

Residential & Light Commercial DRY-O-TRON[®] Dehumidifiers

	<i>Page</i>
• Technical Data	2
• Dimensional Data	9
• Installation Diagram	10
• Field Wiring Diagram	11
• Operating Sequence	12
• Specifications	13

Technical Data

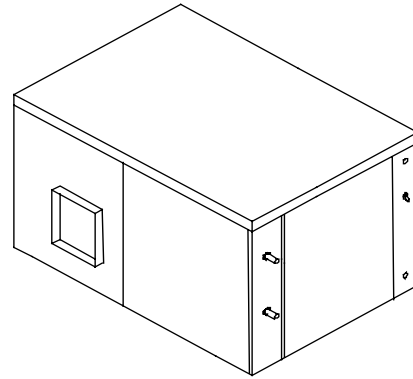
MAM Series Model 016

SUPPLY AIR DATA

CFM	ESP	ESP
400	0.3"	0.5"

ELECTRICAL DATA

V/Ph/Hz	115/1/60	208-230/1/60
Compressor (Nominal TR)	1.25	1.25
RLA (Amps)	13.0	7.0
LRA (Amps)	75.0	34.2
Blower Motor (HP)	1/8	1/8
FLA (Amps)	2.4	1.0
Minimum Ampacity (Amps)	19	10
Maximum Fuse Size (Amps)	30	15
Power Consumption (kW)	1.3	1.3



PERFORMANCE DATA

Air Temp °F	40% RH			50% RH			60% RH			70% RH		
	lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh
70	1.0	10.1	11.1	2.5	9.1	11.8	3.2	8.4	12.4	5.0	7.6	7.6
74	1.6	10.3	12.0	3.0	9.4	12.5	4.5	8.6	13.3	5.8	7.8	13.8
78	2.5	10.5	13.1	3.6	9.7	13.5	5.1	8.8	14.1	6.5	8.0	14.8
82	2.6	11.0	13.8	4.0	10.1	14.3	5.7	9.2	15.1	7.3	8.0	15.7
86	2.8	11.4	14.4	4.5	10.5	15.2	6.9	9.2	16.5	8.6	8.1	17.2
90	3.5	11.9	15.6	5.9	10.6	16.8	7.7	9.4	17.5	9.6	8.5	18.6
93	4.7	12.0	16.9	6.2	10.8	17.4	8.7	9.5	18.6	-	-	-
96	4.9	12.3	17.5	7.0	11.0	18.4	-	-	-	-	-	-
100	5.2	13.7	19.1	7.3	12.2	19.9	-	-	-	-	-	-

AIR CONDITIONING

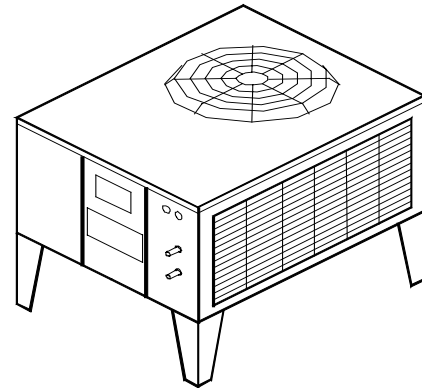
Total Heat of Rejection = 19940 Btu/h

Air Cooled:

Condenser Model	Air on OACC °F	Total System Charge (lb. R22)
CCA-002	90	24*
CCA-002	95	24*
CCA-002	100	24*

Water Cooled:

Flow gpm	ΔP psi	Water Temp Range °F	Total System Charge (lb R22)
0.7 - 4.3	0.5 - 2.8	45 - 90	3.5



HOT GAS REHEAT COILS AVAILABLE:

2 Row Allows the unit to dehumidify and supply air reheated up to room temperature. Ideal for applications where the MAM replaces an existing Air Conditioner.

4 Row Allows the unit to reject all the compressor heat into the space. Ideal for small spas and whirlpools.

lb/h = Moisture removal capacity in pounds per hour

Smbh = Sensible cooling capacity in thousands of Btu's per hour

Tmbh = Total cooling capacity in thousands of Btu's per hour

***The receiver is sized for a maximum of 50 linear ft. refrigerant line lengths and/or not more than 6 feet below the MAM unit.**

Technical Data

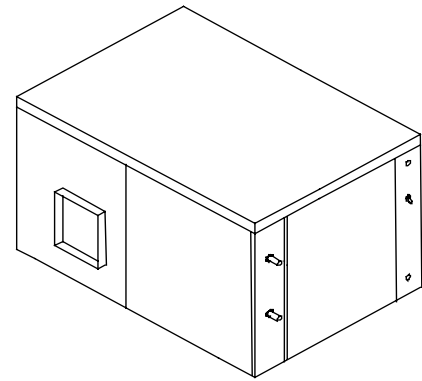
MAM Series Model 024

SUPPLY AIR DATA

CFM	ESP	ESP
485	0.3"	0.5"

ELECTRICAL DATA

V/Ph/Hz	208-230/1/60	208-230/3/60	460/3/60
Compressor (Nominal TR)	2.0	2.0	2.0
RLA (Amps)	13.6	6.6	3.4
LRA (Amps)	63.0	50.0	25.0
Blower Motor (HP)	1/8	1/8	1/3
FLA (Amps)	1.0	1.0	1.2
Minimum Ampacity (Amps)	18	10	6
Maximum Fuse Size (Amps)	30	15	15
Power Consumption (kW)	2.1	2.1	2.1



PERFORMANCE DATA

Air Temp °F	40% RH			50% RH			60% RH			70% RH		
	lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh	Lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh
70	2.6	16.0	18.7	4.7	14.5	19.4	6.7	13.4	20.5	8.7	12.4	21.5
74	3.5	16.3	19.9	5.7	14.9	20.8	7.7	13.7	21.8	9.7	12.5	22.6
78	4.9	16.4	21.5	6.3	15.2	21.8	8.9	13.8	23.2	10.9	12.7	24.1
82	4.7	17.2	22.1	7.2	15.8	23.3	9.5	14.1	24.1	12.1	12.7	25.4
86	5.5	17.6	23.4	8.1	16.3	24.8	11.3	14.2	26.1	14.5	12.9	28.1
90	6.4	18.2	24.9	9.9	16.4	26.8	13.0	14.4	28.0	-	-	-
93	8.0	17.7	26.1	10.5	16.6	27.6	-	-	-	-	-	-
96	8.3	18.6	27.3	-	-	-	-	-	-	-	-	-
100	9.5	19.0	28.9	-	-	-	-	-	-	-	-	-

AIR CONDITIONING

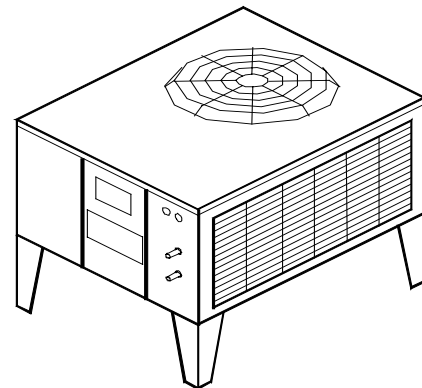
Total Heat of Rejection = 30726 Btu/h

Air Cooled:

Condenser Model	Air on OACC °F	Total System Charge (lb. R22)
CCA-002	90	27*
CCA-002	95	27*
CCA-002	100	27*

Water Cooled:

Flow gpm	ΔP psi	Water Temp Range °F	Total System Charge (lb. R22)
1.1 – 7.0	0.8 – 6.6	45 - 90	5.7



HOT GAS REHEAT COILS AVAILABLE:

2 Row Allows the unit to dehumidify and supply air reheated up to room temperature. Ideal for applications where the MAM replaces an existing Air Conditioner.

6 Row Allows the unit to reject all the compressor heat into the space. Ideal for small spas and whirlpools.

lb/h = Moisture removal capacity in pounds per hour

Smbh = Sensible cooling capacity in thousands of Btu's per hour

Tmbh = Total cooling capacity in thousands of Btu's per hour

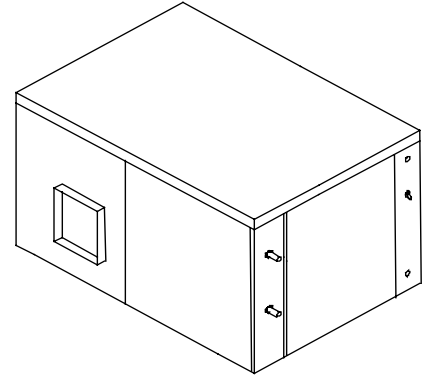
***The receiver is sized for a maximum of 50 linear ft. refrigerant line lengths and/or not more than 6 feet below the MAM unit.**

SUPPLY AIR DATA

CFM	ESP	ESP
600	0.3"	0.5"

ELECTRICAL DATA

V/Ph/Hz	208-230/1/60	208-230/3/60	460/3/60
Compressor (Nominal TR)	2.3	2.3	2.3
RLA (Amps)	15.0	10.0	5.0
LRA (Amps)	72.5	63.0	31.0
Blower Motor (HP)	1/4	1/4	1/3
FLA (Amps)	1.5	1.5	1.2
Minimum Ampacity (Amps)	21	14	8
Maximum Fuse Size (Amps)	35	20	15
Power Consumption (kW)	2.5	2.5	2.5



PERFORMANCE DATA

Air Temp °F	40% RH			50% RH			60% RH			70% RH		
	lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh	Lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh
70	3.1	20.0	23.2	6.0	18.3	24.6	8.2	16.7	25.3	10.7	15.4	26.6
74	4.2	20.6	25.0	7.0	18.5	25.9	9.5	17.2	27.1	12.0	15.5	28.1
78	6.0	20.6	26.9	8.0	19.3	27.7	10.9	17.3	28.7	13.4	15.7	29.7
82	5.9	21.7	27.9	8.8	19.7	28.9	12.1	18.0	30.7	15.3	16.1	32.2
86	6.8	22.1	29.3	10.0	20.5	31.0	14.3	18.8	33.8	17.6	16.9	35.4
90	7.7	22.7	30.7	11.9	20.9	33.3	16.1	19.0	35.9	-	-	-
93	8.5	22.7	31.6	13.2	21.1	34.9	-	-	-	-	-	-
96	10.2	23.3	34.0	-	-	-	-	-	-	-	-	-
100	10.7	23.4	34.6	-	-	-	-	-	-	-	-	-

AIR CONDITIONING

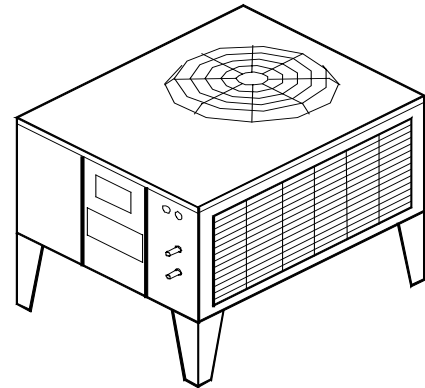
Total Heat of Rejection = 37750 Btu/h

Air Cooled:

Condenser Model	Air on OACC °F	Total System Charge (lb R22)
CCA-002	90	27*
CCA-003	95	30*
CCA-003	100	30*

Water Cooled:

Flow gpm	ΔP psi	Water Temp Range °F	Total System Charge (lb R22)
1.3 - 7.1	1.0 - 5.1	45 - 90	6.3



HOT GAS REHEAT COILS AVAILABLE:

2 Row Allows the unit to dehumidify and supply air reheated up to room temperature. Ideal for applications where the MAM replaces an existing Air Conditioner.

6 Row Allows the unit to reject all the compressor heat into the space. Ideal for small spas and whirlpools.

lb/h = Moisture removal capacity in pounds per hour

Smbh = Sensible cooling capacity in thousands of Btu's per hour

Tmbh = Total cooling capacity in thousands of Btu's per hour

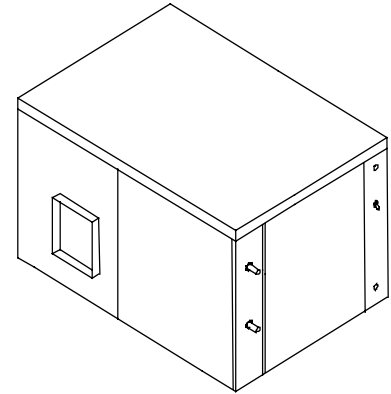
***The receiver is sized for a maximum of 50 linear ft. refrigerant line lengths and/or not more than 6 feet below the MAM unit.**

SUPPLY AIR DATA

CFM	ESP	ESP
745	0.3"	0.5"

ELECTRICAL DATA

V/Ph/Hz	208-230/1/60	208-230/3/60	460/3/60	575/3/60
Compressor (Nominal TR)	2.75	2.75	2.75	2.75
RLA (Amps)	17.9	11.4	5.7	4.71
LRA (Amps)	88.0	77.0	39.0	31.0
Blower Motor (HP)	1/4	1/4	1/3	1/2
FLA (Amps)	1.5	1.5	1.2	1.6
Min. Ampacity (Amps)	24	16	9	8
Max. Fuse Size (Amps)	40	25	15	15
Power Consumption (kW)	2.9	2.9	2.9	2.9



PERFORMANCE DATA

Air Temp °F	40% RH			50% RH			60% RH			70% RH		
	lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh	Lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh
70	3.6	24.7	28.5	7.0	22.4	29.7	10.0	20.7	31.2	12.8	18.7	32.1
74	5.0	25.0	30.2	8.6	22.9	32.0	11.4	20.9	32.9	14.5	18.8	34.1
78	7.1	25.2	32.6	9.4	23.6	33.5	13.0	21.1	34.7	16.3	19.2	36.4
82	6.8	26.6	33.8	10.5	24.1	35.2	14.3	21.9	36.9	18.0	19.4	38.3
86	7.9	27.2	35.5	11.6	24.8	37.0	16.8	21.9	39.5	20.8	19.6	41.4
90	9.0	27.8	37.3	14.2	24.9	39.9	19.5	22.1	42.6	-	-	-
93	11.8	28.5	40.9	15.0	25.3	41.1	-	-	-	-	-	-
96	12.7	28.8	42.1	-	-	-	-	-	-	-	-	-
100	13.7	29.3	43.7	-	-	-	-	-	-	-	-	-

AIR CONDITIONING

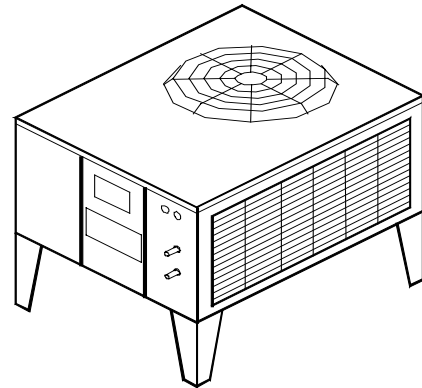
Total Heat of Rejection = 45580 Btu/h

Air Cooled:

Condenser Model	Air on OACC °F	Total System Charge (lb R22)
CCA-003	90	32*
CCA-004	95	31*
CCA-004	100	31*

Water Cooled:

Flow gpm	ΔP psi	Water Temp Range °F	Total System Charge (lb R22)
1.6 – 9.2	1.5 – 6.0	45 - 90	8.0



HOT GAS REHEAT COILS AVAILABLE:

2 Row Allows the unit to dehumidify and supply air reheated up to room temperature. Ideal for applications where the MAM replaces an existing Air Conditioner.

6 Row Allows the unit to reject all the compressor heat into the space. Ideal for small spas and whirlpools.

lb/h = Moisture removal capacity in pounds per hour

Smbh = Sensible cooling capacity in thousands of Btu's per hour

Tmbh = Total cooling capacity in thousands of Btu's per hour

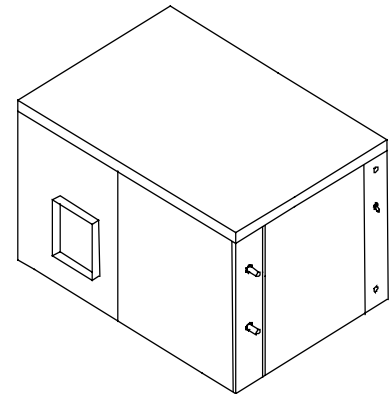
*The receiver is sized for a maximum of 50 linear ft. refrigerant line lengths and/or not more than 6 feet below the MAM unit.

SUPPLY AIR DATA

CFM	ESP	ESP
850	0.3"	0.5"

ELECTRICAL DATA

V/Ph/Hz	208-230/1/60	208-230/3/60	460/3/60	575/3/60
Compressor (Nominal TR)	3.3	3.3	3.3	3.3
RLA (Amps)	20.0	13.9	6.4	5.4
LRA (Amps)	104.0	88.0	44.0	34.0
Blower Motor (HP)	1/3	1/3	1/3	1/2
FLA (Amps)	2.2 - 2.5	2.2 - 2.5	1.2	1.6
Min. Ampacity (Amps)	28	20	10	9
Max. Fuse Size (Amps)	45	30	15	15
Power Consumption (kW)	3.5	3.5	3.5	3.5



PERFORMANCE DATA

Air Temp °F	40% RH			50% RH			60% RH			70% RH		
	lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh	Lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh
70	4.5	28.3	33.0	8.1	25.6	34.1	11.3	23.3	35.2	14.8	21.4	37.0
74	5.8	28.6	34.7	9.9	26.2	36.6	13.2	24.0	37.8	17.0	21.9	39.8
78	8.3	28.8	37.5	10.9	27.0	38.4	15.5	24.5	40.7	19.0	22.2	42.2
82	8.0	30.4	38.8	12.5	27.9	41.0	16.5	25.0	42.3	21.2	22.5	44.7
86	9.6	31.4	41.5	13.8	28.7	43.2	19.8	25.1	45.9	24.5	22.7	48.4
90	10.9	32.1	43.6	16.8	28.9	46.5	22.3	25.2	48.7	-	-	-
93	13.8	32.8	47.3	18.8	30.5	50.3	-	-	-	-	-	-
96	14.9	33.4	49.1	-	-	-	-	-	-	-	-	-
100	15.8	34.1	50.7	-	-	-	-	-	-	-	-	-

AIR CONDITIONING

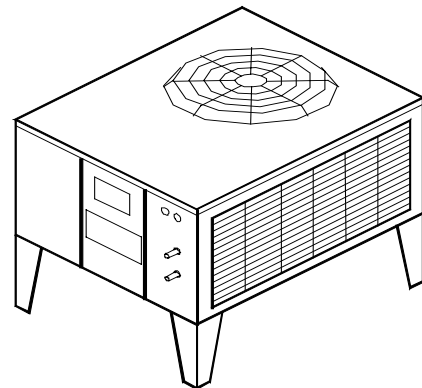
Total Heat of Rejection = 53300 Btu/h

Air Cooled:

Condenser Model	Air on OACC °F	Total System Charge (lb R22)
CCA-004	90	31
CCA-005	95	46
CCA-005	100	46

Water Cooled:

Flow gpm	ΔP psi	Water Temp Range °F	Total System Charge (lb R22)
1.6 – 10.0	1.2 – 5.2	45 - 90	8.6



HOT GAS REHEAT COILS AVAILABLE:

2 Row Allows the unit to dehumidify and supply air reheated up to room temperature. Ideal for applications where the MAM replaces an existing Air Conditioner.

6 Row Allows the unit to reject all the compressor heat into the space. Ideal for small spas and whirlpools.

lb/h = Moisture removal capacity in pounds per hour

Smbh = Sensible cooling capacity in thousands of Btu's per hour

Tmbh = Total cooling capacity in thousands of Btu's per hour

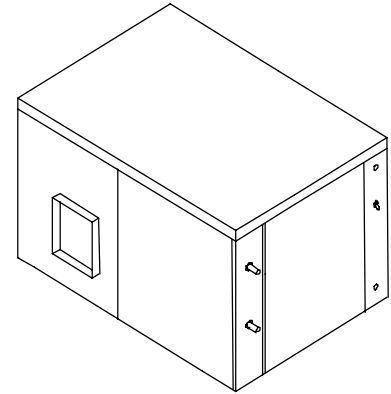
***The receiver is sized for a maximum of 50 linear ft. refrigerant line lengths and/or not more than 6 feet below the MAM unit.**

SUPPLY AIR DATA

CFM	ESP	ESP
960	0.3"	0.5"

ELECTRICAL DATA

V/Ph/Hz	208-230/1/60	208-230/3/60	460/3/60	575/3/60
Compressor (Nominal TR)	3.8	3.8	3.8	3.8
RLA (Amps)	21.4	16.4	6.6	5.3
LRA (Amps)	137.0	91.0	46.0	30.0
Blower Motor (HP)	1/3	1/3	1/3	1/2
FLA (Amps)	2.2 - 2.5	2.2 - 2.5	1.2	1.6
Min. Ampacity (Amps)	29 - 30	23	10	9
Max. Fuse Size (Amps)	50	35	15	15
Power Consumption (kW)	4.0	4.0	4.0	4.0



PERFORMANCE DATA

Air Temp °F	40% RH			50% RH			60% RH			70% RH		
	lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh	Lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh
70	5.7	33.1	39.1	10.3	30.0	40.8	13.6	27.5	41.8	17.4	24.9	43.2
74	7.4	33.4	41.2	11.8	30.4	42.8	15.6	27.8	44.2	19.9	25.7	46.6
78	10.2	33.5	44.2	13.0	31.2	44.9	18.3	28.4	47.6	22.4	25.9	49.4
82	9.7	35.2	45.3	15.0	32.3	48.1	19.9	29.3	50.2	24.8	26.1	52.1
86	11.6	36.3	48.4	16.5	33.2	50.6	23.4	29.6	54.2	29.3	26.2	57.0
90	13.2	37.2	51.0	20.0	33.3	54.3	26.5	29.9	57.7	-	-	-
93	16.7	37.5	55.0	21.6	33.5	56.1	-	-	-	-	-	-
96	17.9	37.9	56.7	-	-	-	-	-	-	-	-	-
100	19.1	38.7	58.8	-	-	-	-	-	-	-	-	-

AIR CONDITIONING

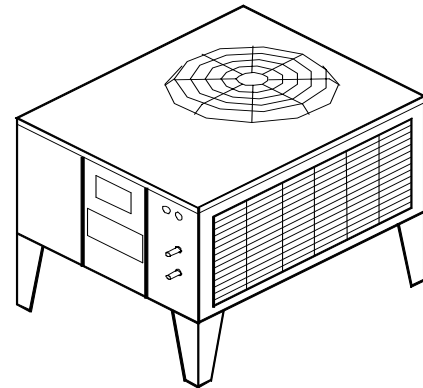
Total Heat of Rejection = 62170 Btu/h

Air Cooled:

Condenser Model	Air on OACC °F	Total System Charge (lb R22)
CCA-005	90	48*
CCA-006	95	52*
CCA-006	100	52*

Water Cooled:

Flow gpm	ΔP psi	Water Temp Range °F	Total System Charge (lb R22)
1.9 – 12.7	1.2 – 7.4	45 - 90	10.8



HOT GAS REHEAT COILS AVAILABLE:

2 Row Allows the unit to dehumidify and supply air reheated up to room temperature. Ideal for applications where the MAM replaces an existing Air Conditioner.

6 Row Allows the unit to reject all the compressor heat into the space. Ideal for small spas and whirlpools.

lb/h = Moisture removal capacity in pounds per hour

Smbh = Sensible cooling capacity in thousands of Btu's per hour

Tmbh = Total cooling capacity in thousands of Btu's per hour

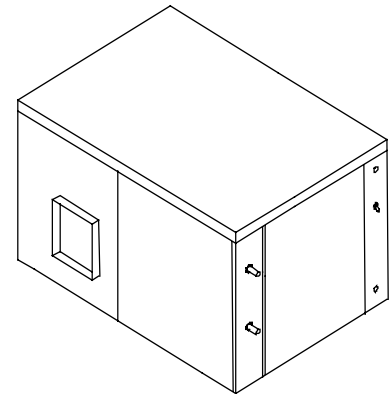
***The receiver is sized for a maximum of 50 linear ft. refrigerant line lengths and/or not more than 6 feet below the MAM unit.**

SUPPLY AIR DATA

CFM	ESP	ESP
1230	0.3"	0.5"

ELECTRICAL DATA

V/Ph/Hz	208-230/1/60	208-230/3/60	460/3/60	575/3/60
Compressor (Nominal TR)	5.0	5.0	5.0	5.0
RLA (Amps)	32.1	19.3	9.1	7.9
LRA (Amps)	148.0	137.0	62.0	50.0
Blower Motor (HP)	1/2	1/2	3/4	1/2
FLA (Amps)	2.8 - 3.2	2.8 - 3.2	2.7	1.6
Min. Ampacity (Amps)	43 - 44	27 - 28	15	12
Max. Fuse Size (Amps)	70	45	20	15
Power Consumption (kW)	5.3	5.3	5.3	5.3



PERFORMANCE DATA

Air Temp °F	40% RH			50% RH			60% RH			70% RH		
	lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh	Lb/h	Smbh	Tmbh	lb/h	Smbh	Tmbh
70	7.6	42.8	50.8	13.0	38.9	52.6	18.2	36.2	55.3	23.1	32.9	57.1
74	9.7	43.3	53.5	15.9	39.9	56.6	20.9	36.6	58.6	25.9	33.3	60.5
78	13.6	43.6	57.9	17.6	41.0	59.5	23.9	36.9	62.0	29.1	33.6	64.2
82	13.3	46.1	60.0	19.6	41.9	62.5	26.6	38.5	66.5	32.6	34.1	68.3
86	15.3	47.0	63.0	22.3	43.6	67.0	30.6	38.8	70.9	37.9	35.0	74.8
90	17.4	48.1	66.4	26.3	43.9	71.5	33.9	39.7	75.3	-	-	-
93	22.7	48.8	72.7	27.8	44.0	73.2	-	-	-	-	-	-
96	23.3	49.1	73.6	-	-	-	-	-	-	-	-	-
100	26.0	50.7	78.0	-	-	-	-	-	-	-	-	-

AIR CONDITIONING

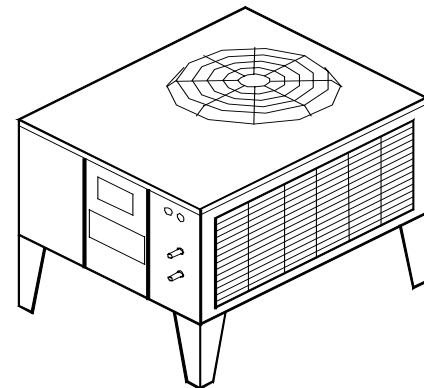
Total Heat of Rejection = 80940 Btu/h

Air Cooled:

Condenser Model	Air on OACC °F	Total System Charge (lb R22)
CCA-007	90	60*
CCA-008	95	68*
CCA-008	100	68*

Water Cooled:

Flow gpm	ΔP psi	Water Temp Range °F	Total System Charge (lb R22)
2.6 – 16.5	0.5 – 9.0	45 - 90	14.5



HOT GAS REHEAT COILS AVAILABLE:

2 Row Allows the unit to dehumidify and supply air reheated up to room temperature. Ideal for applications where the MAM replaces an existing Air Conditioner.

6 Row Allows the unit to reject all the compressor heat into the space. Ideal for small spas and whirlpools.

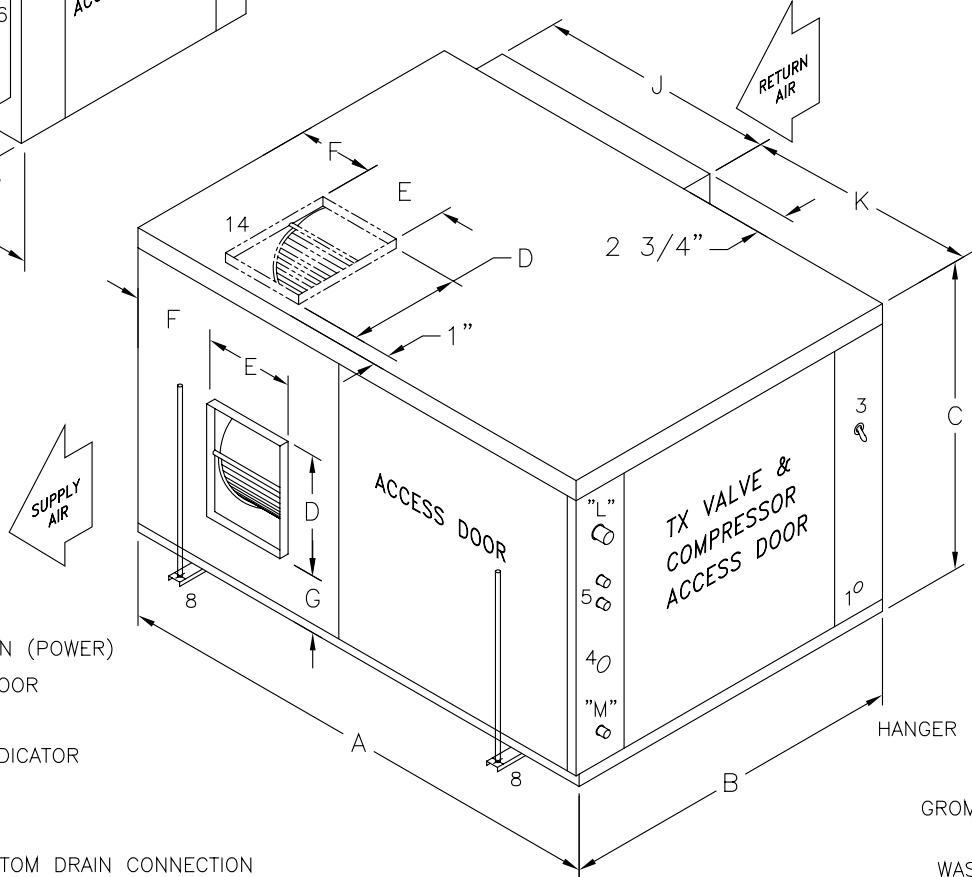
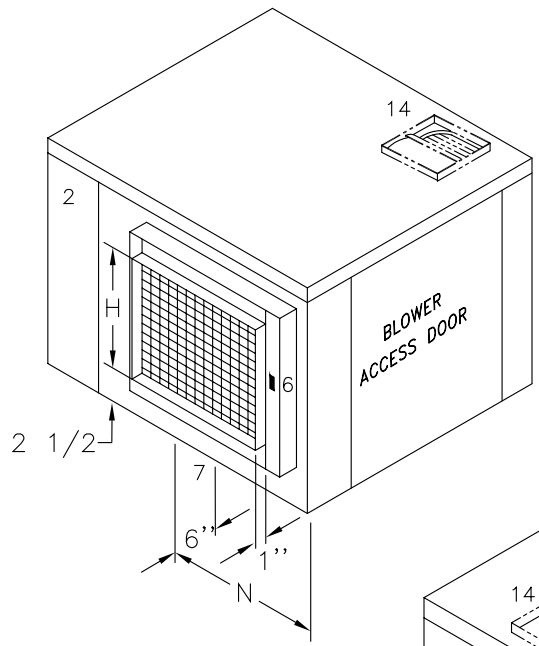
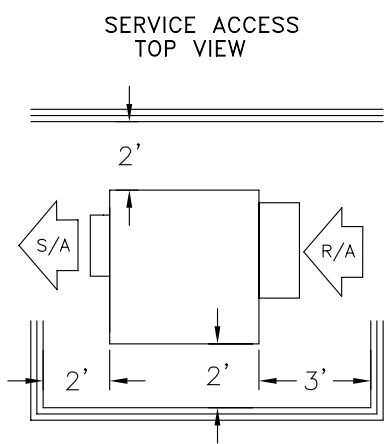
lb/h = Moisture removal capacity in pounds per hour

Smbh = Sensible cooling capacity in thousands of Btu's per hour

Tmbh = Total cooling capacity in thousands of Btu's per hour

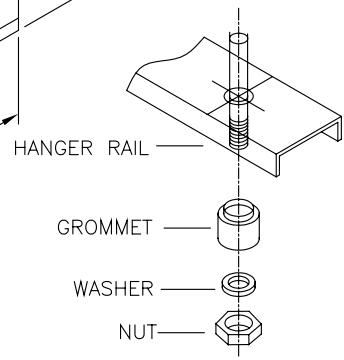
***The receiver is sized for a maximum of 50 linear ft. refrigerant line lengths and/or not more than 6 feet below the MAM unit.**

11- AIR COOLED A/C REFRIGERANT CONNECTIONS FOR REMOTE CONDENSER L- HOT GAS } (SEE TABLE) M- LIQUID }	CHECK BOX
12- WATER COOLED A/C WATER CONNECTIONS L- WATER OUT } (SEE TABLE) M- WATER IN }	
14- OPTIONAL TOP AIR DISCHARGE	



LEGEND:

- 1- ELECTRICAL CONNECTION (POWER)
- 2- ELECTRICAL SECTION DOOR
- 3- ON/OFF SWITCH
- 4- LIQUID & MOISTURE INDICATOR
- 5- ACCESS VALVES
- 6- FILTER ACCESS DOOR
- 7- 7/8" I.D. COPPER BOTTOM DRAIN CONNECTION
ALLOW 6" CLEARANCE FOR P-TRAP BY OTHERS
- 8- HANGER KIT (SUPPLIED BY DECTRON)



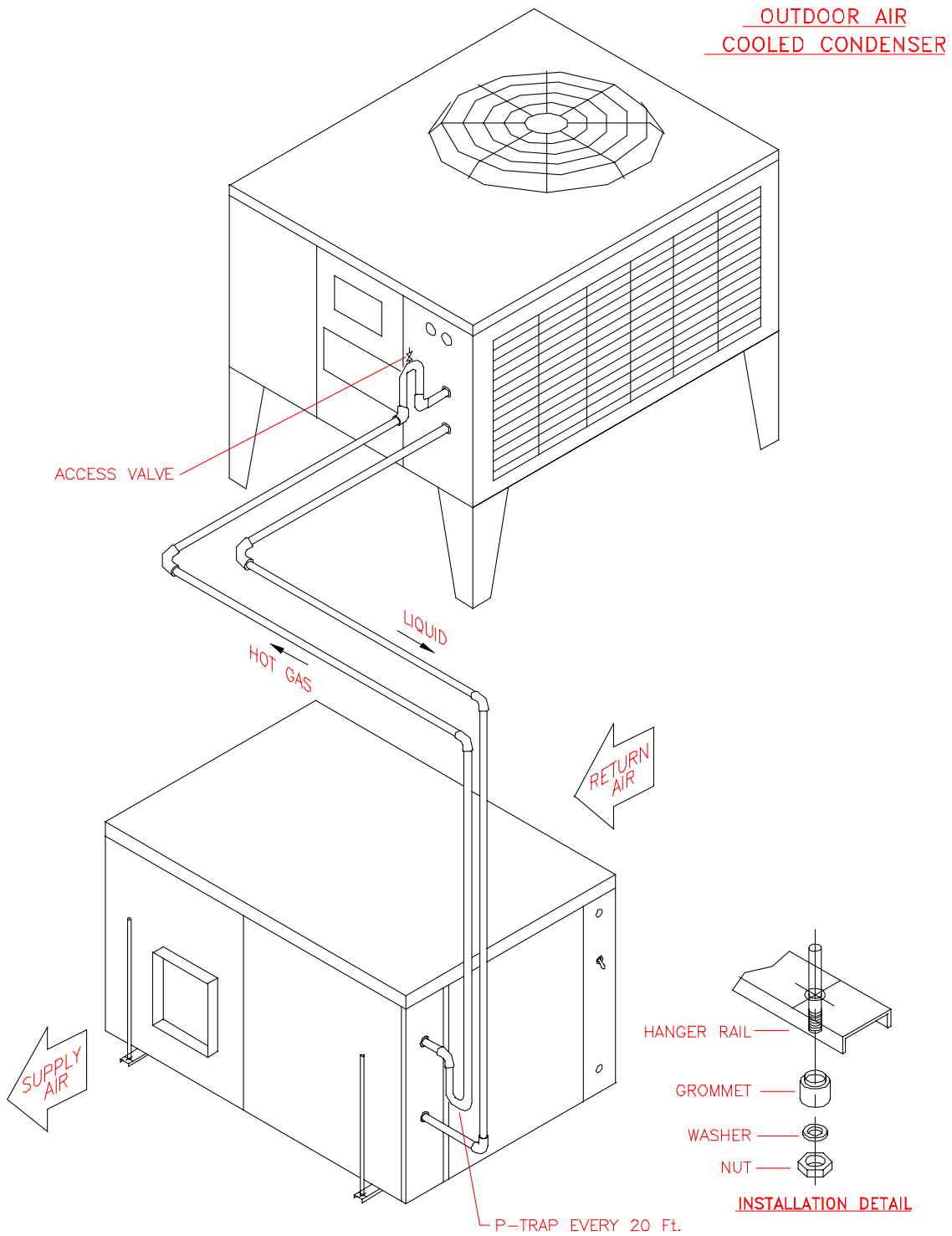
NOTE: ALL DIMENSIONS IN INCHES.

CHECK BOX	MODEL	A	B	C	D	E	F	G	H	J	K	N	11		12		APPROX. WEIGHT
													L (O.D.)	M (O.D.)	L, M (FPT)		
	MAM-016	38	27	18	8	7	4	2 3/4	14 1/4	23 1/4	12	14 1/2	1/2	3/8	1/2	140	
	MAM-024	38	27	18	10 1/4	8 1/2	3	2 3/4	14 1/4	23 1/4	12	14 1/2	5/8	1/2	1/2	175	
	MAM-030	38	27	18	10 1/4	8 1/2	3	2 3/4	14 1/4	23 1/4	12	14 1/2	5/8	1/2	1/2	195	
	MAM-036	39	30	22	9 3/4	9 1/2	4	2 3/4	18 1/4	23 1/4	12	15 1/2	5/8	1/2	3/4	230	
	MAM-042	43	30	22	9 3/4	9 1/2	6	3	18 1/4	26 1/4	13	15 3/4	7/8	5/8	3/4	240	
	MAM-048	43	30	22	11 1/2	13 1/4	4	2	18 1/4	26 1/4	13	15 3/4	7/8	5/8	3/4	250	
	MAM-060	48	36	22	11 1/2	13 1/4	4	2	18 1/4	35 1/4	10	20 1/2	7/8	5/8	3/4	320	

11	GENERAL CHANGES	R.T.	FEB.14/06		DRAWN BY: R.L.
10	DRAIN CONNECTION CHANGED	H.X.	FEB.04/05		DATE : 97/04/17
9	DIM TABLE CHANGE	D.R.	JULY 29/03		CHECK BY:
8	WATER COOLED A/C & TAD ADDED	H.X.	APR.29/03		REF. NO. :
7	HANGER KIT ADDED	H.X.	APR.01/03		AUTOCAD: ST-01
NO.	REVISIONS	BY	DATE	CHK.	SCALE: NTS

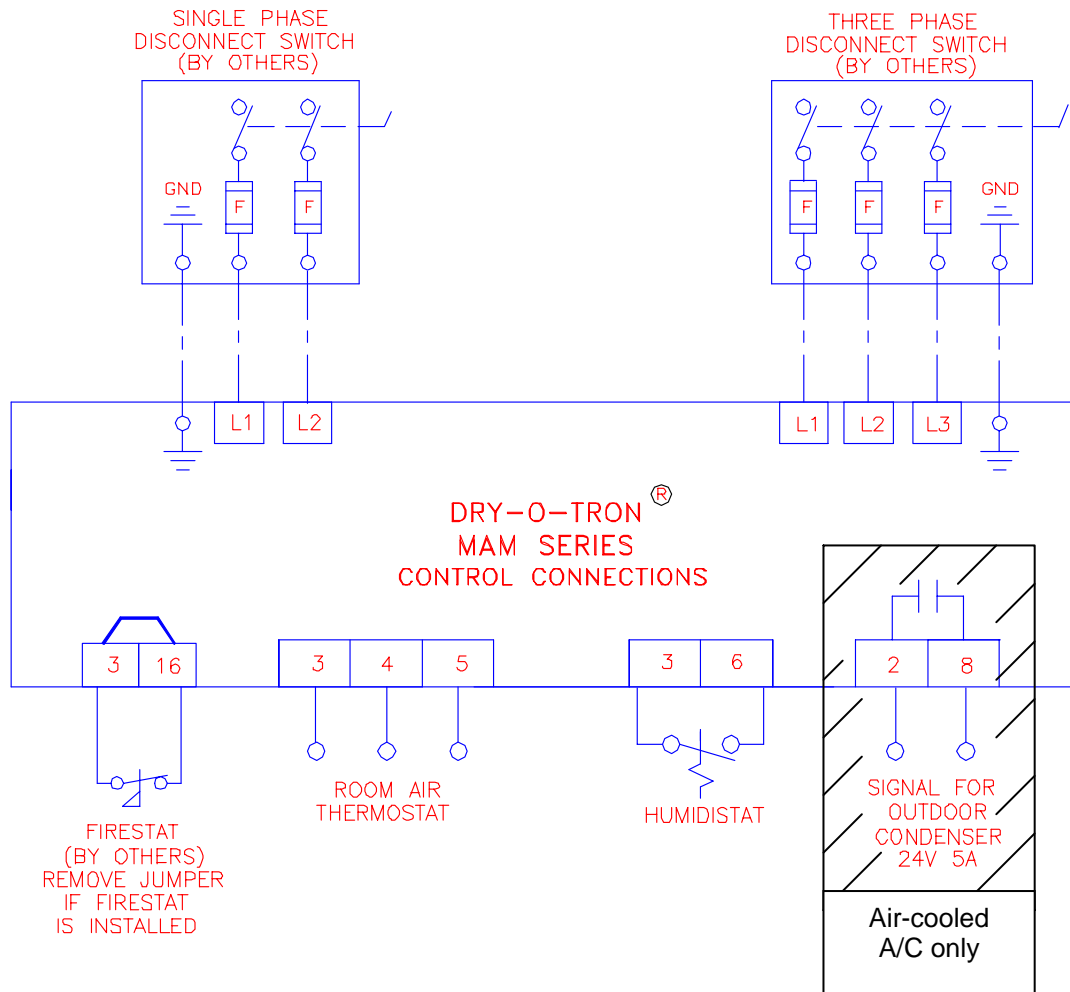
TITLE :
MODEL MAM-016 TO 060

MAMD-M-000-001 AE REV. 11



The receiver is sized for a maximum of 50 linear ft. refrigerant line lengths and/or not more than 6 feet below the MAM unit.

SEE TECHNICAL SPECIFICATIONS
FOR MINIMUM AMPACITY AND
MAXIMUM MAIN FUSE



--- POWER WIRE
— MINIMUM CONTROL WIRE SIZE 20 AWG.

Supply air blower

Blower operates continuously at design CFM.

Dehumidification mode [6-row reheat coil]

On a dehumidification demand from the wall-mounted humidistat, the 3-way valve is energized and the compressor rejects all the recovered energy to the hot gas reheat coil.

Dehumidification mode [2-row reheat coil]

On a dehumidification demand from the wall-mounted humidistat, the 3-way valve is energized and the compressor rejects the recovered energy to the hot gas reheat coil and the outdoor condenser rejects the remaining heat that has not been used in the hot gas reheat coil.

Cooling mode [air-cooled]

On cooling demand from the wall-mounted thermostat, the 3-way valve is de-energized and the compressor rejects all the recovered energy directly to the outdoor condenser. A signal to start the outdoor condenser fan is sent at the same time.

Cooling mode [water-cooled]

On cooling demand from the wall-mounted thermostat, the 3-way valve is de-energized and the compressor rejects all the recovered energy directly to the unit mounted water-cooled condenser.

1. **GENERAL**

1.1 **Scope**

- .1 Unit shall be specifically designed for dehumidification and cooling. The unit shall operate from a remote thermostat and humidistat.
- .2 The dehumidifier shall include a compressor, evaporator (dehumidifying coil), condenser (air reheat coil), supply air blower, blower motor, motor contactors and controls in one complete enclosure. Systems retrofitting reheat coils or heat pipes on site shall not be acceptable.
- .3 Optional
The system shall have an air-conditioning option to reject compressor heat during the air-conditioning season.

1.2 **Quality and Safety Assurance**

- .1 Entire unit shall be ETL Listed and/or CSA Certified.
- .2 Coils shall be ETL Listed and/or CSA Certified.
- .3 Blower motor and compressor shall be UL Listed and/or CSA Certified.
- .4 Piping in accordance with BOCA code M-702.0 for joints and connections. All refrigerant pipes shall be copper type "L".
- .5 Manufacturer's Quality Control
 - .1 Manufacturer shall have an environmental and quality control test chamber. The unit shall undergo a 15-point design review and 60-point quality control review.
 - .2 The environmental chamber shall be able to maintain steady-state design conditions. The unit shall be tested and operate at design conditions for a minimum of 4 hours. A copy of a previously tested unit of similar capacity and configuration shall be included with the submittals.
 - .3 Test report shall be available on request. Engineer reserves the right to witness factory performance testing.
 - .4 Manufacturer of the packaged system for humidity control shall have a minimum of five years experience in the production of these systems.
 - .5 The system shall have a limited warranty for twenty-five months from the date of shipment.
 - .6 The entire cabinet shall be painted internally and externally.

1.3 **Basis of Design**

- .1 Unit shall be base bid with specified Dectron Inc. (DRY-O-TRON®) with capacities as scheduled.
- .2 An Add or Deduct Alternate (substitution) may be provided as indicated on the bid form subject to the following conditions:
 - A. Substitution shall include revised layout including details on duct, piping, and power connections.
 - B. Substitution shall include full disclosure (by paragraph and schedule) to be submitted with the bid. Full disclosure shall clearly list and define any exceptions or deviations to the specified equipment and performance.
 - C. Increased operating costs due to larger blower motors, compressors and water pumps shall be highlighted as part of the disclosure package.
 - D. A written guarantee shall be provided by the alternate manufacturer that the alternate product meets or exceeds the operational performance and respects the principles and priorities of the design.

1.4 **Submittals**

- .1 Submit overall dimension drawings, field wiring diagram, and product data including air flow, static pressures, total power consumption, moisture removal capacity, moisture removal efficiency, air leaving conditions under all operating modes, water heater characteristics and total refrigerant charge.
- .2 Basis of unit selection and performance with supporting documentation to be furnished with bid. Guaranteed maximum annual operating cost to be supplied with bid.
- .3 A copy of a similarly sized unit's actual quality control and testing report to be submitted for the engineer's review.

1.5 **Operating and Maintenance Data**

- .1 Electrical wiring diagrams, installation and maintenance instructions and an owner's manual shall be supplied with each unit.

2. **PRODUCTS**

2.1 **General**

- .1 The dehumidifiers shall be split air cooled or packaged water-cooled units. Air handling section shall include compressor, evaporator (dehumidifying coil), hot gas reheat coil, supply air blower, blower motor, contactors and controls in one complete enclosure. Systems using condensing units shall not be acceptable.
- .2 Air cooled units shall be field charged with R-22 refrigerant. Water cooled units are factory charged with R-22 refrigerant.
- .3 The air handling section shall be designed for indoor installation.
- .4 *Optional*
The unit shall be supplied with a hot gas reheat (condenser) coil capable of rejecting 100% of the compressor heat.
- .5 *Optional*
The unit shall be configured to reject heat to a water loop.

2.2 **Principle of Operation**

- .1 The unit shall operate according to the following sequence. The returned humid air passes through the dehumidifying coil and is cooled below its dew point, thereby condensing moisture. The heat captured by this process and the heat generated by the compressor power consumption are absorbed by a mechanical refrigeration system. This recovered heat can then be used to reheat the air. On a call for cooling all the heat is rejected to the remote outdoor air-cooled condenser or fluid loop.

2.3 **Cabinet**

- .1 The base shall be constructed of 16-gauge satin coated sheet metal. Cold rolled steel shall not be acceptable. The entire base shall be phosphate degreased and painted with baked epoxy powder paint, providing a chlorine and pool chemistry resistant finish. The metal shall be formed and reinforced for maximum rigidity.
- .2 Removable service panels shall be furnished to provide access to all internal parts from both sides and in both sections.
- .3 The units shall be constructed of 20-gauge satin-coated sheet metal. All metal to be phosphate degreased and then painted baked epoxy powder paint, providing a chlorine and pool chemistry resistant finish.
- .4 Each unit shall have a built-in electrical control panel in a separate compartment in order not to disturb the air flow within the dehumidifier during electrical servicing. All electrical

components shall be mounted on an 18-gauge painted subpanel. Direct mounting of components to the partition wall shall not be acceptable.

- .5 The unit shall have a built-in air filter rack with separate hinged access door with compression fasteners.

2.4 Insulation

- .1 Entire coil section shall be insulated to prevent condensation with 1/2-inch thick fiberglass duct liner insulation, approved for 250°F operating temperature and up to 5,000 fpm air velocity. Surface to be protected against perforation with a reinforcing mesh. Fire resistance rating to conform with NFPA Standard 90A. Sound attenuation coefficient shall be not less than 0.64 at a frequency of 1000 Hz as per ASTM Standard C423. Thermal conductivity shall be not more than 0.232 Btu in/h sq. ft. °F at 75°F. Insulation shall be securely fastened by spot welding to become an integral component of the enclosure and held on by mechanical fasteners. Adhesives shall not be acceptable.

2.5 Evaporator (Dehumidifier Coil)

- .1 Shall not be less than four rows deep on MAM-016, or six rows deep on MAM-024 to MAM-060 for maximum moisture removal capacity. Air velocity not to exceed 300 fpm, with 3/8-inch OD seamless copper tubing mechanically expanded to assure high heat transfer with maximum twelve aluminum fins per inch on MAM-016 or ten aluminum fins per inch on MAM-024 to MAM-060.
- .2 Shall be HyPoxy® coated fins for maximum corrosion resistance. Untreated fin material shall not be acceptable. Coating shall comply with ASTM B117/D1654 and ASTM D2126 for corrosion resistance.
- .3 Coil shall have a 16-gauge galvanized casing and end plates.
- .4 Coil shall be factory tested at air pressures not less than 400 psig in a water bath.
- .5 Optional
Coil shall have an optional third-to-fifth year extended warranty underwritten by the dehumidifier manufacturer. Third party coverage shall not be acceptable.
- .6 Optional
Coil shall have an optional third-to-tenth year extended warranty underwritten by the dehumidifier manufacturer. Third party coverage shall not be acceptable.

2.6 Air Reheat (Hot Gas Coil)

- .1 Shall be sized to transfer no less than 20°F reheat from the compressor heat of rejection into the air if necessary with 3/8-inch OD seamless copper tubing mechanically expanded to assure high heat transfer with maximum twelve facetized aluminum fins per inch. Systems using sources other than compressor hot gas for reheat shall not be acceptable.
- .2 Shall be HyPoxy® coated fins for maximum corrosion resistance. Untreated fin material shall not be acceptable. Coating shall comply with ASTM B117/D1654 and ASTM D2126 for corrosion resistance.
- .3 Coil shall have a 16-gauge galvanized casing and end plates.
- .4 Coil shall be factory tested at air pressures not less than 400 psig in a water bath.
- .5 Optional
Shall be sized to transfer 100% of the compressor heat of rejection into the air if necessary with 3/8-inch OD seamless copper tubing mechanically expanded to assure high heat transfer with maximum twelve facetized aluminum fins per inch. Systems using sources other than compressor hot gas for reheat shall not be acceptable.
- .6 Optional
Coil shall have an optional third-to-fifth year extended warranty underwritten by the manufacturer. Third party coverage shall not be acceptable.
- .7 Optional
Coil shall have an optional third-to-tenth year extended warranty underwritten by the manufacturer. Third party coverage shall not be acceptable.

2.7 Drain Pan

- .1 The air handling section shall be equipped with a non-trapping drain pan under the entire evaporator coil and prevent condensate carryover. Drain pans susceptible to water pooling and subsequent bacteria growth shall not be acceptable.
- .2 The drain pan shall be made of 20-gauge, 304-type stainless steel, insulated with 1/8-inch closed cell insulation on the bottom and sides of the drain pan.

2.8 Blower

- .1 Shall be double width, double inlet, multi-blade forward curved centrifugal type blower wheel, dynamically and statically balanced and tested, mounted on a solid steel shaft coated with silicon.

- .2 Shall have a galvanized steel wheel and galvanized steel casing painted with a baked enamel finish.

2.9 Blower Motor

- .1 Shall be open drip-proof, multi-speed, induction type, 40°C ambient, pre-lubricated ball bearings.
- .2 Shall be direct mounted.

2.10 Compressor

- .1 Shall be hermetic compressor, suction gas cooled, suitable for refrigerant R-22, equipped with internal thermal overload protection and resilient type external mounting.
- .2 Compressor manufacturer must have a wholesale outlet for replacement parts in the nearest major city.

2.11 Refrigeration Circuit

- .1 Shall have an in-line solder type liquid line filter drier, liquid and moisture indicator visible from outside the unit, thermostatic expansion valve, head pressure control and receiver with fusible plug on water cooled units or receiver with pressure relief valve on air cooled units.
- .2 Tamper proof, hermetically sealed non-adjustable high and low pressure controls and refrigeration service valves shall be installed using Schraeder type valves.
- .3 Refrigeration service valves shall be located outside of the air stream.
- .4 Suction line shall be fully insulated with not less than 1/2-inch closed cell insulation.

2.12 Control Panel

- .1 Blower motor and compressor shall be controlled by contactors.
- .2 Blower motor and compressor shall be internally protected.
- .3 Power block terminal shall be provided for proper wire size.
- .4 Dry contact shall be provided for remote on-off control.

- .5 Color coding and wire numbering shall be provided for easy troubleshooting.
- .6 Compressor shall have a time delay start to prevent short cycling.
- .7 All components used shall be UL Listed or Recognized and/or CSA Certified.
- .8 The unit shall be controlled by both a remote thermostat and humidistat. Each controller can independently control unit operation without interfering with unit performance.

2.13 Air Filters

- .1 Shall be 1-inch disposable type suitable for commercial application, to handle average dust loading. Initial resistance of 0.08-inch W.G. and average arrestance efficiency of 80% based on 500-fpm air velocity.

2.14 OPTIONAL - Water-Cooled Air Conditioning

- .1 Unit shall be completely packaged design equipped with air conditioning feature to reject all compressor heat to a water-cooled condenser.
- .2 The cooling water heat exchanger shall be coaxial, for maximum heat transfer from refrigerant to cooling water. Heat exchanger shall be corrosion resistant, copper water circuit, self-draining counter flow design. Water circuit shall be supplied with self-aligning union fittings for easy connection. Heat exchanger shall be UL Listed or Recognized and/or CSA Certified.
- .3 Water flow shall be controlled by a direct-acting, adjustable, modulating, head pressure actuated water-regulating valve. The water valve cast brass body shall be rated for 150 psi operating pressure and 170°F water. A 2-way valve and a solenoid valve for positive shut-off shall be used for variable flow or water-saving applications such as city water. A 3-way valve shall be used for constant flow applications such as cooling towers or heat pump loops.

3. OUTDOOR AIR-COOLED CONDENSER*

3.1 Model CCA-002 through CCA-008

- .1 Cabinet including base shall be constructed of 18-gauge satin coated sheet metal. Service panel shall be furnished to provide access to all internal parts. Cabinet shall have two coats of baked enamel finish. Fan outlet and air intake grilles shall be PVC coated. Cabinet shall have mounting legs.

- .2 Dual condenser coils shall be constructed of 3/8-inch OD seamless copper tubing mechanically expanded into plate-type aluminum, corrugated fins to assure high heat transfer. Coils shall have a 16-gauge galvanized casing and end plates. Coils shall be factory-tested at air pressures not less than 400 psig in a water bath.
- .3 Unit shall have dynamically balanced fan in conjunction with the dual venturi (inlet and outlet venturies with insulation in-between) to optimize air flow with reduced air noise.
- .4 Fan motor shall be permanently lubricated ball bearing type with built-in overload protection. CCA-002 through CCA-007 motor shall not exceed 825 RPM (1-phase), 900 RPM (3-phase) for low operating decibel level. CCA-008 motor shall not exceed 1075 RPM (1-phase), 1140 RPM (3-phase). Motor shall be factory wired to a unit mounted control panel with motor contactor, control transformer and terminal strip.

**The receiver is sized for a maximum of 50 linear ft. refrigerant line lengths
and/or not more than 6 feet below the MAM unit.**

4. EXECUTION

4.1 Unit Selection

- .1 Specified manufacturer to be Dectron DRY-O-TRON® Model
MAM-016
MAM-024
MAM-030
MAM-036
MAM-042
MAM-048
MAM-060
Energy Recycling Environment Control System. Alternate manufacturers must be bid as such with full submittals in writing to the engineer one week prior to bid.

4.2 Product Delivery, Storage and Handling

- .1 Handle unit carefully to prevent damage, breaking, denting and scoring. Damaged units or damaged components shall not be installed. Replace all damaged parts with new parts from the manufacturer.
- .2 If unit is to be stored prior to installation, store in a clean, dry place. Protect from weather, dirt, fumes, water, construction and physical damage.
- .3 Comply with manufacturer's rigging and installation instructions for unloading the unit and moving it to the final location.

4.3 Installation

- .1 Execute the work in accordance with the specifications and in accordance with the manufacturer's instructions and only by workmen experienced in this type of work.

4.4 Warranty*

- .1 A twenty-five-month warranty on the entire unit.
- .2 OPTION: A one-year labor warranty on the entire unit to be provided by the manufacturer's representative.
- .3 OPTION: An extended third-to-fifth year of parts coverage on the compressor.
- .4 OPTION: An extended third-to-fifth year of parts coverage on the air side coils.
- .5 OPTION: A third-to-tenth year extended warranty on the air side coils.

* Please refer to the Dectron Warranty for full Terms & Conditions.

4.5 Start-Up

- .1 Start-up for the dehumidification/heat recovery unit shall be provided by the authorized factory representative. The agency responsible for start-up shall be factory trained and certified. The installing contractor, if not factory certified shall not be authorized to carry out the start-up.
- .2 The agency responsible for start-up shall submit a copy of their training certificate with the submittals.
- .3 The dehumidification/heat recovery unit manufacturer shall maintain an archive library of every unit for 20 years.