

**Copeland®**

# Copevap® Hermetic Condensing Units for OEM's

## M and F-Line Models

1/6 - 1 HP

Low/Medium/High Temperature  
R-134a, R-404A, R-22



**EMERSON™**  
Climate Technologies

# Copevap® Condensing Units

## Capacity Data

High/Med Temp.		Appl.		Refrig.	H.P.	Comp. Model	Capacity(Btu/hr) at 90°F Ambient - Evaporator Temp (°F)								"E" Base		"P" Base		
							0	+10	+15	+20	+25	+30	+35	+40	+45	Volume (oz.)	Evap Rate @+25°F	Volume (oz.)	Evap Rate @+25°F
Model	Base																		
M2*H-0017	E	P	HT	R-134a	1/6	ARB13C3E	800	910	1030	1150	1280	1410	1560	1710	84	13.0	79	11.1	
M2*H-0020	E	P	HT	R-134a	1/5	ARB17C3E	950	1070	1200	1330	1470	1620	1770	1930	84	13.4	79	11.7	
M2*H-0024	E	P	HT	R-134a	1/4	ARE25C3E	1310	1470	1640	1810	2000	2190	2390	2600	84	14.5	79	13.1	
M2*H-0026	E	P	HT	R-134a	1/4	ARE27C3E	1530	1700	1890	2080	2280	2490	2710	2940	84	15.3	79	13.9	
M2*H-A033	E	P	HT	R-134a	1/3	ARE37C3E	1870	2110	2360	2620	2900	3190	3500	3820	84	17.6	79	15.5	
M2*H-0040	E	P	HT	R-134a	1/3	ARE41C3E	1970	2270	2570	2870	3170	3490	3810	4150	84	18.9	79	16.2	
M2*H-0047	E	P	HT	R-134a	1/2	ART51C1E	2400	2740	3100	3460	3830	4210	4610	5030	84	22.8	79	17.9	
M2*M-0048	E	MT	HT	R-134a	1/2	ART62C1E	2600	2980	3370	3760					84	25.2			
FT*H-B075	E	MT	HT	R-134a	3/4	RR81C2E	3920	4420	4950	5510	6130	6810	7550	8350	175	45.6			
FT*M-A078	E	MT	HT	R-134a	3/4	RS54C2E	4420	5130	5930	6790					175	68.4			
FT*H-B100	E	MT	HT	R-134a	1	RR10K2E	4620	5380	6240	7160	8140	9160	10200	11200	175	76.3			
M4*H-0022	E	P	HT	R-404A	1/5	ASB12C3E	1150	1340	1460	1590	1720	1860	2010	2160	2310	84	14.2	79	12.8
M4*H-0025	E	P	HT	R-404A	1/4	ASE19C3E	1600	1890	2060	2230	2430	2620	2850	3070	3270	84	16.7	79	14.9
M4*H-A035	E	P	HT	R-404A	1/3	ASE24C3E	1800	2280	2530	2800	3100	3430	3810	4230	4710	84	20.3	79	16.9
M4*H-0049	E	MT	HT	R-404A	1/2	ASE32C3E	2470	3020	3310	3620	3970	4350	4800	5320	5940	84	27.0		
FJ*F-B078	E	MT	HT	R-404A	3/4	RS55C2E	3900	4970	5540	6130	6740				175	67.3			
MM*H-0022	E	P	HT	R-22	1/5	ARB21C3	1250	1380	1530	1680	1840	2010	2180	2360	84	14.1	79	12.7	
MC*H-0027	E	P	HT	R-22	1/4	ARE36C3	1910	2130	2360	2600	2850	3110	3380	3660	84	17.5	79	15.4	
MC*H-0035	E	P	HT	R-22	1/3	ARE43C3	2200	2450	2730	3020	3330	3650	4000	4360	84	19.8	79	16.6	
MC*H-0048	E	P	HT	R-22	1/2	ARE59C3	3020	3360	3720	4110	4520	4950	5410	5880	84	28.4	79	19.8	
F3*H-A078	E	MT	HT	R-22	3/4	RS47C2	4480	5120	5760	6450	7130	7870	8660	9440	175	61.6			

Low Temp.		Appl.		Refrig.	H.P.	Comp. Model	Capacity(Btu/hr) at 90°F Ambient - Evaporator Temp (°F)								"E" Base		"P" Base	
							-25	-20	-15	-10	0	+10	+15	+20	Volume (oz.)	Evap Rate @-10°F	Volume (oz.)	Evap Rate @-10°F
Model	Base																	
M2*L-0023	E	P	LT	R-134a	1/5	AFB05C3E	440	550	630	740	960				84	13.3	79	11.2
M2*L-A025	E	P	LT	R-134a	1/4	AFE10C3E	720	820	940	1070	1370				84	14.5	79	12.5
M2*L-B033	E	P	LT	R-134a	1/3	AFE12C3E	850	960	1090	1240	1590				84	15.1	79	13.1
M2*L-0040	E	P	LT	R-134a	1/3	AFT12C1E	920	1120	1320	1540	2010				84	16.1	79	14.1
FT*L-A050	E	MT	LT	R-134a	1/2	RF18C2E	1280	1590	1910	2260	2980				84	18.6		
M4*L-0025	E	P	LT	R-404A	1/4	AFB09C3E	610	710	810	920	1160				84	13.9	79	11.9
M4*L-0033	E	P	LT	R-404A	1/3	AFE11C3E	860	1040	1210	1390	1750				84	15.6	79	13.6
M4*L-0039	E	P	LT	R-404A	1/2	AFE13C3E	1290	1510	1740	1980	2500				84	17.7	79	15.8
M4*L-0050	E	P	LT	R-404A	1/2	AFT18C1E	1330	1590	1870	2170	2790				84	18.3	79	16.5
FJ*F-A075	E	MT	LT	R-404A	3/4	RS64C2E	2120	2570	3040	3510	4470				175	40.6		

Low and medium temperature units are rated at 40°F return gas temperature; High temperature models are rated at 65°F. Capacities are at 60 Hertz with 5°F subcooling. Multiply by .83 for 50 Hertz.

## Physical/Electrical Data

High/Med Temp.		Dimensions (in.)						Connecting Lines		MCA/Max Fuse Size			Pump Down Capacity (lbs.)	Ship Weight (lbs.)		
		"E" Base			"P" Base			Suction	Liquid	115-1-60	230-1-60	230-1-50				
Model	Base	L	W	H	L	W	H									
M2*H-0017	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	4.2	15	1.9	15	-	33
M2*H-0020	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	5.0	15	2.4	15	-	35
M2*H-0024	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	6.3	15	2.7	15	-	36
M2*H-0026	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	6.9	15	3.1	15	2.3	41
M2*H-A033	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	9.9	15	4.2	15	2.5	46
M2*H-0040	E	P	16.2	15.3	9.7	19.9	11.1	10.6	3/8 S	1/4 S	10.2	15	5.5	15	2.9	48
M2*H-0047	E	P	16.2	15.1	11.8	19.9	11.1	10.6	3/8 S	1/4 S	12.5	20	6.6	15	5.5	50
M2*M-0048	E	MT	16.2	15.1	11.8				3/8 S	1/4 S	14.6	20	7.4	15	6.3	55
FT*H-B075	E	MT	24.0	16.8	13.7				5/8 RS	3/8 S	18.6	25	10.7	15	10.0	114
FT*M-A078	E	MT	24.0	16.8	13.7				5/8 RS	3/8 S	16.8	25	9.7	15	2.1	120
FT*H-B100	E	MT	24.0	17.1	13.7				5/8 RS	3/8 S			10.3	15	9.2	130
M4*H-0022	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	7.3	15	3.4	15	-	36
M4*H-0025	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	10.7	15	4.1	15	2.2	41
M4*H-A035	E	P	16.2	15.1	11.8	19.9	11.1	10.6	3/8 S	1/4 S	8.4	15	5.9	15	2.7	45
M4*H-0049	E	MT	16.2	15.1	11.8				3/8 S	1/4 S	12.4	20	6.7	15	5.1	50
FJ*F-B078	E	MT	24.0	16.8	13.7				5/8 RS	3/8 S	18.5	25	8.8	15	8.7	96
MM*H-0022	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	6.5	15	3.3	15	-	36
MC*H-0027	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	9.1	15			2.5	42
MC*H-0035	E	P	16.2	15.1	11.8	19.9	11.1	10.6	3/8 S	1/4 S	9.8	15	4.4	15	2.9	47
MC*H-0048	E	P	16.2	15.1	11.8	19.9	11.1	10.6	3/8 S	1/4 S	10.9	15	5.6	15	4.5	54
F3*H-A078	E	MT	24.0	16.8	13.7				5/8 RS	3/8 S	19.9	30	10.1	15	9.0	102

Low Temp.		Dimensions (in.)						Connecting Lines		MCA/Max Fuse Size			Pump Down Capacity (lbs.)	Ship Weight (lbs.)		
		"E" Base			"P" Base			Suction	Liquid	115-1-60	230-1-60	230-1-50				
Model	Base	L	W	H	L	W	H									
M2*L-0023	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	4.2	15	1.9	15	-	36
M2*L-A025	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	6.8	15	2.3	15	2.5	42
M2*L-B033	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	7.0	15	4.0	15	2.5	47
M2*L-0040	E	P	16.0	15.2	11.8	19.9	11.1	10.6	3/8 S	1/4 S	7.1	15	4.1	15	2.5	47
FT*L-A050	E	MT	16.0	15.2	12.7				1/2 RS	1/4 S	17.0	25	9.8	15	9.5	64
M4*L-0025	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	6.7	15			2.2	40
M4*L-0033	E	P	16.0	14.3	10.6	19.9	11.1	10.6	3/8 S	1/4 S	8.0	15	3.2	15	2.2	41
M4*L-0039	E	P	16.2	15.1	11.8	19.9	11.1	10.6	3/8 S	1/4 S	7.9	15	4.0	15	2.5	47
M4*L-0050	E	P	16.2	15.1	11.8	19.9	11.1	10.6	1/2 S	1/4 S	10.8	15	4.9	15	2.9	55
FJ*F-A075	E	MT	24.0	16.8	13.7				5/8 RS	3/8 S	20.2	30	10.8	20	11.4	114

S - Sweat      RS - Rotalock Sweat

# Copevap® Condensing Units

## Configuration Data

High/Med Temp.			60 Hertz Units						50 Hertz Units					
			Base		Voltages	Sweat Connections				Voltages	Sweat Connections			
Model						w/o Valves		w/Valves				w/o Valves		w/Valves
M2*H-0017	E	P	SAA	102					SAZ	302				
M2*H-0020	E	P	SAA	102					SAZ	302				
M2*H-0024	E	P	SAA	102					SAZ	302				
M2*H-0026	E	P	IAA	102	007	111	103	017 020	IAZ	318	307	311	303	317 320
M2*H-A033	E	P	IAA IAV			111	103	208 212	IAZ			311	303	308 312
M2*H-0040	E	P	IAA IAV			111	103	208 212	IAZ			311	303	308 312
M2*H-0047	E	P	IAA IAV	102	214	111	103	208 212	IAG			311	303	308 312
M2*M-0048	E		IAA IAV			111	103	208 212	IAZ			311	303	308 312
FT*H-B075	E		IAA IAV			208	212		IAZ			308	312	
FT*M-A078	E		IAA IAV	214										
FT*H-B100	E		CAV	216		208	212		CAZ	316		308	312	
M4*H-0022	E	P	IAA	102		103			IAZ	302		312		
M4*H-0025	E	P	IAA			111	103	208 212	IAZ			311	303	308 312
M4*H-A035	E	P	IAA IAV			111	103	208 212	IAZ			311	303	308 312
M4*H-0049	E		CAA CAV			111	103	208 212	CAZ			311	303	308 312
FJ*F-B078	E		CAA CAV	216		208	212		CAZ	316		308	312	
MM*H-0022	E	P	IAA	102					IAZ	302				
MC*H-0027	E	P	IAA			111	103	208 212						
MC*H-0035	E	P	IAA	214		111	103	208 212	IAZ	314		311	303	308 312
MC*H-0048	E	P	CAA CAV	214		111	103	208 212	CAZ	314		311	303	308 312
F3*H-A078	E		IAA IAV	216		208	212		IAZ	316		308	312	

Low Temp.			60 Hertz Units						50 Hertz Units					
			Base		Voltages	Sweat Connections				Voltages	Sweat Connections			
Model						w/o Valves		w/Valves				w/o Valves		w/Valves
M2*L-0023	E	P	IAA	102					SAZ	302				
M2*L-A025	E	P	IAA			111	103	017 020	IAZ			311	303	317 320
M2*L-B033	E	P	IAA			111	103	017 020	IAZ			311	303	317 320
M2*L-0040	E	P	IAA			111	103	017 020	IAZ			311	303	317 320
FT*L-A050	E		IAA IAV			111	103	208 212	IAZ			311	303	308 312
M4*L-0025	E	P	IAA			111	103	017 020						
M4*L-0033	E	P	IAA			111	103	208 212	IAZ			311	303	308 312
M4*L-0039	E	P	IAA			111	103	208 212	IAZ			311	303	308 312
M4*L-0050	E	P	IAA			111	103	208 212	IAZ			311	303	308 312
FJ*F-A075	E		CAA IAV			208	212		IAZ			308	312	

## Unit Features

BOM		Suction Connections		Liquid Connections		Electrical Connections		Fan Guard	Fan Cycle Control	UL/UR
60 Hertz Sweat	50 Hertz Sweat	Suction Valve	Suction Accumulator	Base Valve	Receiver w/Valve	Power Cord	BX Conduit			
111	311	•		•		•				UR
103	303	•			•	•				UR
212	312	•			•		•	•		UR*
216	316				•		•	•		UR*
208	308	•		•			•	•		UR*
214	314						•	•		UR*
020	320	•			•		•	•		UL
007	307				•		•	•		UL
017	317	•		•			•	•		UL

\*These recognized models are identical to the UL listed models less pressure control. Need for the control is to be evaluated in the end use application. Above BOM (Bill of Material) numbers apply only to the units listed in this brochure. UL/UR are registered trademarks of Underwriters Laboratories, Inc. UL/UR and CSA label does not apply at 50 Hertz.

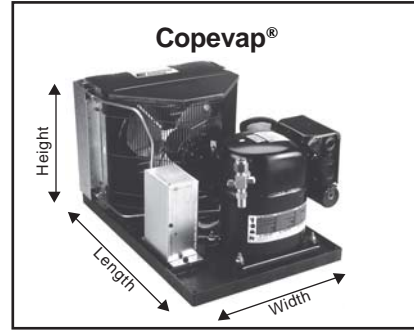
# Copevap® Condensing Units

To place an order determine:

- (1) Model
- (1a) Base Type
- (2) Voltage
- (3) Bill of Material (BOM)

— (1a) "E" Base  
 ↓

Example: M4EH-0025 -IAA -212  
**Model Voltage BOM**  
 1+2+3 = complete model number



## Electric Nomenclature

Single Phase (voltage-phase-hertz)

115-1-60	208/230-1-60	220/240-1-50	230-1-50	Motor Specifications
CAA	CAV	CAZ		Capacitor Run - Capacitor Start (High Starting Torque)
IAA	IAV	IAZ	IAG	Induction Run - Capacitor Start (High Starting Torque)
SAA		SAZ		Induction Run - Split Phase (Low Starting Torque)

## Control Data \*

Horsepower	Voltage	Bill of Material	Crankcase Heater	Low Pressure Control	High/Low Pressure Control	Contactors	115 Volt Control Circuit Transformer
1/6 - 3/4	All	All	No	No	No	No	No

\* This data applies to units listed in this brochure only.

## Application Engineering Bulletins

- 4-1273 Factors to Consider in Converting Compressor Rated Capacity to Actual Capacity
- 4-1292 Medium Temperature R-22 Copelaweld Compressors
- 4-1295 HFC-134A Refrigerant Guidelines
- 4-1298 Extended Medium Temperature R-404A/507 Hermetic Compressors and Condensing Units
- 4-1305 SystemPro™ AF, AR, & AS Refrigeration Hermetic 1/8-1 Horsepower Compressors
- 4-1306 Application Guidelines for RF Low Temperature Refrigeration Compressors
- 11-1147 Suction Accumulators
- 17-1260 Compressor Overheating
- 17-1268 Compression Ratio as it Affects Compressor Reliability
- 22-1182 Liquid Refrigerant Control in Refrigeration and Air Conditioning Systems

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