Part No. E206554

OPERATING & INSTALLATION INSTRUCTIONS

Model HC
Air Defrost
Unit Coolers

1. LOCATION RECOMMENDATIONS

Air defrost unit coolers must have proper air flow to maintain a uniform room temperature and have a complete defrost.

These units are draw thru design thus drawing air thru the cooling coil and discharging it into the room via the unit fans. For best performance it is desirable to arrange the air discharge toward the door of the cooler to minimize the entrance of warm moist air when the door is open. The unit must be at least 12 inches from the wall to assure proper air intake.

2. UNIT MOUNTING

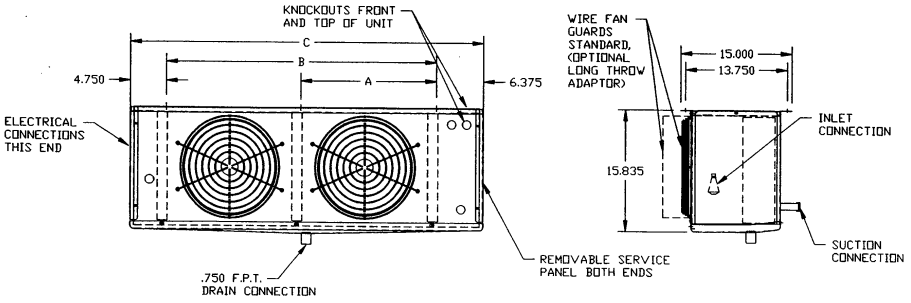
The unit cooler may be suspended with 3/8" diameter hanger rods or flush mounted to the ceiling using 5/16 minimum lag screws with flat washers. Rods should be double nutted top and bottom.

The unit must be level in all directions to insure proper drainage of condensate. Suspended units must have sufficient clearance above for cleaning the top.

Table 1 lists mounting dimensions and sizes of suction, liquid and drain connections.

TABLE 1

MODEL NUMBERS	DIMENSIONS–INCHES			CONNECTIONS–INCHES	
	A	B	C	LIQUID	SUCTION
HC4A-049		18	29-1/8	1/2 ODS	5/8 ODS
HC4A-078		27	38-1/8	1/2 ODS	7/8 ODS
HC4A-096		36	47-1/8	1/2 ODS	7/8 ODS
HC4A-114		54	65-1/8	1/2 ODS	7/8 ODS
HC4A-145		54	65-1/8	1/2 ODS	7/8 ODS
HC4A-153	36	72	83-1/8	1/2 ODS	1-1/8 ODS
HC4A-193	36	72	83-1/8	1/2 ODS	1-1/8 ODS
HC4A-241	54	90	101-1/8	1/2 ODS	1-1/8 ODS
HC4A-289	54	108	119-1/8	5/8 ODS	1-1/8 ODS
HC6A-045		18	29-1/8	1/2 ODS	5/8 ODS
HC6A-056		18	29-1/8	1/2 ODS	5/8 ODS
HC6A-076		27	38-1/8	1/2 ODS	7/8 ODS
HC6A-090		36	47-1/8	1/2 ODS	7/8 ODS
HC6A-105		54	65-1/8	1/2 ODS	7/8 ODS
HC6A-111		36	47-1/8	1/2 ODS	7/8 ODS
HC6A-135		54	65-1/8	1/2 ODS	7/8 ODS
HC6A-166		54	65-1/8	1/2 ODS	1-1/8 ODS
HC6A-180	36	72	83-1/8	1/2 ODS	1-1/8 ODS
HC6A-222	36	72	83-1/8	1/2 ODS	1-1/8 ODS
HC6A-278	54	90	101-1/8	1/2 ODS	1-1/8 ODS
HC6A-333	54	108	119-1/8	5/8 ODS	1-3/8 ODS
HC8A-050		18	29-1/8	1/2 ODS	5/8 ODS
HC8A-062		18	29-1/8	1/2 ODS	5/8 ODS
HC8A-086		27	38-1/8	1/2 ODS	7/8 ODS
HC8A-100		36	47-1/8	1/2 ODS	7/8 ODS
HC8A-124		36	47-1/8	1/2 ODS	7/8 ODS
HC8A-150		54	65-1/8	1/2 ODS	7/8 ODS
HC8A-186		54	65-1/8	1/2 ODS	1-1/8 ODS
HC8A-248	36	72	83-1/8	1/2 ODS	1-1/8 ODS
HC8A-310	54	90	101-1/8	1/2 ODS	1-1/8 ODS
HC8A-372	54	108	119-1/8	5/8 ODS	1-3/8 ODS



3. DRAIN LINE

The drain line should be as short and as steeply pitched as possible with a minimum of 1/4" drop per running foot. Any traps in the drain line must be located in an ambient above freezing. If the temperature surrounding the trap or drain line is below freezing it must be wrapped with a drain line heater. Be sure to also wrap the unit drain coupling. Cover the drain line, drain coupling and heat tape with insulation. Be sure to follow the manufacturer's recommendation when installing the drain line heat tape.

A union is recommended for ease of installation and future servicing. The union should be located as close to the drain pan as possible. Use two wrenches when tightening to prevent the drain fitting from twisting and damaging the unit.

Long runs of drain line, i.e. more than a few feet, should be supported by hangers to avoid damage to the drain pan.

4. REFRIGERATION PIPING

System design must conform to all codes, laws and regulations applying to the site of installation. In addition the safety code for mechanical refrigeration, ASME B31.5, should be followed as a guide to safe practice.

Refrigerant line sizes and piping techniques should be obtained from the ASHRAE Guide or equivalent reference. Under no circumstances should the refrigerant connection size of the unit be used as the basis for sizing the lines.

The horizontal suction line should slope away from the unit toward the compressor. Vertical suction risers may require a trap at the bottom of the riser for proper oil return.

5. REFRIGERANT DISTRIBUTOR

With the exception of the single fan units, distributor nozzles are included using a refrigerant distributor with a changeable nozzle design. The nozzle(s) are packed in individual plastic envelopes along with a retainer ring and instruction card. The instruction card tells what refrigerant the nozzle is to be used with. There may be 1, 2 or 3 envelopes with nozzles located near the distributor.

The nozzles provided with the unit have been selected for design conditions of 9°F to 11°F T.D. and 90°F liquid refrigerant at the expansion valve inlet. If the unit will be operated at conditions which are substantially different from these conditions, it may be necessary to select a different size nozzle. Contact the factory for advice.

The nozzle must be installed before the expansion valve is installed. There are nozzle identification numbers stamped on one side of the nozzle. Be sure to insert the nozzle into the distributor with these numbers visible in case identification is required later. The nozzle is held in place by a retainer ring which is easily inserted or removed with a pair of needle nose pliers.

The standard distributor nozzles provided with the units are listed in Table 2.

TABLE 2

MODEL NUMBERS	DISTRIBUTOR NOZZLE SELECTIONS		
	R-134a	R-22	R-404A/R-507
HC4A-078	L-1	L-1/2	L-3/4
HC4A-096	L-1	L-3/4	L-1
HC4A-114	L-1/2	L-3/4	L-1
HC4A-145	L-2	L-1	L-1-1/2
HC4A-153	L-2	L-1	L-1-1/2
HC4A-193	L-2-1/2	L-1-1/2	L-2
HC4A-241	L-3	L-1-1/2	L-2-1/2
HC4A-289	J-4	J-2	J-3
HC6A-076	L-1	L-1/2	L-3/4
HC6A-090	L-1	L-1/2	L-1
HC6A-105	L-1-1/2	L-3/4	L-1
HC6A-111	L-1-1/2	L-3/4	L-1
HC6A-135	L-1-1/2	L-1	L-1-1/2
HC6A-166	L-2	L-1	L-2
HC6A-180	L-2	L-1	L-2
HC6A-222	L-2-1/2	L-1-1/2	L-2-1/2
HC6A-278	L-4	L-2	L-3
HC6A-333	J-5	J-2-1/2	J-4
HC8A-086	L-1	L-1/2	L-1
HC8A-100	L-1	L-3/4	L-1
HC8A-124	L-1-1/2	L-3/4	L-1-1/2
HC8A-150	L-2	L-1	L-1-1/2
HC8A-186	L-2-1/2	L-1-1/2	L-2
HC8A-248	L-3	L-1-1/2	L-2-1/2
HC8A-310	L-4	L-2	L-4
HC8A-372	J-5	J-2-1/2	J-4

Distributor nozzle selections are based on +25°F suction temperature, 10°F T.D. and 90°F liquid temperature

6. EXPANSION VALVE

Expansion valve recommendations are listed in Table 3.

TABLE 3

<table>
<tr><th rowspan="2">MODEL NUMBERS</th><th rowspan="2">BTUH@ 10°F T.D.</th><th colspan="3">+25°F SUCTION TEMPERATURE*</th></tr>
<tr><th>R-134a</th><th>R-22</th><th>R-404A</th></tr>
<tr><td>HC6A-045</td><td>4,700</td><td>SBFJE-AA-C
EGJE-1/4-C</td><td>SBFVE-AA-C
EGVE-1/3-C</td><td>SBFSE-AA-C
EGSE-1/4-C</td></tr>
<tr><td>HC4A-049
HC8A-050
HC6A-056
HC8A-062</td><td>5,100
5,200
5,600
6,400</td><td rowspan="2">SBFJE-AA-C
EGJE-1/2-C</td><td rowspan="2">SBFVE-AA-C
EGVE-1/2-C</td><td rowspan="2">SBFSE-AA-C
EGSE-1/2-C</td></tr>
<tr><td>HC6A-076</td><td>8,000</td><td rowspan="2">SBFJE-A-C
EGJE-1/2-C</td><td rowspan="3"></td><td rowspan="2">SBFSE-A-C
EGSE-1/2-C</td></tr>
<tr><td>HC4A-078</td><td>8,200</td></tr>
<tr><td>HC8A-086
HC6A-090
HC4A-096
HC8A-100</td><td>9,000
9,400
10,100
10,400</td><td rowspan="5">SBFJE-A-C
EGJE-1-C</td><td rowspan="2">SBFVE-AA-C
EGVE-3/4-C</td><td rowspan="4">SBFSE-A-C
EGSE-1-C</td></tr>
<tr><td>HC6A-105
HC6A-111
HC4A-114
HC8A-124</td><td>11,000
11,600
12,000
13,000</td><td rowspan="2">SBFVE-A-C
EGVE-1-C</td></tr>
<tr><td>HC6A-135
HC4A-145
HC8A-150</td><td>14,100
15,200
15,600</td><td rowspan="3">SBFVE-A-C
EGVE-1-1/2-C</td></tr>
<tr><td>HC4A-153
HC6A-166
HC6A-180
HC8A-186</td><td>16,000
17,400
18,800
19,500</td><td rowspan="4">SBFJE-B-C
EGJE-1-1/2-C</td><td rowspan="4">SBFSE-B-C
EGSE-1-1/2-C</td></tr>
<tr><td>HC4A-193
HC6A-222
HC4A-241
HC8A-248</td><td>20,200
23,200
25,300
26,000</td><td rowspan="2">SBFVE-B-C
EGVE-2-C</td></tr>
<tr><td>HC6A-278</td><td>29,000</td><td rowspan="2">SBFJE-C-C
EGJE-2-C</td><td rowspan="3"></td></tr>
<tr><td>HC4A-289
HC8A-310</td><td>30,300
32,500</td><td>SBFSE-C-C
EGSE-2-C</td></tr>
<tr><td>HC6A-333</td><td>34,800</td><td>SBFJE-C-C
SJE-2-1/2-C</td><td rowspan="2">SBFVE-B-C
EGVE-3-C</td><td rowspan="2">SBFSE-C-C
SSE-3-C</td></tr>
<tr><td>HC8A-372</td><td>39,000</td><td>SBFJE-C-C
SJE-3-C</td></tr>
</table>

* If R-507 is used, change S to P. Example: SBFSE-B-C (R-404A) becomes SBFPE-B-C (R-507).

Before installing the unit, install the expansion valve and connect the equalizer tube (not required on single fan units).

Expansion valves are adjusted at the factory prior to shipment. The setting will be okay for many applications, but in other applications adjustments may need to be made.

It is important that the operation of the expansion valve be checked out after the system has balanced out at the desired room temperature. If the coil is being starved it is necessary to reduce the superheat setting of the valve by turning the adjusting stem counter-clockwise. If the superheat is too low it is necessary to increase the superheat setting of the valve by turning the adjusting stem clockwise. It is recommended that for a 10°F to 12°F T.D. system, the valve should be adjusted to maintain 5°F to 6°F superheat.

To prevent overshooting the desired setting, only one turn of the stem should be made at a time. As much as 30 minutes may be required for the new balance to take place after an adjustment is made. Always tighten the adjusting stem packing nut and replace the seal cap tightly after the adjustment is complete.

7. WIRING

The electrical data for the unit is marked on the unit nameplate. Field wiring should comply with N.E.C. and local codes. The field wiring compartment is constructed as part of the unit cooler enclosure. Wiring connections are made at the terminal block provided inside the unit on the end opposite the refrigerant connections. The unit must be grounded. Refer to Table 4 for unit amps.

TABLE 4

MODEL NUMBER	UNIT TOTAL FULL LOAD AMPS				
	STANDARD MOTORS			PSC MOTORS	
	115/60/1	208/230/60/1	460/60/1	115/60/1	208/230/60/1
HC4A-049	2.1	1.1	0.6	0.7	0.4
HC4A-078	4.2	2.2	1.2	1.4	0.8
HC4A-096	4.2	2.2	1.2	1.4	0.8
HC4A-114	6.3	3.3	1.8	2.1	1.2
HC4A-145	6.3	3.3	1.8	2.1	1.2
HC4A-153	8.4	4.4	2.4	2.8	1.6
HC4A-193	8.4	4.4	2.4	2.8	1.6
HC4A-241	10.5	5.5	3.0	3.5	2.0
HC4A-289	12.6	6.6	3.6	4.2	2.4
HC6A-045	2.1	1.1	0.6	0.7	0.4
HC6A-056	2.1	1.1	0.6	0.7	0.4
HC6A-076	4.2	2.2	1.2	1.4	0.8
HC6A-090	4.2	2.2	1.2	1.4	0.8
HC6A-105	6.3	3.3	1.8	2.1	1.2
HC6A-111	4.2	2.2	1.2	1.4	0.8
HC6A-135	6.3	3.3	1.8	2.1	1.2
HC6A-166	6.3	3.3	1.8	2.1	1.2
HC6A-180	8.4	4.4	2.4	2.8	1.6
HC6A-222	8.4	4.4	2.4	2.8	1.6
HC6A-278	10.5	5.5	3.0	3.5	2.0
HC6A-333	12.6	6.6	3.6	4.2	2.4
HC8A-050	2.1	1.1	0.6	0.7	0.4
HC8A-062	2.1	1.1	0.6	0.7	0.4
HC8A-086	4.2	2.2	1.2	1.4	0.8
HC8A-100	4.2	2.2	1.2	1.4	0.8
HC8A-124	4.2	2.2	1.2	1.4	0.8
HC8A-150	6.3	3.3	1.8	2.1	1.2
HC8A-186	6.3	3.3	1.8	2.1	1.2
HC8A-248	8.4	4.4	2.4	2.8	1.6
HC8A-310	10.5	5.5	3.0	3.5	2.0
HC8A-372	12.6	6.6	3.6	4.2	2.4

8. PRE-STARTUP

Check fan set screws, electrical terminals and all other fasteners for tightness. Be sure the thermostatic expansion valve bulb is properly located and strapped.

9. REPLACEMENT PARTS

Listed below are the major replacement parts. When ordering parts it is imperative that you obtain the complete model and serial number of the unit.

	Part #
Fan Blade	E206483
Fan Guard	E103789
Motor Mount	E206443
Standard Shaded Pole Motor (115V)	E206444
Standard Shaded Pole Motor (208-230V)	E206445
Standard Shaded Pole Motor (460V)	E206446
Optional PSC Motor (115V)	E206447
Optional PSC Motor (208-230V)	E206448

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