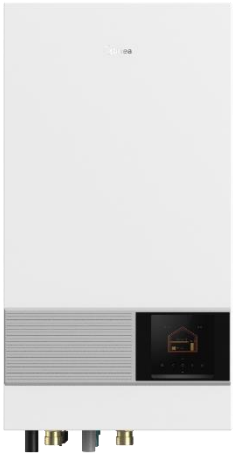
Midea Building Technologies Division

Engineering Reference Manual

M thermal Arctic Series Split

12-16kW



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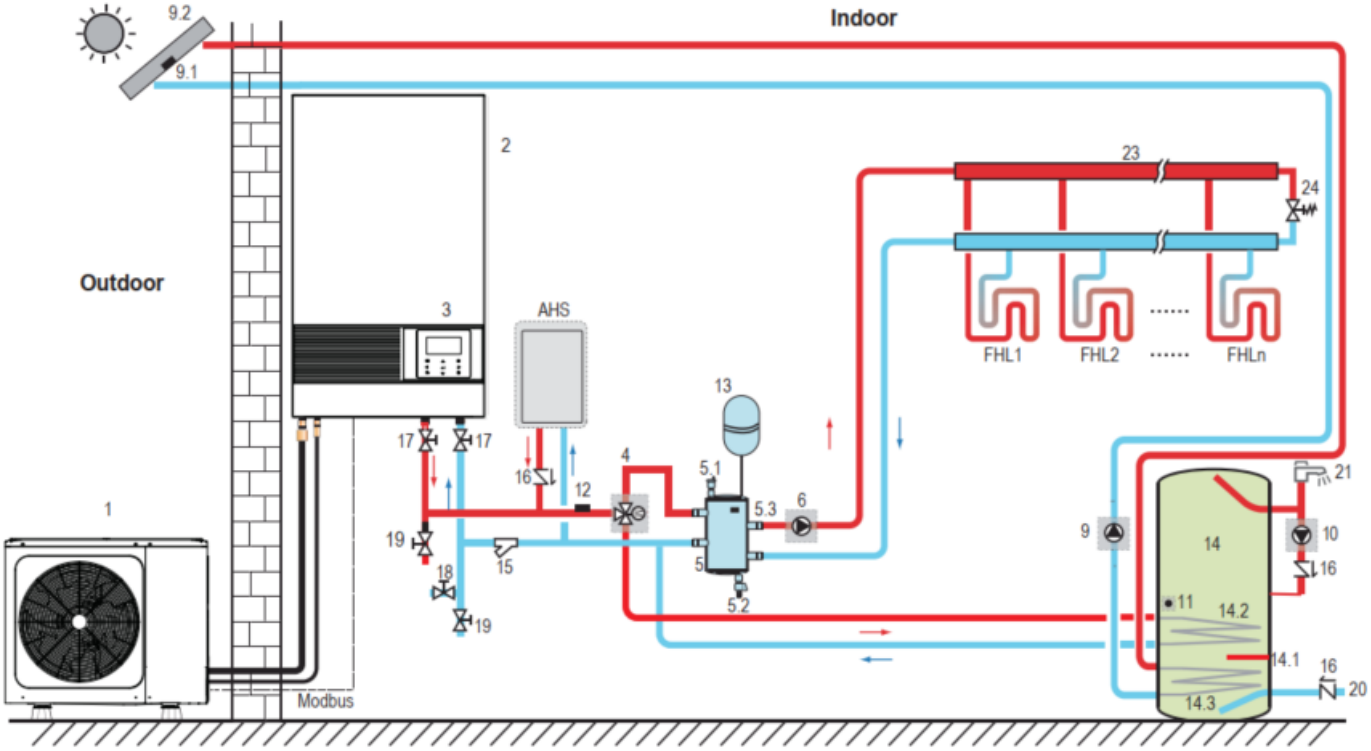
Part 1

General Information

1 M thermal Split System

1.1 System Schematic

Figure 1-1.1: System schematic



M thermal is an integrated air-to-water heat pump system which is one-stop solution for space heating, space cooling and domestic hot water. The outdoor heat pump system extracts heat from the outdoor air and transfers this heat through refrigerant piping to the plate heat exchanger in the hydronic box. The heated water in the hydronic box circulates to low temperature heat emitters (under-floor heating loops or low temperature radiators) to provide space heating, and to the domestic hot water tank to provide domestic hot water. The 4-way valve in the outdoor unit can reverse the refrigerant cycle so that the hydronic box can provide chilled water for cooling using fan coil units.

The heating capacity of heat pumps decreases with ambient temperature dropping. Backup electric heater is customized to provide additional heating capacity for use during extremely cold weather when the heat pump capacity is insufficient.

1.2 System Configurations

M thermal Split can be configured to run with the electric heater either enabled or disabled and can also be used in conjunction with an auxiliary heat source such as a boiler.

The chosen configuration affects the size of heat pump that is required. Three typical configurations are described below. Refer to Figure 1-1.2.

Configuration 1: Heat pump only

- The heat pump covers the required capacity and no extra heating capacity is necessary.
- Requires selection of larger capacity heat pump and implies higher initial investment.
- Ideal for new construction in projects where energy efficiency is paramount.

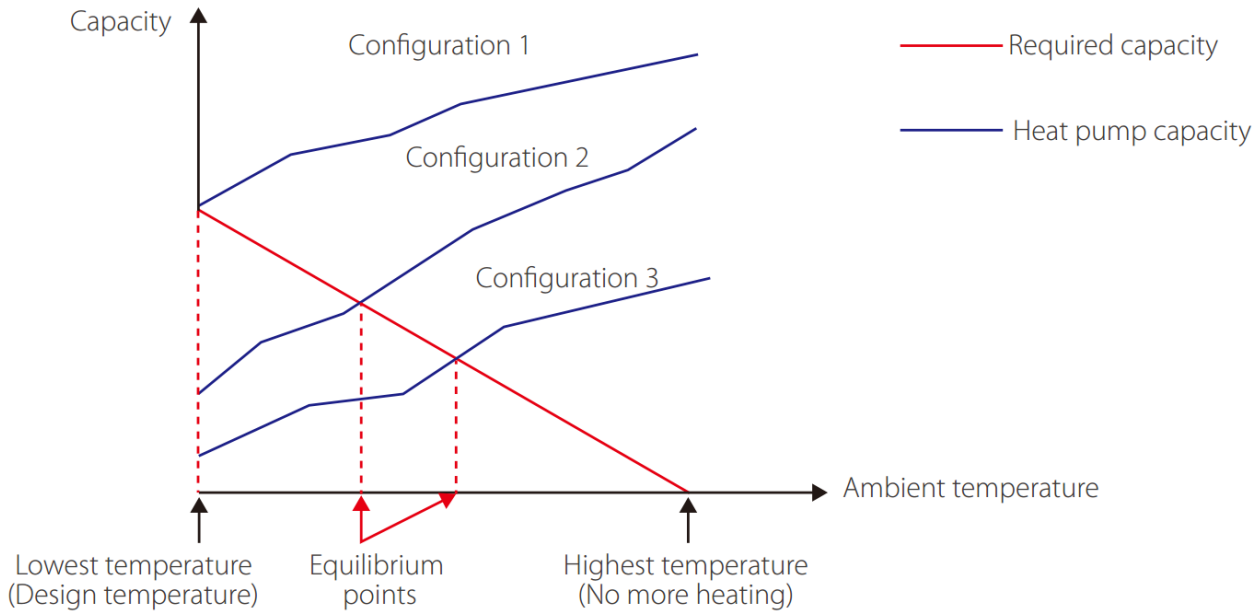
Configuration 2: Heat pump and backup electric heater

- Heat pump covers the required capacity until the ambient temperature drops below the point at which the heat pump is able to provide sufficient capacity. When the ambient temperature is below this equilibrium point (as shown in Figure 1-1.2, the backup electric heater supplies the required additional heating capacity.
- Best balance between initial investment and running costs, results in lowest lifecycle cost.
- Ideal for new construction.

Configuration 3: Heat pump conjunction with auxiliary heat source

- Heat pump covers the required capacity until the ambient temperature drops below the point at which the heat pump is able to provide sufficient capacity. When the ambient temperature is below this equilibrium point (as shown in Figure 1-1.2, depending on the system settings, either the auxiliary heat source supplies the required additional heating capacity or the heat pump does not run and the auxiliary heat source covers the required capacity.
- Enables selection of lower capacity heat pump.
- Ideal for refurbishments and upgrades.

Figure 1-1.2: System configurations



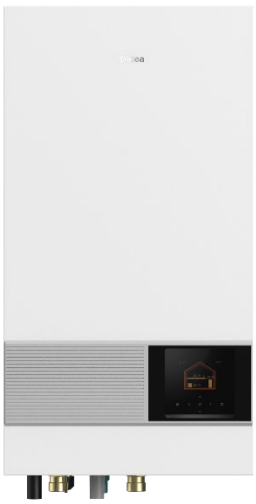
2 Unit Capacities

2.1 Outdoor Unit

Table 1-2.1: Outdoor unit

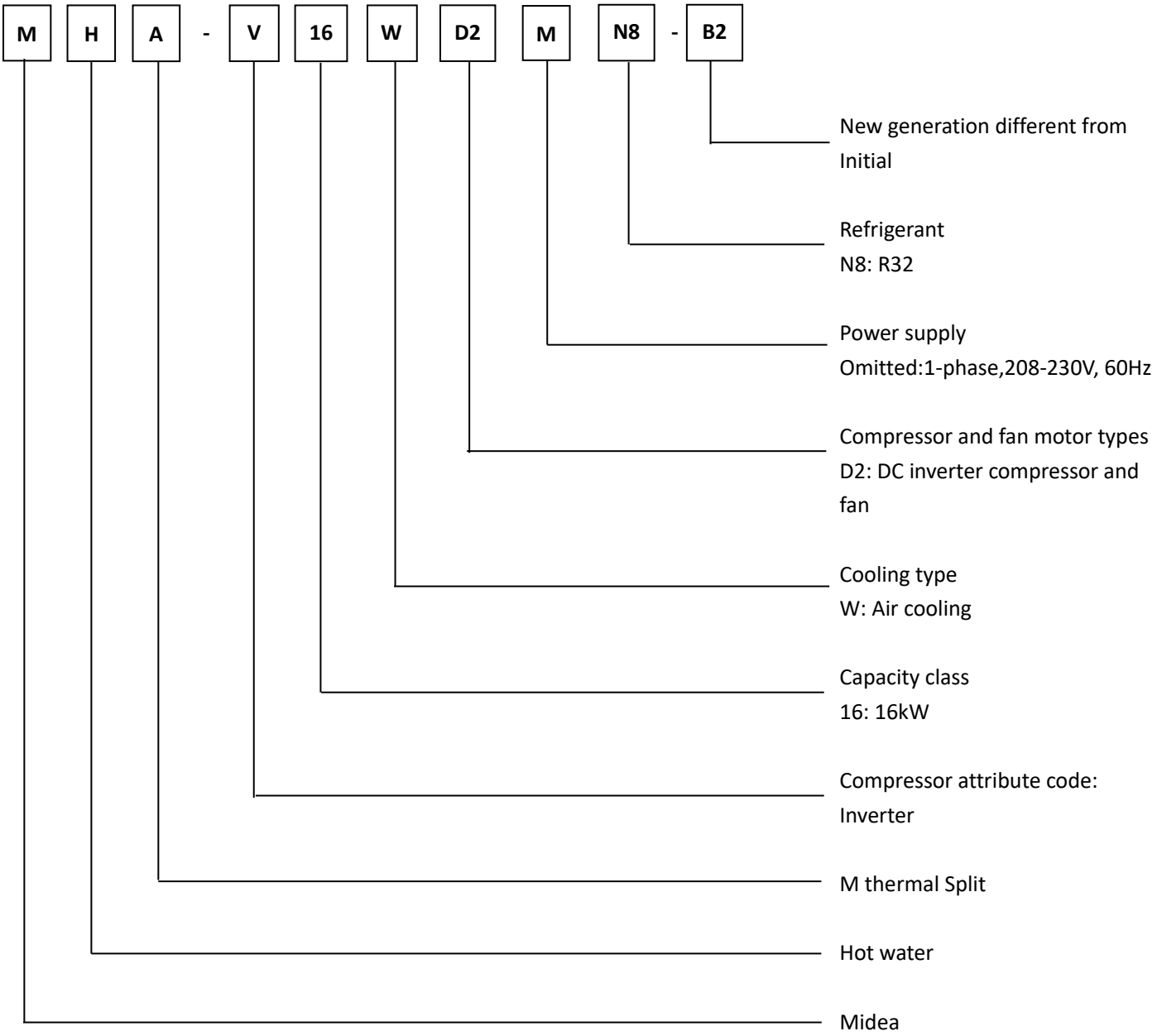
Capacity	12kW	14kW	16kW
Model Name	MHA-V12WD2MN8-B2	MHA-V14WD2MN8-B2	MHA-V16WD2MN8-B2
Power Supply (V/Ph/Hz)	208-230/1/60		
Appearance			

2.2 Indoor Unit

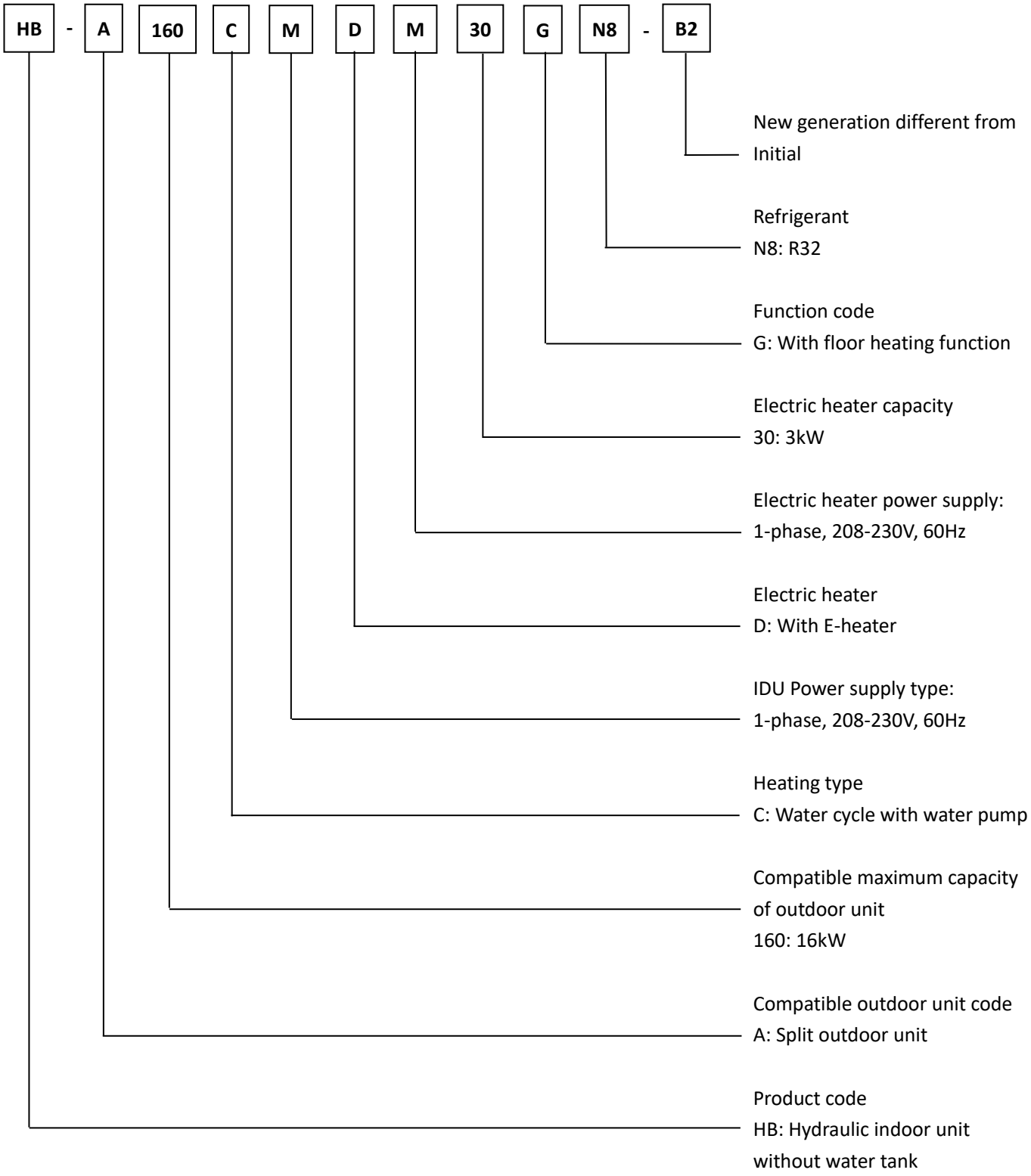
Model	HB-A160CMDM30GN8-B2
Power Supply (V/Ph/Hz)	208-230/1/60
Compatible outdoor unit model	MHA-V12WD2MN8-B2 MHA-V14WD2MN8-B2 MHA-V16WD2MN8-B2
Appearance	

3 Nomenclature

3.1 Outdoor Unit



3.2 Indoor Unit



4 System Design and Unit Selection

4.1 Selection procedure

Step 1: Total heat load calculation

Calculate conditioned surface area
Select the heat emitters (type, quantity, water temperature and heat load)

Step 2: System configuration

Decide whether to include AHS and set AHS's switching temperature
Decide whether backup electric heater is enabled or disabled

Step 3: Selection of outdoor units

Determine required total heat load on outdoor units
Set capacity safety factor
Select power supply

Provisionally select M thermal Split unit capacity based on nominal capacity

Correct capacity of the outdoor units for the following items:
Outdoor air temperature / Outdoor humidity / Water outlet temperature[1] / Altitude / Anti-freeze fluid

Is corrected M thermal Split unit capacity ≥ Required total heat load on outdoor units[2]

Yes → M thermal Split system selection is complete

No → Select a larger model or enable backup electric heater operation → Correct capacity of the outdoor units for the following items: Outdoor air temperature / Outdoor humidity / Water outlet temperature[1] / Altitude / Anti-freeze fluid

Notes:

1. If the required water temperatures of the heat emitters are not all the same, the M thermal Split's outlet water temperature setting should be set at the highest of the heat emitter required water temperatures. If the water outlet design temperature falls between two temperatures listed in the outdoor unit's capacity table, calculate the corrected capacity by interpolation.
2. If the outdoor unit selection is to be based on total heating load and total cooling load, select Split units which satisfy both total heating and cooling load requirements.

4.2 M thermal Leaving Water Temperature (LWT) Selection

The recommended design LTW ranges for different types of heat emitter are:

- For floor heating: 86°F(30°C) to 95°F(35°C)
- For fan coil units: 86°F (30°C) to 113°F(45°C)
- For low temperature radiators: 104°F(40°C) to 122°F(50°C)

4.3 Optimizing System Design

To get the most comfort with the lowest energy consumption with M thermal, it is important to take account of the following considerations:

- Choose heat emitters that allow the heat pump system to operate at as low a hot water temperature as possible whilst still providing sufficient heating.
- Make sure the correct weather dependency curve is selected to match the installation environment (building structure, climate) as well as ender user's demands.
- Connecting room thermostats (field supplied) to the hydronic system helps prevent excessive space heating by stopping the outdoor unit and circulator pump when the room temperature is above the thermostat set point.

4.4 Tank back up heater notice

Heat pump will stop when T5(tank temperature) has reached the minimum of both T5S(tank setting temperature) and T5stop (highest tank temperature which can be reached under certain ambient temperature with heat pump only) and lasted for 5s. The value of T5stop is shown as below.

If T5S is higher than T5stop, then T5S can not be reached with heat pump only. In this case, tank back up heater is needed in order to reach T5S.

T5stop value:

Ambient temperature(°F)	< -4	-4~5	5~14	14~23	23~32	32~41	41~50
T5stop(°F)	96	104	113	118.4	125.6	131	132.8

Ambient temperature(°F)	50~59	59~68	68~77	77~86	86~95	95~104	104~149
T5stop(°F)	134.6	132.8	131	125.6	122	118.4	113

T5stop value:

Ambient temperature(°C)	< -20	-20~-15	-15~-10	-10~-5	-5~0	0~5	5~10
T5stop(°C)	35	40	45	48	52	55	56

Ambient temperature(°C)	10~15	15~20	20~25	25~30	30~35	35~40	40~65
T5stop(°C)	57	56	55	52	50	48	45

Part 2

Engineering Data

1 Specifications

1.1 Outdoor Unit

Table 2-1.1: MHA- V12WD2MN8-B2*/MHA-* V14WD2MN8-B2*/MHA-* V16WD2MN8-B2 *specifications*

Model name			MHA-V12WD2MN8-B2	MHA-V14WD2MN8-B2	MHA-V16WD2MN8-B2
Compatible Indoor Unit			HB-A160CMDM30GN8-B2		
Power supply		V/Ph/Hz	208-230/1/60		
Heating (A44.6W95[1])/(A7W35)	Capacity	Btu/h	41283	49471	54589
		kW	12.10	14.50	16.00
	Rated input	kW	2.44	3.09	3.56
	COP	W/W	4.95	4.70	4.50
Heating (A44.6W113)/(A7W45)	Capacity	Btu/h	41965	48448	54589
		kW	12.30	14.20	16.00
	Rated input	kW	3.24	3.89	4.44
	COP	W/W	3.80	3.65	3.60
Heating (A44.6W131)/(A7W55)	Capacity	Btu/h	40942	47083	54589
		kW	12.00	13.80	16.00
	Rated input	kW	3.87	4.60	5.52
	COP	W/W	3.10	3.00	2.90
Heating (A35.6W95)/(A2W35)	Capacity	Btu/h	31730	38895	44353
		kW	9.30	11.40	13.00
	Rated input	kW	2.35	3.12	3.71
	COP	W/W	3.95	3.65	3.50
Heating (A35.6W113)/(A2W45)	Capacity	Btu/h	36506	39918	43671
		kW	10.70	11.70	12.80
	Rated input	kW	3.57	4.09	4.49
	COP	W/W	3.00	2.86	2.85
Heating (A35.6W131)/(A2W55)	Capacity	Btu/h	38895	42306	45718
		kW	11.40	12.40	13.40
	Rated input	kW	4.47	5.06	5.58
	COP	W/W	2.55	2.45	2.40
Heating (A19.4W95)/(A-7W35)	Capacity	Btu/h	34118	40942	45377
		kW	10.00	12.00	13.30
	Rated input	kW	3.33	4.29	4.93
	COP	W/W	3.00	2.80	2.70
Heating (A19.4W113)/(A-7W45)	Capacity	Btu/h	34800	40259	44012
		kW	10.20	11.80	12.90
	Rated input	kW	4.25	5.02	5.78
	COP	W/W	2.40	2.35	2.23
Heating (A19.4W131)/(A-7W55)	Capacity	Btu/h	34118	37530	42648
		kW	10.00	11.00	12.50
	Rated input	kW	4.88	5.37	6.19
	COP	W/W	2.05	2.05	6.19
Heating (A5W110)/(A-15W43.3)	Capacity	Btu/h	31392	32757	33780
		kW	9.20	9.60	9.90
	Rated input	kW	4.36	4.61	4.8
	COP	W/W	2.11	2.08	2.06

Cooling (A95W64.4)/(A35W18)	Capacity	Btu/h	40942	46059	48448
		kW	12.00	13.50	14.20
	Rated input	kW	3.00	3.74	3.93
	EER	Btu/(W*h)	13.65	12.33	12.33
	COP	W/W	4.00	3.61	3.61
Cooling (A95W44.6)/(A35W7)	Capacity	Btu/h	39577	43330	47765
		kW	11.60	12.70	14.00
	Rated input	kW	4.22	4.98	5.71
	EER	Btu/(W*h)	9.38	8.70	8.37
	COP	W/W	2.75	2.55	2.45
Cooling (IPLV.IP)		Btu/(W*h)	19.22	19.08	18.41
		W/W	5.63	5.60	5.40

Model name			**MHA-V12WD2MN8-B2**	**MHA-V14WD2MN8-B2**	**MHA-V16WD2MN8-B2**
Rated water flow		gpm	9.25	10.79	12.11
		m^3/h	2.1	2.45	2.75
Compressor	Type		Twin rotary DC inverter		
Outdoor fan	Motor type		Brushless DC motor		
	Number of fans		1		
Air side heat exchanger	Type		Finned tube		
Refrigerant(R32)	Factory charge	lb	4.04		
		kg	1.835		
Throttle type			Electronic expansion valve		
Piping connections	Type		Flare		
	Liquid Dia. (OD)	in	3/8		
		mm	9.53		
	Gas Dia. (OD)	in	5/8		
		mm	15.88		
	Min. pipe length	ft	6.5		
		m	2		
	Max. pipe length	ft	98		
		m	30		
Installation height difference	Outdoor unit above	ft	65.5		
		m	20		
	Outdoor unit below	ft	65.5		
		m	20		
Sound pressure level (39.7 inch)[2]		dB(A)	49	51	57
ODU Net dimensions (W×H×D)		in	44×34-1/16×20-9/16		
		mm	1118×865×523		
ODU Net		lb	213.85		
		kg	97		
Operating temperature range	Cooling	℉	23 to 110		
		℃	-5 to 43		
	Heating	℉	–13 to 95		
		℃	-25 to 35		

	DHW	℉	–13 to 110
		℃	-25 to 43

Note:

1. A44.6W95(A7W35) indicates that the Ambient temperature is 44.6°F(7℃) and the Water outlet temperature is 95°F(35℃)
2. Sound pressure level is the maximum value tested under the two conditions of Heating: A44.6W95(A7W35) and Cooling: A95W64.4(A35W18).
3. Some specifications may change, for reference only.

1.2 Indoor Unit

Table 2-1.2: HB-A160CMDM30GN8-B2 specifications

Model name				**HB-A160CMDM30GN8-B2**
Function				Heating and cooling
Setting water temperature range	Cooling		℉	41~77
			℃	5~25
	Heating		℉	77~149
			℃	25~65
	DHW[1]		℉	68~140
			℃	20~60
Power supply			V/Ph/Hz	208~230/1/60
Backup E-heater	Standard mounted		kW	3
	Capacity steps			1
	Power supply	3kW		208~230/1/60
Sound pressure level (39.37 in /1m)[2]			dB(A)	35
Dimension (W×H×D)			in	16-9/16×31-1/8×10-5/8
			mm	420×790×270
Net weight			lb	88.2
			kg	40
Water circuit	Piping connections		in	NPT 1"
			mm	NPT 25.4
	Safety valve set pressure		psi	43.51
			bar	3
	Drain pipe connection		in	1
			mm	25.4
	Expansion tank	Volume	gallon	1.32
			L	5
		Max. water pressure	psi	43.51
			bar	3
		Pre-pressure	psi	21.76
			bar	1.5
	Water side exchanger			Plate type
	Water pump head		ft	29.5
			m	8.99
	Water flow range		gpm	3.08~13.21
			m^3/h	0.7~3
	Internal water volume		gallon	0.66~1.93

		L	2.5~7.3
Refrigerant circuit	Liquid Dia. (OD)	in	3/8
		mm	9.53
	Gas Dia. (OD)	in	5/8
		mm	15.88

Note:

1.Maximum domestic hot water temperature 140 °F(60°C) is only available with TBH support.

2.Sound pressure level is the maximum value tested under the two conditions of Heating: A44.6W95(A7W35) and Cooling: A95W64.4(A35W18).

3.Some specifications may change, for reference only.

1.3 Comprehensive certifications

Selection Rating Application Name: ACCL_MH

Selection Rating Application Version: V1.1

2 Electrical characteristics

2.1 Outdoor Unit

1. Select the wire diameters (minimum value) individually for unit based on the table 2.1-1 and table 2.1-2.
2. Select circuit breaker that having a contact separation in all poles not less than 0.118 inch providing full disconnection，where MFA is used to select the current circuit breakers and residual current operation breakers.

Table2.1-1

Model	12kW	14kW	16kW
Min. Circuit Amps. (MCA) (A)	32	33	34
Min. Wiring size (AWG)	8		

Table2.2-2

Model	Outdoor Unit				Power Current		Compressor	Fan motors	
	Voltage(V)	Hz	Min.(V)	Max.(V)	MCA(A)	MFA(A)	RLA(A)	kW	FLA(A)
12kW	208/230	60	198	264	32	50	24.5	0.17	1.3
14kW	208/230	60	198	264	33	50	25	0.17	1.3
16kW	208/230	60	198	264	34	50	26	0.17	1.3

Note：

MCA: Min. Circuit Amps. (A)

MFA: Max. Fuse Amps. (A)

RLA: Rated Load Amps. (A)

kW: Rated Motor Output

FLA: Full Load Amps. (A)

2.2 Indoor Unit

1. Select the wire diameters (minimum value) individually for unit based on the table 2.2-1.
2. Select circuit breaker that having a contact separation in all poles not less than 30mA providing full disconnection, where MFA is used to select the current circuit breakers and residual current operation breakers.

Model	Power Current						IWPM	
160(3kW heater)	Voltage(V)	Hz	Min.(V)	Max.(V)	MCA(A)	MFA(A)	kW	FLA(A)
	208	60	198	264	17.3	25	0.095	0.9
	230	60	198	264	19	25	0.095	0.9

MCA: Min. Circuit Amps. (A)

MFA: Max. Fuse Amps. (A)

IWPM: Indoor Water Pump Motor

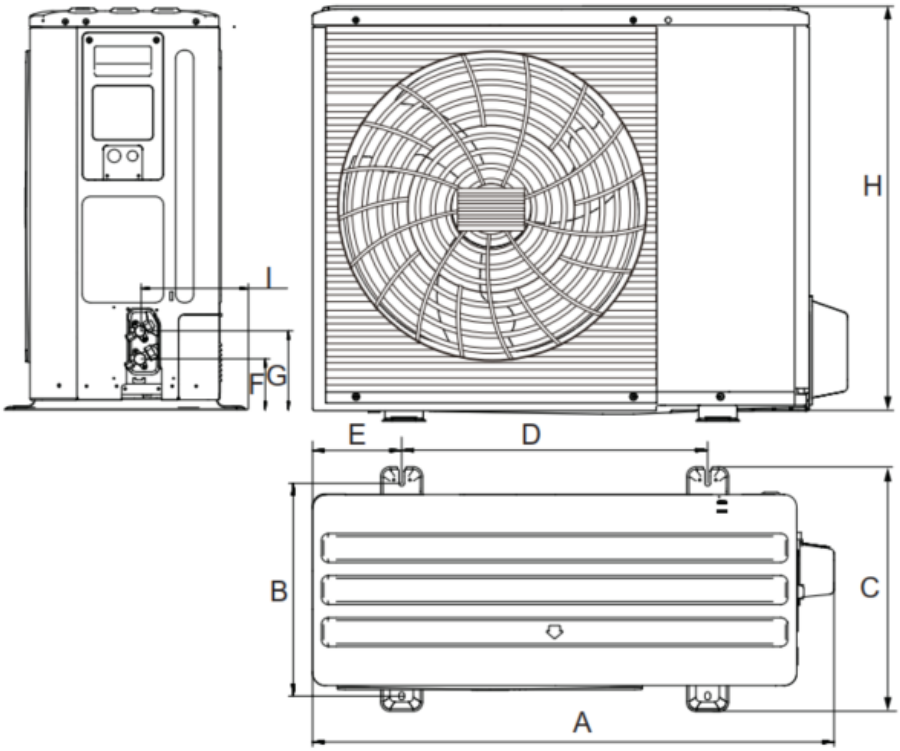
FLA: Full Load Amps. (A)

3 Dimensions and Center of Gravity

3.1 Outdoor Unit

MHA-V12WD2MN8-B2/ MHA-V14WD2MN8-B2/ MHA-V16WD2MN8-B2

Figure 2-3.1: Dimensions and center of gravity (unit: in)



Model	Unit	A	B	C	D	E	F	G	H	I
12/14/ 16kW	in	44	17-15/16	20-9/16	15-13/16	7-1/2	4-5/16	6-11/16	34-1/16	9-1/16
	mm	1118	456	523	656	191	110	170	865	230

3.2 Indoor Unit

HB-A160CMDM30GN8-B2

Figure 2-3.2-1: Dimensions of the wall bracket

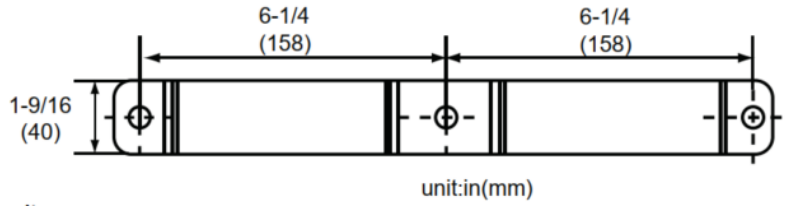
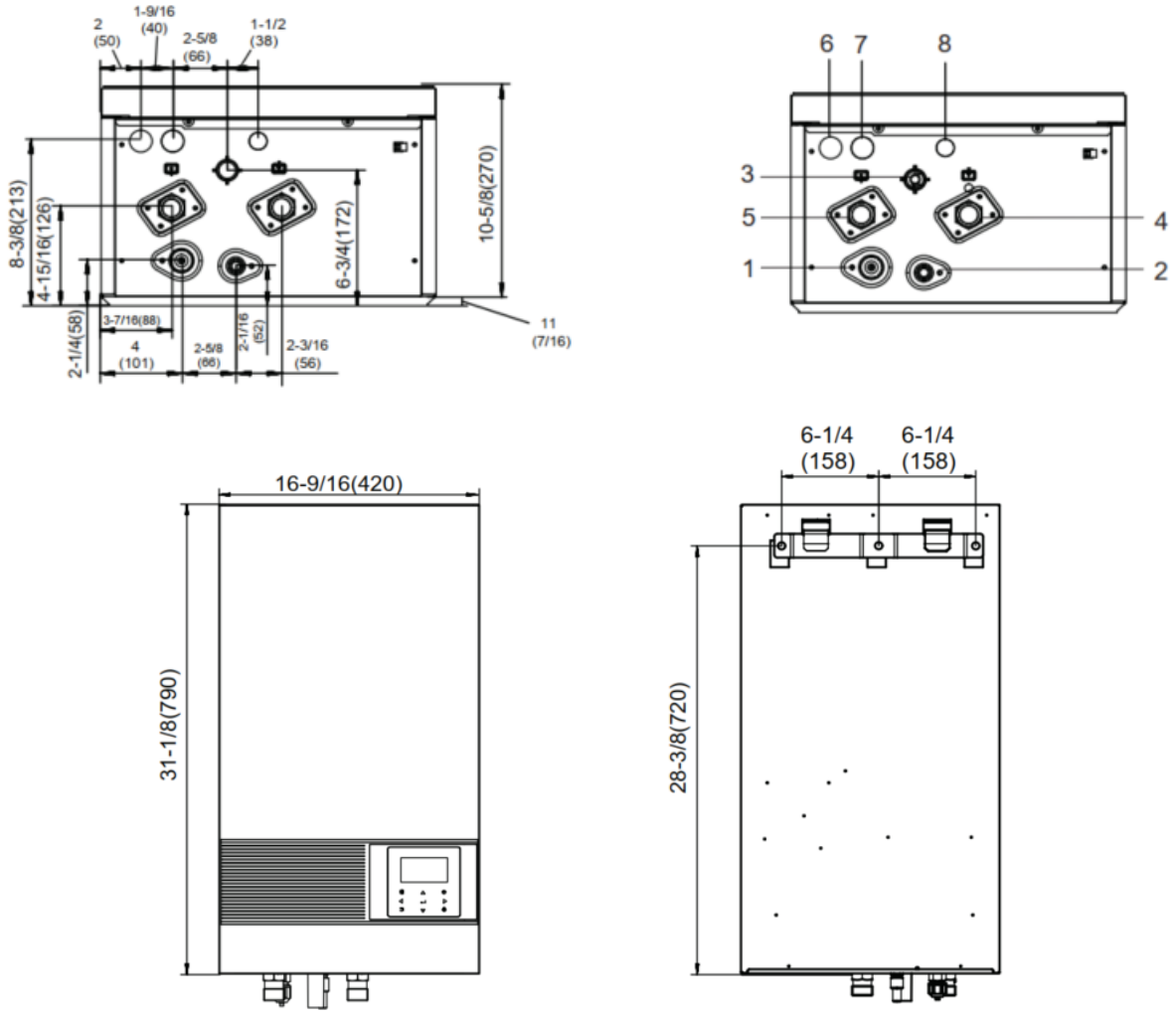


Figure 2-3.2-2: Dimensions of the unit



unit: in(mm)

NO	
1	Refrigerant gas pipe size 5/8"(15.88mm), connection size 7/8"(22.22mm)-14UNF
2	Refrigerant liquid pipe size 3/8"(9.53mm), connection size 5/8"(15.88mm)-18UNF
3	Drainage Ø25
4	Water Inlet R1” (25.4mm) NPT
5	Water Outlet R1” (25.4mm) NPT
6	Wiring hole Ø 28.3
7	Wiring hole Ø 28.3
8	Wiring hole Ø 22.5

4 Capacity Tables

The capacity table in the data engineering book: Maximum / Normal / Minimum:

- Maximum is tested under free operation, which is closer to the actual unit operation performance.
- Normal is tested under our normal conditions, which is the same as our declared value in the technical specification on the manual and the Eurovent website.
- Minimum is tested under the limitation condition, which operates at the minimum operating frequency of the unit.

4.1 Heating Capacity Tables - 16kW

Table 2-4.1-1: Heating capacity for 16kW models - Maximum (Imperial System)

Maximum															
DB(°F)	Tw_out(°F)														
	77			86			95			104			113		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	26238	1.91	4.03	24976	1.77	4.14	22553	1.65	4.01	21154	1.33	4.66	18084	1.18	4.49
-4	32653	2.38	4.02	31527	2.08	4.44	29002	1.71	4.97	26272	1.57	4.90	25419	1.35	5.52
5	40398	2.71	4.37	38453	2.45	4.60	36543	2.17	4.94	34802	2.22	4.60	31390	1.88	4.90
14	45721	2.97	4.51	44458	2.72	4.79	43605	2.49	5.13	40944	2.28	5.26	37703	1.96	5.64
19	50293	3.13	4.71	49474	2.88	5.03	48450	2.67	5.32	45380	2.40	5.54	42473	2.18	5.71
23	51180	3.47	4.32	49986	3.13	4.68	49815	2.86	5.10	47768	2.61	5.36	45653	2.28	5.87
28	52204	3.74	4.09	51180	3.41	4.40	50532	3.07	4.82	49474	2.72	5.33	46915	2.43	5.66
32	53910	4.33	3.65	52852	3.75	4.13	51180	3.34	4.49	50327	2.88	5.12	47973	2.64	5.33
36	55377	4.68	3.47	54592	3.91	4.09	53227	3.36	4.64	52204	3.05	5.02	50771	2.72	5.47
41	57287	5.19	3.24	56400	4.06	4.07	55957	4.04	4.06	55786	3.43	4.77	54183	3.20	4.96
45	60392	5.53	3.20	59710	4.60	3.80	59335	4.43	3.93	58004	3.85	4.42	56298	3.46	4.77
50	61450	6.02	2.99	60597	4.96	3.58	60051	4.74	3.71	59812	3.96	4.43	59130	3.67	4.72
54	63190	6.44	2.88	62781	5.52	3.33	62098	5.08	3.58	61416	4.23	4.26	61075	3.89	4.60
57	63975	6.60	2.84	63463	5.75	3.23	63122	5.22	3.54	62781	4.33	4.25	62440	3.96	4.62
59	64828	6.84	2.78	64657	6.05	3.13	64111	5.41	3.47	63668	4.48	4.17	63224	4.09	4.53
66	60904	7.79	2.29	59881	6.89	2.55	58823	6.05	2.85	58004	4.99	3.41	56980	4.24	3.94
68	59778	8.03	2.18	58721	7.10	2.42	58004	6.21	2.74	56298	5.12	3.22	55991	4.30	3.82
77	57253	8.86	1.89	56639	7.26	2.29	56434	6.94	2.38	55445	5.81	2.80	54967	4.58	3.52
86	55274	10.09	1.61	54251	8.21	1.94	53739	7.68	2.05	53568	6.49	2.42	52545	5.46	2.82
95	54592	10.82	1.48	53568	9.01	1.74	52886	8.42	1.84	51862	6.87	2.21	50498	5.68	2.61
104	56980	11.46	1.46	56298	10.06	1.64	55274	9.15	1.77	54592	7.24	2.21	52886	5.91	2.62
109	58823	11.84	1.46	57970	10.51	1.62	57322	9.37	1.79	56980	7.41	2.25	54592	6.20	2.58
DB(°F)	Tw_out(°F)														
	122			131			136.4			140			149		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-4	24396	1.29	5.54	22485	1.20	5.49	19448	1.04	5.48	/	/	/	/	/	/
5	25692	1.42	5.30	23270	1.29	5.29	22724	1.23	5.40	21905	1.15	5.58	/	/	/
14	32380	1.70	5.58	30435	1.51	5.91	27869	1.41	5.79	24020	1.26	5.59	/	/	/
19	39463	1.90	6.09	37969	1.77	6.27	33700	1.60	6.16	27296	1.35	5.93	/	/	/
23	44185	2.05	6.32	42991	1.95	6.46	37559	1.75	6.28	29411	1.46	5.90	/	/	/
28	45038	2.25	5.87	43503	2.11	6.04	38385	1.90	5.91	30708	1.59	5.66	/	/	/
32	45789	2.41	5.57	43810	2.26	5.68	39334	2.04	5.64	32619	1.72	5.56	/	/	/
36	48450	2.61	5.44	46574	2.48	5.50	42957	2.30	5.48	37532	2.03	5.43	/	/	/
41	52067	2.92	5.23	49372	2.66	5.44	46970	2.48	5.55	43367	2.21	5.75	38672	2.08	5.45
45	53910	3.17	4.98	51521	2.82	5.35	49338	2.65	5.45	46062	2.40	5.63	40535	2.20	5.40
50	56946	3.26	5.12	54763	2.97	5.40	52401	2.84	5.40	48860	2.65	5.40	44015	2.46	5.24
54	58004	3.50	4.86	55616	3.02	5.40	53132	2.92	5.33	49406	2.78	5.21	45038	2.49	5.30
57	59710	3.59	4.87	56298	3.01	5.48	53800	2.95	5.35	50054	2.85	5.15	45721	2.55	5.25
59	60836	3.67	4.86	56980	3.21	5.20	54319	3.09	5.16	50327	2.90	5.09	46301	2.60	5.22
66	54592	3.70	4.32	52715	3.32	4.65	49918	3.22	4.54	45721	3.08	4.35	44356	2.79	4.66
68	53910	3.80	4.16	52204	3.53	4.33	49256	3.36	4.29	44834	3.11	4.23	/	/	/
77	52204	4.05	3.78	50839	3.80	3.92	48246	3.51	4.03	44356	3.07	4.23	/	/	/
86	51180	4.79	3.13	49474	4.26	3.40	47154	3.80	3.64	43674	3.10	4.13	/	/	/
95	49474	5.01	2.89	47768	4.56	2.93	/	/	/	/	/	/	/	/	/
104	51180	5.22	2.87	/	/	/	/	/	/	/	/	/	/	/	/
109	52204	5.41	2.83	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.1-2: Heating capacity for 16kW models - Maximum (Metric System)

Maximum															
DB(°C)	Tw_out(°C)														
	25			30			35			40			45		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	7.69	1.91	4.03	7.32	1.77	4.14	6.61	1.65	4.01	6.20	1.33	4.66	5.30	1.18	4.49
-20	9.57	2.38	4.02	9.24	2.08	4.44	8.50	1.71	4.97	7.70	1.57	4.90	7.45	1.35	5.52
-15	11.84	2.71	4.37	11.27	2.45	4.60	10.71	2.17	4.94	10.20	2.22	4.60	9.20	1.88	4.90
-10	13.40	2.97	4.51	13.03	2.72	4.79	12.78	2.49	5.13	12.00	2.28	5.26	11.05	1.96	5.64
-7	14.74	3.13	4.71	14.50	2.88	5.03	14.20	2.67	5.32	13.30	2.40	5.54	12.45	2.18	5.71
-5	15.00	3.47	4.32	14.65	3.13	4.68	14.60	2.86	5.10	14.00	2.61	5.36	13.38	2.28	5.87
-2	15.30	3.74	4.09	15.00	3.41	4.40	14.81	3.07	4.82	14.50	2.72	5.33	13.75	2.43	5.66
0	15.80	4.33	3.65	15.49	3.75	4.13	15.00	3.34	4.49	14.75	2.88	5.12	14.06	2.64	5.33
2	16.23	4.68	3.47	16.00	3.91	4.09	15.60	3.36	4.64	15.30	3.05	5.02	14.88	2.72	5.47
5	16.79	5.19	3.24	16.53	4.06	4.07	16.40	4.04	4.06	16.35	3.43	4.77	15.88	3.20	4.96
7	17.70	5.53	3.20	17.50	4.60	3.80	17.39	4.43	3.93	17.00	3.85	4.42	16.50	3.46	4.77
10	18.01	6.02	2.99	17.76	4.96	3.58	17.60	4.74	3.71	17.53	3.96	4.43	17.33	3.67	4.72
12	18.52	6.44	2.88	18.40	5.52	3.33	18.20	5.08	3.58	18.00	4.23	4.26	17.90	3.89	4.60
14	18.75	6.60	2.84	18.60	5.75	3.23	18.50	5.22	3.54	18.40	4.33	4.25	18.30	3.96	4.62
15	19.00	6.84	2.78	18.95	6.05	3.13	18.79	5.41	3.47	18.66	4.48	4.17	18.53	4.09	4.53
19	17.85	7.79	2.29	17.55	6.89	2.55	17.24	6.05	2.85	17.00	4.99	3.41	16.70	4.24	3.94
20	17.52	8.03	2.18	17.21	7.10	2.42	17.00	6.21	2.74	16.50	5.12	3.22	16.41	4.30	3.82
25	16.78	8.86	1.89	16.60	7.26	2.29	16.54	6.94	2.38	16.25	5.81	2.80	16.11	4.58	3.52
30	16.20	10.09	1.61	15.90	8.21	1.94	15.75	7.68	2.05	15.70	6.49	2.42	15.40	5.46	2.82
35	16.00	10.82	1.48	15.70	9.01	1.74	15.50	8.42	1.84	15.20	6.87	2.21	14.80	5.68	2.61
40	16.70	11.46	1.46	16.50	10.06	1.64	16.20	9.15	1.77	16.00	7.24	2.21	15.50	5.91	2.62
43	17.24	11.84	1.46	16.99	10.51	1.62	16.80	9.37	1.79	16.70	7.41	2.25	16.00	6.20	2.58
DB(°C)	Tw_out(°C)														
	50			55			58			60			65		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-20	7.15	1.29	5.54	6.59	1.20	5.49	5.70	1.04	5.48	/	/	/	/	/	/
-15	7.53	1.42	5.30	6.82	1.29	5.29	6.66	1.23	5.40	6.42	1.15	5.58	/	/	/
-10	9.49	1.70	5.58	8.92	1.51	5.91	8.17	1.41	5.79	7.04	1.26	5.59	/	/	/
-7	11.57	1.90	6.09	11.13	1.77	6.27	9.88	1.60	6.16	8.00	1.35	5.93	/	/	/
-5	12.95	2.05	6.32	12.60	1.95	6.46	11.01	1.75	6.28	8.62	1.46	5.90	/	/	/
-2	13.20	2.25	5.87	12.75	2.11	6.04	11.25	1.90	5.91	9.00	1.59	5.66	/	/	/
0	13.42	2.41	5.57	12.84	2.26	5.68	11.53	2.04	5.64	9.56	1.72	5.56	/	/	/
2	14.20	2.61	5.44	13.65	2.48	5.50	12.59	2.30	5.48	11.00	2.03	5.43	/	/	/
5	15.26	2.92	5.23	14.47	2.66	5.44	13.77	2.48	5.55	12.71	2.21	5.75	11.33	2.08	5.45
7	15.80	3.17	4.98	15.10	2.82	5.35	14.46	2.65	5.45	13.50	2.40	5.63	11.88	2.20	5.40
10	16.69	3.26	5.12	16.05	2.97	5.40	15.36	2.84	5.40	14.32	2.65	5.40	12.90	2.46	5.24
12	17.00	3.50	4.86	16.30	3.02	5.40	15.57	2.92	5.33	14.48	2.78	5.21	13.20	2.49	5.30
14	17.50	3.59	4.87	16.50	3.01	5.48	15.77	2.95	5.35	14.67	2.85	5.15	13.40	2.55	5.25
15	17.83	3.67	4.86	16.70	3.21	5.20	15.92	3.09	5.16	14.75	2.90	5.09	13.57	2.60	5.22
19	16.00	3.70	4.32	15.45	3.32	4.65	14.63	3.22	4.54	13.40	3.08	4.35	13.00	2.79	4.66
20	15.80	3.80	4.16	15.30	3.53	4.33	14.44	3.36	4.29	13.14	3.11	4.23	/	/	/
25	15.30	4.05	3.78	14.90	3.80	3.92	14.14	3.51	4.03	13.00	3.07	4.23	/	/	/
30	15.00	4.79	3.13	14.50	4.26	3.40	13.82	3.80	3.64	12.80	3.10	4.13	/	/	/
35	14.50	5.01	2.89	14.00	4.56	2.93	/	/	/	/	/	/	/	/	/
40	15.00	5.22	2.87	/	/	/	/	/	/	/	/	/	/	/	/
43	15.30	5.41	2.83	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.1-3: Heating capacity for 16kW models - Nominal (Imperial System)

Nominal															
DB(°F)	Tw_out(°F)														
	77			86			95			104			113		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	22431	2.03	3.24	23161	2.06	3.29	18990	1.73	3.21	17209	1.38	3.65	14682	1.19	3.60
-4	28736	2.56	3.29	28995	2.37	3.59	24135	1.82	3.88	22480	1.65	3.99	19588	1.39	4.14
5	33744	2.93	3.37	31911	2.66	3.52	30030	2.32	3.79	28710	2.03	4.14	25169	1.73	4.26
14	37729	3.15	3.51	36463	2.90	3.68	35138	2.61	3.95	35014	2.37	4.34	31567	2.01	4.59
19	47332	3.25	4.27	46205	3.05	4.44	45380	2.70	4.93	44646	2.63	4.98	41626	2.11	5.78
23	46782	3.56	3.85	46458	3.30	4.13	45042	2.95	4.47	44782	2.70	4.86	43434	2.32	5.49
28	44371	3.88	3.35	44014	3.62	3.57	43242	3.14	4.03	42984	2.84	4.44	42912	2.49	5.05
32	44704	4.52	2.90	44481	4.01	3.25	44117	3.40	3.80	43482	3.03	4.21	43609	2.71	4.72
36	45194	5.07	2.61	44687	4.12	3.18	44356	3.50	3.71	43390	3.20	3.97	43674	2.85	4.49
41	48232	5.61	2.52	46594	4.28	3.19	45926	4.35	3.09	44666	3.66	3.58	44840	3.39	3.88
45	57879	5.91	2.87	55082	5.11	3.16	54592	4.50	3.56	53704	3.94	3.99	54592	3.60	4.44
50	48594	6.66	2.14	47402	5.42	2.57	46000	5.16	2.61	44897	4.36	3.01	45060	3.97	3.33
54	49611	7.16	2.03	48726	6.17	2.32	47879	5.58	2.52	46800	4.68	2.93	46939	4.22	3.26
57	49792	7.35	1.99	49065	6.49	2.22	48501	5.74	2.48	47442	4.80	2.90	47566	4.32	3.23
59	50273	7.63	1.93	49700	6.89	2.11	49415	5.97	2.43	48368	4.98	2.85	48480	4.46	3.19
66	46264	8.76	1.55	45872	7.69	1.75	45240	6.70	1.98	44201	5.59	2.32	43048	4.66	2.71
68	45262	9.04	1.47	44914	7.89	1.67	44197	6.88	1.88	43159	5.75	2.20	41690	4.71	2.59
77	43740	9.97	1.29	43267	8.06	1.57	43427	7.71	1.65	43231	7.22	1.75	40971	5.36	2.24
86	42675	11.29	1.11	41728	9.06	1.35	40378	8.47	1.40	42329	7.98	1.55	40370	5.74	2.06
95	45573	12.03	1.11	45175	9.90	1.34	43681	9.06	1.41	45104	7.40	1.79	42578	6.02	2.07
104	48143	12.83	1.10	49718	11.13	1.31	47374	9.91	1.40	48249	7.86	1.80	45120	6.30	2.10
109	49988	13.33	1.10	51633	11.71	1.29	49222	10.21	1.41	50120	8.10	1.81	46879	6.66	2.06
DB(°F)	Tw_out(°F)														
	122			131			136.4			140			149		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-4	17585	1.33	3.88	16695	1.17	4.18	16160	1.01	4.68	/	/	/	/	/	/
5	21099	1.47	4.21	19485	1.30	4.40	18918	1.20	4.61	18540	1.14	4.77	/	/	/
14	27221	1.75	4.55	25633	1.55	4.83	22511	1.39	4.75	20430	1.28	4.69	/	/	/
19	38897	1.95	5.83	37873	1.79	6.19	32803	1.63	5.89	26238	1.37	5.60	/	/	/
23	42335	2.25	5.51	39827	2.07	5.63	31715	1.77	5.24	26889	1.48	5.32	/	/	/
28	42618	2.41	5.19	40796	2.19	5.45	33019	1.88	5.14	27419	1.61	4.99	/	/	/
32	43936	2.59	4.97	42589	2.30	5.43	33646	2.01	4.90	28170	1.76	4.69	/	/	/
36	44428	2.67	4.88	45721	2.40	5.58	36553	2.17	4.95	30441	2.01	4.44	/	/	/
41	45094	3.11	4.25	46070	2.75	4.91	39147	2.62	4.37	34533	2.47	4.09	30173	1.95	4.53
45	53441	3.18	4.92	51180	2.90	5.52	48841	2.79	5.13	45008	2.72	4.86	34925	2.23	4.60
50	42472	3.41	3.66	41169	3.13	3.86	39355	3.03	3.81	38146	2.88	3.88	33839	2.52	3.93
54	44232	3.67	3.53	43291	3.17	4.01	40707	3.20	3.73	38985	3.04	3.76	34408	2.63	3.83
57	44819	3.77	3.48	44064	3.16	4.08	41113	3.26	3.70	39146	3.09	3.71	34465	2.62	3.85
59	45675	3.92	3.41	45102	3.20	4.13	41767	3.35	3.65	39544	3.19	3.64	34730	2.67	3.81
66	38758	3.85	2.95	39569	3.52	3.29	37303	3.36	3.25	35793	3.16	3.32	35789	2.87	3.65
68	38764	3.84	2.96	38186	3.61	3.10	36188	3.36	3.15	34856	3.15	3.24	/	/	/
77	39787	4.47	2.61	36140	4.04	2.62	34368	3.57	2.83	33187	3.23	3.01	/	/	/
86	40475	5.07	2.34	34176	4.31	2.33	34274	3.68	2.73	34340	3.23	3.12	/	/	/
95	39395	5.34	2.16	35405	4.74	2.19	/	/	/	/	/	/	/	/	/
104	41985	5.61	2.19	/	/	/	/	/	/	/	/	/	/	/	/
109	43638	5.85	2.19	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.1-4: Heating capacity for 16kW models - Nominal (Metric System)

Nominal															
DB(°C)	Tw_out(°C)														
	25			30			35			40			45		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	6.57	2.03	3.24	6.79	2.06	3.29	5.57	1.73	3.21	5.04	1.38	3.65	4.30	1.19	3.60
-20	8.42	2.56	3.29	8.50	2.37	3.59	7.07	1.82	3.88	6.59	1.65	3.99	5.74	1.39	4.14
-15	9.89	2.93	3.37	9.35	2.66	3.52	8.80	2.32	3.79	8.41	2.03	4.14	7.38	1.73	4.26
-10	11.06	3.15	3.51	10.69	2.90	3.68	10.30	2.61	3.95	10.26	2.37	4.34	9.25	2.01	4.59
-7	13.87	3.25	4.27	13.54	3.05	4.44	13.30	2.70	4.93	13.09	2.63	4.98	12.20	2.11	5.78
-5	13.71	3.56	3.85	13.62	3.30	4.13	13.20	2.95	4.47	13.12	2.70	4.86	12.73	2.32	5.49
-2	13.00	3.88	3.35	12.90	3.62	3.57	12.67	3.14	4.03	12.60	2.84	4.44	12.58	2.49	5.05
0	13.10	4.52	2.90	13.04	4.01	3.25	12.93	3.40	3.80	12.74	3.03	4.21	12.78	2.71	4.72
2	13.25	5.07	2.61	13.10	4.12	3.18	13.00	3.50	3.71	12.72	3.20	3.97	12.80	2.85	4.49
5	14.14	5.61	2.52	13.66	4.28	3.19	13.46	4.35	3.09	13.09	3.66	3.58	13.14	3.39	3.88
7	16.96	5.91	2.87	16.14	5.11	3.16	16.00	4.50	3.56	15.74	3.94	3.99	16.00	3.60	4.44
10	14.24	6.66	2.14	13.89	5.42	2.57	13.48	5.16	2.61	13.16	4.36	3.01	13.21	3.97	3.33
12	14.54	7.16	2.03	14.28	6.17	2.32	14.03	5.58	2.52	13.72	4.68	2.93	13.76	4.22	3.26
14	14.59	7.35	1.99	14.38	6.49	2.22	14.21	5.74	2.48	13.90	4.80	2.90	13.94	4.32	3.23
15	14.73	7.63	1.93	14.57	6.89	2.11	14.48	5.97	2.43	14.18	4.98	2.85	14.21	4.46	3.19
19	13.56	8.76	1.55	13.44	7.69	1.75	13.26	6.70	1.98	12.95	5.59	2.32	12.62	4.66	2.71
20	13.27	9.04	1.47	13.16	7.89	1.67	12.95	6.88	1.88	12.65	5.75	2.20	12.22	4.71	2.59
25	12.82	9.97	1.29	12.68	8.06	1.57	12.73	7.71	1.65	12.67	7.22	1.75	12.01	5.36	2.24
30	12.51	11.29	1.11	12.23	9.06	1.35	11.83	8.47	1.40	12.41	7.98	1.55	11.83	5.74	2.06
35	13.36	12.03	1.11	13.24	9.90	1.34	12.80	9.06	1.41	13.22	7.40	1.79	12.48	6.02	2.07
40	14.11	12.83	1.10	14.57	11.13	1.31	13.88	9.91	1.40	14.14	7.86	1.80	13.22	6.30	2.10
43	14.65	13.33	1.10	15.13	11.71	1.29	14.43	10.21	1.41	14.69	8.10	1.81	13.74	6.66	2.06
DB(°C)	Tw_out(°C)														
	50			55			58			60			65		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-20	5.15	1.33	3.88	4.89	1.17	4.18	4.74	1.01	4.68	/	/	/	/	/	/
-15	6.18	1.47	4.21	5.71	1.30	4.40	5.54	1.20	4.61	5.43	1.14	4.77	/	/	/
-10	7.98	1.75	4.55	7.51	1.55	4.83	6.60	1.39	4.75	5.99	1.28	4.69	/	/	/
-7	11.40	1.95	5.83	11.10	1.79	6.19	9.61	1.63	5.89	7.69	1.37	5.60	/	/	/
-5	12.41	2.25	5.51	11.67	2.07	5.63	9.30	1.77	5.24	7.88	1.48	5.32	/	/	/
-2	12.49	2.41	5.19	11.96	2.19	5.45	9.68	1.88	5.14	8.04	1.61	4.99	/	/	/
0	12.88	2.59	4.97	12.48	2.30	5.43	9.86	2.01	4.90	8.26	1.76	4.69	/	/	/
2	13.02	2.67	4.88	13.40	2.40	5.58	10.71	2.17	4.95	8.92	2.01	4.44	/	/	/
5	13.22	3.11	4.25	13.50	2.75	4.91	11.47	2.62	4.37	10.12	2.47	4.09	8.84	1.95	4.53
7	15.66	3.18	4.92	15.00	2.72	5.52	14.31	2.79	5.13	13.19	2.72	4.86	10.24	2.23	4.60
10	12.45	3.41	3.66	12.07	3.13	3.86	11.53	3.03	3.81	11.18	2.88	3.88	9.92	2.52	3.93
12	12.96	3.67	3.53	12.69	3.17	4.01	11.93	3.20	3.73	11.43	3.04	3.76	10.08	2.63	3.83
14	13.14	3.77	3.48	12.91	3.16	4.08	12.05	3.26	3.70	11.47	3.09	3.71	10.10	2.62	3.85
15	13.39	3.92	3.41	13.22	3.20	4.13	12.24	3.35	3.65	11.59	3.19	3.64	10.18	2.67	3.81
19	11.36	3.85	2.95	11.60	3.52	3.29	10.93	3.36	3.25	10.49	3.16	3.32	10.49	2.87	3.65
20	11.36	3.84	2.96	11.19	3.61	3.10	10.61	3.36	3.15	10.22	3.15	3.24	/	/	/
25	11.66	4.47	2.61	10.59	4.04	2.62	10.07	3.57	2.83	9.73	3.23	3.01	/	/	/
30	11.86	5.07	2.34	10.02	4.31	2.33	10.05	3.68	2.73	10.06	3.23	3.12	/	/	/
35	11.55	5.34	2.16	10.38	4.74	2.19	/	/	/	/	/	/	/	/	/
40	12.31	5.61	2.19	/	/	/	/	/	/	/	/	/	/	/	/
43	12.79	5.85	2.19	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.1-5: Heating capacity for 16kW models - Minimum (Imperial System)

Minimum															
DB(°F)	Tw_out(°F)														
	77			86			95			104			113		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	13170	2.24	1.72	12351	1.85	1.96	11464	1.62	2.07	10441	1.42	2.15	9349	1.23	2.23
-4	18049	2.70	1.96	17265	2.22	2.28	16412	1.96	2.45	15422	1.74	2.60	14365	1.54	2.73
5	22826	3.03	2.21	22076	2.61	2.48	21189	2.31	2.69	20233	2.05	2.89	19141	1.82	3.08
14	14501	3.52	1.21	13853	3.06	1.33	13136	2.65	1.45	12283	2.26	1.59	18766	1.96	2.81
19	16002	3.92	1.20	16036	3.51	1.34	15354	3.05	1.48	14535	2.62	1.63	15013	2.28	1.93
23	16992	4.25	1.17	16446	3.68	1.31	15798	3.21	1.44	15013	2.75	1.60	15695	2.36	1.95
28	18732	4.73	1.16	18152	4.08	1.30	17504	3.54	1.45	16753	3.05	1.61	15354	2.59	1.74
32	19892	5.08	1.15	19312	4.36	1.30	18664	3.79	1.44	17879	3.26	1.61	17060	2.77	1.81
36	20984	5.45	1.13	20370	4.65	1.28	19721	4.02	1.44	18937	3.46	1.60	18084	2.94	1.80
41	22519	6.37	1.04	21564	5.49	1.15	20643	4.74	1.28	19619	4.05	1.42	18595	3.45	1.58
45	23202	6.98	0.97	22178	5.96	1.09	21154	5.12	1.21	20131	4.37	1.35	19107	3.71	1.51
50	22212	7.01	0.93	21120	5.99	1.03	20063	5.09	1.16	19039	4.31	1.29	19448	3.63	1.57
54	22690	7.51	0.89	21803	6.18	1.03	20916	5.21	1.18	20063	4.42	1.33	19278	3.75	1.51
57	22724	7.71	0.86	21837	6.62	0.97	20950	5.54	1.11	20097	4.67	1.26	19312	3.93	1.44
59	22895	7.99	0.84	21973	6.80	0.95	21120	5.65	1.10	20267	4.74	1.25	19448	3.98	1.43
66	23065	9.17	0.74	22144	8.21	0.79	21257	6.68	0.93	20404	5.50	1.09	19585	4.55	1.26
68	23099	9.46	0.72	22178	8.48	0.77	21291	6.81	0.92	20438	5.56	1.08	19619	4.59	1.25
77	23611	10.44	0.66	22656	8.46	0.78	21734	7.78	0.82	20881	6.14	1.00	20028	4.97	1.18
86	24873	11.79	0.62	24123	10.83	0.65	23406	10.09	0.68	22724	7.53	0.88	22042	5.93	1.09
95	26443	12.73	0.61	25658	9.43	0.80	24873	6.98	1.04	24123	5.17	1.37	23406	3.83	1.79
104	28047	13.58	0.61	27194	10.05	0.79	26409	7.44	1.04	25590	5.51	1.36	24839	4.08	1.78
109	29480	14.11	0.61	28593	10.45	0.80	27740	7.74	1.05	26921	5.73	1.38	26102	4.24	1.80
DB(°F)	Tw_out(°F)														
	122			131			136.4			140			149		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-4	14740	1.40	3.09	13853	1.27	3.20	12966	1.17	3.25	/	/	/	/	/	/
5	19790	1.65	3.52	18868	1.50	3.69	18049	1.39	3.81	17367	1.31	3.89	/	/	/
14	18425	1.74	3.10	18834	1.61	3.43	17913	1.46	3.60	17060	1.40	3.57	/	/	/
19	14672	1.96	2.19	13989	1.60	2.56	13307	1.55	2.52	11430	1.10	3.05	/	/	/
23	15354	2.09	2.15	14672	1.70	2.53	13989	1.60	2.56	11942	1.15	3.04	/	/	/
28	14672	2.24	1.92	13648	1.95	2.05	11396	1.74	1.92	10577	1.50	2.07	/	/	/
32	16207	2.30	2.07	14672	2.00	2.15	12829	1.79	2.10	11942	1.70	2.06	/	/	/
36	17060	2.53	1.98	16036	2.30	2.04	13989	2.00	2.05	12624	1.80	2.06	/	/	/
41	17913	2.91	1.80	17060	2.40	2.08	14808	2.10	2.07	13307	1.90	2.05	11942	1.16	3.02
45	18425	3.00	1.80	18084	2.60	2.04	16036	2.30	2.04	14672	2.10	2.05	12283	1.20	3.00
50	19517	3.09	1.85	19448	2.71	2.10	17196	2.46	2.05	15695	2.30	2.00	12624	1.25	2.96
54	19380	3.10	1.83	20472	2.81	2.14	18425	2.56	2.11	17060	2.40	2.08	13307	1.40	2.79
57	19790	3.15	1.84	21189	2.91	2.13	19326	2.66	2.13	18084	2.50	2.12	14330	1.50	2.80
59	20233	3.37	1.76	21359	2.94	2.13	19803	2.83	2.05	18766	2.75	2.00	15013	1.75	2.51
66	20370	3.77	1.58	21496	3.28	1.92	20472	3.11	1.93	19790	3.00	1.93	15354	2.00	2.25
68	20404	3.81	1.57	21666	3.35	1.90	20765	3.20	1.90	20165	3.10	1.91	/	/	/
77	20847	4.04	1.51	22178	3.80	1.71	21359	3.62	1.73	20813	3.50	1.74	/	/	/
86	22076	4.74	1.36	23202	4.20	1.62	22587	4.08	1.62	22178	4.00	1.63	/	/	/
95	23884	5.20	1.35	24225	4.65	1.53	23202	4.12	1.65	/	/	/	/	/	/
104	25419	5.70	1.31	/	/	/	/	/	/	/	/	/	/	/	/
109	26272	6.00	1.28	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.1-6: Heating capacity for 16kW models - Minimum (Metric System)

Minimum															
DB(°C)	Tw_out(°C)														
	25			30			35			40			45		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	3.86	2.24	1.72	3.62	1.85	1.96	3.36	1.62	2.07	3.06	1.42	2.15	2.74	1.23	2.23
-20	5.29	2.70	1.96	5.06	2.22	2.28	4.81	1.96	2.45	4.52	1.74	2.60	4.21	1.54	2.73
-15	6.69	3.03	2.21	6.47	2.61	2.48	6.21	2.31	2.69	5.93	2.05	2.89	5.61	1.82	3.08
-10	4.25	3.52	1.21	4.06	3.06	1.33	3.85	2.65	1.45	3.60	2.26	1.59	5.50	1.96	2.81
-7	4.69	3.92	1.20	4.70	3.51	1.34	4.50	3.05	1.48	4.26	2.62	1.63	4.40	2.28	1.93
-5	4.98	4.25	1.17	4.82	3.68	1.31	4.63	3.21	1.44	4.40	2.75	1.60	4.60	2.36	1.95
-2	5.49	4.73	1.16	5.32	4.08	1.30	5.13	3.54	1.45	4.91	3.05	1.61	4.50	2.59	1.74
0	5.83	5.08	1.15	5.66	4.36	1.30	5.47	3.79	1.44	5.24	3.26	1.61	5.00	2.77	1.81
2	6.15	5.45	1.13	5.97	4.65	1.28	5.78	4.02	1.44	5.55	3.46	1.60	5.30	2.94	1.80
5	6.60	6.37	1.04	6.32	5.49	1.15	6.05	4.74	1.28	5.75	4.05	1.42	5.45	3.45	1.58
7	6.80	6.98	0.97	6.50	5.96	1.09	6.20	5.12	1.21	5.90	4.37	1.35	5.60	3.71	1.51
10	6.51	7.01	0.93	6.19	5.99	1.03	5.88	5.09	1.16	5.58	4.31	1.29	5.70	3.63	1.57
12	6.65	7.51	0.89	6.39	6.18	1.03	6.13	5.21	1.18	5.88	4.42	1.33	5.65	3.75	1.51
14	6.66	7.71	0.86	6.40	6.62	0.97	6.14	5.54	1.11	5.89	4.67	1.26	5.66	3.93	1.44
15	6.71	7.99	0.84	6.44	6.80	0.95	6.19	5.65	1.10	5.94	4.74	1.25	5.70	3.98	1.43
19	6.76	9.17	0.74	6.49	8.21	0.79	6.23	6.68	0.93	5.98	5.50	1.09	5.74	4.55	1.26
20	6.77	9.46	0.72	6.50	8.48	0.77	6.24	6.81	0.92	5.99	5.56	1.08	5.75	4.59	1.25
25	6.92	10.44	0.66	6.64	8.46	0.78	6.37	7.78	0.82	6.12	6.14	1.00	5.87	4.97	1.18
30	7.29	11.79	0.62	7.07	10.83	0.65	6.86	10.09	0.68	6.66	7.53	0.88	6.46	5.93	1.09
35	7.75	12.73	0.61	7.52	9.43	0.80	7.29	6.98	1.04	7.07	5.17	1.37	6.86	3.83	1.79
40	8.22	13.58	0.61	7.97	10.05	0.79	7.74	7.44	1.04	7.50	5.51	1.36	7.28	4.08	1.78
43	8.64	14.11	0.61	8.38	10.45	0.80	8.13	7.74	1.05	7.89	5.73	1.38	7.65	4.24	1.80
DB(°C)	Tw_out(°C)														
	50			55			58			60			65		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-20	4.32	1.40	3.09	4.06	1.27	3.20	3.80	1.17	3.25	/	/	/	/	/	/
-15	5.80	1.65	3.52	5.53	1.50	3.69	5.29	1.39	3.81	5.09	1.31	3.89	/	/	/
-10	5.40	1.74	3.10	5.52	1.61	3.43	5.25	1.46	3.60	5.00	1.40	3.57	/	/	/
-7	4.30	1.96	2.19	4.10	1.60	2.56	3.90	1.55	2.52	3.35	1.10	3.05	/	/	/
-5	4.50	2.09	2.15	4.30	1.70	2.53	4.10	1.60	2.56	3.50	1.15	3.04	/	/	/
-2	4.30	2.24	1.92	4.00	1.95	2.05	3.34	1.74	1.92	3.10	1.50	2.07	/	/	/
0	4.75	2.30	2.07	4.30	2.00	2.15	3.76	1.79	2.10	3.50	1.70	2.06	/	/	/
2	5.00	2.53	1.98	4.70	2.30	2.04	4.10	2.00	2.05	3.70	1.80	2.06	/	/	/
5	5.25	2.91	1.80	5.00	2.40	2.08	4.34	2.10	2.07	3.90	1.90	2.05	3.50	1.16	3.02
7	5.40	3.00	1.80	5.30	2.60	2.04	4.70	2.30	2.04	4.30	2.10	2.05	3.60	1.20	3.00
10	5.72	3.09	1.85	5.70	2.71	2.10	5.04	2.46	2.05	4.60	2.30	2.00	3.70	1.25	2.96
12	5.68	3.10	1.83	6.00	2.81	2.14	5.40	2.56	2.11	5.00	2.40	2.08	3.90	1.40	2.79
14	5.80	3.15	1.84	6.21	2.91	2.13	5.66	2.66	2.13	5.30	2.50	2.12	4.20	1.50	2.80
15	5.93	3.37	1.76	6.26	2.94	2.13	5.80	2.83	2.05	5.50	2.75	2.00	4.40	1.75	2.51
19	5.97	3.77	1.58	6.30	3.28	1.92	6.00	3.11	1.93	5.80	3.00	1.93	4.50	2.00	2.25
20	5.98	3.81	1.57	6.35	3.35	1.90	6.09	3.20	1.90	5.91	3.10	1.91	/	/	/
25	6.11	4.04	1.51	6.50	3.80	1.71	6.26	3.62	1.73	6.10	3.50	1.74	/	/	/
30	6.47	4.74	1.36	6.80	4.20	1.62	6.62	4.08	1.62	6.50	4.00	1.63	/	/	/
35	7.00	5.20	1.35	7.10	4.65	1.53	6.80	4.12	1.65	/	/	/	/	/	/
40	7.45	5.70	1.31	/	/	/	/	/	/	/	/	/	/	/	/
43	7.70	6.00	1.28	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

4.2 Heating Capacity Tables - 14kW

Table 2-4.2-1: Heating capacity for 14kW models - Maximum (Imperial System)

Maximum															
DB(°F)	Tw_out(°F)														
	77			86			95			104			113		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	24527	2.14	3.36	23347	2.11	3.24	21082	1.71	3.62	19775	1.46	3.97	17280	1.29	3.93
-4	30523	2.57	3.48	29471	2.52	3.43	27111	2.18	3.65	24559	1.89	3.81	24290	1.73	4.11
5	37763	2.82	3.92	35945	2.62	4.02	34159	2.43	4.13	34120	2.33	4.30	29441	1.85	4.66
14	42739	3.12	4.01	41559	2.73	4.46	40762	2.57	4.66	38274	2.36	4.76	36027	2.04	5.18
19	47013	3.41	4.04	46247	3.02	4.49	45291	2.79	4.76	42420	2.49	4.99	40585	2.31	5.15
23	47842	3.68	3.81	46726	3.41	4.02	46566	2.99	4.56	44653	2.73	4.80	43624	2.42	5.29
28	49776	3.89	3.75	48800	3.60	3.97	48181	3.09	4.56	47173	2.84	4.87	44681	2.49	5.25
32	51214	4.46	3.37	50142	3.87	3.80	48555	3.41	4.18	47811	3.01	4.65	45633	2.77	4.83
36	52608	4.84	3.19	51792	4.11	3.69	50498	3.46	4.28	49593	3.18	4.57	48294	3.00	4.72
41	54423	5.30	3.01	53508	4.51	3.47	53087	4.09	3.80	52997	3.61	4.30	51540	3.30	4.57
45	57128	5.80	2.89	56393	4.94	3.35	56038	4.49	3.66	54869	4.04	3.98	53335	3.66	4.27
50	57939	6.81	2.49	57033	5.36	3.12	56519	4.79	3.45	56395	4.24	3.90	55845	3.87	4.23
54	59473	7.23	2.41	59088	5.58	3.10	58446	5.19	3.30	57907	4.35	3.90	57585	3.99	4.23
57	57977	7.38	2.30	57514	5.95	2.83	57204	5.34	3.14	58976	4.37	3.95	58655	4.07	4.22
59	58750	7.62	2.26	58596	6.24	2.75	58101	5.53	3.08	59809	4.60	3.81	59393	4.19	4.15
66	55194	8.21	1.97	54267	7.00	2.27	53308	6.15	2.54	54489	5.10	3.13	53527	4.39	3.57
68	55508	8.35	1.95	54526	7.19	2.22	53861	6.35	2.48	52415	5.18	2.97	52129	4.42	3.45
77	54868	9.08	1.77	54279	7.69	2.07	54083	7.05	2.25	51180	5.92	2.53	50739	4.95	3.00
86	52762	10.22	1.51	51785	8.36	1.81	51296	7.79	1.93	51239	6.62	2.27	50260	5.56	2.65
95	52111	11.05	1.38	51133	9.04	1.66	50482	8.52	1.74	49608	7.11	2.04	48302	5.77	2.45
104	54390	11.62	1.37	53739	10.29	1.53	52762	9.27	1.67	52218	7.26	2.11	50587	6.08	2.44
109	56149	12.20	1.35	55335	10.83	1.50	54716	9.50	1.69	54503	7.69	2.08	52218	6.27	2.44
DB(°F)	Tw_out(°F)														
	122			131			136.4			140			149		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-4	22805	1.50	4.45	21439	1.29	4.87	18476	1.23	4.42	/	/	/	/	/	/
5	24017	1.62	4.34	22188	1.41	4.61	21588	1.28	4.95	20810	1.19	5.13	/	/	/
14	30268	1.81	4.90	29019	1.67	5.09	26476	1.43	5.42	22819	1.27	5.27	/	/	/
19	36890	2.07	5.22	36203	2.01	5.28	32015	1.71	5.49	25931	1.51	5.03	/	/	/
23	41304	2.13	5.68	40992	2.09	5.74	35681	1.82	5.76	27941	1.63	5.02	/	/	/
28	42944	2.35	5.37	41328	2.17	5.57	36310	2.03	5.23	29048	1.66	5.13	/	/	/
32	43555	2.48	5.14	41620	2.30	5.29	37263	2.12	5.15	30902	1.80	5.02	/	/	/
36	46087	2.67	5.05	44245	2.56	5.06	40696	2.42	4.92	35557	2.32	4.49	/	/	/
41	49527	2.98	4.87	46903	2.73	5.04	44498	2.62	4.98	41084	2.37	5.07	36462	2.20	4.86
45	51072	3.26	4.59	48736	2.88	4.96	46518	2.77	4.92	43430	2.54	5.01	36734	2.50	4.31
50	53783	3.31	4.76	51633	3.08	4.92	49226	2.99	4.82	45899	2.69	5.00	40979	2.66	4.52
54	54689	3.57	4.49	52344	3.16	4.85	48151	3.08	4.58	44774	2.97	4.41	40680	2.56	4.66
57	56091	3.74	4.39	51020	3.18	4.70	50090	3.10	4.74	46602	3.06	4.46	42455	2.62	4.75
59	57149	3.81	4.40	51638	3.36	4.51	50573	3.20	4.63	46856	3.14	4.37	42994	2.66	4.74
66	51283	3.83	3.93	47773	3.55	3.94	46475	3.32	4.10	42568	3.15	3.96	41188	2.86	4.22
68	50192	3.90	3.77	48475	3.66	3.88	45467	3.46	3.86	41385	3.17	3.83	/	/	/
77	48188	4.30	3.29	48721	3.92	3.64	46053	3.61	3.74	42340	3.14	3.96	/	/	/
86	48955	4.85	2.96	47225	4.40	3.14	44796	3.87	3.39	41490	3.23	3.76	/	/	/
95	47323	5.10	2.72	45597	4.72	2.83	/	/	/	/	/	/	/	/	/
104	48955	5.38	2.67	/	/	/	/	/	/	/	/	/	/	/	/
109	49934	5.54	2.64	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.2-2: Heating capacity for 14kW models - Maximum (Metric System)

Maximum															
DB(°C)	Tw_out(°C)														
	25			30			35			40			45		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	7.19	2.14	3.36	6.84	2.11	3.24	6.18	1.71	3.62	5.80	1.46	3.97	5.06	1.29	3.93
-20	8.95	2.57	3.48	8.64	2.52	3.43	7.95	2.18	3.65	7.20	1.89	3.81	7.12	1.73	4.11
-15	11.07	2.82	3.92	10.54	2.62	4.02	10.01	2.43	4.13	10.00	2.33	4.30	8.63	1.85	4.66
-10	12.53	3.12	4.01	12.18	2.73	4.46	11.95	2.57	4.66	11.22	2.36	4.76	10.56	2.04	5.18
-7	13.78	3.41	4.04	13.55	3.02	4.49	13.27	2.79	4.76	12.43	2.49	4.99	11.89	2.31	5.15
-5	14.02	3.68	3.81	13.69	3.41	4.02	13.65	2.99	4.56	13.09	2.73	4.80	12.79	2.42	5.29
-2	14.59	3.89	3.75	14.30	3.60	3.97	14.12	3.09	4.56	13.83	2.84	4.87	13.10	2.49	5.25
0	15.01	4.46	3.37	14.70	3.87	3.80	14.23	3.41	4.18	14.01	3.01	4.65	13.37	2.77	4.83
2	15.42	4.84	3.19	15.18	4.11	3.69	14.80	3.46	4.28	14.54	3.18	4.57	14.15	3.00	4.72
5	15.95	5.30	3.01	15.68	4.51	3.47	15.56	4.09	3.80	15.53	3.61	4.30	15.11	3.30	4.57
7	16.74	5.80	2.89	16.53	4.94	3.35	16.42	4.49	3.66	16.08	4.04	3.98	15.63	3.66	4.27
10	16.98	6.81	2.49	16.72	5.36	3.12	16.56	4.79	3.45	16.53	4.24	3.90	16.37	3.87	4.23
12	17.43	7.23	2.41	17.32	5.58	3.10	17.13	5.19	3.30	16.97	4.35	3.90	16.88	3.99	4.23
14	16.99	7.38	2.30	16.86	5.95	2.83	16.77	5.34	3.14	17.28	4.37	3.95	17.19	4.07	4.22
15	17.22	7.62	2.26	17.17	6.24	2.75	17.03	5.53	3.08	17.53	4.60	3.81	17.41	4.19	4.15
19	16.18	8.21	1.97	15.90	7.00	2.27	15.62	6.15	2.54	15.97	5.10	3.13	15.69	4.39	3.57
20	16.27	8.35	1.95	15.98	7.19	2.22	15.79	6.35	2.48	15.36	5.18	2.97	15.28	4.42	3.45
25	16.08	9.08	1.77	15.91	7.69	2.07	15.85	7.05	2.25	15.00	5.92	2.53	14.87	4.95	3.00
30	15.46	10.22	1.51	15.18	8.36	1.81	15.03	7.79	1.93	15.02	6.62	2.27	14.73	5.56	2.65
35	15.27	11.05	1.38	14.99	9.04	1.66	14.80	8.52	1.74	14.54	7.11	2.04	14.16	5.77	2.45
40	15.94	11.62	1.37	15.75	10.29	1.53	15.46	9.27	1.67	15.30	7.26	2.11	14.83	6.08	2.44
43	16.46	12.20	1.35	16.22	10.83	1.50	16.04	9.50	1.69	15.97	7.69	2.08	15.30	6.27	2.44
DB(°C)	Tw_out(°C)														
	50			55			58			60			65		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-20	6.68	1.50	4.45	6.28	1.29	4.87	5.42	1.23	4.42	/	/	/	/	/	/
-15	7.04	1.62	4.34	6.50	1.41	4.61	6.33	1.28	4.95	6.10	1.19	5.13	/	/	/
-10	8.87	1.81	4.90	8.51	1.67	5.09	7.76	1.43	5.42	6.69	1.27	5.27	/	/	/
-7	10.81	2.07	5.22	10.61	2.01	5.28	9.38	1.71	5.49	7.60	1.51	5.03	/	/	/
-5	12.11	2.13	5.68	12.01	2.09	5.74	10.46	1.82	5.76	8.19	1.63	5.02	/	/	/
-2	12.59	2.35	5.37	12.11	2.17	5.57	10.64	2.03	5.23	8.51	1.66	5.13	/	/	/
0	12.77	2.48	5.14	12.20	2.30	5.29	10.92	2.12	5.15	9.06	1.80	5.02	/	/	/
2	13.51	2.67	5.05	12.97	2.56	5.06	11.93	2.42	4.92	10.42	2.32	4.49	/	/	/
5	14.52	2.98	4.87	13.75	2.73	5.04	13.04	2.62	4.98	12.04	2.37	5.07	10.69	2.20	4.86
7	14.97	3.26	4.59	14.28	2.88	4.96	13.63	2.77	4.92	12.73	2.54	5.01	10.77	2.50	4.31
10	15.76	3.31	4.76	15.13	3.08	4.92	14.43	2.99	4.82	13.45	2.69	5.00	12.01	2.66	4.52
12	16.03	3.57	4.49	15.34	3.16	4.85	14.11	3.08	4.58	13.12	2.97	4.41	11.92	2.56	4.66
14	16.44	3.74	4.39	14.95	3.18	4.70	14.68	3.10	4.74	13.66	3.06	4.46	12.44	2.62	4.75
15	16.75	3.81	4.40	15.13	3.36	4.51	14.82	3.20	4.63	13.73	3.14	4.37	12.60	2.66	4.74
19	15.03	3.83	3.93	14.00	3.55	3.94	13.62	3.32	4.10	12.48	3.15	3.96	12.07	2.86	4.22
20	14.71	3.90	3.77	14.21	3.66	3.88	13.33	3.46	3.86	12.13	3.17	3.83	/	/	/
25	14.12	4.30	3.29	14.28	3.92	3.64	13.50	3.61	3.74	12.41	3.14	3.96	/	/	/
30	14.35	4.85	2.96	13.84	4.40	3.14	13.13	3.87	3.39	12.16	3.23	3.76	/	/	/
35	13.87	5.10	2.72	13.36	4.72	2.83	/	/	/	/	/	/	/	/	/
40	14.35	5.38	2.67	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.2-3: Heating capacity for 14kW models - Nominal (Imperial System)

Nominal															
DB(°F)	Tw_out(°F)														
	77			86			95			104			113		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	19949	2.27	2.57	19468	2.25	2.54	15607	1.79	2.55	14289	1.51	2.76	13235	1.30	2.97
-4	24791	2.77	2.63	24789	2.72	2.67	23045	2.32	2.92	20721	1.99	3.06	18690	1.78	3.08
5	27385	3.06	2.63	27089	2.85	2.79	26831	2.60	3.03	24442	2.29	3.12	21275	1.91	3.26
14	33454	3.31	2.96	31950	2.91	3.22	30333	2.59	3.43	29877	2.34	3.74	27523	2.09	3.85
19	42490	3.56	3.50	41579	3.09	3.94	40944	2.80	4.29	40487	2.66	4.46	40262	2.35	5.02
23	41119	3.95	3.05	40409	3.60	3.29	40514	3.06	3.88	39928	2.87	4.08	39856	2.47	4.73
28	40127	4.07	2.89	39025	3.80	3.01	39049	3.22	3.55	39040	3.02	3.79	39391	2.55	4.52
32	41617	4.52	2.70	40220	4.08	2.89	39999	3.45	3.40	40237	3.23	3.65	40044	2.69	4.36
36	40867	4.97	2.41	40266	4.46	2.65	38897	3.65	3.12	39409	3.40	3.40	39920	2.86	4.09
41	45706	5.61	2.39	44636	4.82	2.71	44387	4.10	3.17	43060	3.87	3.26	43344	3.30	3.85
45	51911	6.26	2.43	49611	5.24	2.77	49474	4.70	3.09	49755	4.15	3.52	48450	3.65	3.89
50	41931	7.53	1.63	41408	5.85	2.07	38591	5.22	2.17	40159	4.67	2.52	38932	3.97	2.87
54	41920	8.03	1.53	41233	6.12	1.97	39254	5.46	2.11	41188	4.82	2.51	39895	4.12	2.84
57	41639	8.22	1.49	40874	6.21	1.93	39326	5.53	2.08	41430	4.85	2.50	40112	4.16	2.83
59	41608	8.50	1.43	40762	6.37	1.87	39635	5.67	2.05	41921	4.94	2.49	40571	4.25	2.80
66	40359	9.22	1.28	39632	7.27	1.60	38202	6.15	1.82	40294	5.48	2.15	39421	4.75	2.43
68	40046	9.40	1.25	39350	7.49	1.54	37844	6.27	1.77	39887	5.62	2.08	39133	4.87	2.35
77	40255	10.22	1.15	39426	8.55	1.35	38034	6.82	1.63	39352	6.93	1.66	38396	5.46	2.06
86	41626	10.98	1.11	39968	9.07	1.29	39032	7.81	1.46	40080	7.64	1.54	39451	5.63	2.05
95	44526	12.28	1.06	42269	9.93	1.25	40160	8.63	1.36	42017	7.39	1.67	40909	6.10	1.96
104	46217	13.01	1.04	46238	11.38	1.19	44532	9.28	1.41	44389	7.88	1.65	43316	6.48	1.96
109	47988	13.75	1.02	48019	12.06	1.17	46269	9.61	1.41	46110	8.40	1.61	45004	6.73	1.96
DB(°F)	Tw_out(°F)														
	122			131			136.4			140			149		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-4	16280	1.55	3.08	15991	1.30	3.60	15818	1.20	3.87	/	/	/	/	/	/
5	19637	1.68	3.42	18457	1.42	3.81	17795	1.28	4.09	17354	1.18	4.31	/	/	/
14	26018	1.87	4.08	25043	1.72	4.26	21746	1.46	4.35	19547	1.29	4.44	/	/	/
19	36850	2.10	5.15	34120	1.86	5.37	30177	1.75	5.05	25274	1.55	4.77	/	/	/
23	36788	2.16	4.99	36937	2.11	5.13	30276	1.84	4.82	25835	1.66	4.56	/	/	/
28	36849	2.28	4.73	37076	2.22	4.90	30893	1.89	4.78	26771	1.69	4.64	/	/	/
32	37805	2.42	4.57	37963	2.34	4.75	31938	1.96	4.77	27921	1.74	4.70	/	/	/
36	41435	2.50	4.86	42309	2.45	5.06	34456	2.12	4.77	29220	1.92	4.46	/	/	/
41	42650	2.84	4.40	42883	2.81	4.47	36213	2.46	4.31	31766	2.27	4.11	29066	1.99	4.28
45	47761	3.18	4.40	47086	3.00	4.60	44105	2.77	4.67	42117	2.61	4.73	33130	2.16	4.50
50	38964	3.46	3.30	36307	3.21	3.31	35628	2.95	3.54	35176	2.78	3.71	31088	2.35	3.88
54	39279	3.59	3.21	35060	3.32	3.10	34899	3.05	3.35	34792	2.88	3.54	33321	2.65	3.69
57	39178	3.62	3.17	34208	3.35	3.00	34306	3.08	3.26	34372	2.90	3.47	32795	2.71	3.55
59	39313	3.70	3.11	33562	3.41	2.88	33920	3.14	3.16	34158	2.96	3.38	33026	2.56	3.78
66	38246	4.07	2.76	32724	3.67	2.62	31177	3.30	2.77	30145	3.05	2.90	35125	2.82	3.65
68	37980	4.16	2.68	32515	3.68	2.59	30491	3.34	2.68	29141	3.07	2.78	/	/	/
77	37545	4.58	2.41	32057	4.07	2.31	29092	3.50	2.43	27115	3.14	2.53	/	/	/
86	37635	4.92	2.24	33223	4.49	2.17	30015	3.73	2.36	27877	3.17	2.58	/	/	/
95	38825	5.33	2.13	34439	4.86	2.08	/	/	/	/	/	/	/	/	/
104	40305	5.78	2.04	/	/	/	/	/	/	/	/	/	/	/	/
109	41617	5.99	2.04	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.2-4: Heating capacity for 14kW models - Nominal (Metric System)

Nominal															
DB(°C)	Tw_out(°C)														
	25			30			35			40			45		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	5.85	2.27	2.57	5.71	2.25	2.54	4.57	1.79	2.55	4.19	1.51	2.76	3.88	1.30	2.97
-20	7.27	2.77	2.63	7.27	2.72	2.67	6.75	2.32	2.92	6.07	1.99	3.06	5.48	1.78	3.08
-15	8.03	3.06	2.63	7.94	2.85	2.79	7.86	2.60	3.03	7.16	2.29	3.12	6.24	1.91	3.26
-10	9.80	3.31	2.96	9.36	2.91	3.22	8.89	2.59	3.43	8.76	2.34	3.74	8.07	2.09	3.85
-7	12.45	3.56	3.50	12.19	3.09	3.94	12.00	2.80	4.29	11.87	2.66	4.46	11.80	2.35	5.02
-5	12.05	3.95	3.05	11.84	3.60	3.29	11.87	3.06	3.88	11.70	2.87	4.08	11.68	2.47	4.73
-2	11.76	4.07	2.89	11.44	3.80	3.01	11.44	3.22	3.55	11.44	3.02	3.79	11.54	2.55	4.52
0	12.20	4.52	2.70	11.79	4.08	2.89	11.72	3.45	3.40	11.79	3.23	3.65	11.74	2.69	4.36
2	11.98	4.97	2.41	11.80	4.46	2.65	11.40	3.65	3.12	11.55	3.40	3.40	11.70	2.86	4.09
5	13.40	5.61	2.39	13.08	4.82	2.71	13.01	4.10	3.17	12.62	3.87	3.26	12.70	3.30	3.85
7	15.21	6.26	2.43	14.54	5.24	2.77	14.50	4.70	3.09	14.58	4.15	3.52	14.20	3.65	3.89
10	12.29	7.53	1.63	12.14	5.85	2.07	11.31	5.22	2.17	11.77	4.67	2.52	11.41	3.97	2.87
12	12.29	8.03	1.53	12.08	6.12	1.97	11.50	5.46	2.11	12.07	4.82	2.51	11.69	4.12	2.84
14	12.20	8.22	1.49	11.98	6.21	1.93	11.53	5.53	2.08	12.14	4.85	2.50	11.76	4.16	2.83
15	12.19	8.50	1.43	11.95	6.37	1.87	11.62	5.67	2.05	12.29	4.94	2.49	11.89	4.25	2.80
19	11.83	9.22	1.28	11.62	7.27	1.60	11.20	6.15	1.82	11.81	5.48	2.15	11.55	4.75	2.43
20	11.74	9.40	1.25	11.53	7.49	1.54	11.09	6.27	1.77	11.69	5.62	2.08	11.47	4.87	2.35
25	11.80	10.22	1.15	11.56	8.55	1.35	11.15	6.82	1.63	11.53	6.93	1.66	11.25	5.46	2.06
30	12.20	10.98	1.11	11.71	9.07	1.29	11.44	7.81	1.46	11.75	7.64	1.54	11.56	5.63	2.05
35	13.05	12.28	1.06	12.39	9.93	1.25	11.77	8.63	1.36	12.31	7.39	1.67	11.99	6.10	1.96
40	13.55	13.01	1.04	13.55	11.38	1.19	13.05	9.28	1.41	13.01	7.88	1.65	12.70	6.48	1.96
43	14.06	13.75	1.02	14.07	12.06	1.17	13.56	9.61	1.41	13.51	8.40	1.61	13.19	6.73	1.96
DB(°C)	Tw_out(°C)														
	50			55			58			60			65		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-20	4.77	1.55	3.08	4.69	1.30	3.60	4.64	1.20	3.87	/	/	/	/	/	/
-15	5.76	1.68	3.42	5.41	1.42	3.81	5.22	1.28	4.09	5.09	1.18	4.31	/	/	/
-10	7.63	1.87	4.08	7.34	1.72	4.26	6.37	1.46	4.35	5.73	1.29	4.44	/	/	/
-7	10.80	2.10	5.15	10.00	1.86	5.37	8.84	1.75	5.05	7.41	1.55	4.77	/	/	/
-5	10.78	2.16	4.99	10.83	2.11	5.13	8.87	1.84	4.82	7.57	1.66	4.56	/	/	/
-2	10.80	2.28	4.73	10.87	2.22	4.90	9.05	1.89	4.78	7.85	1.69	4.64	/	/	/
0	11.08	2.42	4.57	11.13	2.34	4.75	9.36	1.96	4.77	8.18	1.74	4.70	/	/	/
2	12.14	2.50	4.86	12.40	2.45	5.06	10.10	2.12	4.77	8.56	1.92	4.46	/	/	/
5	12.50	2.84	4.40	12.57	2.81	4.47	10.61	2.46	4.31	9.31	2.27	4.11	8.52	1.99	4.28
7	14.00	3.18	4.40	13.80	3.00	4.60	12.93	2.77	4.67	12.34	2.61	4.73	9.71	2.16	4.50
10	11.42	3.46	3.30	10.64	3.21	3.31	10.44	2.95	3.54	10.31	2.78	3.71	9.11	2.35	3.88
12	11.51	3.59	3.21	10.28	3.32	3.10	10.23	3.05	3.35	10.20	2.88	3.54	9.77	2.65	3.69
14	11.48	3.62	3.17	10.03	3.35	3.00	10.05	3.08	3.26	10.07	2.90	3.47	9.61	2.71	3.55
15	11.52	3.70	3.11	9.84	3.41	2.88	9.94	3.14	3.16	10.01	2.96	3.38	9.68	2.56	3.78
19	11.21	4.07	2.76	9.59	3.67	2.62	9.14	3.30	2.77	8.83	3.05	2.90	10.29	2.82	3.65
20	11.13	4.16	2.68	9.53	3.68	2.59	8.94	3.34	2.68	8.54	3.07	2.78	/	/	/
25	11.00	4.58	2.41	9.40	4.07	2.31	8.53	3.50	2.43	7.95	3.14	2.53	/	/	/
30	11.03	4.92	2.24	9.74	4.49	2.17	8.80	3.73	2.36	8.17	3.17	2.58	/	/	/
35	11.38	5.33	2.13	10.09	4.86	2.08	/	/	/	/	/	/	/	/	/
40	11.81	5.78	2.04	/	/	/	/	/	/	/	/	/	/	/	/
43	12.20	5.99	2.04	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.2-5: Heating capacity for 14kW models - Minimum (Imperial System)

Minimum															
DB(°F)	Tw_out(°F)														
	77			86			95			104			113		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	13170	2.24	1.72	12351	1.85	1.96	11464	1.62	2.07	10441	1.42	2.15	9349	1.23	2.23
-4	18049	2.70	1.96	17265	2.22	2.28	16412	1.96	2.45	15422	1.74	2.60	14365	1.54	2.73
5	22826	3.03	2.21	22076	2.61	2.48	21189	2.31	2.69	20233	2.05	2.89	19141	1.82	3.08
14	14501	3.52	1.21	13853	3.06	1.33	13136	2.65	1.45	12283	2.26	1.59	18766	1.96	2.81
19	16002	3.92	1.20	16036	3.51	1.34	15354	3.05	1.48	14535	2.62	1.63	15013	2.28	1.93
23	16992	4.25	1.17	16446	3.68	1.31	15798	3.21	1.44	15013	2.75	1.60	15695	2.36	1.95
28	18732	4.73	1.16	18152	4.08	1.30	17504	3.54	1.45	16753	3.05	1.61	15354	2.59	1.74
32	19892	5.08	1.15	19312	4.36	1.30	18664	3.79	1.44	17879	3.26	1.61	17060	2.77	1.81
36	20984	5.45	1.13	20370	4.65	1.28	19721	4.02	1.44	18937	3.46	1.60	18084	2.94	1.80
41	22519	6.37	1.04	21564	5.49	1.15	20643	4.74	1.28	19619	4.05	1.42	18595	3.45	1.58
45	23202	6.98	0.97	22178	5.96	1.09	21154	5.12	1.21	20131	4.37	1.35	19107	3.71	1.51
50	22212	7.01	0.93	21120	5.99	1.03	20063	5.09	1.16	19039	4.31	1.29	19448	3.63	1.57
54	22690	7.51	0.89	21803	6.18	1.03	20916	5.21	1.18	20063	4.42	1.33	19278	3.75	1.51
57	22724	7.71	0.86	21837	6.62	0.97	20950	5.54	1.11	20097	4.67	1.26	19312	3.93	1.44
59	22895	7.99	0.84	21973	6.80	0.95	21120	5.65	1.10	20267	4.74	1.25	19448	3.98	1.43
66	23065	9.17	0.74	22144	8.21	0.79	21257	6.68	0.93	20404	5.50	1.09	19585	4.55	1.26
68	23099	9.46	0.72	22178	8.48	0.77	21291	6.81	0.92	20438	5.56	1.08	19619	4.59	1.25
77	23611	10.44	0.66	22656	8.46	0.78	21734	7.78	0.82	20881	6.14	1.00	20028	4.97	1.18
86	24873	11.79	0.62	24123	10.83	0.65	23406	10.09	0.68	22724	7.53	0.88	22042	5.93	1.09
95	26443	12.73	0.61	25658	9.43	0.80	24873	6.98	1.04	24123	5.17	1.37	23406	3.83	1.79
104	28047	13.58	0.61	27194	10.05	0.79	26409	7.44	1.04	25590	5.51	1.36	24839	4.08	1.78
109	29480	14.11	0.61	28593	10.45	0.80	27740	7.74	1.05	26921	5.73	1.38	26102	4.24	1.80
DB(°F)	Tw_out(°F)														
	122			131			136.4			140			149		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-4	14740	1.40	3.09	13853	1.27	3.20	12966	1.17	3.25	/	/	/	/	/	/
5	19790	1.65	3.52	18868	1.50	3.69	18049	1.39	3.81	17367	1.31	3.89	/	/	/
14	18425	1.74	3.10	18834	1.61	3.43	17913	1.46	3.60	17060	1.40	3.57	/	/	/
19	14672	1.96	2.19	13989	1.60	2.56	13307	1.55	2.52	11430	1.10	3.05	/	/	/
23	15354	2.09	2.15	14672	1.70	2.53	13989	1.60	2.56	11942	1.15	3.04	/	/	/
28	14672	2.24	1.92	13648	1.95	2.05	11396	1.74	1.92	10577	1.50	2.07	/	/	/
32	16207	2.30	2.07	14672	2.00	2.15	12829	1.79	2.10	11942	1.70	2.06	/	/	/
36	17060	2.53	1.98	16036	2.30	2.04	13989	2.00	2.05	12624	1.80	2.06	/	/	/
41	17913	2.91	1.80	17060	2.40	2.08	14808	2.10	2.07	13307	1.90	2.05	11942	1.16	3.02
45	18425	3.00	1.80	18084	2.60	2.04	16036	2.30	2.04	14672	2.10	2.05	12283	1.20	3.00
50	19517	3.09	1.85	19448	2.71	2.10	17196	2.46	2.05	15695	2.30	2.00	12624	1.25	2.96
54	19380	3.10	1.83	20472	2.81	2.14	18425	2.56	2.11	17060	2.40	2.08	13307	1.40	2.79
57	19790	3.15	1.84	21189	2.91	2.13	19326	2.66	2.13	18084	2.50	2.12	14330	1.50	2.80
59	20233	3.37	1.76	21359	2.94	2.13	19803	2.83	2.05	18766	2.75	2.00	15013	1.75	2.51
66	20370	3.77	1.58	21496	3.28	1.92	20472	3.11	1.93	19790	3.00	1.93	15354	2.00	2.25
68	20404	3.81	1.57	21666	3.35	1.90	20765	3.20	1.90	20165	3.10	1.91	/	/	/
77	20847	4.04	1.51	22178	3.80	1.71	21359	3.62	1.73	20813	3.50	1.74	/	/	/
86	22076	4.74	1.36	23202	4.20	1.62	22587	4.08	1.62	22178	4.00	1.63	/	/	/
95	23884	5.20	1.35	24225	4.65	1.53	23202	4.12	1.65	/	/	/	/	/	/
104	25419	5.70	1.31	/	/	/	/	/	/	/	/	/	/	/	/
109	26272	6.00	1.28	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.2-6: Heating capacity for 14kW models - Minimum (Metric System)

Minimum															
DB(°C)	Tw_out(°C)														
	25			30			35			40			45		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	3.86	2.24	1.72	3.62	1.85	1.96	3.36	1.62	2.07	3.06	1.42	2.15	2.74	1.23	2.23
-20	5.29	2.70	1.96	5.06	2.22	2.28	4.81	1.96	2.45	4.52	1.74	2.60	4.21	1.54	2.73
-15	6.69	3.03	2.21	6.47	2.61	2.48	6.21	2.31	2.69	5.93	2.05	2.89	5.61	1.82	3.08
-10	4.25	3.52	1.21	4.06	3.06	1.33	3.85	2.65	1.45	3.60	2.26	1.59	5.50	1.96	2.81
-7	4.69	3.92	1.20	4.70	3.51	1.34	4.50	3.05	1.48	4.26	2.62	1.63	4.40	2.28	1.93
-5	4.98	4.25	1.17	4.82	3.68	1.31	4.63	3.21	1.44	4.40	2.75	1.60	4.60	2.36	1.95
-2	5.49	4.73	1.16	5.32	4.08	1.30	5.13	3.54	1.45	4.91	3.05	1.61	4.50	2.59	1.74
0	5.83	5.08	1.15	5.66	4.36	1.30	5.47	3.79	1.44	5.24	3.26	1.61	5.00	2.77	1.81
2	6.15	5.45	1.13	5.97	4.65	1.28	5.78	4.02	1.44	5.55	3.46	1.60	5.30	2.94	1.80
5	6.60	6.37	1.04	6.32	5.49	1.15	6.05	4.74	1.28	5.75	4.05	1.42	5.45	3.45	1.58
7	6.80	6.98	0.97	6.50	5.96	1.09	6.20	5.12	1.21	5.90	4.37	1.35	5.60	3.71	1.51
10	6.51	7.01	0.93	6.19	5.99	1.03	5.88	5.09	1.16	5.58	4.31	1.29	5.70	3.63	1.57
12	6.65	7.51	0.89	6.39	6.18	1.03	6.13	5.21	1.18	5.88	4.42	1.33	5.65	3.75	1.51
14	6.66	7.71	0.86	6.40	6.62	0.97	6.14	5.54	1.11	5.89	4.67	1.26	5.66	3.93	1.44
15	6.71	7.99	0.84	6.44	6.80	0.95	6.19	5.65	1.10	5.94	4.74	1.25	5.70	3.98	1.43
19	6.76	9.17	0.74	6.49	8.21	0.79	6.23	6.68	0.93	5.98	5.50	1.09	5.74	4.55	1.26
20	6.77	9.46	0.72	6.50	8.48	0.77	6.24	6.81	0.92	5.99	5.56	1.08	5.75	4.59	1.25
25	6.92	10.44	0.66	6.64	8.46	0.78	6.37	7.78	0.82	6.12	6.14	1.00	5.87	4.97	1.18
30	7.29	11.79	0.62	7.07	10.83	0.65	6.86	10.09	0.68	6.66	7.53	0.88	6.46	5.93	1.09
35	7.75	12.73	0.61	7.52	9.43	0.80	7.29	6.98	1.04	7.07	5.17	1.37	6.86	3.83	1.79
40	8.22	13.58	0.61	7.97	10.05	0.79	7.74	7.44	1.04	7.50	5.51	1.36	7.28	4.08	1.78
43	8.64	14.11	0.61	8.38	10.45	0.80	8.13	7.74	1.05	7.89	5.73	1.38	7.65	4.24	1.80
DB(°C)	Tw_out(°C)														
	50			55			58			60			65		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-20	4.32	1.40	3.09	4.06	1.27	3.20	3.80	1.17	3.25	/	/	/	/	/	/
-15	5.80	1.65	3.52	5.53	1.50	3.69	5.29	1.39	3.81	5.09	1.31	3.89	/	/	/
-10	5.40	1.74	3.10	5.52	1.61	3.43	5.25	1.46	3.60	5.00	1.40	3.57	/	/	/
-7	4.30	1.96	2.19	4.10	1.60	2.56	3.90	1.55	2.52	3.35	1.10	3.05	/	/	/
-5	4.50	2.09	2.15	4.30	1.70	2.53	4.10	1.60	2.56	3.50	1.15	3.04	/	/	/
-2	4.30	2.24	1.92	4.00	1.95	2.05	3.34	1.74	1.92	3.10	1.50	2.07	/	/	/
0	4.75	2.30	2.07	4.30	2.00	2.15	3.76	1.79	2.10	3.50	1.70	2.06	/	/	/
2	5.00	2.53	1.98	4.70	2.30	2.04	4.10	2.00	2.05	3.70	1.80	2.06	/	/	/
5	5.25	2.91	1.80	5.00	2.40	2.08	4.34	2.10	2.07	3.90	1.90	2.05	3.50	1.16	3.02
7	5.40	3.00	1.80	5.30	2.60	2.04	4.70	2.30	2.04	4.30	2.10	2.05	3.60	1.20	3.00
10	5.72	3.09	1.85	5.70	2.71	2.10	5.04	2.46	2.05	4.60	2.30	2.00	3.70	1.25	2.96
12	5.68	3.10	1.83	6.00	2.81	2.14	5.40	2.56	2.11	5.00	2.40	2.08	3.90	1.40	2.79
14	5.80	3.15	1.84	6.21	2.91	2.13	5.66	2.66	2.13	5.30	2.50	2.12	4.20	1.50	2.80
15	5.93	3.37	1.76	6.26	2.94	2.13	5.80	2.83	2.05	5.50	2.75	2.00	4.40	1.75	2.51
19	5.97	3.77	1.58	6.30	3.28	1.92	6.00	3.11	1.93	5.80	3.00	1.93	4.50	2.00	2.25
20	5.98	3.81	1.57	6.35	3.35	1.90	6.09	3.20	1.90	5.91	3.10	1.91	/	/	/
25	6.11	4.04	1.51	6.50	3.80	1.71	6.26	3.62	1.73	6.10	3.50	1.74	/	/	/
30	6.47	4.74	1.36	6.80	4.20	1.62	6.62	4.08	1.62	6.50	4.00	1.63	/	/	/
35	7.00	5.20	1.35	7.10	4.65	1.53	6.80	4.12	1.65	/	/	/	/	/	/
40	7.45	5.70	1.31	/	/	/	/	/	/	/	/	/	/	/	/
43	7.70	6.00	1.28	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

4.3 Heating Capacity Tables - 12kW

Table 2-4.3-1: Heating capacity for 12kW models - Maximum (Imperial System)

Maximum															
DB(°F)	Tw_out(°F)														
	77			86			95			104			113		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	22246	2.17	3.00	21175	2.15	2.89	19121	1.70	3.30	17935	1.45	3.62	15672	1.28	3.58
-4	27684	2.65	3.06	26729	2.60	3.01	24589	2.26	3.19	22274	1.93	3.37	22030	1.77	3.65
5	34251	2.85	3.52	32602	2.65	3.61	30982	2.45	3.71	32414	2.32	4.10	29002	1.98	4.30
14	38763	3.17	3.58	37693	2.84	3.90	36970	2.64	4.11	34713	2.40	4.24	32676	2.05	4.66
19	42640	3.49	3.58	41945	3.12	3.94	41078	2.83	4.25	38474	2.56	4.40	36810	2.33	4.63
23	43392	3.71	3.43	42379	3.45	3.60	42235	3.07	4.03	40499	2.80	4.24	39566	2.47	4.69
28	46133	3.97	3.41	45229	3.69	3.59	44656	3.17	4.13	43721	2.97	4.31	42447	2.57	4.85
32	47171	4.55	3.04	46076	3.99	3.39	44618	3.48	3.76	45294	3.04	4.37	42122	2.81	4.39
36	48455	4.98	2.85	47593	4.26	3.28	46403	3.66	3.71	46983	3.28	4.20	44579	3.11	4.21
41	50127	5.49	2.67	49170	4.55	3.17	48783	4.15	3.45	50208	3.73	3.95	47575	3.46	4.03
45	52231	6.00	2.55	51417	5.01	3.01	51094	4.69	3.19	51733	4.14	3.66	48890	3.83	3.74
50	54427	6.92	2.30	51686	5.49	2.76	51220	5.06	2.97	52977	4.37	3.55	50917	3.99	3.74
54	53898	7.36	2.15	53548	6.08	2.58	52966	5.25	2.95	54397	4.55	3.50	54095	4.12	3.85
57	53979	7.52	2.10	53547	6.33	2.48	53259	5.46	2.86	53269	4.61	3.39	52979	4.20	3.69
59	54699	7.67	2.09	54555	6.65	2.40	54094	5.62	2.82	54021	4.72	3.36	53645	4.31	3.65
66	51388	8.54	1.76	50524	7.41	2.00	49632	6.26	2.32	49216	5.25	2.75	48347	4.58	3.10
68	51238	8.76	1.71	50332	7.60	1.94	49718	6.47	2.25	50474	5.39	2.75	50199	4.69	3.14
77	52482	9.31	1.65	51919	8.23	1.85	51732	7.35	2.06	49048	6.26	2.29	48625	5.39	2.65
86	50249	10.32	1.43	49319	8.75	1.65	48854	7.93	1.81	48910	6.68	2.15	47976	5.64	2.49
95	49629	11.17	1.30	48699	9.29	1.54	48078	8.66	1.63	47353	7.25	1.91	46107	5.83	2.32
104	51800	11.75	1.29	51180	10.42	1.44	50249	9.40	1.57	49845	7.36	1.98	48287	6.29	2.25
109	53475	12.41	1.26	52700	11.06	1.40	52111	9.63	1.59	52026	7.82	1.95	49845	6.81	2.15
DB(°F)	Tw_out(°F)														
	122			131			136.4			140			149		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-4	20683	1.51	4.01	20393	1.35	4.43	17990	1.33	3.95	/	/	/	/	/	/
5	21783	1.69	3.78	21105	1.47	4.21	21020	1.34	4.60	20262	1.25	4.75	/	/	/
14	27453	1.94	4.15	27604	1.79	4.51	25779	1.50	5.04	22219	1.30	4.99	/	/	/
19	33458	2.24	4.38	34437	2.02	5.00	31172	1.76	5.19	25249	1.59	4.65	/	/	/
23	37462	2.27	4.84	38992	2.13	5.37	34742	2.00	5.09	27206	1.68	4.75	/	/	/
28	38754	2.48	4.58	39153	2.19	5.24	35273	2.14	4.82	28218	1.71	4.84	/	/	/
32	40205	2.60	4.53	38334	2.36	4.76	35193	2.23	4.63	29185	1.87	4.56	/	/	/
36	42542	2.80	4.45	40752	2.67	4.47	38435	2.50	4.50	33581	2.41	4.08	/	/	/
41	45717	3.11	4.31	43200	2.77	4.56	42025	2.71	4.54	38802	2.44	4.67	35357	2.22	4.66
45	46816	3.39	4.05	44559	2.97	4.40	43699	2.89	4.43	40798	2.59	4.63	36734	2.50	4.30
50	49037	3.47	4.15	48504	3.11	4.57	46050	3.09	4.37	42937	2.74	4.59	40979	2.65	4.53
54	51375	3.65	4.12	47437	3.27	4.25	46490	3.18	4.28	43230	3.05	4.15	39227	2.58	4.46
57	50663	3.83	3.87	47501	3.33	4.19	48235	3.17	4.46	44876	3.18	4.13	42455	2.62	4.76
59	51618	3.90	3.88	48077	3.42	4.12	48700	3.32	4.30	45121	3.25	4.08	42994	2.66	4.73
66	46320	3.97	3.42	44479	3.64	3.58	44754	3.32	3.95	40991	3.15	3.81	41188	2.66	4.53
68	48333	4.06	3.49	44746	3.77	3.48	45467	3.46	3.85	41385	3.16	3.83	/	/	/
77	46180	4.63	2.92	46602	3.99	3.42	46053	3.61	3.74	42340	3.14	3.96	/	/	/
86	46730	4.95	2.77	44976	4.52	2.92	44796	3.55	3.70	41490	3.23	3.76	/	/	/
95	45172	5.24	2.53	43425	4.84	2.63	/	/	/	/	/	/	/	/	/
104	46730	5.40	2.54	/	/	/	/	/	/	/	/	/	/	/	/
109	47664	5.75	2.43	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.3-2: Heating capacity for 12kW models - Maximum (Metric System)

Maximum															
DB(°C)	Tw_out(°C)														
	25			30			35			40			45		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	6.52	2.17	3.00	6.21	2.15	2.89	5.60	1.70	3.30	5.26	1.45	3.62	4.59	1.28	3.58
-20	8.11	2.65	3.06	7.83	2.60	3.01	7.21	2.26	3.19	6.53	1.93	3.37	6.46	1.77	3.65
-15	10.04	2.85	3.52	9.56	2.65	3.61	9.08	2.45	3.71	9.50	2.32	4.10	8.50	1.98	4.30
-10	11.36	3.17	3.58	11.05	2.84	3.90	10.84	2.64	4.11	10.17	2.40	4.24	9.58	2.05	4.66
-7	12.50	3.49	3.58	12.29	3.12	3.94	12.04	2.83	4.25	11.28	2.56	4.40	10.79	2.33	4.63
-5	12.72	3.71	3.43	12.42	3.45	3.60	12.38	3.07	4.03	11.87	2.80	4.24	11.60	2.47	4.69
-2	13.52	3.97	3.41	13.26	3.69	3.59	13.09	3.17	4.13	12.81	2.97	4.31	12.44	2.57	4.85
0	13.83	4.55	3.04	13.50	3.99	3.39	13.08	3.48	3.76	13.28	3.04	4.37	12.35	2.81	4.39
2	14.20	4.98	2.85	13.95	4.26	3.28	13.60	3.66	3.71	13.77	3.28	4.20	13.07	3.11	4.21
5	14.69	5.49	2.67	14.41	4.55	3.17	14.30	4.15	3.45	14.72	3.73	3.95	13.94	3.46	4.03
7	15.31	6.00	2.55	15.07	5.01	3.01	14.97	4.69	3.19	15.16	4.14	3.66	14.33	3.83	3.74
10	15.95	6.92	2.30	15.15	5.49	2.76	15.01	5.06	2.97	15.53	4.37	3.55	14.92	3.99	3.74
12	15.80	7.36	2.15	15.69	6.08	2.58	15.52	5.25	2.95	15.94	4.55	3.50	15.85	4.12	3.85
14	15.82	7.52	2.10	15.69	6.33	2.48	15.61	5.46	2.86	15.61	4.61	3.39	15.53	4.20	3.69
15	16.03	7.67	2.09	15.99	6.65	2.40	15.85	5.62	2.82	15.83	4.72	3.36	15.72	4.31	3.65
19	15.06	8.54	1.76	14.81	7.41	2.00	14.55	6.26	2.32	14.42	5.25	2.75	14.17	4.58	3.10
20	15.02	8.76	1.71	14.75	7.60	1.94	14.57	6.47	2.25	14.79	5.39	2.75	14.71	4.69	3.14
25	15.38	9.31	1.65	15.22	8.23	1.85	15.16	7.35	2.06	14.38	6.26	2.29	14.25	5.39	2.65
30	14.73	10.32	1.43	14.45	8.75	1.65	14.32	7.93	1.81	14.33	6.68	2.15	14.06	5.64	2.49
35	14.55	11.17	1.30	14.27	9.29	1.54	14.09	8.66	1.63	13.88	7.25	1.91	13.51	5.83	2.32
40	15.18	11.75	1.29	15.00	10.42	1.44	14.73	9.40	1.57	14.61	7.36	1.98	14.15	6.29	2.25
43	15.67	12.41	1.26	15.45	11.06	1.40	15.27	9.63	1.59	15.25	7.82	1.95	14.61	6.81	2.15
DB(°C)	Tw_out(°C)														
	50			55			58			60			65		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-20	6.06	1.51	4.01	5.98	1.35	4.43	5.27	1.33	3.95	/	/	/	/	/	/
-15	6.38	1.69	3.78	6.19	1.47	4.21	6.16	1.34	4.60	5.94	1.25	4.75	/	/	/
-10	8.05	1.94	4.15	8.09	1.79	4.51	7.56	1.50	5.04	6.51	1.30	4.99	/	/	/
-7	9.81	2.24	4.38	10.09	2.02	5.00	9.14	1.76	5.19	7.40	1.59	4.65	/	/	/
-5	10.98	2.27	4.84	11.43	2.13	5.37	10.18	2.00	5.09	7.97	1.68	4.75	/	/	/
-2	11.36	2.48	4.58	11.48	2.19	5.24	10.34	2.14	4.82	8.27	1.71	4.84	/	/	/
0	11.78	2.60	4.53	11.24	2.36	4.76	10.31	2.23	4.63	8.55	1.87	4.56	/	/	/
2	12.47	2.80	4.45	11.94	2.67	4.47	11.26	2.50	4.50	9.84	2.41	4.08	/	/	/
5	13.40	3.11	4.31	12.66	2.77	4.56	12.32	2.71	4.54	11.37	2.44	4.67	10.36	2.22	4.66
7	13.72	3.39	4.05	13.06	2.97	4.40	12.81	2.89	4.43	11.96	2.59	4.63	10.77	2.50	4.30
10	14.37	3.47	4.15	14.22	3.11	4.57	13.50	3.09	4.37	12.58	2.74	4.59	12.01	2.65	4.53
12	15.06	3.65	4.12	13.90	3.27	4.25	13.63	3.18	4.28	12.67	3.05	4.15	11.50	2.58	4.46
14	14.85	3.83	3.87	13.92	3.33	4.19	14.14	3.17	4.46	13.15	3.18	4.13	12.44	2.62	4.76
15	15.13	3.90	3.88	14.09	3.42	4.12	14.27	3.32	4.30	13.22	3.25	4.08	12.60	2.66	4.73
19	13.58	3.97	3.42	13.04	3.64	3.58	13.12	3.32	3.95	12.01	3.15	3.81	12.07	2.66	4.53
20	14.17	4.06	3.49	13.11	3.77	3.48	13.33	3.46	3.85	12.13	3.16	3.83	/	/	/
25	13.53	4.63	2.92	13.66	3.99	3.42	13.50	3.61	3.74	12.41	3.14	3.96	/	/	/
30	13.70	4.95	2.77	13.18	4.52	2.92	13.13	3.55	3.70	12.16	3.23	3.76	/	/	/
35	13.24	5.24	2.53	12.73	4.84	2.63	/	/	/	/	/	/	/	/	/
40	13.70	5.40	2.54	/	/	/	/	/	/	/	/	/	/	/	/
43	13.97	5.75	2.43	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.3-3: Heating capacity for 12kW models - Nominal (Imperial System)

Nominal															
DB/WB(°F)	Tw_out(°F)														
	77			86			95			104			113		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	18273	2.30	2.32	17473	2.29	2.23	14451	1.79	2.37	13231	1.51	2.57	12498	1.30	2.82
-4	22955	2.75	2.45	22523	2.70	2.44	21338	2.30	2.72	19186	1.97	2.85	18107	1.77	3.01
5	25356	3.09	2.41	25083	2.88	2.55	24844	2.62	2.78	22631	2.32	2.86	20592	1.93	3.13
14	30911	3.37	2.69	28192	2.92	2.83	27766	2.66	3.06	27296	2.32	3.45	26624	2.11	3.70
19	37853	3.57	3.11	35095	3.15	3.26	34120	3.00	3.33	34609	2.50	4.06	34802	2.40	4.25
23	35009	4.03	2.55	34860	3.20	3.19	33946	3.03	3.28	34366	2.68	3.76	34724	2.45	4.15
28	33912	4.16	2.39	33476	3.57	2.75	32658	3.35	2.86	33527	2.94	3.35	34324	2.68	3.76
32	34912	4.63	2.21	34304	4.01	2.51	33390	3.74	2.62	34478	3.25	3.11	34898	2.96	3.46
36	36646	5.23	2.05	33985	4.47	2.23	31732	3.95	2.35	34350	3.58	2.81	36508	3.00	3.57
41	40144	6.05	1.95	36739	4.94	2.18	36052	4.50	2.35	36963	4.08	2.65	37810	3.51	3.16
45	44003	6.57	1.96	41309	5.42	2.23	41285	4.95	2.44	42154	4.50	2.75	41968	3.80	3.24
50	40342	6.88	1.72	38319	5.99	1.87	37138	5.51	1.97	38422	4.81	2.34	37231	3.99	2.74
54	40849	7.73	1.55	39032	6.67	1.71	37474	5.75	1.91	39150	5.04	2.28	37862	4.26	2.61
57	40833	8.10	1.48	39131	6.96	1.65	37395	5.83	1.88	39255	5.11	2.25	37928	4.36	2.55
59	41062	8.56	1.41	39465	7.32	1.58	37542	5.97	1.84	39597	5.24	2.21	38221	4.52	2.48
66	39515	9.60	1.21	38321	8.22	1.37	36917	6.93	1.56	38998	5.88	1.94	38183	5.03	2.22
68	39129	9.86	1.16	38035	8.45	1.32	36761	7.18	1.50	38849	6.04	1.89	38173	5.16	2.17
77	38954	10.47	1.09	38172	9.15	1.22	36897	8.15	1.33	38785	7.79	1.46	38281	5.93	1.89
86	39949	11.31	1.04	38322	9.66	1.16	37693	8.55	1.29	39103	8.15	1.41	38759	5.88	1.93
95	42171	12.09	1.02	40858	10.21	1.17	39405	8.78	1.32	40927	7.49	1.60	39080	6.17	1.86
104	44695	12.42	1.06	43932	10.86	1.19	42527	9.37	1.33	44370	7.99	1.63	42178	6.71	1.84
109	46838	13.47	1.02	45768	11.81	1.14	44455	10.01	1.30	46091	8.54	1.58	44778	7.31	1.80
DB/WB(°F)	Tw_out(°F)														
	122			131			136.4			140			149		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-4	16118	1.56	3.03	15792	1.37	3.38	15597	1.31	3.50	/	/	/	/	/	/
5	18802	1.75	3.14	18089	1.48	3.58	17393	1.33	3.82	16930	1.24	4.01	/	/	/
14	25722	2.00	3.77	24713	1.85	3.91	21549	1.54	4.11	19440	1.33	4.30	/	/	/
19	32414	2.12	4.48	34120	2.05	4.88	28445	1.80	4.63	24661	1.64	4.42	/	/	/
23	34625	2.32	4.37	33980	2.17	4.58	28420	1.82	4.57	24713	1.63	4.44	/	/	/
28	34177	2.38	4.21	33605	2.29	4.30	28295	1.89	4.39	24755	1.67	4.34	/	/	/
32	34560	2.46	4.12	33908	2.39	4.16	28561	1.98	4.24	24996	1.73	4.23	/	/	/
36	34570	2.65	3.82	38897	2.55	4.47	32293	2.22	4.26	27890	2.01	4.08	/	/	/
41	40091	2.93	4.01	39586	2.85	4.07	34688	2.55	3.98	31423	2.38	3.86	27960	2.02	4.05
45	41522	3.25	3.75	40944	3.10	3.87	38513	2.84	3.98	36892	2.66	4.06	32881	2.35	4.10
50	34462	3.44	2.93	33655	3.25	3.03	33771	2.89	3.42	33849	2.74	3.62	32342	2.49	3.80
54	34554	3.62	2.79	32504	3.44	2.77	33117	2.98	3.25	33526	2.86	3.44	32622	2.66	3.59
57	34372	3.69	2.73	31717	3.50	2.66	32574	3.00	3.18	33144	2.89	3.36	32546	2.72	3.50
59	34398	3.79	2.66	31121	3.61	2.53	32226	3.06	3.09	32962	2.97	3.26	32667	2.82	3.39
66	34567	4.21	2.40	30788	3.68	2.45	29975	3.23	2.72	29432	3.04	2.84	33149	3.20	3.03
68	34609	4.32	2.35	30705	3.74	2.40	29412	3.28	2.63	28550	3.06	2.74	/	/	/
77	35446	4.93	2.11	30844	4.09	2.21	28410	3.52	2.36	26787	3.14	2.50	/	/	/
86	35926	5.24	2.01	32823	4.56	2.11	29855	3.70	2.37	27877	3.17	2.58	/	/	/
95	37372	5.58	1.96	34137	4.93	2.03	/	/	/	/	/	/	/	/	/
104	39114	5.80	1.98	/	/	/	/	/	/	/	/	/	/	/	/
109	40601	6.22	1.91	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.3-4: Heating capacity for 12kW models - Nominal (Metric System)

Nominal															
DB(°C)	Tw_out(°C)														
	25			30			35			40			45		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	5.36	2.30	2.32	5.12	2.29	2.23	4.24	1.79	2.37	3.88	1.51	2.57	3.66	1.30	2.82
-20	6.73	2.75	2.45	6.60	2.70	2.44	6.25	2.30	2.72	5.62	1.97	2.85	5.31	1.77	3.01
-15	7.43	3.09	2.41	7.35	2.88	2.55	7.28	2.62	2.78	6.63	2.32	2.86	6.04	1.93	3.13
-10	9.06	3.37	2.69	8.26	2.92	2.83	8.14	2.66	3.06	8.00	2.32	3.45	7.80	2.11	3.70
-7	11.09	3.57	3.11	10.29	3.15	3.26	10.00	3.00	3.33	10.14	2.50	4.06	10.20	2.40	4.25
-5	10.26	4.03	2.55	10.22	3.20	3.19	9.95	3.03	3.28	10.07	2.68	3.76	10.18	2.45	4.15
-2	9.94	4.16	2.39	9.81	3.57	2.75	9.57	3.35	2.86	9.83	2.94	3.35	10.06	2.68	3.76
0	10.23	4.63	2.21	10.05	4.01	2.51	9.79	3.74	2.62	10.11	3.25	3.11	10.23	2.96	3.46
2	10.74	5.23	2.05	9.96	4.47	2.23	9.30	3.95	2.35	10.07	3.58	2.81	10.70	3.00	3.57
5	11.77	6.05	1.95	10.77	4.94	2.18	10.57	4.50	2.35	10.83	4.08	2.65	11.08	3.51	3.16
7	12.90	6.57	1.96	12.11	5.42	2.23	12.10	4.95	2.44	12.35	4.50	2.75	12.30	3.80	3.24
10	11.82	6.88	1.72	11.23	5.99	1.87	10.88	5.51	1.97	11.26	4.81	2.34	10.91	3.99	2.74
12	11.97	7.73	1.55	11.44	6.67	1.71	10.98	5.75	1.91	11.47	5.04	2.28	11.10	4.26	2.61
14	11.97	8.10	1.48	11.47	6.96	1.65	10.96	5.83	1.88	11.51	5.11	2.25	11.12	4.36	2.55
15	12.03	8.56	1.41	11.57	7.32	1.58	11.00	5.97	1.84	11.61	5.24	2.21	11.20	4.52	2.48
19	11.58	9.60	1.21	11.23	8.22	1.37	10.82	6.93	1.56	11.43	5.88	1.94	11.19	5.03	2.22
20	11.47	9.86	1.16	11.15	8.45	1.32	10.77	7.18	1.50	11.39	6.04	1.89	11.19	5.16	2.17
25	11.42	10.47	1.09	11.19	9.15	1.22	10.81	8.15	1.33	11.37	7.79	1.46	11.22	5.93	1.89
30	11.71	11.31	1.04	11.23	9.66	1.16	11.05	8.55	1.29	11.46	8.15	1.41	11.36	5.88	1.93
35	12.36	12.09	1.02	11.97	10.21	1.17	11.55	8.78	1.32	11.99	7.49	1.60	11.45	6.17	1.86
40	13.10	12.42	1.06	12.88	10.86	1.19	12.46	9.37	1.33	13.00	7.99	1.63	12.36	6.71	1.84
43	13.73	13.47	1.02	13.41	11.81	1.14	13.03	10.01	1.30	13.51	8.54	1.58	13.12	7.31	1.80
DB(°C)	Tw_out(°C)														
	50			55			58			60			65		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-20	4.72	1.56	3.03	4.63	1.37	3.38	4.57	1.31	3.50	/	/	/	/	/	/
-15	5.51	1.75	3.14	5.30	1.48	3.58	5.10	1.33	3.82	4.96	1.24	4.01	/	/	/
-10	7.54	2.00	3.77	7.24	1.85	3.91	6.32	1.54	4.11	5.70	1.33	4.30	/	/	/
-7	9.50	2.12	4.48	10.00	2.05	4.88	8.34	1.80	4.63	7.23	1.64	4.42	/	/	/
-5	10.15	2.32	4.37	9.96	2.17	4.58	8.33	1.82	4.57	7.24	1.63	4.44	/	/	/
-2	10.02	2.38	4.21	9.85	2.29	4.30	8.29	1.89	4.39	7.26	1.67	4.34	/	/	/
0	10.13	2.46	4.12	9.94	2.39	4.16	8.37	1.98	4.24	7.33	1.73	4.23	/	/	/
2	10.13	2.65	3.82	11.40	2.55	4.47	9.46	2.22	4.26	8.17	2.01	4.08	/	/	/
5	11.75	2.93	4.01	11.60	2.85	4.07	10.17	2.55	3.98	9.21	2.38	3.86	8.19	2.02	4.05
7	12.17	3.25	3.75	12.00	3.10	3.87	11.29	2.84	3.98	10.81	2.66	4.06	9.64	2.35	4.10
10	10.10	3.44	2.93	9.86	3.25	3.03	9.90	2.89	3.42	9.92	2.74	3.62	9.48	2.49	3.80
12	10.13	3.62	2.79	9.53	3.44	2.77	9.71	2.98	3.25	9.83	2.86	3.44	9.56	2.66	3.59
14	10.07	3.69	2.73	9.30	3.50	2.66	9.55	3.00	3.18	9.71	2.89	3.36	9.54	2.72	3.50
15	10.08	3.79	2.66	9.12	3.61	2.53	9.44	3.06	3.09	9.66	2.97	3.26	9.57	2.82	3.39
19	10.13	4.21	2.40	9.02	3.68	2.45	8.79	3.23	2.72	8.63	3.04	2.84	9.72	3.20	3.03
20	10.14	4.32	2.35	9.00	3.74	2.40	8.62	3.28	2.63	8.37	3.06	2.74	/	/	/
25	10.39	4.93	2.11	9.04	4.09	2.21	8.33	3.52	2.36	7.85	3.14	2.50	/	/	/
30	10.53	5.24	2.01	9.62	4.56	2.11	8.75	3.70	2.37	8.17	3.17	2.58	/	/	/
35	10.95	5.58	1.96	10.00	4.93	2.03	/	/	/	/	/	/	/	/	/
40	11.46	5.80	1.98	/	/	/	/	/	/	/	/	/	/	/	/
43	11.90	6.22	1.91	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.3-5: Heating capacity for 12kW models - Minimum (Imperial System)

Minimum															
DB(°F)	Tw_out(°F)														
	77			86			95			104			113		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	13170	2.24	1.72	12351	1.85	1.96	11464	1.62	2.07	10441	1.42	2.15	9349	1.23	2.23
-4	18049	2.70	1.96	17265	2.22	2.28	16412	1.96	2.45	15422	1.74	2.60	14365	1.54	2.73
5	22826	3.03	2.21	22076	2.61	2.48	21189	2.31	2.69	20233	2.05	2.89	19141	1.82	3.08
14	14501	3.52	1.21	13853	3.06	1.33	13136	2.65	1.45	12283	2.26	1.59	18766	1.96	2.81
19	16002	3.92	1.20	16036	3.51	1.34	15354	3.05	1.48	14535	2.62	1.63	15013	2.28	1.93
23	16992	4.25	1.17	16446	3.68	1.31	15798	3.21	1.44	15013	2.75	1.60	15695	2.36	1.95
28	18732	4.73	1.16	18152	4.08	1.30	17504	3.54	1.45	16753	3.05	1.61	15354	2.59	1.74
32	19892	5.08	1.15	19312	4.36	1.30	18664	3.79	1.44	17879	3.26	1.61	17060	2.77	1.81
36	20984	5.45	1.13	20370	4.65	1.28	19721	4.02	1.44	18937	3.46	1.60	18084	2.94	1.80
41	22519	6.37	1.04	21564	5.49	1.15	20643	4.74	1.28	19619	4.05	1.42	18595	3.45	1.58
45	23202	6.98	0.97	22178	5.96	1.09	21154	5.12	1.21	20131	4.37	1.35	19107	3.71	1.51
50	22212	7.01	0.93	21120	5.99	1.03	20063	5.09	1.16	19039	4.31	1.29	19448	3.63	1.57
54	22690	7.51	0.89	21803	6.18	1.03	20916	5.21	1.18	20063	4.42	1.33	19278	3.75	1.51
57	22724	7.71	0.86	21837	6.62	0.97	20950	5.54	1.11	20097	4.67	1.26	19312	3.93	1.44
59	22895	7.99	0.84	21973	6.80	0.95	21120	5.65	1.10	20267	4.74	1.25	19448	3.98	1.43
66	23065	9.17	0.74	22144	8.21	0.79	21257	6.68	0.93	20404	5.50	1.09	19585	4.55	1.26
68	23099	9.46	0.72	22178	8.48	0.77	21291	6.81	0.92	20438	5.56	1.08	19619	4.59	1.25
77	23611	10.44	0.66	22656	8.46	0.78	21734	7.78	0.82	20881	6.14	1.00	20028	4.97	1.18
86	24873	11.79	0.62	24123	10.83	0.65	23406	10.09	0.68	22724	7.53	0.88	22042	5.93	1.09
95	26443	12.73	0.61	25658	9.43	0.80	24873	6.98	1.04	24123	5.17	1.37	23406	3.83	1.79
104	28047	13.58	0.61	27194	10.05	0.79	26409	7.44	1.04	25590	5.51	1.36	24839	4.08	1.78
109	29480	14.11	0.61	28593	10.45	0.80	27740	7.74	1.05	26921	5.73	1.38	26102	4.24	1.80
DB(°F)	Tw_out(°F)														
	122			131			136.4			140			149		
	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)	Capacity (Btu/h)	COP	Power input (kW)
-13	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-4	14740	1.40	3.09	13853	1.27	3.20	12966	1.17	3.25	/	/	/	/	/	/
5	19790	1.65	3.52	18868	1.50	3.69	18049	1.39	3.81	17367	1.31	3.89	/	/	/
14	18425	1.74	3.10	18834	1.61	3.43	17913	1.46	3.60	17060	1.40	3.57	/	/	/
19	14672	1.96	2.19	13989	1.60	2.56	13307	1.55	2.52	11430	1.10	3.05	/	/	/
23	15354	2.09	2.15	14672	1.70	2.53	13989	1.60	2.56	11942	1.15	3.04	/	/	/
28	14672	2.24	1.92	13648	1.95	2.05	11396	1.74	1.92	10577	1.50	2.07	/	/	/
32	16207	2.30	2.07	14672	2.00	2.15	12829	1.79	2.10	11942	1.70	2.06	/	/	/
36	17060	2.53	1.98	16036	2.30	2.04	13989	2.00	2.05	12624	1.80	2.06	/	/	/
41	17913	2.91	1.80	17060	2.40	2.08	14808	2.10	2.07	13307	1.90	2.05	11942	1.16	3.02
45	18425	3.00	1.80	18084	2.60	2.04	16036	2.30	2.04	14672	2.10	2.05	12283	1.20	3.00
50	19517	3.09	1.85	19448	2.71	2.10	17196	2.46	2.05	15695	2.30	2.00	12624	1.25	2.96
54	19380	3.10	1.83	20472	2.81	2.14	18425	2.56	2.11	17060	2.40	2.08	13307	1.40	2.79
57	19790	3.15	1.84	21189	2.91	2.13	19326	2.66	2.13	18084	2.50	2.12	14330	1.50	2.80
59	20233	3.37	1.76	21359	2.94	2.13	19803	2.83	2.05	18766	2.75	2.00	15013	1.75	2.51
66	20370	3.77	1.58	21496	3.28	1.92	20472	3.11	1.93	19790	3.00	1.93	15354	2.00	2.25
68	20404	3.81	1.57	21666	3.35	1.90	20765	3.20	1.90	20165	3.10	1.91	/	/	/
77	20847	4.04	1.51	22178	3.80	1.71	21359	3.62	1.73	20813	3.50	1.74	/	/	/
86	22076	4.74	1.36	23202	4.20	1.62	22587	4.08	1.62	22178	4.00	1.63	/	/	/
95	23884	5.20	1.35	24225	4.65	1.53	23202	4.12	1.65	/	/	/	/	/	/
104	25419	5.70	1.31	/	/	/	/	/	/	/	/	/	/	/	/
109	26272	6.00	1.28	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.3-6: Heating capacity for 12kW models - Minimum (Metric System)

Minimum															
DB(°C)	Tw_out(°C)														
	25			30			35			40			45		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	3.86	2.24	1.72	3.62	1.85	1.96	3.36	1.62	2.07	3.06	1.42	2.15	2.74	1.23	2.23
-20	5.29	2.70	1.96	5.06	2.22	2.28	4.81	1.96	2.45	4.52	1.74	2.60	4.21	1.54	2.73
-15	6.69	3.03	2.21	6.47	2.61	2.48	6.21	2.31	2.69	5.93	2.05	2.89	5.61	1.82	3.08
-10	4.25	3.52	1.21	4.06	3.06	1.33	3.85	2.65	1.45	3.60	2.26	1.59	5.50	1.96	2.81
-7	4.69	3.92	1.20	4.70	3.51	1.34	4.50	3.05	1.48	4.26	2.62	1.63	4.40	2.28	1.93
-5	4.98	4.25	1.17	4.82	3.68	1.31	4.63	3.21	1.44	4.40	2.75	1.60	4.60	2.36	1.95
-2	5.49	4.73	1.16	5.32	4.08	1.30	5.13	3.54	1.45	4.91	3.05	1.61	4.50	2.59	1.74
0	5.83	5.08	1.15	5.66	4.36	1.30	5.47	3.79	1.44	5.24	3.26	1.61	5.00	2.77	1.81
2	6.15	5.45	1.13	5.97	4.65	1.28	5.78	4.02	1.44	5.55	3.46	1.60	5.30	2.94	1.80
5	6.60	6.37	1.04	6.32	5.49	1.15	6.05	4.74	1.28	5.75	4.05	1.42	5.45	3.45	1.58
7	6.80	6.98	0.97	6.50	5.96	1.09	6.20	5.12	1.21	5.90	4.37	1.35	5.60	3.71	1.51
10	6.51	7.01	0.93	6.19	5.99	1.03	5.88	5.09	1.16	5.58	4.31	1.29	5.70	3.63	1.57
12	6.65	7.51	0.89	6.39	6.18	1.03	6.13	5.21	1.18	5.88	4.42	1.33	5.65	3.75	1.51
14	6.66	7.71	0.86	6.40	6.62	0.97	6.14	5.54	1.11	5.89	4.67	1.26	5.66	3.93	1.44
15	6.71	7.99	0.84	6.44	6.80	0.95	6.19	5.65	1.10	5.94	4.74	1.25	5.70	3.98	1.43
19	6.76	9.17	0.74	6.49	8.21	0.79	6.23	6.68	0.93	5.98	5.50	1.09	5.74	4.55	1.26
20	6.77	9.46	0.72	6.50	8.48	0.77	6.24	6.81	0.92	5.99	5.56	1.08	5.75	4.59	1.25
25	6.92	10.44	0.66	6.64	8.46	0.78	6.37	7.78	0.82	6.12	6.14	1.00	5.87	4.97	1.18
30	7.29	11.79	0.62	7.07	10.83	0.65	6.86	10.09	0.68	6.66	7.53	0.88	6.46	5.93	1.09
35	7.75	12.73	0.61	7.52	9.43	0.80	7.29	6.98	1.04	7.07	5.17	1.37	6.86	3.83	1.79
40	8.22	13.58	0.61	7.97	10.05	0.79	7.74	7.44	1.04	7.50	5.51	1.36	7.28	4.08	1.78
43	8.64	14.11	0.61	8.38	10.45	0.80	8.13	7.74	1.05	7.89	5.73	1.38	7.65	4.24	1.80
DB/WB(°C)	Tw_out(°C)														
	50			55			58			60			65		
	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)	Capacity (kW)	COP	Power input (kW)
-25	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
-20	4.32	1.40	3.09	4.06	1.27	3.20	3.80	1.17	3.25	/	/	/	/	/	/
-15	5.80	1.65	3.52	5.53	1.50	3.69	5.29	1.39	3.81	5.09	1.31	3.89	/	/	/
-10	5.40	1.74	3.10	5.52	1.61	3.43	5.25	1.46	3.60	5.00	1.40	3.57	/	/	/
-7	4.30	1.96	2.19	4.10	1.60	2.56	3.90	1.55	2.52	3.35	1.10	3.05	/	/	/
-5	4.50	2.09	2.15	4.30	1.70	2.53	4.10	1.60	2.56	3.50	1.15	3.04	/	/	/
-2	4.30	2.24	1.92	4.00	1.95	2.05	3.34	1.74	1.92	3.10	1.50	2.07	/	/	/
0	4.75	2.30	2.07	4.30	2.00	2.15	3.76	1.79	2.10	3.50	1.70	2.06	/	/	/
2	5.00	2.53	1.98	4.70	2.30	2.04	4.10	2.00	2.05	3.70	1.80	2.06	/	/	/
5	5.25	2.91	1.80	5.00	2.40	2.08	4.34	2.10	2.07	3.90	1.90	2.05	3.50	1.16	3.02
7	5.40	3.00	1.80	5.30	2.60	2.04	4.70	2.30	2.04	4.30	2.10	2.05	3.60	1.20	3.00
10	5.72	3.09	1.85	5.70	2.71	2.10	5.04	2.46	2.05	4.60	2.30	2.00	3.70	1.25	2.96
12	5.68	3.10	1.83	6.00	2.81	2.14	5.40	2.56	2.11	5.00	2.40	2.08	3.90	1.40	2.79
14	5.80	3.15	1.84	6.21	2.91	2.13	5.66	2.66	2.13	5.30	2.50	2.12	4.20	1.50	2.80
15	5.93	3.37	1.76	6.26	2.94	2.13	5.80	2.83	2.05	5.50	2.75	2.00	4.40	1.75	2.51
19	5.97	3.77	1.58	6.30	3.28	1.92	6.00	3.11	1.93	5.80	3.00	1.93	4.50	2.00	2.25
20	5.98	3.81	1.57	6.35	3.35	1.90	6.09	3.20	1.90	5.91	3.10	1.91	/	/	/
25	6.11	4.04	1.51	6.50	3.80	1.71	6.26	3.62	1.73	6.10	3.50	1.74	/	/	/
30	6.47	4.74	1.36	6.80	4.20	1.62	6.62	4.08	1.62	6.50	4.00	1.63	/	/	/
35	7.00	5.20	1.35	7.10	4.65	1.53	6.80	4.12	1.65	/	/	/	/	/	/
40	7.45	5.70	1.31	/	/	/	/	/	/	/	/	/	/	/	/
43	7.70	6.00	1.28	/	/	/	/	/	/	/	/	/	/	/	/

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

4.4 Cooling Capacity Tables - 16kW

Table 2-4.4-1: Cooling capacity for 16kW models - Maximum (Imperial System)

Maximum												
DB(°F)	Tw_out(°F)											
	41			45			50			52		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	/	/	/	/	/	/	/	/	/	/	/	/
32	/	/	/	/	/	/	/	/	/	/	/	/
41	/	/	/	/	/	/	/	/	/	/	/	/
50	/	/	/	/	/	/	/	/	/	34200	13.88	2.46
59	/	/	/	/	/	/	38782	15.94	2.43	40251	16.53	2.44
66	28849	12.91	2.23	38931	13.22	2.94	46071	13.99	3.29	47307	14.36	3.29
68	30676	12.61	2.43	40542	12.98	3.12	47893	13.50	3.55	49071	13.82	3.55
77	39807	11.08	3.59	48596	11.75	4.13	54372	12.58	4.32	55403	12.72	4.36
86	39383	8.82	4.46	48659	9.54	5.10	52930	10.36	5.11	54088	10.62	5.09
95	38959	7.19	5.42	48375	7.84	6.17	51487	8.59	6.00	52433	8.88	5.91
104	30436	5.95	5.11	34826	6.73	5.18	37056	7.58	4.89	37650	7.87	4.78
109	20388	4.53	4.50	23423	5.27	4.44	25007	6.07	4.12	26156	6.43	4.07
DB(°F)	Tw_out(°F)											
	59			64			68			77		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	34214	25.83	1.32	36006	25.77	1.40	37227	25.40	1.47	40802	28.77	1.42
32	33435	20.02	1.67	36535	22.50	1.62	39056	24.71	1.58	42585	26.76	1.59
41	32655	18.55	1.76	37064	22.08	1.68	40885	25.35	1.61	44367	26.38	1.68
50	38719	17.78	2.18	42108	20.70	2.03	44829	23.38	1.92	48394	24.98	1.94
59	46129	18.88	2.44	50897	21.12	2.41	54857	23.10	2.37	57854	25.15	2.30
66	52251	15.85	3.30	55098	17.20	3.20	57072	18.34	3.11	59390	20.76	2.86
68	53781	15.10	3.56	56149	16.22	3.46	57625	17.15	3.36	59774	19.66	3.04
77	59526	13.30	4.47	60458	13.79	4.38	60908	14.12	4.31	61159	16.52	3.70
86	58721	11.64	5.05	58835	12.17	4.84	58481	12.55	4.66	57726	14.37	4.02
95	56216	10.03	5.60	56291	10.67	5.28	55473	11.17	4.96	55173	12.35	4.47
104	40028	9.05	4.42	43229	9.46	4.57	45744	9.75	4.69	49648	11.38	4.36
109	30752	7.87	3.91	33536	8.32	4.03	35788	8.66	4.13	40795	10.60	3.85

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.4-2: Cooling capacity for 16kW models - Maximum (Metric System)

Maximum												
DB(°C)	Tw_out(°C)											
	5			7			10			11		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	/	/	/	/	/	/	/	/	/	/	/	/
0	/	/	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	10.02	4.07	2.46
15	/	/	/	/	/	/	11.37	4.67	2.43	11.80	4.84	2.44
19	8.46	3.78	2.23	11.41	3.87	2.94	13.50	4.10	3.29	13.86	4.21	3.29
20	8.99	3.70	2.43	11.88	3.80	3.12	14.04	3.96	3.55	14.38	4.05	3.55
25	11.67	3.25	3.59	14.24	3.45	4.13	15.94	3.69	4.32	16.24	3.73	4.36
30	11.54	2.59	4.46	14.26	2.79	5.10	15.51	3.04	5.11	15.85	3.11	5.09
35	11.42	2.11	5.42	14.18	2.30	6.17	15.09	2.52	6.00	15.37	2.60	5.91
40	8.92	1.75	5.11	10.21	1.97	5.18	10.86	2.22	4.89	11.03	2.31	4.78
43	5.98	1.33	4.50	6.87	1.54	4.44	7.33	1.78	4.12	7.67	1.89	4.07
DB(°C)	Tw_out(°C)											
	15			18			20			25		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	10.03	7.57	1.32	10.55	7.55	1.40	10.91	7.44	1.47	11.96	8.43	1.42
0	9.80	5.87	1.67	10.71	6.59	1.62	11.45	7.24	1.58	12.48	7.84	1.59
5	9.57	5.44	1.76	10.86	6.47	1.68	11.98	7.43	1.61	13.00	7.73	1.68
10	11.35	5.21	2.18	12.34	6.07	2.03	13.14	6.85	1.92	14.18	7.32	1.94
15	13.52	5.53	2.44	14.92	6.19	2.41	16.08	6.77	2.37	16.96	7.37	2.30
19	15.31	4.65	3.30	16.15	5.04	3.20	16.73	5.38	3.11	17.41	6.08	2.86
20	15.76	4.42	3.56	16.46	4.75	3.46	16.89	5.03	3.36	17.52	5.76	3.04
25	17.45	3.90	4.47	17.72	4.04	4.38	17.85	4.14	4.31	17.92	4.84	3.70
30	17.21	3.41	5.05	17.24	3.57	4.84	17.14	3.68	4.66	16.92	4.21	4.02
35	16.48	2.94	5.60	16.50	3.13	5.28	16.26	3.27	4.96	16.17	3.62	4.47
40	11.73	2.65	4.42	12.67	2.77	4.57	13.41	2.86	4.69	14.55	3.34	4.36
43	9.01	2.31	3.91	9.83	2.44	4.03	10.49	2.54	4.13	11.96	3.11	3.85

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.4-3: Cooling capacity for 16kW models - Nominal (Imperial System)

Nominal												
DB(°F)	Tw_out(°F)											
	41			45			50			52		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	/	/	/	/	/	/	/	/	/	/	/	/
32	/	/	/	/	/	/	/	/	/	/	/	/
41	/	/	/	/	/	/	/	/	/	/	/	/
50	/	/	/	/	/	/	/	/	/	27579	14.75	1.87
59	/	/	/	/	/	/	29086	17.12	1.70	31019	17.80	1.74
66	22392	13.56	1.65	30807	14.17	2.17	36798	15.18	2.42	38162	15.62	2.44
68	23915	13.26	1.80	32198	13.92	2.31	38726	14.70	2.63	39948	15.08	2.65
77	31527	11.72	2.69	39149	12.67	3.09	44639	13.72	3.25	45783	13.88	3.30
86	31676	9.40	3.37	38952	10.27	3.79	44106	11.22	3.93	45365	11.53	3.94
95	33683	7.55	4.46	47768	8.36	5.71	48413	9.25	5.23	48673	9.54	5.10
104	24845	6.39	3.89	28870	7.31	3.95	31323	8.29	3.78	32026	8.63	3.71
109	16738	4.72	3.55	18706	5.52	3.39	19655	6.38	3.08	20620	6.79	3.03
DB(°F)	Tw_out(°F)											
	59			64			68			77		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	27549	29.19	0.94	29066	29.44	0.99	30293	29.33	1.03	33148	32.80	1.01
32	26969	22.90	1.18	29549	25.93	1.14	31836	28.64	1.11	34655	31.15	1.11
41	26161	20.22	1.29	29629	24.39	1.21	32803	28.26	1.16	35999	29.02	1.24
50	31113	19.40	1.60	33763	22.89	1.48	36078	26.10	1.38	39386	27.52	1.43
59	38749	20.50	1.89	43177	23.34	1.85	47177	25.90	1.82	48597	28.35	1.71
66	43615	17.39	2.51	46594	18.98	2.45	49109	20.35	2.41	51350	23.39	2.20
68	44832	16.61	2.70	47448	17.89	2.65	49592	18.96	2.62	52039	22.15	2.35
77	50359	14.50	3.47	52024	15.22	3.42	53172	15.76	3.37	54003	18.92	2.85
86	50400	12.75	3.95	51342	13.35	3.85	51773	13.79	3.75	51682	16.19	3.19
95	49713	10.68	4.65	48450	12.32	3.93	51840	11.98	4.33	51683	13.14	3.93
104	34836	9.99	3.49	38131	10.53	3.62	41046	10.94	3.75	45045	13.12	3.43
109	24478	8.46	2.89	27694	9.08	3.05	30634	9.58	3.20	32269	11.88	2.72

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.4-4: Cooling capacity for 16kW models - Nominal (Metric System)

Nominal												
DB(°C)	Tw_out(°C)											
	5			7			10			11		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	/	/	/	/	/	/	/	/	/	/	/	/
0	/	/	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	8.08	4.32	1.87
15	/	/	/	/	/	/	8.52	5.02	1.70	9.09	5.22	1.74
19	6.56	3.98	1.65	9.03	4.15	2.17	10.79	4.45	2.42	11.18	4.58	2.44
20	7.01	3.88	1.80	9.44	4.08	2.31	11.35	4.31	2.63	11.71	4.42	2.65
25	9.24	3.43	2.69	11.47	3.71	3.09	13.08	4.02	3.25	13.42	4.07	3.30
30	9.28	2.75	3.37	11.42	3.01	3.79	12.93	3.29	3.93	13.30	3.38	3.94
35	9.87	2.21	4.46	14.00	2.45	5.71	14.19	2.71	5.23	14.27	2.79	5.10
40	7.28	1.87	3.89	8.46	2.14	3.95	9.18	2.43	3.78	9.39	2.53	3.71
43	4.91	1.38	3.55	5.48	1.62	3.39	5.76	1.87	3.08	6.04	1.99	3.03
DB(°C)	Tw_out(°C)											
	15			18			20			25		
	Capacity(kW)	EER	Power input(kW)	Capacity(kW)	EER	Power input(kW)	Capacity(kW)	EER	Power input(kW)	Capacity(kW)	EER	Power input(kW)
-5	8.07	8.56	0.94	8.52	8.63	0.99	8.88	8.60	1.03	9.72	9.61	1.01
0	7.90	6.71	1.18	8.66	7.60	1.14	9.33	8.39	1.11	10.16	9.13	1.11
5	7.67	5.93	1.29	8.68	7.15	1.21	9.61	8.28	1.16	10.55	8.50	1.24
10	9.12	5.69	1.60	9.90	6.71	1.48	10.57	7.65	1.38	11.54	8.07	1.43
15	11.36	6.01	1.89	12.65	6.84	1.85	13.83	7.59	1.82	14.24	8.31	1.71
19	12.78	5.10	2.51	13.66	5.56	2.45	14.39	5.96	2.41	15.05	6.85	2.20
20	13.14	4.87	2.70	13.91	5.24	2.65	14.53	5.56	2.62	15.25	6.49	2.35
25	14.76	4.25	3.47	15.25	4.46	3.42	15.58	4.62	3.37	15.83	5.55	2.85
30	14.77	3.74	3.95	15.05	3.91	3.85	15.17	4.04	3.75	15.15	4.75	3.19
35	14.57	3.13	4.65	14.20	3.61	3.93	15.19	3.51	4.33	15.15	3.85	3.93
40	10.21	2.93	3.49	11.18	3.09	3.62	12.03	3.21	3.75	13.20	3.84	3.43
43	7.17	2.48	2.89	8.12	2.66	3.05	8.98	2.81	3.20	9.46	3.48	2.72

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.4-5: Cooling capacity for 16kW models - Minimum (Imperial System)

Minimum												
DB(°F)	Tw_out(°F)											
	41			45			50			52		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	/	/	/	/	/	/	/	/	/	/	/	/
32	/	/	/	/	/	/	/	/	/	/	/	/
41	/	/	/	/	/	/	/	/	/	/	/	/
50	/	/	/	/	/	/	/	/	/	15265	16.28	0.94
59	/	/	/	/	/	/	17840	18.15	0.98	18423	18.90	0.97
66	11478	14.12	0.81	14232	14.73	0.97	17131	15.89	1.08	18098	16.40	1.10
68	12086	13.77	0.88	14694	14.46	1.02	16954	15.32	1.11	18016	15.78	1.14
77	15127	12.01	1.26	17008	13.12	1.30	18486	14.40	1.28	19551	14.57	1.34
86	15044	9.59	1.57	16772	10.61	1.58	18102	11.75	1.54	19203	12.07	1.59
95	13792	7.76	1.78	16905	8.72	1.94	19617	9.80	2.00	20326	10.21	1.99
104	11222	6.36	1.76	13098	7.40	1.77	14663	8.52	1.72	15146	8.89	1.70
109	5729	4.81	1.19	7656	5.66	1.35	9402	6.58	1.43	10081	7.02	1.44
DB(°F)	Tw_out(°F)											
	59			64			68			77		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	17825	30.43	0.59	18722	30.46	0.61	19544	30.25	0.65	21503	34.39	0.63
32	17496	23.93	0.73	19083	27.01	0.71	20594	29.86	0.69	22540	32.31	0.70
41	14074	21.72	0.65	15962	25.97	0.61	17785	30.01	0.59	19388	31.21	0.62
50	17249	21.03	0.82	18737	24.60	0.76	20150	27.97	0.72	21850	29.86	0.73
59	20758	21.88	0.95	22218	25.32	0.88	23588	28.56	0.83	27770	31.42	0.88
66	21964	18.44	1.19	24315	20.15	1.21	26569	21.70	1.22	29176	25.00	1.17
68	22265	17.59	1.27	24839	18.86	1.32	27314	19.98	1.37	29528	23.40	1.26
77	23810	15.25	1.56	25966	15.96	1.63	28018	16.54	1.69	29356	19.83	1.48
86	23606	13.35	1.77	25363	14.00	1.81	27018	14.55	1.86	27824	16.79	1.66
95	23161	11.84	1.96	24527	13.64	1.80	25795	14.06	1.83	27697	14.79	1.87
104	17080	10.34	1.65	19551	10.89	1.80	21943	11.35	1.93	25653	13.34	1.92
109	12793	8.81	1.45	14227	9.38	1.52	15604	9.87	1.58	20560	12.32	1.67

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.4-6: Cooling capacity for 16kW models - Minimum (Metric System)

Minimum												
DB(°C)	Tw_out(°C)											
	5			7			10			11		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	/	/	/	/	/	/	/	/	/	/	/	/
0	/	/	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	4.47	4.77	0.94
15	/	/	/	/	/	/	5.23	5.32	0.98	5.40	5.54	0.97
19	3.36	4.14	0.81	4.17	4.32	0.97	5.02	4.66	1.08	5.30	4.81	1.10
20	3.54	4.04	0.88	4.31	4.24	1.02	4.97	4.49	1.11	5.28	4.62	1.14
25	4.43	3.52	1.26	4.98	3.85	1.30	5.42	4.22	1.28	5.73	4.27	1.34
30	4.41	2.81	1.57	4.92	3.11	1.58	5.31	3.44	1.54	5.63	3.54	1.59
35	4.04	2.27	1.78	4.95	2.56	1.94	5.75	2.87	2.00	5.96	2.99	1.99
40	3.29	1.86	1.76	3.84	2.17	1.77	4.30	2.50	1.72	4.44	2.60	1.70
43	1.68	1.41	1.19	2.24	1.66	1.35	2.76	1.93	1.43	2.95	2.06	1.44
DB(°C)	Tw_out(°C)											
	15			18			20			25		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	5.22	8.92	0.59	5.49	8.93	0.61	5.73	8.86	0.65	6.30	10.08	0.63
0	5.13	7.01	0.73	5.59	7.92	0.71	6.04	8.75	0.69	6.61	9.47	0.70
5	4.12	6.37	0.65	4.68	7.61	0.61	5.21	8.80	0.59	5.68	9.15	0.62
10	5.06	6.16	0.82	5.49	7.21	0.76	5.91	8.20	0.72	6.40	8.75	0.73
15	6.08	6.41	0.95	6.51	7.42	0.88	6.91	8.37	0.83	8.14	9.21	0.88
19	6.44	5.41	1.19	7.13	5.91	1.21	7.79	6.36	1.22	8.55	7.33	1.17
20	6.53	5.15	1.27	7.28	5.53	1.32	8.01	5.86	1.37	8.65	6.86	1.26
25	6.98	4.47	1.56	7.61	4.68	1.63	8.21	4.85	1.69	8.60	5.81	1.48
30	6.92	3.91	1.77	7.43	4.10	1.81	7.92	4.26	1.86	8.15	4.92	1.66
35	6.79	3.47	1.96	7.19	4.00	1.80	7.56	4.12	1.83	8.12	4.33	1.87
40	5.01	3.03	1.65	5.73	3.19	1.80	6.43	3.33	1.93	7.52	3.91	1.92
43	3.75	2.58	1.45	4.17	2.75	1.52	4.57	2.89	1.58	6.03	3.61	1.67

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

4.5 Cooling Capacity Tables - 14kW

Table 2-4.5-1: Cooling capacity for 14kW models - Maximum (Imperial System)

Maximum												
DB(°F)	Tw_out(°F)											
	41			45			50			52		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	/	/	/	/	/	/	/	/	/	/	/	/
32	/	/	/	/	/	/	/	/	/	/	/	/
41	/	/	/	/	/	/	/	/	/	/	/	/
50	/	/	/	/	/	/	/	/	/	34200	13.88	2.46
59	/	/	/	/	/	/	37470	16.14	2.32	38890	16.28	2.39
66	26227	13.17	1.99	35391	13.48	2.63	42326	14.16	2.99	43761	14.51	3.02
68	27887	12.86	2.17	36856	13.24	2.78	43539	13.78	3.16	44979	14.07	3.20
77	36188	11.34	3.19	44178	12.04	3.67	49429	12.88	3.84	50882	13.03	3.91
86	35803	9.04	3.96	43643	9.77	4.47	48118	10.61	4.53	49369	10.87	4.54
95	35418	7.36	4.81	43793	8.03	5.45	46807	8.79	5.32	47856	9.17	5.22
104	27669	6.11	4.53	31660	6.90	4.59	33687	7.77	4.33	34227	8.07	4.24
109	17728	4.77	3.72	19901	5.55	3.59	20839	6.39	3.26	21671	6.77	3.20
DB(°F)	Tw_out(°F)											
	59			64			68			77		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	34214	25.83	1.32	36006	25.77	1.40	37227	25.40	1.47	40802	28.77	1.42
32	33435	20.02	1.67	36535	22.50	1.62	39056	24.71	1.58	42585	26.76	1.59
41	32655	18.55	1.76	37064	22.08	1.68	40885	25.35	1.61	44367	26.38	1.68
50	38719	17.78	2.18	42108	20.70	2.03	44829	23.38	1.92	48394	24.98	1.94
59	44569	19.19	2.32	49176	20.80	2.36	53002	22.83	2.32	55897	24.06	2.32
66	49503	15.92	3.11	52212	17.27	3.02	54091	18.41	2.94	56292	20.84	2.70
68	50737	15.25	3.33	52970	16.38	3.23	54363	17.32	3.14	56390	19.86	2.84
77	56691	13.62	4.16	57808	14.13	4.09	58007	14.46	4.01	58246	16.92	3.44
86	54371	11.92	4.56	55209	12.63	4.37	55170	13.20	4.18	54978	14.71	3.74
95	52052	10.67	4.88	52610	11.29	4.66	52333	11.79	4.44	52050	12.65	4.12
104	36389	9.28	3.92	39299	9.83	4.00	41585	10.26	4.05	45134	11.98	3.77
109	25001	8.29	3.02	27265	8.75	3.11	29096	9.12	3.19	36424	11.16	3.26

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.5-2: Cooling capacity for 14kW models - Maximum (Metric System)

Maximum												
DB(°C)	Tw_out(°C)											
	5			7			10			11		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	/	/	/	/	/	/	/	/	/	/	/	/
0	/	/	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	10.02	4.07	2.46
15	/	/	/	/	/	/	10.98	4.60	2.32	11.40	4.77	2.39
19	7.69	3.86	1.99	10.37	3.95	2.63	12.40	4.15	2.99	12.83	4.25	3.02
20	8.17	3.77	2.17	10.80	3.88	2.78	12.76	4.04	3.16	13.18	4.12	3.20
25	10.61	3.32	3.19	12.95	3.53	3.67	14.49	3.77	3.84	14.91	3.82	3.91
30	10.49	2.65	3.96	12.79	2.86	4.47	14.10	3.11	4.53	14.47	3.19	4.54
35	10.38	2.16	4.81	12.84	2.35	5.45	13.72	2.58	5.32	14.03	2.69	5.22
40	8.11	1.79	4.53	9.28	2.02	4.59	9.87	2.28	4.33	10.03	2.37	4.24
43	5.20	1.40	3.72	5.83	1.63	3.59	6.11	1.87	3.26	6.35	1.98	3.20
DB(°C)	Tw_out(°C)											
	15			18			20			25		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	10.03	7.57	1.32	10.55	7.55	1.40	10.91	7.44	1.47	11.96	8.43	1.42
0	9.80	5.87	1.67	10.71	6.59	1.62	11.45	7.24	1.58	12.48	7.84	1.59
5	9.57	5.44	1.76	10.86	6.47	1.68	11.98	7.43	1.61	13.00	7.73	1.68
10	11.35	5.21	2.18	12.34	6.07	2.03	13.14	6.85	1.92	14.18	7.32	1.94
15	13.06	5.45	2.32	14.41	6.10	2.36	15.53	6.67	2.32	16.38	7.26	2.32
19	14.51	4.67	3.11	15.30	5.06	3.02	15.85	5.40	2.94	16.50	6.11	2.70
20	14.87	4.47	3.33	15.52	4.80	3.23	15.93	5.08	3.14	16.53	5.82	2.84
25	16.62	3.99	4.16	16.94	4.14	4.09	17.00	4.24	4.01	17.07	4.96	3.44
30	15.94	3.49	4.56	16.18	3.70	4.37	16.17	3.87	4.18	16.11	4.31	3.74
35	15.26	3.13	4.88	15.42	3.31	4.66	15.34	3.45	4.44	15.26	3.71	4.12
40	10.67	2.72	3.92	11.52	2.88	4.00	12.19	3.01	4.05	13.23	3.51	3.77
43	7.33	2.43	3.02	7.99	2.57	3.11	8.53	2.67	3.19	10.68	3.27	3.26

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.5-3: Cooling capacity for 14kW models - Nominal (Imperial System)

Nominal												
DB(°F)	Tw_out(°F)											
	41			45			50			52		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	/	/	/	/	/	/	/	/	/	/	/	/
32	/	/	/	/	/	/	/	/	/	/	/	/
41	/	/	/	/	/	/	/	/	/	/	/	/
50	/	/	/	/	/	/	/	/	/	27579	14.75	1.87
59	/	/	/	/	/	/	28103	16.87	1.67	29970	17.53	1.71
66	20357	13.83	1.47	28007	14.45	1.94	33785	15.37	2.20	35293	15.79	2.24
68	21741	13.53	1.61	29271	14.20	2.06	35206	15.00	2.35	36624	15.35	2.39
77	28661	12.00	2.39	35590	12.97	2.74	40581	14.05	2.89	42057	14.21	2.96
86	28796	9.62	2.99	35411	10.51	3.37	40097	11.49	3.49	41411	11.80	3.51
95	31876	7.74	4.12	43332	8.70	4.98	43887	9.25	4.75	44098	9.72	4.54
104	22586	6.55	3.45	26246	7.49	3.50	28475	8.50	3.35	29114	8.85	3.29
109	14555	4.96	2.93	15900	5.82	2.73	16379	6.71	2.44	17084	7.15	2.39
DB(°F)	Tw_out(°F)											
	59			64			68			77		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	27549	29.19	0.94	29066	29.44	0.99	30293	29.33	1.03	33148	32.80	1.01
32	26969	22.90	1.18	29549	25.93	1.14	31836	28.64	1.11	34655	31.15	1.11
41	26161	20.22	1.29	29629	24.39	1.21	32803	28.26	1.16	35999	29.02	1.24
50	31113	19.40	1.60	33763	22.89	1.48	36078	26.10	1.38	39386	27.52	1.43
59	37438	20.20	1.85	41717	22.99	1.81	45582	25.52	1.79	46954	27.93	1.68
66	41323	17.46	2.37	44153	19.06	2.32	46544	20.42	2.28	48665	23.48	2.07
68	42294	16.78	2.52	44762	18.07	2.48	46785	19.15	2.44	49093	22.37	2.19
77	47961	14.85	3.23	49547	15.59	3.18	50640	16.14	3.14	51431	19.38	2.65
86	46667	13.06	3.57	47993	13.87	3.46	48842	14.51	3.37	49221	16.58	2.97
95	44938	11.60	3.87	46062	12.32	3.74	46369	12.97	3.58	47470	14.17	3.35
104	31669	10.24	3.09	34665	10.95	3.17	37315	11.52	3.24	40950	13.81	2.97
109	19901	8.91	2.23	22516	9.55	2.36	24906	10.09	2.47	28811	12.50	2.30

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.5-4: Cooling capacity for 14kW models - Nominal (Metric System)

Nominal												
DB(°C)	Tw_out(°C)											
	5			7			10			11		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	/	/	/	/	/	/	/	/	/	/	/	/
0	/	/	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	8.08	4.32	1.87
15	/	/	/	/	/	/	8.24	4.94	1.67	8.78	5.14	1.71
19	5.97	4.05	1.47	8.21	4.24	1.94	9.90	4.50	2.20	10.34	4.63	2.24
20	6.37	3.96	1.61	8.58	4.16	2.06	10.32	4.40	2.35	10.73	4.50	2.39
25	8.40	3.52	2.39	10.43	3.80	2.74	11.89	4.12	2.89	12.33	4.17	2.96
30	8.44	2.82	2.99	10.38	3.08	3.37	11.75	3.37	3.49	12.14	3.46	3.51
35	9.34	2.27	4.12	12.70	2.55	4.98	12.86	2.71	4.75	12.92	2.85	4.54
40	6.62	1.92	3.45	7.69	2.20	3.50	8.35	2.49	3.35	8.53	2.59	3.29
43	4.27	1.45	2.93	4.66	1.70	2.73	4.80	1.97	2.44	5.01	2.10	2.39
DB(°C)	Tw_out(°C)											
	15			18			20			25		
	Capacity(kW)	EER	Power input(kW)	Capacity(kW)	EER	Power input(kW)	Capacity(kW)	EER	Power input(kW)	Capacity(kW)	EER	Power input(kW)
-5	8.07	8.56	0.94	8.52	8.63	0.99	8.88	8.60	1.03	9.72	9.61	1.01
0	7.90	6.71	1.18	8.66	7.60	1.14	9.33	8.39	1.11	10.16	9.13	1.11
5	7.67	5.93	1.29	8.68	7.15	1.21	9.61	8.28	1.16	10.55	8.50	1.24
10	9.12	5.69	1.60	9.90	6.71	1.48	10.57	7.65	1.38	11.54	8.07	1.43
15	10.97	5.92	1.85	12.23	6.74	1.81	13.36	7.48	1.79	13.76	8.19	1.68
19	12.11	5.12	2.37	12.94	5.59	2.32	13.64	5.99	2.28	14.26	6.88	2.07
20	12.40	4.92	2.52	13.12	5.30	2.48	13.71	5.61	2.44	14.39	6.56	2.19
25	14.06	4.35	3.23	14.52	4.57	3.18	14.84	4.73	3.14	15.07	5.68	2.65
30	13.68	3.83	3.57	14.07	4.06	3.46	14.31	4.25	3.37	14.43	4.86	2.97
35	13.17	3.40	3.87	13.50	3.61	3.74	13.59	3.80	3.58	13.91	4.15	3.35
40	9.28	3.00	3.09	10.16	3.21	3.17	10.94	3.38	3.24	12.00	4.05	2.97
43	5.83	2.61	2.23	6.60	2.80	2.36	7.30	2.96	2.47	8.44	3.66	2.30

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.5-5: Cooling capacity for 14kW models - Minimum (Imperial System)

Minimum												
DB(°F)	Tw_out(°F)											
	41			45			50			52		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	/	/	/	/	/	/	/	/	/	/	/	/
32	/	/	/	/	/	/	/	/	/	/	/	/
41	/	/	/	/	/	/	/	/	/	/	/	/
50	/	/	/	/	/	/	/	/	/	15265	16.28	0.94
59	/	/	/	/	/	/	17236	17.89	0.96	17800	18.62	0.96
66	10435	14.40	0.72	12938	15.02	0.86	15778	16.09	0.98	16785	16.57	1.01
68	10987	14.05	0.78	13359	14.75	0.91	15413	15.64	0.99	16531	16.06	1.03
77	13751	12.30	1.12	15462	13.44	1.15	16806	14.75	1.14	17980	14.92	1.21
86	13677	9.82	1.39	15247	10.86	1.40	16456	12.03	1.37	17537	12.36	1.42
95	12538	7.94	1.58	15368	9.14	1.68	17833	10.03	1.78	18556	10.54	1.76
104	10202	6.52	1.56	11907	7.59	1.57	13330	8.74	1.53	13769	9.11	1.51
109	4982	5.06	0.98	6485	5.96	1.09	7835	6.92	1.13	8348	7.39	1.13
DB/WB(°F)	Tw_out(°F)											
	59			64			68			77		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	17825	30.43	0.59	18722	30.46	0.61	19544	30.25	0.65	21503	34.39	0.63
32	17496	23.93	0.73	19083	27.01	0.71	20594	29.86	0.69	22540	32.31	0.70
41	14074	21.72	0.65	15962	25.97	0.61	17785	30.01	0.59	19388	31.21	0.62
50	17249	21.03	0.82	18737	24.60	0.76	20150	27.97	0.72	21850	29.86	0.73
59	20056	21.56	0.93	21466	24.94	0.86	22791	28.13	0.81	26831	30.95	0.87
66	20815	18.52	1.12	23040	20.23	1.14	25173	21.77	1.16	27652	25.10	1.10
68	21005	17.76	1.18	23433	19.05	1.23	25768	20.18	1.28	27857	23.63	1.18
77	22676	15.62	1.45	24729	16.34	1.51	26683	16.94	1.58	27958	20.31	1.38
86	21857	13.67	1.60	23720	14.54	1.63	25489	15.30	1.67	26499	17.19	1.54
95	21445	12.59	1.70	22936	14.36	1.60	24335	14.04	1.73	26129	15.14	1.73
104	15527	10.61	1.46	17773	11.32	1.57	19949	11.95	1.67	23321	14.04	1.66
109	10401	9.28	1.12	11566	9.87	1.17	12686	10.39	1.22	18358	12.97	1.42

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.5-6: Cooling capacity for 14kW models - Minimum (Metric System)

Minimum												
DB(°C)	Tw_out(°C)											
	5			7			10			11		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	/	/	/	/	/	/	/	/	/	/	/	/
0	/	/	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	4.47	4.77	0.94
15	/	/	/	/	/	/	5.05	5.24	0.96	5.22	5.46	0.96
19	3.06	4.22	0.72	3.79	4.40	0.86	4.62	4.71	0.98	4.92	4.86	1.01
20	3.22	4.12	0.78	3.92	4.32	0.91	4.52	4.58	0.99	4.85	4.71	1.03
25	4.03	3.60	1.12	4.53	3.94	1.15	4.93	4.32	1.14	5.27	4.37	1.21
30	4.01	2.88	1.39	4.47	3.18	1.40	4.82	3.53	1.37	5.14	3.62	1.42
35	3.67	2.33	1.58	4.50	2.68	1.68	5.23	2.94	1.78	5.44	3.09	1.76
40	2.99	1.91	1.56	3.49	2.22	1.57	3.91	2.56	1.53	4.04	2.67	1.51
43	1.46	1.48	0.98	1.90	1.75	1.09	2.30	2.03	1.13	2.45	2.17	1.13
DB/WB(°C)	Tw_out(°C)											
	15			18			20			25		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	5.22	8.92	0.59	5.49	8.93	0.61	5.73	8.86	0.65	6.30	10.08	0.63
0	5.13	7.01	0.73	5.59	7.92	0.71	6.04	8.75	0.69	6.61	9.47	0.70
5	4.12	6.37	0.65	4.68	7.61	0.61	5.21	8.80	0.59	5.68	9.15	0.62
10	5.06	6.16	0.82	5.49	7.21	0.76	5.91	8.20	0.72	6.40	8.75	0.73
15	5.88	6.32	0.93	6.29	7.31	0.86	6.68	8.25	0.81	7.86	9.07	0.87
19	6.10	5.43	1.12	6.75	5.93	1.14	7.38	6.38	1.16	8.10	7.36	1.10
20	6.16	5.21	1.18	6.87	5.58	1.23	7.55	5.92	1.28	8.16	6.93	1.18
25	6.65	4.58	1.45	7.25	4.79	1.51	7.82	4.96	1.58	8.19	5.95	1.38
30	6.41	4.01	1.60	6.95	4.26	1.63	7.47	4.48	1.67	7.77	5.04	1.54
35	6.29	3.69	1.70	6.72	4.21	1.60	7.13	4.11	1.73	7.66	4.44	1.73
40	4.55	3.11	1.46	5.21	3.32	1.57	5.85	3.50	1.67	6.83	4.12	1.66
43	3.05	2.72	1.12	3.39	2.89	1.17	3.72	3.04	1.22	5.38	3.80	1.42

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

4.6 Cooling Capacity Tables - 12kW

Table 2-4.6-1: Cooling capacity for 12kW models - Maximum (Imperial System)

Maximum												
DB(°F)	Tw_out(°F)											
	41			45			50			52		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	/	/	/	/	/	/	/	/	/	/	/	/
32	/	/	/	/	/	/	/	/	/	/	/	/
41	/	/	/	/	/	/	/	/	/	/	/	/
50	/	/	/	/	/	/	/	/	/	31137	14.22	2.19
59	/	/	/	/	/	/	35857	15.45	2.32	37215	16.02	2.32
66	24978	13.37	1.87	33053	13.69	2.41	40344	14.28	2.83	41713	14.63	2.85
68	26559	13.06	2.03	34421	13.44	2.56	41466	13.99	2.96	42837	14.29	3.00
77	34465	11.49	3.00	41259	12.20	3.38	47075	13.05	3.61	48459	13.20	3.67
86	34098	9.51	3.58	40522	10.24	3.96	45827	11.09	4.13	47018	11.35	4.14
95	33731	7.80	4.33	40306	9.21	4.38	44578	9.45	4.72	45577	9.87	4.62
104	27669	6.11	4.53	31046	6.90	4.50	33687	7.77	4.33	34227	8.07	4.24
109	17728	4.77	3.72	19515	5.55	3.52	20839	6.39	3.26	21671	6.77	3.20
DB(°F)	Tw_out(°F)											
	59			64			68			77		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	32585	25.58	1.27	34292	25.51	1.34	35454	25.14	1.41	38859	28.49	1.36
32	31842	20.22	1.57	34795	22.73	1.53	37196	24.96	1.49	40557	27.03	1.50
41	31100	18.16	1.71	35299	21.61	1.63	38938	24.80	1.57	42254	25.81	1.64
50	36875	17.98	2.05	41179	20.80	1.98	44829	23.38	1.92	48394	24.98	1.94
59	42650	18.30	2.33	47058	20.47	2.30	50719	22.39	2.27	54534	24.38	2.24
66	47187	16.04	2.94	50814	17.29	2.94	53635	18.34	2.92	56019	20.76	2.70
68	48321	15.48	3.12	51753	16.50	3.14	54363	17.32	3.14	56390	19.86	2.84
77	53991	13.80	3.91	56447	14.22	3.97	58007	14.46	4.01	58246	16.92	3.44
86	51782	12.42	4.17	53904	12.93	4.17	55170	13.29	4.15	54978	14.71	3.74
95	49573	11.56	4.29	51361	12.17	4.22	52333	12.64	4.14	52050	13.49	3.86
104	36389	9.28	3.92	39299	9.83	4.00	41585	10.26	4.05	45134	11.98	3.77
109	25001	8.29	3.02	27265	8.75	3.11	29096	9.12	3.19	36424	11.16	3.26

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.6-2: Cooling capacity for 12kW models - Maximum (Metric System)

Maximum												
DB(°C)	Tw_out(°C)											
	5			7			10			11		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	/	/	/	/	/	/	/	/	/	/	/	/
0	/	/	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	9.13	4.17	2.19
15	/	/	/	/	/	/	10.51	4.53	2.32	10.91	4.69	2.32
19	7.32	3.92	1.87	9.69	4.01	2.41	11.82	4.19	2.83	12.23	4.29	2.85
20	7.78	3.83	2.03	10.09	3.94	2.56	12.15	4.10	2.96	12.55	4.19	3.00
25	10.10	3.37	3.00	12.09	3.57	3.38	13.80	3.82	3.61	14.20	3.87	3.67
30	9.99	2.79	3.58	11.88	3.00	3.96	13.43	3.25	4.13	13.78	3.33	4.14
35	9.89	2.29	4.33	11.81	2.70	4.38	13.07	2.77	4.72	13.36	2.89	4.62
40	8.11	1.79	4.53	9.10	2.02	4.50	9.87	2.28	4.33	10.03	2.37	4.24
43	5.20	1.40	3.72	5.72	1.63	3.52	6.11	1.87	3.26	6.35	1.98	3.20
DB(°C)	Tw_out(°C)											
	15			18			20			25		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	9.55	7.50	1.27	10.05	7.48	1.34	10.39	7.37	1.41	11.39	8.35	1.36
0	9.33	5.93	1.57	10.20	6.66	1.53	10.90	7.32	1.49	11.89	7.92	1.50
5	9.12	5.32	1.71	10.35	6.33	1.63	11.41	7.27	1.57	12.38	7.57	1.64
10	10.81	5.27	2.05	12.07	6.10	1.98	13.14	6.85	1.92	14.18	7.32	1.94
15	12.50	5.36	2.33	13.79	6.00	2.30	14.87	6.56	2.27	15.98	7.14	2.24
19	13.83	4.70	2.94	14.89	5.07	2.94	15.72	5.37	2.92	16.42	6.09	2.70
20	14.16	4.54	3.12	15.17	4.84	3.14	15.93	5.08	3.14	16.53	5.82	2.84
25	15.82	4.04	3.91	16.54	4.17	3.97	17.00	4.24	4.01	17.07	4.96	3.44
30	15.18	3.64	4.17	15.80	3.79	4.17	16.17	3.90	4.15	16.11	4.31	3.74
35	14.53	3.39	4.29	15.05	3.57	4.22	15.34	3.71	4.14	15.26	3.95	3.86
40	10.67	2.72	3.92	11.52	2.88	4.00	12.19	3.01	4.05	13.23	3.51	3.77
43	7.33	2.43	3.02	7.99	2.57	3.11	8.53	2.67	3.19	10.68	3.27	3.26

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.6-3: Cooling capacity for 12kW models - Nominal (Imperial System)

Nominal												
DB(°F)	Tw_out(°F)											
	41			45			50			52		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	/	/	/	/	/	/	/	/	/	/	/	/
32	/	/	/	/	/	/	/	/	/	/	/	/
41	/	/	/	/	/	/	/	/	/	/	/	/
50	/	/	/	/	/	/	/	/	/	25115	15.13	1.66
59	/	/	/	/	/	/	26893	16.59	1.62	28679	17.25	1.66
66	19387	14.05	1.38	26154	14.68	1.78	32202	15.50	2.08	33640	15.92	2.11
68	20705	13.73	1.51	27334	14.42	1.90	33529	15.23	2.20	34880	15.59	2.24
77	27296	12.16	2.24	33236	13.15	2.53	38649	14.24	2.71	40054	14.40	2.78
86	27425	10.13	2.71	33069	11.02	3.00	38187	12.00	3.18	39439	12.32	3.20
95	30645	8.18	3.75	39579	9.38	4.22	41375	9.72	4.25	41270	10.27	4.02
104	22586	6.55	3.45	25735	7.49	3.43	28475	8.50	3.35	29114	8.85	3.29
109	14555	4.96	2.93	15591	5.82	2.68	16379	6.71	2.44	17084	7.15	2.39
DB(°F)	Tw_out(°F)											
	59			64			68			77		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	26237	28.90	0.91	27682	29.15	0.95	28850	29.04	0.99	31569	32.48	0.97
32	25684	23.14	1.11	28142	26.19	1.07	30320	28.93	1.05	33005	31.46	1.05
41	24915	19.79	1.26	28218	23.86	1.18	31241	27.65	1.13	34285	28.39	1.21
50	29631	19.63	1.51	33019	23.00	1.44	36078	26.10	1.38	39386	27.52	1.43
59	35826	19.87	1.80	39921	22.62	1.76	43619	25.10	1.74	45809	27.47	1.67
66	39389	17.60	2.24	42984	19.09	2.25	46152	20.34	2.27	48436	23.39	2.07
68	40280	17.04	2.36	43750	18.20	2.40	46785	19.15	2.44	49093	22.37	2.19
77	45677	15.04	3.04	48399	15.69	3.09	50640	16.14	3.14	51431	19.38	2.65
86	44445	13.61	3.27	46877	14.19	3.30	48842	14.60	3.34	49221	16.58	2.97
95	40848	12.45	3.28	40944	13.65	3.00	45687	13.50	3.38	47470	14.91	3.18
104	31669	10.24	3.09	34665	10.95	3.17	37315	11.52	3.24	40950	13.81	2.97
109	19901	8.91	2.23	22516	9.55	2.36	24906	10.09	2.47	28811	12.50	2.30

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.6-4: Cooling capacity for 12kW models - Nominal (Metric System)

Nominal												
DB(°C)	Tw_out(°C)											
	5			7			10			11		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	/	/	/	/	/	/	/	/	/	/	/	/
0	/	/	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	7.36	4.43	1.66
15	/	/	/	/	/	/	7.88	4.86	1.62	8.41	5.06	1.66
19	5.68	4.12	1.38	7.67	4.30	1.78	9.44	4.54	2.08	9.86	4.67	2.11
20	6.07	4.02	1.51	8.01	4.23	1.90	9.83	4.46	2.20	10.22	4.57	2.24
25	8.00	3.56	2.24	9.74	3.85	2.53	11.33	4.17	2.71	11.74	4.22	2.78
30	8.04	2.97	2.71	9.69	3.23	3.00	11.19	3.52	3.18	11.56	3.61	3.20
35	8.98	2.40	3.75	11.60	2.75	4.22	12.13	2.85	4.25	12.10	3.01	4.02
40	6.62	1.92	3.45	7.54	2.20	3.43	8.35	2.49	3.35	8.53	2.59	3.29
43	4.27	1.45	2.93	4.57	1.70	2.68	4.80	1.97	2.44	5.01	2.10	2.39
DB(°C)	Tw_out(°C)											
	15			18			20			25		
	Capacity(kW)	EER	Power input(kW)	Capacity(kW)	EER	Power input(kW)	Capacity(kW)	EER	Power input(kW)	Capacity(kW)	EER	Power input(kW)
-5	7.69	8.47	0.91	8.11	8.54	0.95	8.46	8.51	0.99	9.25	9.52	0.97
0	7.53	6.78	1.11	8.25	7.68	1.07	8.89	8.48	1.05	9.67	9.22	1.05
5	7.30	5.80	1.26	8.27	6.99	1.18	9.16	8.10	1.13	10.05	8.32	1.21
10	8.68	5.75	1.51	9.68	6.74	1.44	10.57	7.65	1.38	11.54	8.07	1.43
15	10.50	5.82	1.80	11.70	6.63	1.76	12.78	7.36	1.74	13.43	8.05	1.67
19	11.54	5.16	2.24	12.60	5.59	2.25	13.53	5.96	2.27	14.20	6.86	2.07
20	11.81	4.99	2.36	12.82	5.33	2.40	13.71	5.61	2.44	14.39	6.56	2.19
25	13.39	4.41	3.04	14.19	4.60	3.09	14.84	4.73	3.14	15.07	5.68	2.65
30	13.03	3.99	3.27	13.74	4.16	3.30	14.31	4.28	3.34	14.43	4.86	2.97
35	11.97	3.65	3.28	12.00	4.00	3.00	13.39	3.96	3.38	13.91	4.37	3.18
40	9.28	3.00	3.09	10.16	3.21	3.17	10.94	3.38	3.24	12.00	4.05	2.97
43	5.83	2.61	2.23	6.60	2.80	2.36	7.30	2.96	2.47	8.44	3.66	2.30

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.6-5: Cooling capacity for 12kW models - Minimum (Imperial System)

Minimum												
DB(°F)	Tw_out(°F)											
	41			45			50			52		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	/	/	/	/	/	/	/	/	/	/	/	/
32	/	/	/	/	/	/	/	/	/	/	/	/
41	/	/	/	/	/	/	/	/	/	/	/	/
50	/	/	/	/	/	/	/	/	/	13897	16.69	0.83
59	/	/	/	/	/	/	16494	17.60	0.94	17034	18.32	0.93
66	9938	14.62	0.68	12224	15.25	0.80	15042	16.22	0.93	16002	16.71	0.96
68	10464	14.26	0.73	12622	14.98	0.84	14679	15.88	0.92	15744	16.31	0.97
77	13097	12.46	1.05	14609	13.62	1.07	16006	14.94	1.07	17124	15.12	1.13
86	13025	10.34	1.26	14406	11.39	1.27	15673	12.57	1.25	16701	12.91	1.29
95	11941	8.39	1.42	14520	9.66	1.50	16984	10.38	1.64	17672	10.96	1.61
104	10202	6.52	1.56	11813	7.59	1.56	13330	8.74	1.53	13769	9.11	1.51
109	4982	5.06	0.98	6434	5.96	1.08	7835	6.92	1.13	8348	7.39	1.13
DB/WB(°F)	Tw_out(°F)											
	59			64			68			77		
	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)	Capacity (Btu/h)	EER	Power input (kW)
23	16977	30.13	0.56	17831	30.16	0.59	18613	29.95	0.62	20479	34.04	0.60
32	16663	24.18	0.69	18175	27.28	0.67	19613	30.17	0.65	21467	32.63	0.66
41	13404	21.26	0.63	15201	25.41	0.60	16938	29.36	0.58	18465	30.54	0.60
50	16428	21.28	0.77	18326	24.72	0.74	20150	27.97	0.72	21850	29.86	0.73
59	19193	21.21	0.91	20542	24.54	0.84	21809	27.68	0.79	26176	30.45	0.86
66	19842	18.67	1.06	22454	20.26	1.11	24976	21.68	1.15	27521	25.00	1.10
68	20005	18.03	1.11	22932	19.18	1.20	25768	20.18	1.28	27857	23.63	1.18
77	21597	15.82	1.36	24188	16.44	1.47	26683	16.94	1.58	27958	20.31	1.38
86	20816	14.24	1.46	23199	14.88	1.56	25489	15.40	1.65	26499	17.19	1.54
95	20424	13.31	1.53	22424	14.36	1.56	24335	14.88	1.64	26129	15.88	1.65
104	15527	10.61	1.46	17773	11.32	1.57	19949	11.95	1.67	23321	14.04	1.66
109	10401	9.28	1.12	11566	9.87	1.17	12686	10.39	1.22	18358	12.97	1.42

Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

Table 2-4.6-6: Cooling capacity for 12kW models - Minimum (Metric System)

Minimum												
DB(°C)	Tw_out(°C)											
	5			7			10			11		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	/	/	/	/	/	/	/	/	/	/	/	/
0	/	/	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	4.07	4.89	0.83
15	/	/	/	/	/	/	4.83	5.16	0.94	4.99	5.37	0.93
19	2.91	4.29	0.68	3.58	4.47	0.80	4.41	4.75	0.93	4.69	4.90	0.96
20	3.07	4.18	0.73	3.70	4.39	0.84	4.30	4.65	0.92	4.61	4.78	0.97
25	3.84	3.65	1.05	4.28	3.99	1.07	4.69	4.38	1.07	5.02	4.43	1.13
30	3.82	3.03	1.26	4.22	3.34	1.27	4.59	3.68	1.25	4.89	3.78	1.29
35	3.50	2.46	1.42	4.26	2.83	1.50	4.98	3.04	1.64	5.18	3.21	1.61
40	2.99	1.91	1.56	3.46	2.22	1.56	3.91	2.56	1.53	4.04	2.67	1.51
43	1.46	1.48	0.98	1.89	1.75	1.08	2.30	2.03	1.13	2.45	2.17	1.13
DB/WB(°C)	Tw_out(°C)											
	15			18			20			25		
	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)	Capacity (kW)	EER	Power input (kW)
-5	4.98	8.83	0.56	5.23	8.84	0.59	5.46	8.78	0.62	6.00	9.98	0.60
0	4.88	7.09	0.69	5.33	8.00	0.67	5.75	8.84	0.65	6.29	9.56	0.66
5	3.93	6.23	0.63	4.46	7.45	0.60	4.96	8.61	0.58	5.41	8.95	0.60
10	4.81	6.24	0.77	5.37	7.25	0.74	5.91	8.20	0.72	6.40	8.75	0.73
15	5.63	6.22	0.91	6.02	7.19	0.84	6.39	8.11	0.79	7.67	8.92	0.86
19	5.82	5.47	1.06	6.58	5.94	1.11	7.32	6.35	1.15	8.07	7.33	1.10
20	5.86	5.29	1.11	6.72	5.62	1.20	7.55	5.92	1.28	8.16	6.93	1.18
25	6.33	4.64	1.36	7.09	4.82	1.47	7.82	4.96	1.58	8.19	5.95	1.38
30	6.10	4.17	1.46	6.80	4.36	1.56	7.47	4.51	1.65	7.77	5.04	1.54
35	5.99	3.90	1.53	6.57	4.21	1.56	7.13	4.36	1.64	7.66	4.65	1.65
40	4.55	3.11	1.46	5.21	3.32	1.57	5.85	3.50	1.67	6.83	4.12	1.66
43	3.05	2.72	1.12	3.39	2.89	1.17	3.72	3.04	1.22	5.38	3.80	1.42

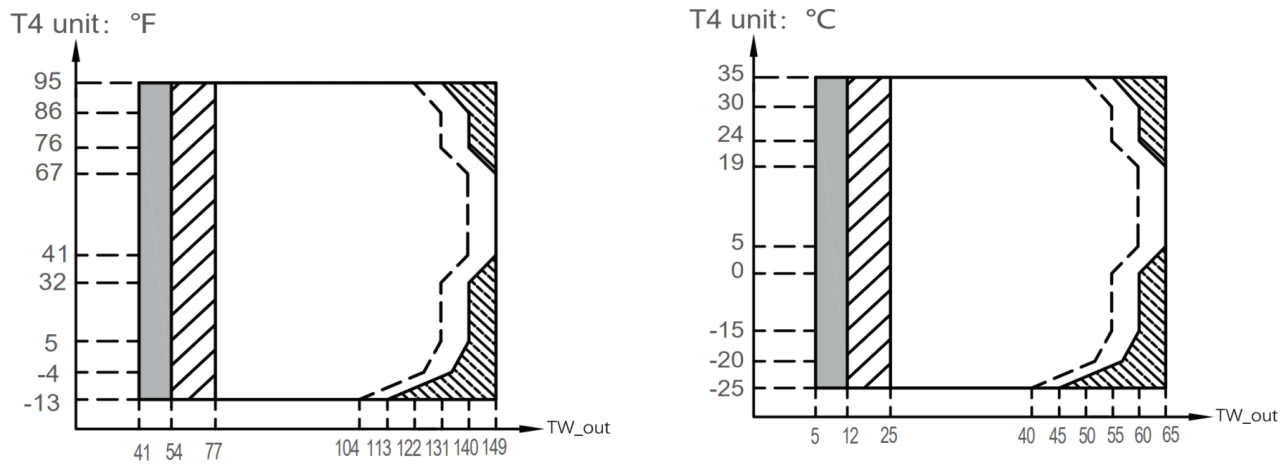
Abbreviations:
1. Tw_out: Water outlet temperature
2. DB: Dry-bulb temperature for outdoor air temperature

5 Operating Limits

5.1 Heating mode

In heating mode, the water flowing temperature (Tw_out) range in different outdoor temperature (T4) is listed below:

Figure 2-5.1: Heating operating limits



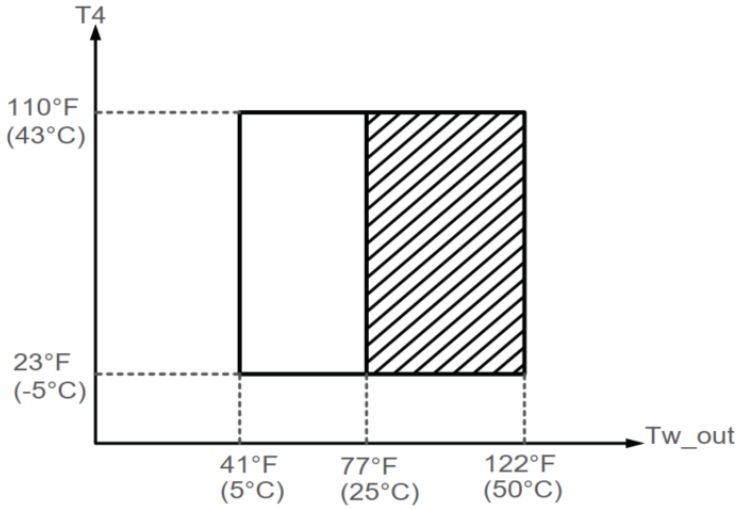
Notes:

1. If IBH/AHS setting is valid, only IBH/AHS turns on;
   If IBH/AHS setting is invalid, only heat pump turns on, limitation and protection may occur during heat pump operation.
2. Operation range by heat pump with possible limitation and protection.
3. Heat pump turns off, only IBH/AHS turns on.
4. Maximum inlet water temperature line for heat pump operation.

5.2 Cooling mode

In cooling mode, the water flowing temperature (TW_out) range in different outdoor temperature (T4) is list below:

Figure 2-5.2: Cooling operating limits



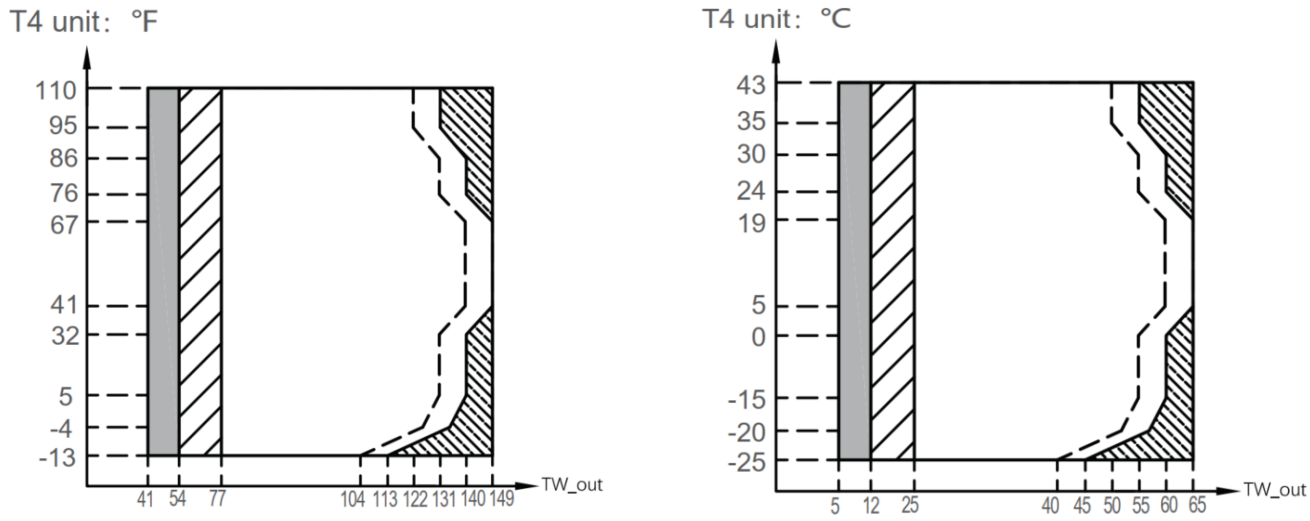
Notes:

1. Operation range by heat pump with possible limitation and protection.

5.3 DHW mode

In DHW mode, the water flowing temperature (Tw_out) range in different outdoor temperature(T4) is listed below:

Figure 2-5.3: DHW operating limits



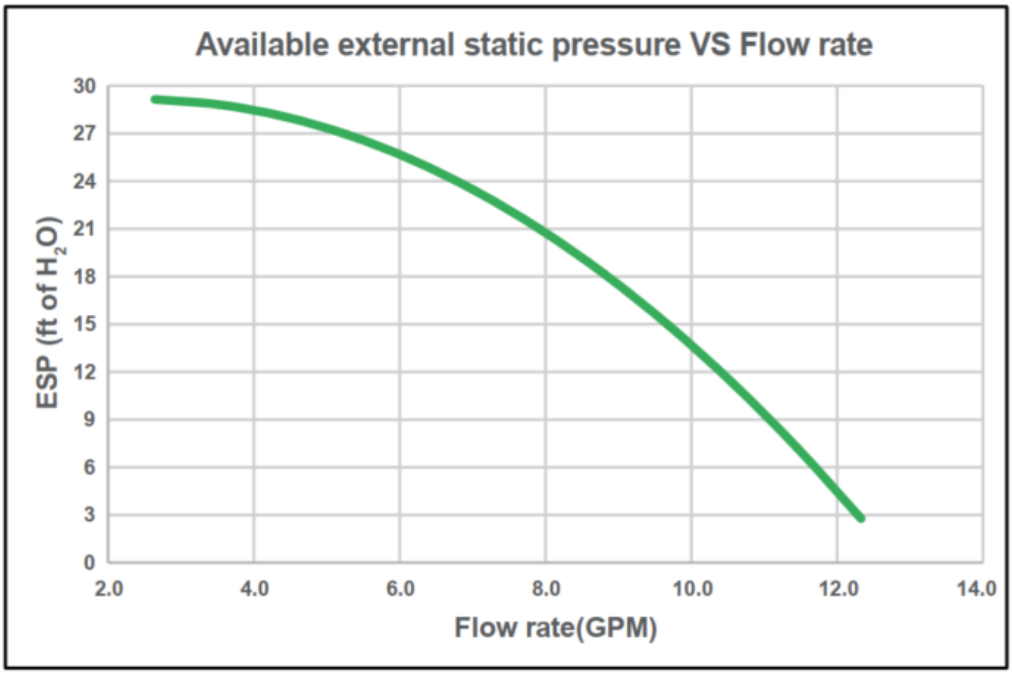
Notes:

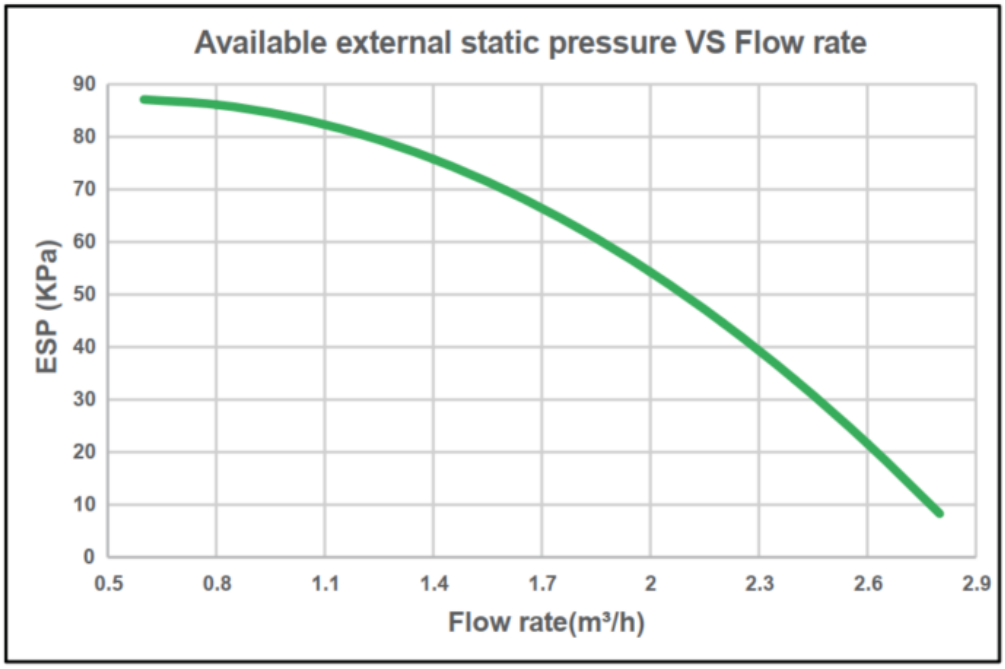
1. If IBH/AHS setting is valid, only IBH/AHS turns on;
   If IBH/AHS setting is invalid, only heat pump turns on, limitation and protection may occur during heat pump operation.
2. Operation range by heat pump with possible limitation and protection.
3. Heat pump turns off, only IBH/AHS turns on.
4. Maximum inlet water temperature line for heat pump operation.

6 Hydronic Performance

The internal pump maintains maximum output, the indoor unit can provide the head and flow:

Figure 2-6.1: HB-A160CMDM30GN8-B2 hydronic performance





7 Sound Levels

7.1 Indoor Unit

We measure noise of the unit with a rated frequency at the distance of 1m and 2m.

The conditions we've tested is illustrated as below:

Heating A44.6W95: Evaporator air in 44.6°F (7°C), 85% R.H., Condenser water out 95°F (35°C)

Cooling A95W44.6: Condenser air in 95°F (35°C). Evaporator water out 44.6°F (7°C)

Figure 7.1-1: Model: Heating A44.6W95 (1m)

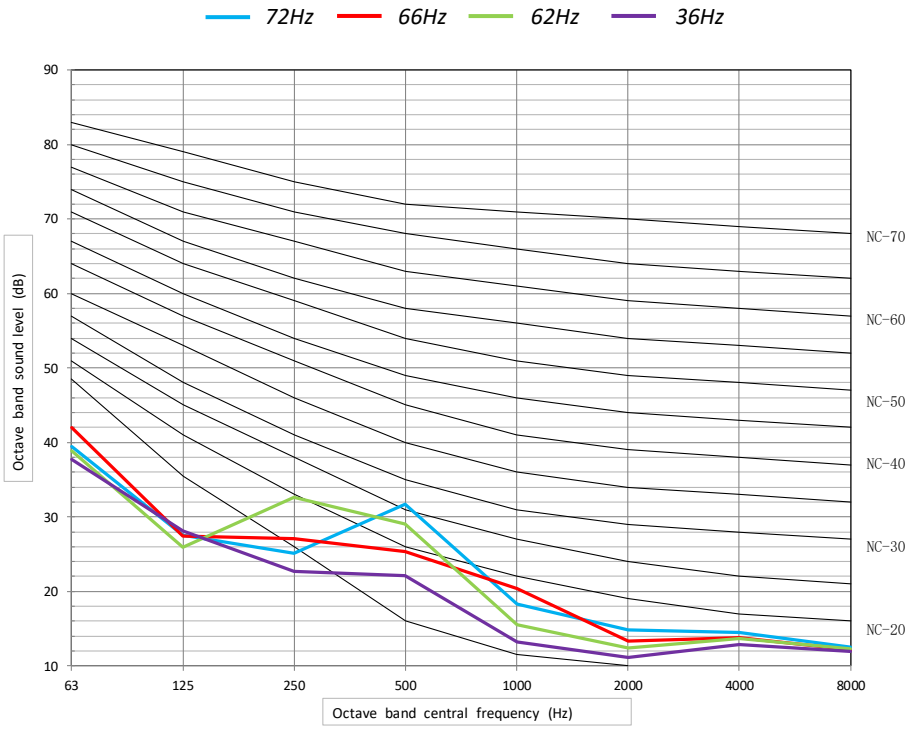


Figure 7.1-2: Model: Heating A44.6W95 (2m)

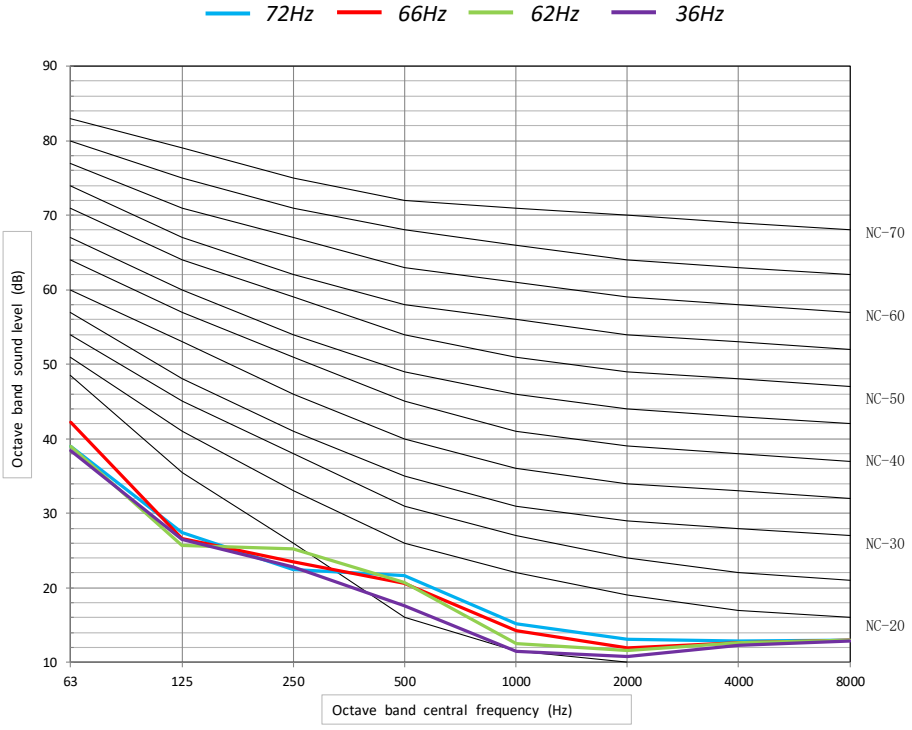


Figure 7.1-3: Model: Cooling A95W44.6 (1m)

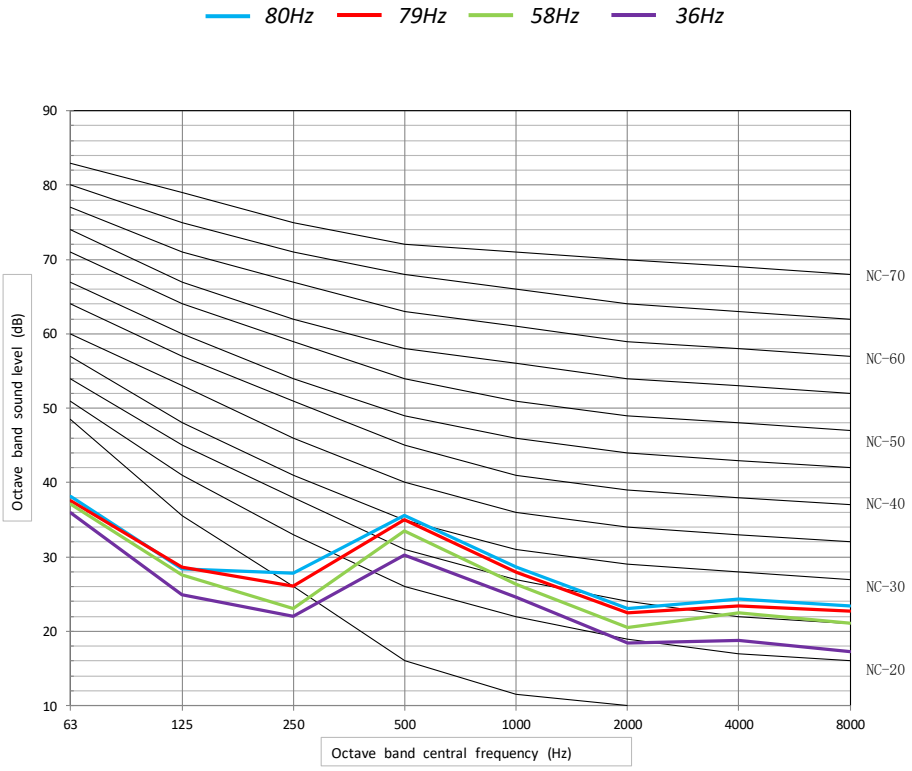
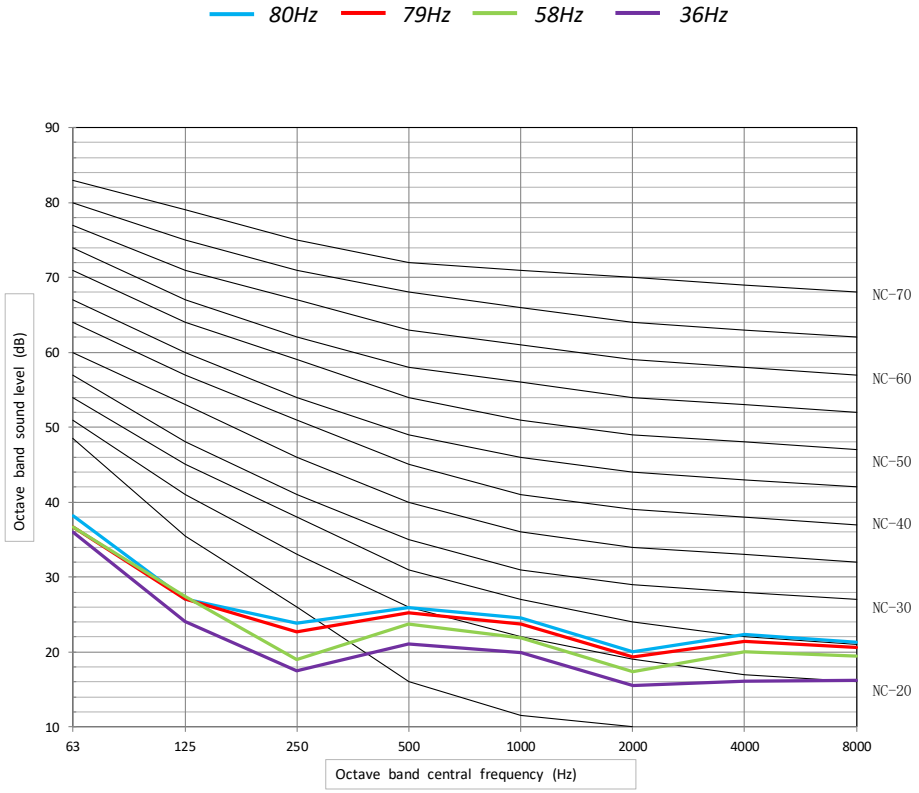


Figure 7.1-4: Model: Cooling A95W44.6 (2m)



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