

The Unico System[®]

M SERIES CHILLED WATER COOLING MODULE

Bulletin 20-020.3

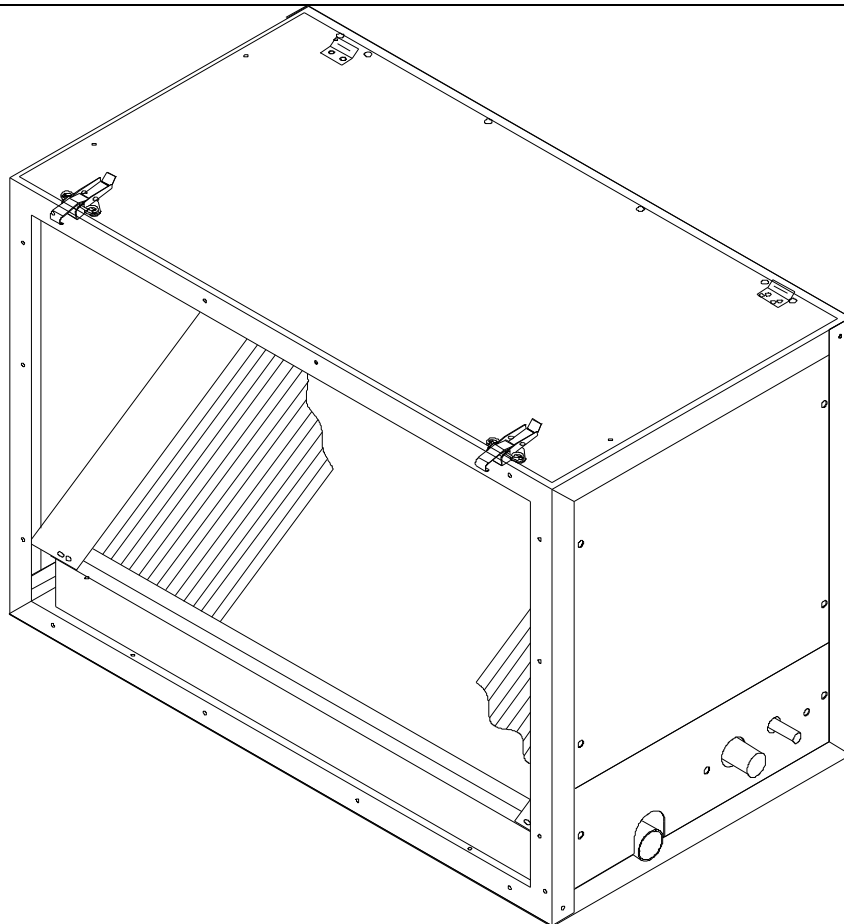


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Certified to UL 60335-2-40
UL 60335-1
Conforms to CSA C22.2 #60335-2-40
CSA C22.2 #60335-1



Intertek



Unico products comply with the European regulations that guarantee product safety.

MODEL NUMBER KEY

M **2430** **C** **L** **1** - **C** -
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Unit Type
M = Modular
- ② Nominal Capacity
1218 = 12000 to 18000 Btu/hr (3.5 to 5.3 kW)
2430 = 24000 to 30000 Btu/hr (7.0 to 8.8 kW)
3036 = 30000 to 36000 Btu/hr (8.8 to 10.5 kW)
3642 = 36000 to 42000 Btu/hr (10.5 to 12.3 kW)
4860 = 48000 to 60000 Btu/hr (14.0 to 17.5 kW)
- ③ Module Type
C = Coil
* A cross-reference chart listing current and past model numbers is available at the end of this bulletin.
- ④ Configuration
L = Left-hand connection
- ⑤ Revision
1, 2, 3, etc.
- ⑥ Coil Preference
X = No cooling coil or drain pan
C = Chilled water coil
- ⑦ Paint Color
(blank) = None
1 = White

PACKING LIST

Package Includes:

- (1) – Cabinet
- (1) – Chilled Water Coil Module
- (2) – Latches
- (2) – Latch Keepers
- (8) – Screws for latches and keepers
- (1) – Bulletin 20.020.3
- (1) – PVC Condensate Trap

APPLICATIONS

The *Unico System* designed and built chilled water coil modules can be easily installed with the matching *Unico System* blower modules (refer to table below). The chilled water coil module can be used for zone cooling in a central chiller system or in combination with a residential chilled water unit. For large applications, multiple systems can be installed to cool more than one zone. Capacities range from 15,400 Btu/hr to 52,400 Btu/hr (4.5 to 15kW) for cooling and 19,200 Btu/hr – 127,900 Btu/hr (56 to 37.5 kW) for heating. For smaller applications use the M1218 unit (See Bulletin 30-10). The chilled water coil module is compatible with ground source chillers for geothermal applications.

Chilled Water Module	Matching Blower Module
M1218CL1-C	M1218BL1
M2430CL1-C	M2430BL1
M3036CL1-C	M3036BL1
M3642CL1-C*	M3642BL1
M4860CL1-C*	M4860BL1



Figure 1. M2430CL1-C Chilled Water Cooling Module



Figure 2. M4860CL1-C Chilled Water Cooling Module

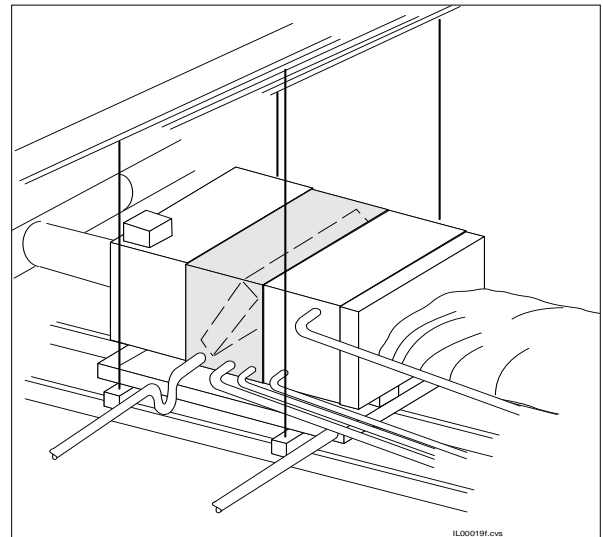


Figure 3. Typical Horizontal Installation with Unico System Chilled Water Module and Blower Module.

CABINET CONSTRUCTION

The cabinet is constructed of 22 gauge (0.030 in, 0.76 mm) galvanized steel with removable access panels on both sides for ease of service. All access panels are secured with slotted hex head washer screws and hardened steel U-clip nuts to prevent stripping. The cabinet is fully lined with closed cell insulation and does not contain fiberglass insulation. Easy snap latches are included for quick field assembly with the matching modules. See dimensional drawing for additional information

COIL CONSTRUCTION

Unico System coils are constructed of evenly spaced aluminum fins mechanically bonded to copper tubes. The tubes are 3/8-inch (9.5 mm) outside diameter. Full fin collars provide the greatest tube-fin contact for excellent heat transfer. The coil is pressure tested and then factory leak tested. The drain pan is constructed of stainless steel for maximum corrosion protection with either a 1/2-in (13-mm) or 3/4-in (19-mm) FPT drain connection. All water lines are sweat connections extending outside of the cabinet.

FREEZE PROTECTION

If the unit will be installed in an area that has temperatures below freezing, then the water must be protected from freezing. The most common anti-freeze is propylene glycol or ethylene glycol mixed with water. Propylene glycol is non-toxic and must be used for food-service installation. Ethylene glycol is toxic. We recommend using corrosion inhibited glycol such as DowFrost® or DowTherm® (trademark of Dow Chemical) to increase coil life. When using pure glycol, the coil can safely operate and survive at temperatures above the values shown in the table. If you use corrosion inhibited glycol, the freezing point will be a 2°F (1°C) warmer.

Minimum amount (% vol) of glycol required for freeze protection.			
Lowest Expected Outdoor Temperature		Propylene Glycol†	Ethylene Glycol‡
°F	(°C)		
26	-3	11	10
20	-7	18	17
10	-12	29	27
0	-18	36	35
-10	-23	42	41
-20	-29	46	47
-30	-34	50	51
-40	-40	54	55
-50	-46	57	59
-60	-51	60	63

† Dow Chemical DOWFROST inhibited propylene glycol bulletin 180-01314-1101
‡ Dow Chemical DOWTHERM SR-1 inhibited ethylene glycol bulletin 180-01312-602

CAPACITY REDUCTION*

Adding glycol to the system will reduce the heat transfer capacity of the coil per the following table. Be sure to multiply the capacity in previous tables by the glycol multiplier. Glycol also has a different viscosity than water so be sure to multiply the water pressure drop in the previous tables by the multiplier below.

Capacity Multiplier for Glycol Addition					
Glycol % by wt.	10	20	30	40	50
Propylene Glycol	0.90	0.83	0.79	0.75	0.71
Ethylene Glycol	0.94	0.89	0.81	0.73	0.74

Pressure Drop Multiplier					
Glycol % by wt.	10	20	30	40	50
Propylene Glycol	0.94	0.88	1.10	1.42	2.04
Ethylene Glycol	1.05	0.97	0.90	1.41	1.86

The entering air temperature also affects the capacity of the coil. The capacity decreases as the air temperature decreases. The following table shows a range of dry and wet bulb temperatures. The wet bulb temperatures are determined by the dry bulb temperature with approximately 50% relative humidity. Be sure to multiply the capacity in previous tables by the air temperature multiplier as shown in the table.

Capacity Multipliers for Temperature Change				
Entering Air Dry/Wet Bulb Temperature, °F, (°C)	70/58 (21/14)	75/63 (24/17)	80/67 (27/19)	85/71 (29/22)
Capacity Multiplier	0.58	0.80	1.00	1.22

COIL WATER SANITIZATION

Untreated water and water-glycol mixtures can promote microbial growth. To prevent this, use oxygen barrier PEX tubing, add an antimicrobial additive such as Dovicide®, or use at least 20% glycol.

Example. Consider a M4860CL1-C in cooling mode with 10 GPM (0.63 L/s) at 1250 CFM (590 L/s) and with 45°F (7.2°C) entering water temperature. The capacity from the table is 55.1 MBH (16.1 kW). Using the capacity multipliers from the tables, determine the capacity for a 20 percent mixture of propylene glycol with the water, at an entering air temperature of 75°F (24°C) dry bulb and 63°F (17°C) wet bulb, using the following equation:

New Capacity in MBH (kW) = Original Capacity X Propylene Glycol Capacity Multiplier X Air Temp. Multiplier

$$\text{New Capacity} = 55.1 \text{ MBH} \times 0.83 \times 0.80$$

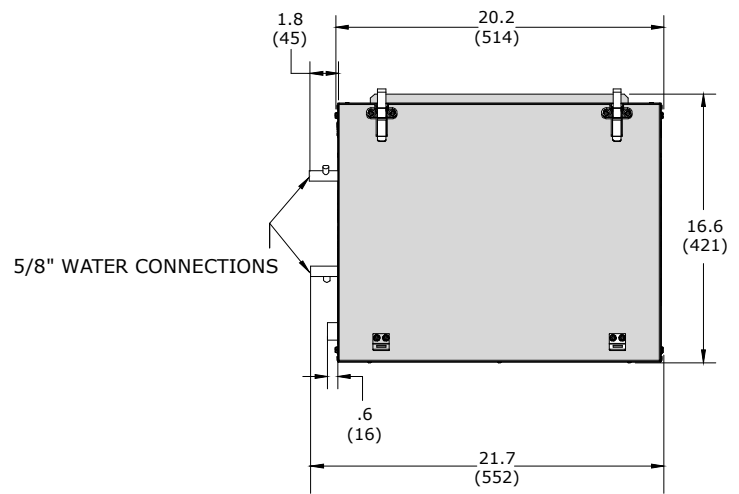
$$\text{New Capacity} = \mathbf{36.5 \text{ MBH (10.7 kW)}}$$

CHILLED WATER COOLING MODULE SPECIFICATIONS

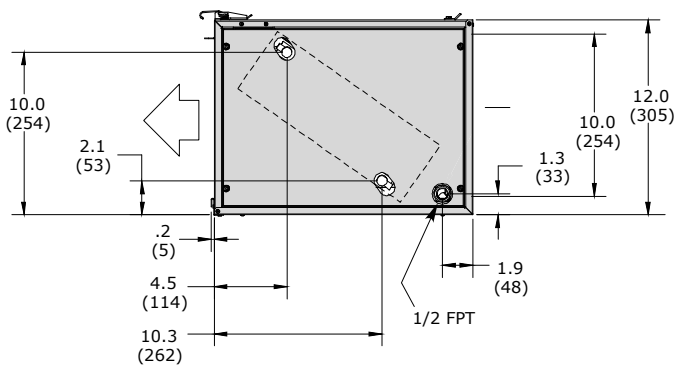
Chilled Water Module Model No.		M1218CL1-C	M2430CL1-C	M3036CL1-C	M3642CL1-C	M4860CL1-C
Water Coil Properties	Net Face Area, [ft. ² , (m ²)]	1.17 (0.11)	2.129 (0.20)	2.650 (0.25)	3.483 (0.32)	7.33 (0.68)
	Tube Diameter, [in., (mm)]	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	No. of Rows	6	6	6	6	4
	Fin Density, [fins/in., (fins/m)]	15 (590)	15.5 (610)	15.5 (610)	15.5 (610)	14 (550)
	Design Pressure, [psig, (kPa)]	320 (2206)	320 (2206)	320 (2206)	320 (2206)	320 (2206)
	Water Connection Size, ODF Sweat, [in., (mm)]	5/8 (15.9)	7/8 (22.2)	7/8 (22.2)	7/8 (22.2)	1-1/8 (28.5)
	Condensate drain connection size, FPT, [in., (mm)]	1/2 (13)	3/4 (19)	3/4 (19)	3/4 (19)	3/4 (19)
	Coil Water Volume, [gal., (L)]	0.6 (2.2)	0.9 (3.4)	1.04 (3.9)	1.4 (5.3)	2.0 (7.6)
Cabinet Dimensions [in., (mm)]	L	20.2 (514)	25 (635)	30 (762)	38 (965)	38 (965)
	W	13.75 (349)	13.75 (349)	13.75 (349)	13.75 (349)	17.50 (445)
	H	12.0 (305)	17.50 (445)	17.50 (445)	17.50 (445)	17.50 (445)
Shipping Weight [lbs, (kg)]		33 (15)	60 (27)	70 (31.8)	78 (36)	105 (48)

CABINET DIMENSIONS - M1218

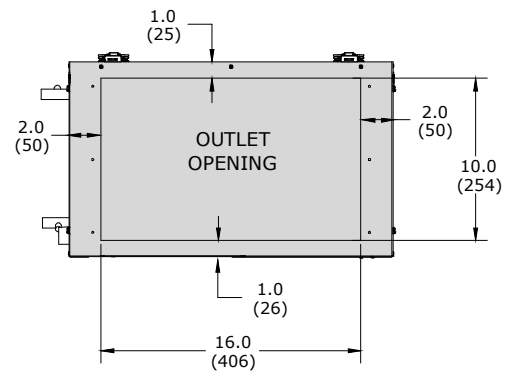
TOP VIEW



SIDE VIEW



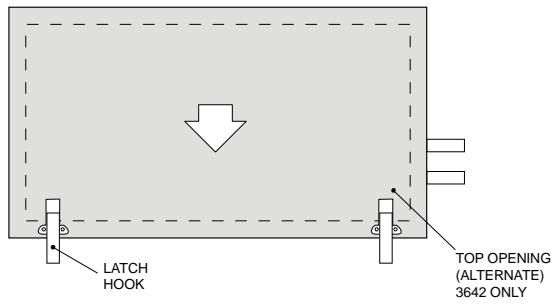
FRONT VIEW



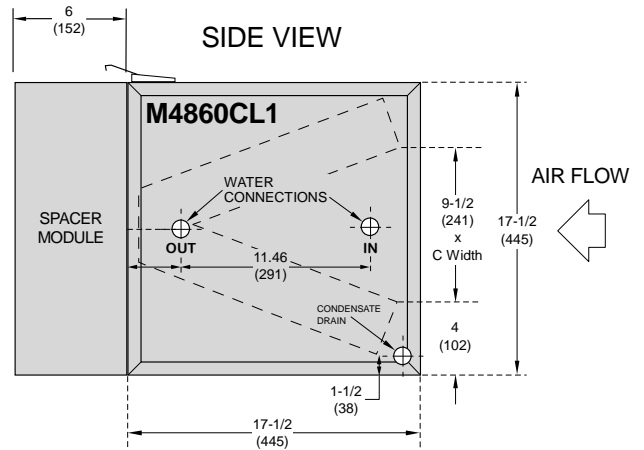
UNIT SHOWN IN HORIZONTAL CONFIGURATION.
ALL DIMENSIONS IN INCHES (mm).

CABINET DIMENSIONS - M2430/3036/3642/4860

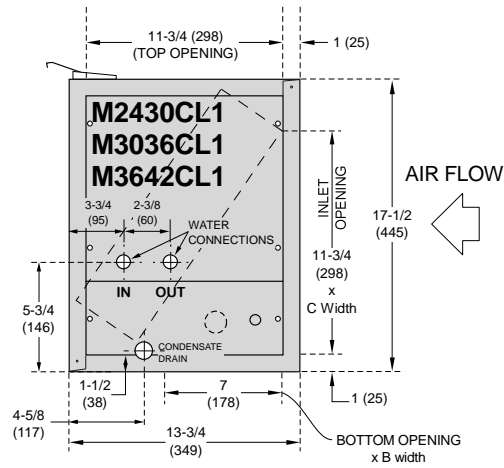
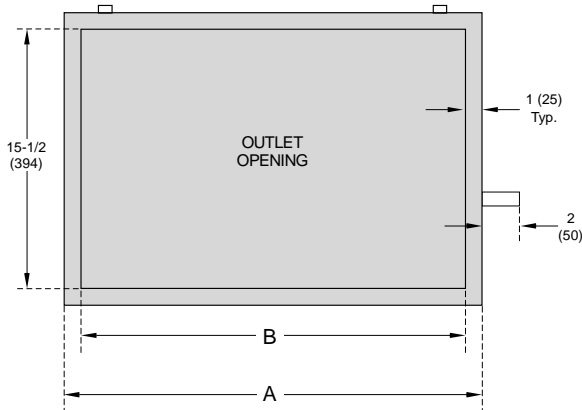
TOP VIEW



SIDE VIEW



FRONT VIEW



	M2430C	M3036C	M3642C	M4860C
A	25 (635)	30 (762)	38 (965)	38 (965)
B	23 (584)	28 (711)	36 (914)	36 (914)
C	20 (508)	25 (635)	33 (838)	32 (813)

UNIT SHOWN IN HORIZONTAL AIRFLOW CONFIGURATION
 USE ALTERNATE OPENINGS FOR VERTICAL AIRFLOW.
 ALL DIMENSIONS IN INCHES (mm).

IL00118f.cvx

CHILLED WATER COIL PERFORMANCE (COOLING MODE)

The performance tables below are based on 80°F db/67°F wb (27°C db/19°C wb) entering air and pure water. See capacity multiplier tables for correction factors for different temperatures and glycol concentrations.

M1218CL1-C				Airflow									Water Pressure Drop	
Entering Water Temp		Water Flow Rate		200 CFM (0.09 m³/s)			300 CFM (0.14 m³/s)			400 CFM (0.19 m³/s)				
				Total Capacity		SHR	Total Capacity		SHR	Total Capacity		SHR		
°F	°C	GPM	L/s	MBH	kW		MBH	kW		MBH	kW		ft. w.g.	kPa
40	(4.4)	2	(0.13)	11.1	(3.25)	0.62	14.1	(4.13)	0.64	16.0	(4.68)	0.67	1.0	3.0
		4	(0.25)	11.9	(3.48)	0.61	15.8	(4.63)	0.62	18.7	(5.47)	0.64	3.3	9.9
		6	(0.38)	12.5	(3.66)	0.60	17.2	(5.04)	0.61	20.9	(6.11)	0.62	7.5	22.4
45	(7.2)	2	(0.13)	8.6	(2.52)	0.66	10.7	(3.14)	0.71	12.2	(3.58)	0.75	0.9	2.7
		4	(0.25)	10.1	(2.96)	0.63	13.3	(3.90)	0.65	15.7	(4.61)	0.68	3.4	10.2
		6	(0.38)	10.6	(3.11)	0.62	14.5	(4.25)	0.64	17.5	(5.14)	0.65	7.4	22.1
50	(10.0)	2	(0.13)	6.9	(2.02)	0.72	8.7	(2.55)	0.78	10.1	(2.96)	0.82	0.9	2.7
		4	(0.25)	8.1	(2.37)	0.68	10.7	(3.14)	0.71	12.7	(3.72)	0.74	3.4	10.2
		6	(0.38)	8.5	(2.49)	0.67	11.6	(3.40)	0.69	14.0	(4.09)	0.71	7.3	21.8
55	(12.8)	2	(0.13)	5.3	(1.55)	0.83	6.9	(2.02)	0.88	8.2	(2.40)	0.92	0.7	2.1
		4	(0.25)	6.0	(1.75)	0.77	8.0	(2.34)	0.81	9.7	(2.84)	0.85	3.4	10.2
		6	(0.38)	6.3	(1.84)	0.76	8.6	(2.52)	0.79	10.5	(3.07)	0.82	7.2	21.5
Recommended No. of Outlets				6			9			12				

M2430CL1-C				Airflow											Water Pressure Drop		
Entering Water Temp		Water Flow Rate		400CFM (0.19 m³/s)			500CFM (0.24 m³/s)			600CFM (0.28 m³/s)			700CFM (0.33 m³/s)				
				Total Capacity		SHR	Total Capacity		SHR	Total Capacity		SHR	Total Capacity		SHR		
°F	°C	GPM	L/s	MBH	kW		MBH	kW		MBH	kW		MBH	kW		ft. w.g.	kPa
40	(4.4)	2	(0.13)	18.9	5.5	0.64	21.1	6.2	0.66	22.7	6.7	0.68	24.0	7.0	0.69	1.0	3.0
		4	(0.25)	22.2	6.5	0.62	25.4	7.4	0.63	28.1	8.2	0.64	30.3	8.9	0.66	3.3	9.9
		6	(0.38)	24.2	7.1	0.61	28.5	8.4	0.61	32.0	9.4	0.62	35.1	10.3	0.63	7.5	22.4
		8	(0.50)	25.2	7.4	0.60	30.0	8.8	0.61	34.2	10.0	0.61	37.9	11.1	0.62	12.7	37.9
45	(7.2)	2	(0.13)	16.0	4.7	0.68	17.9	5.2	0.70	19.4	5.7	0.72	20.7	6.1	0.74	0.9	2.7
		4	(0.25)	18.7	5.5	0.65	21.5	6.3	0.66	23.7	6.9	0.68	25.7	7.5	0.70	3.4	10.2
		6	(0.38)	20.4	6.0	0.63	24.0	7.0	0.64	26.9	7.9	0.65	29.5	8.6	0.66	7.4	22.1
		8	(0.50)	21.3	6.2	0.62	25.3	7.4	0.63	28.8	8.4	0.64	31.9	9.3	0.65	12.6	37.6
50	(10.0)	2	(0.13)	13.1	3.8	0.74	14.8	4.3	0.77	16.3	4.8	0.79	17.4	5.1	0.80	0.9	2.7
		4	(0.25)	15.1	4.4	0.70	17.4	5.1	0.72	19.3	5.7	0.74	21.0	6.2	0.76	3.4	10.2
		6	(0.38)	16.4	4.8	0.68	19.3	5.7	0.69	21.7	6.4	0.71	23.8	7.0	0.72	7.3	21.8
		8	(0.50)	17.1	5.0	0.67	20.3	5.9	0.68	23.1	6.8	0.69	25.6	7.5	0.70	12.4	37.1
55	(12.8)	2	(0.13)	9.8	2.9	0.86	11.3	3.3	0.88	10.7	3.1	0.89	11.4	3.3	0.89	0.7	2.1
		4	(0.25)	11.4	3.3	0.80	13.3	3.9	0.82	15.0	4.4	0.84	16.5	4.8	0.86	3.4	10.2
		6	(0.38)	12.2	3.6	0.77	14.4	4.2	0.79	16.3	4.8	0.81	18.1	5.3	0.83	7.2	21.5
		8	(0.50)	12.6	3.7	0.76	15.0	4.4	0.77	17.2	5.0	0.79	19.1	5.6	0.80	12.3	36.8
Recommended No. of Outlets				12			15			18			21				

M3036CL 1-C				Airflow												Water Pressure Drop	
Entering Water Temp		Water Flow Rate		500CFM (0.24 m³/s)			600CFM (0.28 m³/s)			700CFM (0.33 m³/s)			800CFM (0.38 m³/s)				
				Total Capacity		SHR	Total Capacity		SHR	Total Capacity		SHR	Total Capacity		SHR		
°F	°C	GPM	L/s	MBH	kW		MBH	kW		MBH	kW		MBH	kW		MBH	kW
40	(4.4)	2	(0.13)	21.3	6.2	0.66	23.1	6.8	0.68	24.4	7.2	0.69	25.4	7.4	0.70	0.60	1.8
		4	(0.25)	25.3	7.4	0.63	28.1	8.2	0.64	30.3	8.9	0.66	32.3	9.5	0.67	1.80	5.4
		6	(0.38)	28.5	8.4	0.61	32.1	9.4	0.62	35.3	10.3	0.63	38.0	11.1	0.64	4.20	12.5
		8	(0.50)	30.1	8.8	0.61	34.5	10.1	0.61	38.3	11.2	0.62	41.6	12.2	0.62	7.20	21.5
45	(7.2)	2	(0.13)	18.1	5.3	0.70	19.7	5.8	0.72	21.0	6.1	0.74	21.9	6.4	0.75	0.60	1.8
		4	(0.25)	21.4	6.3	0.66	23.7	7.0	0.68	25.7	7.5	0.70	27.5	8.1	0.71	1.80	5.4
		6	(0.38)	24.0	7.0	0.64	27.1	7.9	0.65	29.7	8.7	0.66	32.1	9.4	0.67	4.20	12.5
		8	(0.50)	25.5	7.5	0.63	29.1	8.5	0.64	32.2	9.5	0.65	35.1	10.3	0.66	7.20	21.5
50	(10.0)	2	(0.13)	14.9	4.4	0.76	16.5	4.8	0.78	17.7	5.2	0.80	18.6	5.4	0.81	0.60	1.8
		4	(0.25)	17.3	5.1	0.72	19.3	5.7	0.74	21.1	6.2	0.76	22.7	6.6	0.78	1.80	5.4
		6	(0.38)	19.3	5.7	0.69	21.8	6.4	0.71	24.0	7.0	0.72	26.0	7.6	0.74	4.20	12.3
		8	(0.50)	20.5	6.0	0.68	23.4	6.8	0.69	25.9	7.6	0.70	28.2	8.3	0.71	7.10	21.2
55	(12.8)	2	(0.13)	12.0	3.5	0.85	13.5	3.9	0.87	14.6	4.3	0.89	12.8	3.8	1.00	0.50	1.5
		4	(0.25)	13.3	3.9	0.82	15.1	4.4	0.84	16.7	4.9	0.86	18.2	5.3	0.88	1.80	5.4
		6	(0.38)	14.5	4.2	0.79	16.5	4.8	0.80	18.3	5.4	0.82	20.0	5.9	0.84	4.10	12.3
		8	(0.50)	15.2	4.4	0.77	17.4	5.1	0.78	19.4	5.7	0.80	21.2	6.2	0.81	7.10	21.2
Recommended No. of Outlets				15			18			21			24				

M3642CL 1-C				Airflow												Water Pressure Drop	
Entering Water Temp		Water Flow Rate		700CFM (0.33 m³/s)			800CFM (0.38 m³/s)			900CFM (0.43 m³/s)			1000CFM (0.47 m³/s)				
				Total Capacity		SHR	Total Capacity		SHR	Total Capacity		SHR	Total Capacity		SHR		
°F	°C	GPM	L/s	MBH	kW		MBH	kW		MBH	kW		MBH	kW		MBH	kW
40	(4.4)	4	(0.25)	32.8	9.6	0.64	35.2	10.3	0.66	37.2	10.9	0.67	38.9	11.4	0.68	2.1	6.3
		6	(0.38)	37.9	11.1	0.62	41.1	12.0	0.63	43.9	12.9	0.64	46.4	13.6	0.64	5.2	15.5
		8	(0.50)	40.8	12.0	0.61	44.7	13.1	0.62	48.2	14.1	0.62	51.3	15.0	0.63	8.9	26.6
		10	(0.63)	42.5	12.5	0.61	46.9	13.7	0.61	50.9	14.9	0.61	54.6	16.0	0.62	13.5	40.3
45	(7.2)	4	(0.25)	27.9	8.2	0.68	30.0	8.8	0.69	31.8	9.3	0.71	33.4	9.8	0.72	2.2	6.6
		6	(0.38)	31.9	9.3	0.65	34.7	10.2	0.66	37.1	10.9	0.67	39.2	11.5	0.68	5.2	15.5
		8	(0.50)	34.4	10.1	0.64	37.6	11.0	0.64	40.6	11.9	0.65	43.2	12.7	0.66	8.8	26.3
		10	(0.63)	35.8	10.5	0.63	39.5	11.6	0.64	42.9	12.6	0.64	46.0	13.5	0.65	13.4	40.0
50	(10.0)	4	(0.25)	22.8	6.7	0.74	24.7	7.2	0.76	26.3	7.7	0.77	27.8	8.1	0.78	2.2	6.6
		6	(0.38)	25.8	7.6	0.70	28.1	8.2	0.72	30.2	8.9	0.73	32.0	9.4	0.74	5.1	15.2
		8	(0.50)	27.6	8.1	0.69	30.3	8.9	0.70	32.7	9.6	0.71	34.9	10.2	0.72	8.7	26.0
		10	(0.63)	28.8	8.4	0.68	31.8	9.3	0.68	34.5	10.1	0.69	37.0	10.8	0.70	13.2	39.4
55	(12.8)	4	(0.25)	17.9	5.2	0.84	19.6	5.7	0.85	21.2	6.2	0.86	22.6	6.6	0.87	2.0	6.0
		6	(0.38)	19.6	5.7	0.80	21.5	6.3	0.82	23.3	6.8	0.83	24.9	7.3	0.84	4.6	13.7
		8	(0.50)	20.6	6.0	0.78	22.7	6.7	0.79	24.7	7.2	0.81	26.5	7.8	0.82	7.9	23.6
		10	(0.63)	21.3	6.2	0.77	23.6	6.9	0.78	25.7	7.5	0.79	27.7	8.1	0.80	11.9	35.6
Recommended No. of Outlets				21			24			27			30				

M4860CL1-C				Airflow												Water Pressure Drop	
				900CFM (0.43 m³/s)			1000CFM (0.47 m³/s)			1100CFM (0.52 m³/s)			1250CFM (0.59 m³/s)				
Entering Water Temp		Water Flow Rate		Total Capacity		SHR	Total Capacity		SHR	Total Capacity		SHR	Total Capacity		SHR	ft. w.g.	kPa
°F	°C	GPM	L/s	MBH	kW		MBH	kW		MBH	kW		MBH	kW			
40	(4.4)	4	(0.25)	37.9	11.1	0.67	39.8	11.7	0.68	41.6	12.2	0.70	43.9	12.9	0.72	1.6	4.8
		6	(0.38)	45.1	13.2	0.63	47.9	14.0	0.64	50.4	14.8	0.65	53.7	15.7	0.67	4.0	12.0
		8	(0.50)	49.7	14.6	0.62	53.2	15.6	0.62	56.4	16.5	0.63	60.6	17.8	0.64	7.1	21.2
		10	(0.63)	52.7	15.4	0.61	56.7	16.6	0.62	60.5	17.7	0.62	65.5	19.2	0.63	10.7	32.0
		12	(0.76)	54.6	16.0	0.61	59.1	17.3	0.61	63.3	18.6	0.61	69.0	20.2	0.62	14.9	44.5
45	(7.2)	4	(0.25)	32.3	9.5	0.71	34.1	10.0	0.73	35.7	10.5	0.75	37.8	11.1	0.76	1.6	4.8
		6	(0.38)	38.1	11.2	0.67	40.5	11.9	0.68	42.7	12.5	0.69	45.5	13.3	0.71	4.1	12.3
		8	(0.50)	41.9	12.3	0.65	44.8	13.1	0.66	47.5	13.9	0.66	51.1	15.0	0.68	7.0	20.9
		10	(0.63)	44.4	13.0	0.64	47.8	14.0	0.64	50.9	14.9	0.65	55.1	16.1	0.66	10.5	31.4
		12	(0.76)	46.0	13.5	0.63	49.8	14.6	0.64	53.3	15.6	0.64	58.1	17.0	0.65	14.7	43.9
50	(10.0)	4	(0.25)	26.7	7.8	0.78	28.3	8.3	0.80	29.8	8.7	0.81	31.9	9.3	0.83	1.6	4.8
		6	(0.38)	31.0	9.1	0.73	33.0	9.7	0.74	34.9	10.2	0.76	37.5	11.0	0.77	4.1	12.3
		8	(0.50)	33.8	9.9	0.70	36.2	10.6	0.71	38.5	11.3	0.72	41.5	12.2	0.74	6.9	20.6
		10	(0.63)	35.7	10.5	0.69	38.4	11.3	0.69	41.0	12.0	0.70	44.5	13.0	0.72	10.4	31.1
		12	(0.76)	37.0	10.8	0.68	40.0	11.7	0.68	42.8	12.5	0.69	46.7	13.7	0.70	14.5	43.3
55	(12.8)	4	(0.25)	21.4	6.3	0.87	22.9	6.7	0.88	24.3	7.1	0.89	26.2	7.7	0.90	1.7	5.1
		6	(0.38)	23.8	7.0	0.83	25.6	7.5	0.84	27.3	8.0	0.86	29.7	8.7	0.87	4.0	12.0
		8	(0.50)	25.5	7.5	0.80	27.5	8.1	0.81	29.4	8.6	0.82	32.0	9.4	0.84	6.8	20.3
		10	(0.63)	26.7	7.8	0.78	28.8	8.4	0.79	30.9	9.1	0.80	33.8	9.9	0.82	10.2	30.5
		12	(0.76)	27.4	8.0	0.77	29.8	8.7	0.78	32.0	9.4	0.79	35.1	10.3	0.80	14.3	42.7
Recommended No. of Outlets				27			30			33			38				

CHILLED WATER COIL PERFORMANCE (HEATING MODE)

The performance tables below are based on 70°F db (21°C db) entering air. See capacity multiplier tables for correction factors for different temperatures and glycol concentrations.

M1218CL1-C				Airflow						Water Pressure Drop	
				200 CFM (0.09 m ³ /s)		300 CFM (0.14 m ³ /s)		400 CFM (0.19 m ³ /s)			
Entering Water Temp		Water Flow Rate		Total Capacity		Total Capacity		Total Capacity		ft. w.g.	kPa
°F	°C	GPM	L/s	MBH	kW	MBH	kW	MBH	kW		
95	(35)	2	(0.13)	7.0	(2.1)	9.6	(2.8)	11.4	(3.4)	1.1	(3.28)
		4	(0.25)	7.0	(2.1)	10.3	(3.0)	13.0	(3.8)	4.3	(12.84)
		6	(0.38)	7.0	(2.1)	10.4	(3.1)	13.3	(3.9)	9.3	(27.75)
110	(43)	2	(0.13)	11.3	(3.3)	15.6	(4.6)	18.7	(5.5)	1.1	(3.28)
		4	(0.25)	11.3	(3.3)	16.6	(4.8)	21.0	(6.1)	4.2	(12.43)
		6	(0.38)	11.3	(3.3)	16.7	(4.9)	21.3	(6.2)	9.2	(27.45)
120	(49)	2	(0.13)	14.0	(4.1)	19.6	(5.7)	23.7	(6.9)	1.1	(3.28)
		4	(0.25)	14.0	(4.1)	20.7	(6.0)	26.3	(7.6)	4.2	(12.43)
		6	(0.38)	14.0	(4.1)	20.9	(6.0)	26.7	(7.7)	9.1	(27.15)
140	(60)	2	(0.13)	19.7	(5.7)	27.7	(8.1)	33.6	(9.8)	1.1	(3.28)
		4	(0.25)	19.7	(5.7)	29.2	(8.5)	37.0	(10.7)	4.1	(12.19)
		6	(0.38)	19.7	(5.7)	29.3	(8.5)	37.8	(11.1)	8.9	(26.55)
160	(71)	2	(0.13)	25.3	(7.4)	35.9	(10.5)	43.5	(12.7)	1.1	(3.28)
		4	(0.25)	25.3	(7.4)	37.6	(10.9)	47.8	(13.9)	4.0	(11.98)
		6	(0.38)	25.3	(7.4)	37.8	(10.9)	48.6	(14.1)	8.7	(25.95)
180	(82)	2	(0.13)	31.2	(9.1)	44.0	(12.9)	53.5	(15.5)	1.1	(3.28)
		4	(0.25)	31.2	(9.1)	46.0	(13.4)	58.3	(16.9)	3.9	(11.60)
		6	(0.38)	31.2	(9.1)	46.2	(13.4)	59.5	(17.3)	8.6	(25.65)
Recommended No. of Outlets				6		9		12			

WARNING

To prevent injury or damage from high temperatures, do not install floor outlets when operating in the shaded area. Discharge temperatures in this range can exceed 160°F (71°C)

M2430CL 1-C				Airflow								Water Pressure Drop	
Entering Water Temp		Water Flow Rate		400CFM (0.19 m ³ /s)		500CFM (0.24 m ³ /s)		600CFM (0.28 m ³ /s)		700CFM (0.33 m ³ /s)			
				Total Capacity		Total Capacity		Total Capacity		Total Capacity			
°F	°C	GPM	L/s	MBH	kW	MBH	kW	MBH	kW	MBH	kW	ft. w.g.	kPa
95	(35)	2	(0.13)	9.3	2.7	10.7	3.1	11.8	3.5	12.6	3.7	0.8	2.4
		4	(0.25)	9.8	2.9	12.2	3.6	14.1	4.1	15.8	4.6	3.2	9.6
		6	(0.38)	9.8	2.9	12.3	3.6	14.5	4.2	16.5	4.8	6.7	20.0
110	(43)	2	(0.13)	15.2	4.5	17.5	5.1	19.4	5.7	20.8	6.1	0.8	2.4
		4	(0.25)	15.7	4.6	19.7	5.8	22.7	6.7	25.5	7.5	3.1	9.3
		6	(0.38)	15.7	4.6	19.7	5.8	23.3	6.8	26.5	7.8	6.5	19.4
120	(49)	2	(0.13)	19.2	5.6	22.2	6.5	24.6	7.2	26.5	7.8	0.8	2.4
		4	(0.25)	19.7	5.8	24.6	7.2	28.5	8.4	31.9	9.3	3.0	9.0
		6	(0.38)	19.7	5.8	24.6	7.2	29.2	8.6	33.2	9.7	6.4	19.1
140	(60)	2	(0.13)	27.1	7.9	31.5	9.2	35.0	10.3	37.7	11.0	0.8	2.4
		4	(0.25)	27.5	8.1	34.4	10.1	40.1	11.8	45.0	13.2	2.9	8.7
		6	(0.38)	27.5	8.1	34.4	10.1	41.1	12.0	46.7	13.7	6.2	18.5
160	(71)	2	(0.13)	35.0	10.3	40.8	12.0	45.2	13.2	48.8	14.3	0.8	2.4
		4	(0.25)	35.4	10.4	44.3	13.0	51.7	15.2	58.1	17.0	2.9	8.7
		6	(0.38)	35.4	10.4	44.3	13.0	52.9	15.5	60.2	17.6	6.1	18.2
180	(82)	2	(0.13)	43.0	12.6	50.0	14.7	55.5	16.3	59.9	17.6	0.8	2.4
		4	(0.25)	43.3	12.7	54.1	15.9	63.4	18.6	71.2	20.9	2.8	8.4
		6	(0.38)	43.3	12.7	54.1	15.9	64.8	19.0	73.8	21.6	5.9	17.6
Recommended No. of Outlets				12		15		18		21			

WARNING

To prevent injury or damage from high temperatures, do not install floor outlets when operating in the shaded area. Discharge temperatures in this range can exceed 160°F (71°C)

M3036CL 1-C				Airflow								Water Pressure Drop	
Entering Water Temp		Water Flow Rate		500CFM (0.24 m ³ /s)		600CFM (0.28 m ³ /s)		700CFM (0.33 m ³ /s)		800CFM (0.38 m ³ /s)			
				Total Capacity		Total Capacity		Total Capacity		Total Capacity			
°F	°C	GPM	L/s	MBH	kW	MBH	kW	MBH	kW	MBH	kW	ft. w.g.	kPa
95	(35)	2	(0.13)	10.7	3.1	11.7	3.4	12.5	3.7	13.1	3.8	0.4	0.1
		4	(0.25)	12.4	3.6	14.6	4.3	16.3	4.8	17.9	5.2	1.8	0.4
		6	(0.38)	12.4	3.6	14.9	4.4	17.1	5.0	19.0	5.6	3.9	1.0
		8	(0.50)	12.4	3.6	14.9	4.4	17.3	5.1	19.4	5.7	6.6	1.6
110	(43)	2	(0.13)	17.5	5.1	19.3	5.6	20.6	6.0	21.7	6.3	0.4	0.1
		4	(0.25)	19.9	5.8	23.6	6.9	26.5	7.8	29.0	8.5	1.8	0.4
		6	(0.38)	19.9	5.8	23.9	7.0	27.5	8.1	30.6	9.0	3.8	0.9
		8	(0.50)	19.9	5.8	23.9	7.0	27.8	8.1	31.1	9.1	6.5	1.6
120	(49)	2	(0.13)	22.3	6.5	24.5	7.2	26.3	7.7	27.6	8.1	0.4	0.1
		4	(0.25)	24.8	7.3	29.5	8.7	33.2	9.7	36.4	10.7	1.8	0.4
		6	(0.38)	24.8	7.3	29.8	8.7	34.4	10.1	38.3	11.2	3.7	0.9
		8	(0.50)	24.8	7.3	29.8	8.7	34.8	10.2	39.0	11.4	6.4	1.6
140	(60)	2	(0.13)	32.2	9.4	35.5	10.4	38.1	11.2	31.8	9.3	0.4	0.1
		4	(0.25)	34.8	10.2	41.6	12.2	46.7	13.7	51.3	15.0	1.7	0.3
		6	(0.38)	34.8	10.2	41.7	12.2	48.4	14.2	53.9	15.8	3.7	0.9
		8	(0.50)	34.8	10.2	41.7	12.2	48.7	14.3	54.8	16.1	6.3	1.5
160	(71)	2	(0.13)	42.2	12.4	46.9	13.7	50.5	14.8	53.2	15.6	0.5	0.1
		4	(0.25)	44.7	13.1	53.6	15.7	60.3	17.7	66.2	19.4	1.7	0.4
		6	(0.38)	44.7	13.1	53.7	15.7	62.4	18.3	69.5	20.4	3.6	0.9
		8	(0.50)	44.7	13.1	53.7	15.7	62.6	18.3	70.6	20.7	6.1	1.5
180	(82)	2	(0.13)	51.9	15.2	57.6	16.9	62.1	18.2	65.5	19.2	0.5	0.1
		4	(0.25)	54.7	16.0	65.6	19.2	74.0	21.7	81.3	23.8	1.6	0.4
		6	(0.38)	54.7	16.0	65.6	19.2	76.5	22.4	85.2	25.0	3.5	0.9
		8	(0.50)	54.7	16.0	65.6	19.2	76.5	22.4	86.5	25.4	6.0	1.5
Recommended No. of Outlets				15		18		21		24			

WARNING

To prevent injury or damage from high temperatures, do not install floor outlets when operating in the shaded area. Discharge temperatures in this range can exceed 160°F (71°C)

M3642CL 1-C				Airflow								Water Pressure Drop	
				700CFM (0.33 m ³ /s)		800CFM (0.38 m ³ /s)		900CFM (0.43 m ³ /s)		1000CFM (0.47 m ³ /s)			
Entering Water Temp		Water Flow Rate		Total Capacity		Total Capacity		Total Capacity		Total Capacity		ft. w.g.	kPa
°F	°C	GPM	L/s	MBH	kW	MBH	kW	MBH	kW	MBH	kW		
95	(35)	4	(0.25)	17.2	5.0	19.0	5.6	20.5	6.0	21.9	6.4	2.2	6.6
		6	(0.38)	17.2	5.0	19.7	5.8	21.8	6.4	23.6	6.9	4.7	14.0
		8	(0.50)	17.2	5.0	19.7	5.8	22.1	6.5	24.2	7.1	8.0	23.9
110	(43)	4	(0.25)	27.5	8.1	30.6	9.0	33.1	9.7	35.4	10.4	2.2	6.6
		6	(0.38)	27.5	8.1	31.5	9.2	35.0	10.3	37.9	11.1	4.6	13.7
		8	(0.50)	27.5	8.1	31.5	9.2	35.4	10.4	38.8	11.4	7.8	23.3
120	(49)	4	(0.25)	34.4	10.1	38.3	11.2	41.6	12.2	44.4	13.0	2.1	6.3
		6	(0.38)	34.4	10.1	39.4	11.5	43.8	12.8	47.6	14.0	4.5	13.4
		8	(0.50)	34.4	10.1	39.4	11.5	44.3	13.0	48.6	14.2	7.7	23.0
140	(60)	4	(0.25)	48.2	14.1	53.9	15.8	58.5	17.1	62.6	18.3	2.1	6.3
		6	(0.38)	48.2	14.1	55.1	16.1	61.6	18.1	66.9	19.6	4.4	13.1
		8	(0.50)	48.2	14.1	55.1	16.1	62.0	18.2	68.3	20.0	7.5	22.4
160	(71)	4	(0.25)	62.0	18.2	69.6	20.4	75.5	22.1	80.8	23.7	2.0	6.0
		6	(0.38)	62.0	18.2	70.8	20.7	79.5	23.3	86.3	25.3	4.3	12.8
		8	(0.50)	62.0	18.2	70.8	20.7	79.7	23.4	88.1	25.8	7.3	21.8
180	(82)	4	(0.25)	75.7	22.2	85.3	25.0	92.6	27.1	99.1	29.0	2.0	6.0
		6	(0.38)	75.7	22.2	86.6	25.4	97.4	28.5	105.7	31.0	4.2	12.5
		8	(0.50)	75.7	22.2	86.6	25.4	97.4	28.5	107.9	31.6	7.1	21.2
Recommended No. of Outlets				21		24		27		30			

WARNING

To prevent injury or damage from high temperatures, do not install floor outlets when operating in the shaded area. Discharge temperatures in this range can exceed 160°F (71°C)

M4860CL 1-C				Airflow								Water Pressure Drop	
Entering Water Temp		Water Flow Rate		900CFM (0.43 m ³ /s)		1000CFM (0.47 m ³ /s)		1100CFM (0.52 m ³ /s)		1250CFM (0.59 m ³ /s)			
°F	°C	GPM	L/s	Total Capacity		Total Capacity		Total Capacity		Total Capacity		ft. w.g.	kPa
				MBH	kW	MBH	kW	MBH	kW	MBH	kW		
95	(35)	4	(0.25)	20.3	5.9	21.8	6.4	23.1	6.8	24.8	7.3	1.8	5.4
		6	(0.38)	21.9	6.4	23.8	7.0	25.6	7.5	28.1	8.2	3.7	11.1
		8	(0.50)	22.1	6.5	24.5	7.2	26.6	7.8	29.5	8.6	6.2	18.5
		10	(0.63)	22.1	6.5	24.6	7.2	27.0	7.9	30.1	8.8	9.4	28.1
110	(43)	4	(0.25)	33.0	9.7	35.4	10.4	37.5	11.0	40.3	11.8	1.7	5.1
		6	(0.38)	35.1	10.3	38.2	11.2	41.2	12.1	45.2	13.2	3.6	10.8
		8	(0.50)	35.4	10.4	39.3	11.5	42.6	12.5	47.3	13.9	6.1	18.2
		10	(0.63)	35.4	10.4	39.4	11.5	43.2	12.7	48.3	14.2	9.1	27.2
120	(49)	4	(0.25)	41.3	12.1	44.3	13.0	47.0	13.8	50.5	14.8	1.7	5.1
		6	(0.38)	43.9	12.9	47.9	14.0	51.6	15.1	56.6	16.6	3.5	10.5
		8	(0.50)	44.3	13.0	49.1	14.4	53.3	15.6	59.2	17.3	6.0	17.9
		10	(0.63)	44.3	13.0	49.2	14.4	54.1	15.9	60.4	17.7	9.0	26.9
140	(60)	4	(0.25)	58.0	17.0	62.3	18.3	66.1	19.4	71.0	20.8	1.6	4.8
		6	(0.38)	61.6	18.1	67.2	19.7	72.4	21.2	79.5	23.3	3.4	10.2
		8	(0.50)	62.0	18.2	68.9	20.2	74.8	21.9	83.1	24.4	5.8	17.3
		10	(0.63)	62.0	18.2	68.9	20.2	75.7	22.2	84.8	24.9	8.7	26.0
160	(71)	4	(0.25)	74.7	21.9	80.2	23.5	85.2	25.0	91.6	26.8	1.6	4.8
		6	(0.38)	79.3	23.2	86.5	25.4	93.3	27.3	102.5	30.0	3.3	9.9
		8	(0.50)	79.7	23.4	88.5	25.9	96.4	28.3	107.1	31.4	5.6	16.7
		10	(0.63)	79.7	23.4	88.5	25.9	94.7	27.8	109.2	32.0	8.4	25.1
180	(82)	4	(0.25)	91.4	26.8	98.2	28.8	104.3	30.6	112.2	32.9	1.5	4.5
		6	(0.38)	97.1	28.5	106.0	31.1	114.2	33.5	125.5	36.8	3.2	9.6
		8	(0.50)	97.4	28.5	108.2	31.7	117.9	34.6	131.1	38.4	5.4	16.1
		10	(0.63)	97.4	28.5	108.2	31.7	119.0	34.9	133.6	39.2	8.2	24.5
Recommended No. of Outlets				27		30		33		38			

WARNING

To prevent injury or damage from high temperatures, do not install floor outlets when operating in the shaded area. Discharge temperatures in this range can exceed 160°F (71°C)

**MODEL NUMBER CROSS-REFERENCE
CHART**

Current Model Number	Past Model Number
M1218CL1-C	U1218L-1***C**
M2430CL1-C	MC2430W
M3036CL1-C	None
M3642CL1-C	MC3660W
M4860CL1-C	MC3660W