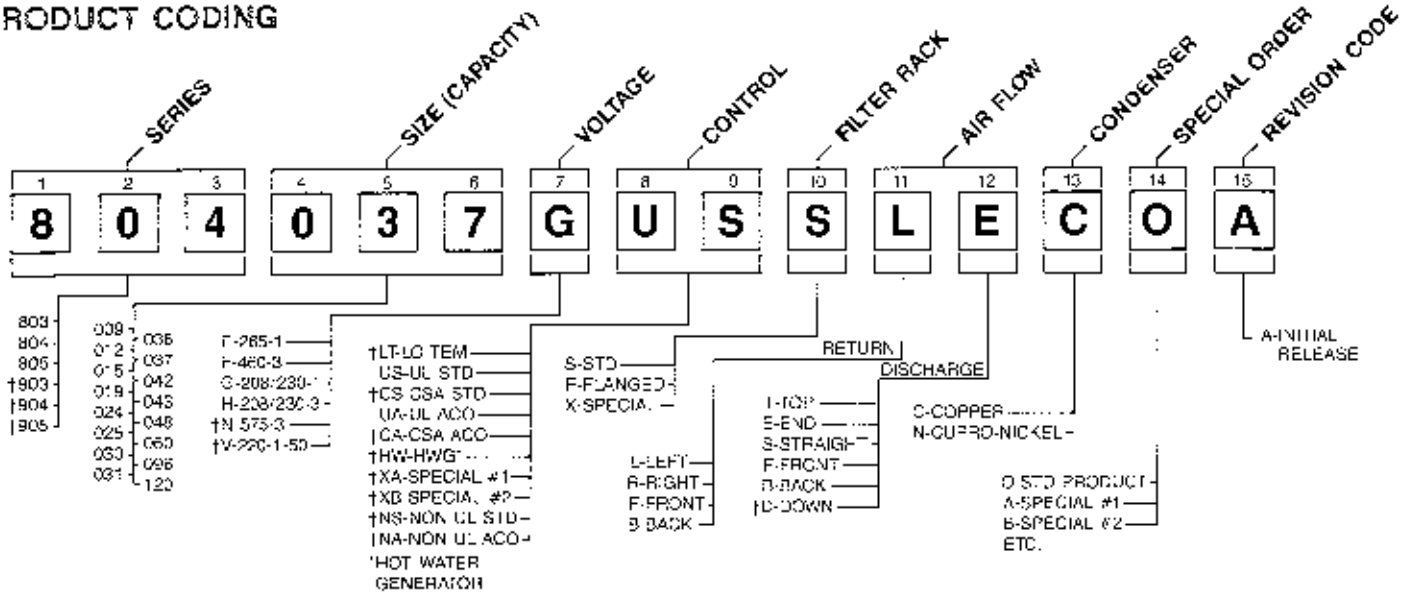
- Legend:
- 1. Water Inlet ..... 1-1/4 F.P.T.
  - 2. Water Outlet ..... 1-1/4 F.P.T.
  - 3. Condensate Drain ..... 3/4 F.P.T.
  - 4. Low Voltage Access ..... 1/2 Dia.
  - 5. High Voltage Access ..... 1-3/8 K.O.
- \*804-096 Model 1 F.P.T.

Flanged Filter Rack

View at "A"

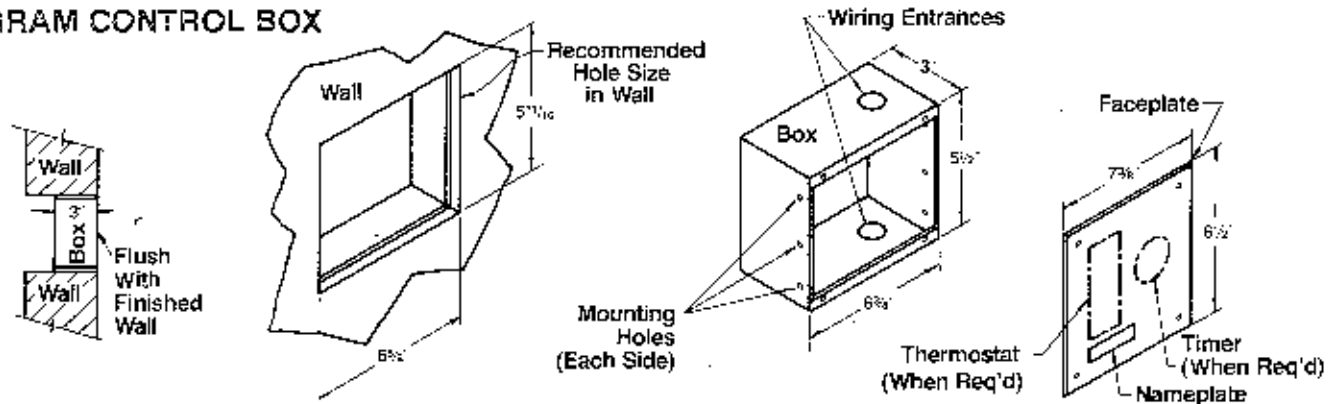
# OPTIONS

## PRODUCT CODING

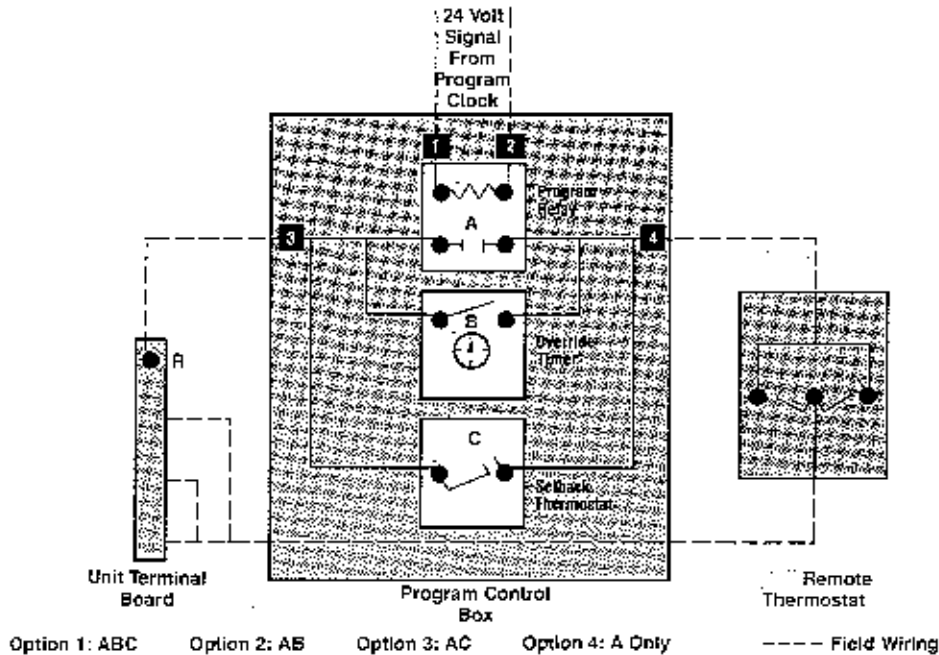


Note: Not all options are available, consult factory for availability.

## PROGRAM CONTROL BOX



## PROGRAM CONTROL BOX COMPONENT SCHEMATIC



# SPECIFICATIONS

Continuing engineering research results in steady improvements. Therefore, these specifications are subject to change without notice.

## GENERAL

All units must carry ARI certification (Per Std. 320-81) and UL listing via appropriate labeling. The Manufacturer's warranty, unit serviceability and project start-up assistance shall be given economic consideration in bids. Tabulated efficiency and capacity shall be considered minimum.

## CABINETY

Shall be of heavy gauge furniture steel, electrostatically painted and baked to form a thermo-set coating for corrosion protection. The interior side of the cabinet shall be insulated with 1/2" fiberglass. There shall be an insulated partition between the blower and compressor compartments to minimize compressor sound transmission. All water connections shall be female pipe threaded and mounted flush to the cabinet exterior. Service panels shall be easily removable, and sufficiently large to allow access to all components. All units (except horizontal units under 14,000 BTU capacity) shall allow sufficient service access to replace the compressor without removing unit. Standard construction shall include a factory mounted discharge air duct collar and filter retaining rack (804 series only).

## REFRIGERANT CIRCUIT

Hermetic compressors shall be internally sprung and externally isolated to minimize sound transmission. Coaxial (tube in tube) refrigerant to water heat exchanger shall be of copper inner water tube and steel refrigerant outer tube design, rated to withstand 450 PSI refrigerant working pressure.

The fin-tube refrigerant to air heat exchanger shall be of aluminum fin and copper tube construction rated to withstand 425 PSI refrigerant working pressure. A four-way solenoid activated refrigerant reversing valve shall allow heating operation should the solenoid fail to function. R-22 refrigerant charge shall be precisely metered and the refrigerant metering device (Capillary tubes or expansion valves) shall be carefully selected for optimum performance. Refrigerant high and low pressure cut-outs (low water temperature cutout on 009 and 012 units) shall protect the system against hazardous operation. All interconnecting tubing shall be copper. Access fittings shall be factory installed on the high and low refrigerant lines to facilitate field service.

## ELECTRICAL

Single phase blower motors shall be PSC type. All units through 5 tons nominal capacity shall be direct drive with three speed taps. All units over 5 tons shall be belt driven with variable-pitch sheaves. All compressor and blower motors shall be individually protected against current and/or

heat overload. Blower motors shall be permanently lubricated.

## CONTROLS

Unit control shall be 24 volt, including a unit mounted 24V terminal board (and an optional remote thermostat). The compressor lock-out circuit shall allow reset at the remote thermostat or via the main power breaker.

## OPTIONS

### CABINETY

**RETURN AIR DUCT COLLAR** (803 Series only) The cabinet shall include a factory mounted return air duct collar designed to accept a return air filter.

Note: Standard on the 804 Series.

**HANGER/VIBRATION ISOLATOR KIT** (804 Series only) The units shall be provided with hardware to facilitate installation and minimize vibration.

### REFRIGERANT CIRCUIT

**CUPRO-NICKEL EXCHANGER** The coaxial (tube in tube) refrigerant to water heat exchanger shall be 90/10 cupro-nickel inner water tube and steel refrigerant outer tube design.

**COOLING ONLY** The units shall be designed to perform in the cooling mode only with heating supplied by others.

**BUILT-IN HOT WATER GENERATOR** The unit shall be supplied with a refrigerant to water heat exchanger designed to absorb superheat from the discharge gas. An adjustable thermostat shall be installed to control the maximum leaving water temperature from 140 degree F to 180 degree F. A standby temperature limit control shall be added for safety. The water pump impeller shall be magnetically driven to eliminate potential leakage. The entire mechanism shall be factory mounted with fittings provided for field piping.

Note: Available for 803 Series, 208/230 Volt Models Q24 thru Q80 only.

### ELECTRICAL

**REMOTE THERMOSTAT** The unit shall be provided with a 24 Volt anticipating type wall thermostat:

A) **MANUAL CHANGEOVER** The thermostat shall be a manual changeover type with OFF-HEAT-COOL selector switch and FAN-AUTO selector switch.

B) **PROGRAMMABLE SOLID STATE** The thermostat (manual changeover) shall be of solid state microelectronics designed to change temperature up to twice a day, five or seven days per week. The offset temperature difference shall be adjustable from 0 to 15 degrees.

C) **AUTO CHANGEOVER** The thermostat shall be an auto changeover type with OFF-AUTO selector switch and FAN-AUTO selector switch.

D) **THERMOSTAT COVER** The thermostat shall be covered with a clear (or Beige) plastic cover with tumbler type key lock. (The cover locks in place of the standard cover with the temperature thermometer visible or concealed—AM5417 or AM5409).

**PROGRAM RELAY** The unit shall have factory mounted program relay that accepts a 24 Volt signal from a centrally located time clock which establishes the occupied/unoccupied modes.

**PROGRAM CONTROL BOX** The unit shall have a factory wired, externally mounted program control box with a random start relay. The box will accept an override timer. The zero to two hour timer shall override a 24 volt signal from a centrally located time clock which establishes the occupied/unoccupied modes. The box will also accept a thermostat to establish a night setback temperature with a minimum space temperature of 50 degree F.

**RANDOM START RELAY** The unit shall be provided with a factory mounted, heater type or solid state random start relay which delays the normal start of the compressor.

**POWER SUPPLY RESET** The unit shall be wired so that the compressor lock-out circuit shall allow reset only from the main power breaker.

### PIPING

**PREASSEMBLED HOSE KITS** The units shall be provided with factory assembled hose kits for the supply and return connections to expedite zone piping. A two or three foot hose shall be factory installed with male and female brass fittings and rated at 250 PSI working pressure and 1000 PSI burst pressure. The hose shall be available in 1/2", 3/4" and 1" sizes.



## Friedrich Climate Master

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