

Reach-In Unit Coolers

H-IM-77C

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Part No. 25005601

(Replaces H-IM-77B, October, 2004)

Installation and Operation Manual





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General Information

Inspection

When the equipment is received, all items should be carefully checked against the bill of lading to make sure all crates and cartons have been received. All units should be carefully inspected for hidden damage when received. If any damage is found, it should be reported to the carrier immediately and a claim should be filed. The unit nameplate should be checked to make sure that the voltage agrees with the power supply available.

Installation

NOTE: Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and experienced with this type of equipment.

<u>CAUTION:</u> Sharp edges and coil surfaces are a potential injury hazard. Avoid contact with them.

Installation and service of this equipment should be performed only by qualified and experienced commercial refrigeration mechanics. Correct application and installation of this equipment is necessary to obtain optimum performance and customer satisfaction. Install all equipment, piping and electrical in accordance with local and national codes and in conformance with good practice required for proper operation. Work safely! Prevent accidents!

The final step in any installation is to instruct the customer or user in the operation of the equipment. The customer should be shown how the equipment can be made to operate properly and efficiently. Maintenance requirements should be explained.

Expansion Valve

Install expansion valve and feeler bulb inside cabinet of the unit. Recommended valve sizes are given for each product family.

Drain Line

After installing the fan panel assembly, connect the drain line to the fitting provided on the unit. A plastic hose or metal drain line can be used.

The drain line should be pitched sharply and exit the cabinet as quickly as possible. Traps in the drain line should be located in a warm ambient to prevent freeze-up.

If only a small portion of the drain line is located in the refrigerated area, a drain line heater will not be required. If a drain line heater is required, use approximately 15 watts per foot of pipe. Connect the heater wire to the terminals of the heater circuit (N and 3) at the terminal block in the junction box. The heater will then operate during the defrost cycle.

All condensate water must be disposed of properly and should not be allowed to accumulate or cause a safety hazard.

Motors

Motors are lifetime lubricated and thermally protected. Check an inoperative motor by disconnecting and applying correct voltage across leads. If test fails, replace the motor.

Wiring

The nameplate on the unit is marked with the electrical characteristics to be used for wiring the unit. The unit must be grounded. All wiring should be done in accordance with applicable national and local codes.

Maintenance

Periodically inspect unit for grease and soil accumulation. Clean with warm water and soap. Do not use cleaners containing ammonia. Inspect the drain pan/fan panel occasionally for proper condensate drainage. Keep the drain opening clean.

<u>WARNING:</u> All power must be disconnected before cleaning drain pan/fan panel. It serves as a cover of hazardous moving parts. Operation of unit without pan in place constitutes a hazard.

<u>WARNING:</u> Refrigerant can be harmful if it is inhaled. Refrigerant must be used and recovered responsibly. Failure to follow this warning may result in personal injury or death.

General Information (cont'd)

Replacement Parts

Always give complete model numbers and serial numbers when ordering parts.

ELECTRIC DEFROST TROUBLESHOOTING

The electric defrost units are relatively simple and trouble-free in operation:

Timer

If the system does not go through its proper sequence , check timer operation through a defrost cycle. Check for loose wires or terminals. Before replacing timer, check other components.

Operation of Paragon Timer

To set time of day grasp knob which is in the center of the inner (fail-safe) dial and rotate it in a counter-clockwise direction. This will cause the outer (24 hour) dial to revolve. Line up the correct time of day on the outer dial with the time pointer. Do not try to set the time control by grasping the other (24 hour) dial. Place pins in the outer dial at the time of day that defrost is required.

Operation of Grasslin Timer

To set the time, turn the minute hand clockwise until the time of day (and AM or PM) on the outer dial is aligned with the triangle marker on the inner dial. **Do not rotate minute hand counter-clockwise**. Move the white tab (tripper) on the outer dial outward at each desired initiation time. Each white tab (tripper) is a 15 minute interval and provides 15 minutes of defrost. For longer defrost duration, move additional tabs (following in time) from the initiation tab. For example, if a 45 minute defrost is to start at 7:00 AM, move the tabs outward that lie between 7:00 - 7:15, 7:15 - 7:30 and 7:30 - 7:45 on the AM side of the dial. The defrost will initiate at 7:00 AM and time terminate at 7:45 AM (if temperature termination does not occur first).

Fan Motor

If the motor does not operate or it cycles on thermal overload, remove motor leads from terminal block and apply correct voltage across the leads. If motor still does not operate satisfactorily, it must be replaced. Before starting the unit, rotate fan blades to make sure they turn freely and have sufficient clearance.

Fan Delay & Defrost Termination Control

This control is a single pole double throw switch. The red lead wire is wired to common. The black wire is wired in series with the fan motors. The brown wire is wired in series with the defrost termination solenoid in the timer. The brown and red contacts close and the black and red contacts open when the temperature is above 55°F. The black and red contacts close and the brown and red contacts open when the temperature is below 35°F.

On initial "pull down" of a warm box the fan will not start until the coil temperature reaches approximately 35°F. If the box is still comparatively warm (60°F) when the fan starts, then blowing this warm air over the coil may cause it to warm up to 55°F and thus stop the fan. Therefore, the fan may recycle on initial "pull down." This control cannot be adjusted.

If the fan motor fails to start when the control is below 35°F, disconnect the fan motor leads and check the motor as described for fan motors. Also check whether current is being supplied at "N" and "4" from the timer. The fan delay control must be below 35°F when checking for a closed circuit.

Defrost Heater

If unit shows very little or no defrosting and does not heat, disconnect heater and check to find if it is burned out. To test, apply correct voltage across heater or use continuity flashlight battery tester.

Drain Pan

If drain pan has an ice build-up, drain line may be frozen. The drain line should be pitched sharply and exit cabinet as quickly as possible. Sometimes location and ambient at the drain outside of cabinet may cause freeze-up. A drain line heater may be required to correct the freeze-up. Any traps in the drain line must be located in a **warm ambient**.

> <u>NOTE:</u> After correcting faulty condition it is essential that the coil and unit be free of ice before placing unit back on automatic operation.

Thin Profile Air Defrost Unit Cooler



Dimensional Data

		Dimensions (in)												Connections (in.)			
woder															Coll		
No.	Α	B	C	D	E	F	н	J	K	L	M	W	Inlet	Suction	Drain	Wt. (Ibs.)	
10	14 ⁵ / ₈	14	¹⁵ / ₁₆	13 ¹ / ₂	10 ¹ / ₂	11 ³ / ₈	4 ¹ / ₂	8 ⁷ / ₈	2 ¹ / ₂	¹⁵ / ₁₆	4 ³ / ₈	16 ¹ / ₂	3/ ₈ OD	3/ ₈ ID	1/2 OD	14	
13	18 ⁵ / ₈	14	¹⁵ / ₁₆	13 ¹ / ₂	10 ¹ / ₈	10 ¹ / ₄	4 ¹ / ₂	8 ³ / ₈	9 ¹ / ₂	¹⁵ / ₁₆	4 ³ / ₈	20 ¹ / ₂	3/8 OD	³ / ₈ ID	1/2 OD	17	
17	22 ¹ / ₈	15	¹⁵ / ₁₆	14 ¹ / ₂	11 ¹ / ₈	12	4 ¹ / ₂	9 ³ / ₈	11 ¹ / ₄	¹⁵ / ₁₆	4 ³ / ₈	24	3/8 OD	1/2 ID	1/2 OD	21	
23	29 ³ / ₄	15	¹⁵ / ₁₆	14 ¹ / ₂	13	20 7/8	4 ¹ / ₂	10 ³ / ₄	10 ¹ / ₄	¹⁵ / ₁₆	4 ³ / ₈	31 ⁵ / ₈	3/8 OD	1/2 ID	1/2 OD	28	
30	38 ¹ / ₈	15	¹⁵ / ₁₆	14 ¹ / ₂	13	29 ³ / ₄	4 ¹ / ₂	10 ³ / ₄	9 ³ / ₄	¹⁵ / ₁₆	4 ³ / ₈	40	3/8 OD	1/2 ID	1/2 OD	33	
43	51 ¹ / ₂	15	¹⁵ / ₁₆	14 ¹ / ₂	13	48 ³ / ₄	4 ¹ / ₂	10 ³ / ₄	13 ¹ / ₄	¹⁵ / ₁₆	4 ³ / ₈	53 ³ / ₈	1/2 OD	5/ ₈ ID	1/2 OD	44	
55	51 ¹ / ₂	15	¹⁵ / ₁₆	14 ¹ / ₂	13	49	6 ³ / ₄	10 ³ / ₄	11	¹⁵ / ₁₆	4 ³ / ₈	53 ³ / ₈	1/2 OD	5/ ₈ ID	1/2 OD	53	

Expansion Valve Recommendations

	25	°F Sat. Suction To	F Sat. Suction Tem	ction Temp.			
Model	BTUH @	R-	22	BTUH @	-22		
Size	10°F TD	Alco	Sporlan	15°F TD	Alco	Sporlan	
10	1000		EFV-1/5C 1500 2550 3450	1500			
13	1300				EFV-1/5C		
17	1700	HFS-1/4HC		2550	111 3-1/4110		
23	2300			3450		EEV 1/20	
30	3000			4500	HFS-1/2HC	EF V-1/3C	
43*	4300			6450		EFVE-1C	
55*	5500			8250			

* Size 43 and 55 use external equalized valves.

Mounting

The thin profile air defrost unit cooler is designed for mounting from the top of the cooler. Drill holes for screws in accordance with mounting dimensions A and B given in Dimensional Data.

After unpacking the unit, remove the fan panel and arrange the rear brackets as shown in the drawing. Insert the screws for mounting the rear brackets into the top of the cooler cabinet. Slip the rear brackets, attached to the unit, between the screw head and cabinet and secure in place. Install the front mounting screws. For proper drainage, the unit should be installed level.

Description	All Sizes Part Number				
115V Motor	25300701				
208/230V Motor	25300801				
Fan Blade	5101B				
Fan Guard	5054D				
Motor Mount	91179001				

Thin Profile Electric Defrost Unit Cooler



CONNECTION (35.53)

Dimensional Data

1.12

														Connections (In.)			Approx.
		Dimensions (In.)											Coil			Ship Wt.	
Size	Α	В	С	D	E	F	Н	J	K	L	М	Ν	W	Inlet	Suction	Drain	(Lbs.)
09	14 ⁵ / ₈	14	¹⁵ / ₁₆	13 ¹ / ₂	10 ¹ / ₂	11 ³ / ₈	4 ¹ / ₂	8 ⁷ / ₈	2 ¹ / ₂	¹⁵ / ₁₆	4 ³ / ₈	-	16 ¹ / ₂	3/8 OD	3/ ₈ ID	1/2 OD	14
12	18 ⁵ / ₈	14	¹⁵ / ₁₆	13 ¹ / ₂	10 ¹ / ₈	10 ¹ / ₄	4 ¹ / ₂	8 ³ / ₈	9 ¹ / ₂	¹⁵ / ₁₆	4 ³ / ₈	-	20 ¹ / ₂	³ / ₈ OD	1/2 ID	1/2 OD	19
16	22 ¹ / ₈	15	¹⁵ / ₁₆	14 ¹ / ₂	11¹/ ₈	12	4 ¹ / ₂	9 ³ / ₈	11 ¹ / ₄	¹⁵ / ₁₆	4 ³ / ₈	-	24	3/8 OD	1/2 ID	1/2 OD	23
21	22 ¹ / ₈	16 ¹ / ₂	¹⁵ / ₁₆	16 ¹ / ₂	14 ¹ / ₂	18 ⁷ / ₈	6 ³ / ₄	11 ⁷ / ₈	17 ¹ / ₄	¹⁵ / ₁₆	4 ³ / ₈	-	24	³ / ₈ OD	1/2 ID	1/2 OD	24
28	29 ³ / ₄	15	¹⁵ / ₁₆	14 ¹ / ₂	13	20 ³ / ₄	6 ³ / ₄	9 ³ / ₄	9 ⁷ / ₈	¹⁵ / ₁₆	4 ³ / ₈	-	31⁵/ ₈	3/8 OD	1/2 ID	1/2 OD	27
35	35 ³ / ₄	16 ¹ / ₂	1 ⁵ / ₁₆	16 ¹ / ₂	14 ¹ / ₂	33¹/ ₄	6 ³ / ₄	11 ⁵ / ₈	18³/ ₈	1 ⁵ / ₁₆	6"	5 ¹ / ₈	38 ³ / ₈	1/2 OD	5/ ₈ ID	1/2 OD	38
53	46 ¹ / ₂	16 ¹ / ₂	1 ¹ / ₈	16 ¹ / ₂	14 ¹ / ₂	44	6 ³ / ₄	11 ⁵ / ₈	30 ³ / ₈	1 ¹ / ₂	6"	5 ¹ / ₈	49 ¹ / ₈	1/2 OD	7/ ₈ ID	1/2 OD	53

5/16 x 5/8 x 1" KEYHOLE SLOT

ELECT. CONNECTION

(09-28)

AIF OU

1/2 O.D DRAIN

ELECTRICAL CONNECTION

Mounting

This unit cooler is designed for mounting from the top of the cooler. Drill holes for screws in accordance with mounting dimensions given in Dimensional Diagram and Data.

After unpacking the unit, remove the fan panel and arrange the rear brackets as shown in the drawing. Insert the screws for mounting the rear brackets into the top of the cooler cabinet. Slip the rear brackets, attached to the unit, between the screw head and cabinet and secure in place. Install the front mounting screws. For proper drainage, the unit should be installed level.

		-10°F. Suction 10°	TD		-15°F. Suction 1	5° TD		
Model	BTUH	R- 4	104	BTUH	R-404A			
Size	10° TD	Alco	Sporlan	15° TD	Alco	Sporlan		
09	900			1350				
12	1200	HFS ¹ / ₈ SZ	EFS ¹ / ₈ Z	1800	HFS ¹ / ₈ SZ	EFS ¹ / ₈ Z		
16	1600			2400				
21	2100			3150	HFS¹/₄SZ	EFS ¹ / ₆ Z		
28	2800	HFS ¹ / ₄ SZ	EFS ¹ / ₆ Z	4200	HFS ¹ / ₂ SZ	EFS ¹ / ₄ Z		
35*	3500	HFES ¹ / ₄ SZ	EFSE ¹ / ₄ Z	5250	HFES ¹ / ₂ SZ	EFSE ¹ / ₂ Z		
53*	5300	HFES ¹ / ₂ SZ	EFSE ¹ / ₂ Z	7950	HFES1SZ	EFSE1Z		

*Sizes 35 and 53 use external equalized valves.

Sequence of Operation

Step "A" - Normal Refrigeration Cycle

- 1. Power is supplied to N and 4 terminals by the timer.
- 2. The fan delay and defrost termination thermostat is closed in
- the fan delay position and open in the defrost termination position.
- 3. The defrost heater is off.
- 4. The compressor operates in accordance with the demands of
- the refrigeration system temperature and/or pressure controls.
- 5. The unit cooler fan operates continually.
- 6. Frost builds up slowly on the evaporator.

Step "B" - Defrost Cycle

1. Defrosting of the evaporator is started automatically by the timer at predetermined times - typical settings of the timer would be 1 to 3 defrost periods per 24 hours.

2. The timer mechanically opens switch "A" which breaks the circuit to the compressor and evaporator fan motors, thereby shutting them off, and closes switch "B," thereby permitting current to flow to the heater.

3. The heater recessed in slots, gives up heat directly to the fins of the evaporator. This heat raises coil and refrigerant temperature to 32°F causing the frost to melt.

4. Frost on the evaporator is melted and defrost water drips into the heated drain pan and flows down the drain.

5. When frost has completely melted from the coil, the coil starts to warm up beyond 32°F.

Step "C" - Coil Re-Cooling Cycle

1. When the coil warms up to 55°F, the defrost termination thermostat closes which allows the current to flow to the solenoid in the timer, which then energizes and trips the timer switch back to its normal position (switch "A" closed, switch "B" open). The fan delay portion of this thermostat is now open.

2. The compressor now starts.

3. Then fan motors remain off because the fan delay thermostat is open. This prevents warm air from being blown into the

refrigerated space.4. The evaporator coil cools down approaching operating temperature. Superheated gas only passes to the compressor.

Step "D" - Return to Normal

Refrigeration Operation

1. When the coil temperature reaches 35°F, the fan control switch closes. This allows current to flow to the fan motor and the unit is now back in operation as in Step "A."

IMPORTANT

1. On initial "pull down" of a warm box, the fan will not start until coil temperature reaches approximately 35°F. If box is still comparatively warm (60° F) when the fan starts, then blowing this warm air over the coil may cause it to warm up to 55°F and thus stop the fan. Therefore, fan may recycle several times on initial "pull down."

 The timer has an adjustable fail-safe feature which will return the system to the refrigeration cycle at the end of a predetermined time (factory set at 24 minutes) if automatic control devices fail.
Frequent defrost periods are not necessary! The determining

factor for number of defrosts per day is the frost load. When frost "build-up" results in a loss of refrigeration capacity, then a defrost is required. One to three defrosts per day are recommended.

4. A low temperature thermostatic expansion valve with pressure limiting feature is desirable for use with these units. Such a valve prevents feeding of refrigerant to the coil during the defrost cycle.

Typical Wiring Diagram for Thin Profile Electric Defrost Unit Cooler



Model	No. of	Mo Am	tor ips.	Heater Amps.		
Size	Motors	A*	B*	A*	B*	
09	1	0.8	0.4	4.13	2.07	
12	2	1.6	0.8	5.22	2.61	
16	2	1.6	0.8	6.09	3.04	
21	1	1.0	0.5	9.57	4.78	
28	3	-	1.2	-	5.7	
35	2	-	1.0	-	7.0	
53	3	-	1.5	-	8.5	

1. Use copper conductors only.

2. Unit must be grounded.

3. Timer-Paragon Model 8145-20 may be factory supplied, field installed, or field supplied and installed.

4. Fan delay and defrost termination - Red to N, Brown to X, Black to F. Fans will not operate until thermostat resets.

- 5. Heater limit: Red to N, White to H omitted on model 28; heater is connected directly to N.
- 6. *Indicates electrical code: A=115/60/1, B=208-230/60/1.

Part		115	Volt			208-230 Volt						
Description	09	12	16	21	09	12	16	21	28	35	53	
Motor	25300701	25300701	25300701	25303201	25300801	25300801	25300801	25303301	25300801	25303301	25303301	
Fan Blade	5101B	5101B	5101B	23100201	5101B	5101B	5101B	23100201	5101B	23100201	23100201	
Fan Guard	5054D	5054D	5054D	H50328	5054D	5054D	5054D	H50328	5054D	H50328	H50328	
Heater	4539N	4540N	4541N	4545N	4542N	4543N	4544N	4546N	H50097	24700701	24700702	
Heater Clip	5543J	5543J	5543J	5543J	5543J	5543J	5543J	5543J	H50039	5543J	5543J	
Defrost Control	5709L	5709L	5709L	5709L	5709L	5709L	5709L	5709L	5709L	5709L	5709L	
Mount	91179001	91179001	91179001	23101401	91179001	91179001	91179001	23101401	91179001	23101401	23101401	



Extended Thin Profile Unit Cooler



Connections- Air Defrost

	Number	C	Net			
Model	of	Coil		External		Weight
Size	Fans	Inlet	Suction	Equalizer	Drain	(Lbs.)
LTA 053	2	1/2 OD	5/8 ID	1/4	3/4 MPT	48
LTA 079	3	1/2 OD	5/8 ID	1/4	3/4 MPT	69
LTA 102	4	1/2 OD	7/8 ID	1/4	3/4 MPT	85
LTA 134	5	1/2 OD	7/8 ID	1/4	3/4 MPT	108
LTA 172	6	1/2 OD	1 1/8 ID	1/4	3/4 MPT	124

Connections- Electric Defrost

	Number	C	Net			
Model	of	Coil		External		Weight
Size	Fans	Inlet	Suction	Equalizer	Drain	(Lbs.)
LTL 046	2	1/2 OD	5/8 ID	1/4	3/4 MPT	48
LTL 068	3	1/2 OD	5/8 ID	1/4	3/4 MPT	69
LTL 093	4	1/2 OD	7/8 ID	1/4	3/4 MPT	85
LTL 115	5	1/2 OD	7/8 ID	1/4	3/4 MPT	108
LTL 133	6	1/2 OD	1 1/8 ID	1/4	3/4 MPT	124

Nozzle Selection- Air Defrost

Number	Air	Distribu	tor Tube	Number		
of	Defrost	OD	Length	of		
Fans	LTA	(Inches)	(Inches)	Circuits	R404A	R22
2	053	3/16	21 1/2	2	L-1/2	L-1/3
3	079	3/16	21 1/2	2	L-1/2	L-1/3
4	102	3/16	21 1/2	4	L-3/4	L-1/2
5	134	3/16	21 1/2	4	L-1	L-3/4
6	172	3/16	21 1/2	5	L-1 1/2	L-1

Nozzle Selection- Electric Defrost

Number	Electric	Distributor Tube		Number	Low 1	Temp.	Medium Temp.		
of	Defrost	OD	Length	of	-30°F to	0°F SST	+10°F to +25°F SST		
Fans	LTL	(Inches)	(Inches)	Circuits	R404A	R22	R404A	R22	
2	046	3/16	21 1/2	3	L-3/4	L-1/2	L-1/2	L-1/3	
3	068	3/16	21 1/2	3	L-3/4	L-1/2	L-3/4	L-1/2	
4	093	3/16	21 1/2	5	L-1	L-3/4	L-1	L-3/4	
5	115	3/16	21 1/2	5	L-1 1/2	L-1	L-1	L-3/4	
6	133	3/16	21 1/2	5	L-1 1/2	L-1	L-1 1/2	L-1	

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Extended Thin Profile Unit Cooler (continued)

Replacement Parts

Motor / Fan Blade / Fan Guard

Part #	Description		
25315501	Motor 115/1/60 Shaded Pole		
25315601	Motor 208-230/1/60 Shaded Pole		
22919001	Fan Blade 10"		
23105001	Fan Guard - Wire		
23105101 Motor Mount			

Defrost Heater

Part #	Description	Voltage	No. Fans
24723002	Defrost Heater 1100W 230V	208-230/1/60	2
24723003	Defrost Heater 1650W 230V	208-230/1/60	3
24723004	Defrost Heater 2200W 230V	208-230/1/60	4
24723005	Defrost Heater 2750W 230V	208-230/1/60	5
24723006	Defrost Heater 3300W 230V	208-230/1/60	6
23305501	Heater Clip	N/A	3-7

Cabinet Components

Part #	Description	No. Fans
40970201	Drain Pan	2
40970301	Drain Pan	3
40970401	Drain Pan	4
40970501	Drain Pan	5
40970601	Drain Pan	6
46834201	Fan Panel - 2 Fan	2, 4, 5
46834301	Fan Panel - 3 Fan	3, 5, 6
46844201	Beacon Fan Panel - 2 Fan	2, 4, 5
46844301	Beacon Fan Panel - 3 Fan	3, 6
40931201	Panel - Side Right (Piping End)	N/A
40931301	Panel - Front Access Right (Piping End)	N/A
40930901	Panel - Side Left (Electrical End)	N/A
40931001	Panel - Front Access Left (Electrical End)	N/A
40931401	Panel - Back Right (Piping End)	N/A
40931101	Panel - Back Left (Electrical End)	N/A
40931601	Panel - Beacon Access	N/A

Drain Fitting

Part #	Description
26925101	Drain Fitting Assembly

Electrical Components

Part #	Description
4145W	Terminal Strip - Electric Defrost Models
5709L	Defrost Termination Thermostat - sealed bimetal type
5709L	Fan Delay Thermostat - sealed bimetal type
4131Y	Room Thermostat
5708L	Heater Limit Thermostat - sealed bimetal type

Mounting

This unit cooler is designed for mounting from the top of the cooler. Drill holes for screws in accordance with mounting dimensions given in Dimensional Diagram and Data.

After unpacking the unit, arrange the unit 7 1/2" from wall. Insert the screws for mounting the rear brackets into the top of the cooler cabinet. Slip the rear brackets, attached to the unit, between the screw head and cabinet and secure in place. Install the front mounting screws. For proper drainage, the unit should be installed level.



Wiring Diagram



V Profile Unit Cooler



Dimensional Data

V											Cor	nnections	(In.)	Approx.
Profile				Di	mensi	ons (In	ı.)				Coil			Ship Wt.
Model	Α	В	С	D	E	F	Н	J	K	W	Inlet	Suction	Drain	(Lbs.)
06	4 ⁵ / ₁₆	13 ¹ / ₄	4 ⁵ / ₁₆	-	-	3 ³ / ₈	6 ⁷ / ₈	5 ¹ / ₄	8 ¹ / ₈	12 ¹ / ₂	³ / ₈ OD	3/ ₈ ID	1/2 OD	9
08	4 ⁵ / ₁₆	13 ¹ / ₄	4 ⁵ / ₁₆	-	-	3 ³ / ₈	6 ⁷ / ₈	5 ¹ / ₄	8 ¹ / ₈	12 ¹ / ₄	3/ ₈ OD	3/ ₈ ID	¹ / ₂ OD	9
12	4 ¹ / ₂	18 ³ / ₄	5 ⁵ / ₁₆	-	-	3 ³ / ₈	8	4 ⁷ / ₈	8 ¹ / ₈	18	3/ ₈ OD	3/ ₈ ID	1/2 OD	14
17	5 ¹ / ₄	14 ³ / ₄	5 ¹ / ₄	9	2 ¹ / ₂	4	9 ³ / ₄	6 ¹³ / ₁₆	10 ¹ / ₂	14	³ / ₈ OD	³ / ₈ ID	1/2 OD	11

Expansion Valve Recommendations

V	25°F. E	vaporating	Temp.	20°F. Evaporating Temp.		
Profile	BTUH @	R-22		BTUH @	R-22	
Model	10°F. TD	Alco Sporlan		15°F. TD	Alco	Sporlan
06	600			900		
08	800	HFS ¹ / ₄ HC	EFV 1/5C	1200	HFS ¹ / ₄ HC	EFV¹/₅C
12	1200			1800		
17	1700			2550		



Replacement Parts

	V Profile Models			
Description	06, 08, 12	17		
115V Motor	25300701	25303201		
208/230V Motor	25300801	25303301		
Fan Blade	5101B	23100201		
Fan Guard	5054D	H50328		
Motor Mount	91179001	23101401		

Mounting

The V profile unit cooler is designed for mounting from the top or the back wall of the cooler. Drill holes for screws in accordance with mounting dimensions given in Dimensional Data.

After unpacking the unit, secure top of unit to ceiling or back wall and arrange the rear brackets as shown in the drawing. Mount the rear brackets to wall, if applicable, to the installation.

For proper drainage, the unit should be installed level.

High Profile Unit Cooler



Dimensional Data

						Cor	Approx.		
Model		Dimensions (In.)							Ship Wt.
No.	Α	В	С	D	W	Inlet	Suction	Drain	(Lbs.)
13	12 ⁵ / ₈	12 ³/ ₈	11 ⁷ / ₁₆	1 ³ / ₈	14 ¹ / ₄	3/ ₈ OD	3/ ₈ ID	1/2 OD	16
17	15 ⁵ / ₈	12 ³ / ₈	14 ⁷ / ₁₆	1 ³ / ₈	17 ¹ / ₄	³ / ₈ OD	1/2 ID	1/2 OD	17
23	21 ⁵ / ₈	12 ³ / ₈	21 ¹ / ₁₆	7/ ₈	22 ³ / ₄	3/ ₈ OD	1/2 ID	1/2 OD	22
30	26 ¹ / ₈	12 ³/ ₈	25 ¹³ / ₁₆	1	27 ³ / ₄	3/ ₈ OD	1/2 ID	1/2 OD	27
43	36 ⁵ / ₁₆	-	-	-	38	1/2 OD	1/2 ID	1/2 OD	40

Expansion Valve Recommendations

-	25°	F Sat. Suction Te	emp.	20°F	р.	
Model	BTUH @	R-2	R-22		R-:	22
Size	10°F TD	Alco	Sporlan	15°F TD	Alco	Sporlan
13	1300		EFV-1/5C	1950	HFS-1/4HC	EFV-1/5C
17	1700			2550		
23	2300	HFS-1/4HC		3450		
30	3000			4500	HFS-1/2HC	EFV-1/3C
43*	4300	HFES-1/2HC	EFVE-1/2C	6450	HFES-1HC	EFVE-1C

* Size 43 uses external equalized valve.

Mounting

Using dimensions given in Dimensional Diagram and Data, install mounting screws for rear hangers and slide hanger slots onto screws before tightening. Open cabinet and install screws through top, front mounting holes to ceiling of box.

Description	All Sizes Part Number
115V Motor	25303201
208/230V Motor	25303301
Fan Blade	23100201
Fan Guard	H50328
Motor Mount	23101401

Standard & Reverse Air Flow Wall Mullion Unit Cooler



Dimensional Data

Standard or					Со	nnections	(In.)	Approx.
Reverse Flow		Dimensio		Coil			Shipping	
Models	Н	L	M	W	Inlet	Suction	Drain	Wt. (Lbs.)
13	17 ³ / ₄	16 ⁷ / ₈	12 ¹ / ₄	15 ⁵/ ₈	3/8 OD	3/ ₈ OD	5/ ₈ OD	19
17	19 ³ / ₄	16 ⁷ / ₈	14 ¹ / ₄	15 ⁵ / ₈	³ / ₈ OD	3/ ₈ OD	⁵ / ₈ OD	20
23	19 ³ / ₄	23 ¹ / ₄	14 ¹ / ₄	22	³ / ₈ OD	1/2 OD	⁵ / ₈ OD	28

Expansion Valve Recommendations

	25°F	Sat. Suction T	emp.	20°F Sat. Suction Temp.			
Model	BTUH @	R-22		BTUH @	R-22		
Size	10°F TD	Alco	Sporlan	15°F TD	Alco	Sporlan	
13	1300			1950		EEV-1/5C	
17	1700	HFS-1/4HC	EFV-1/5C	2550	HFS-1/4HC		
23	2300	-		3450		EFV-1/3C	

Mounting

The standard flow mullion unit draws air in at the top and discharges out the bottom. The reverse flow mullion draws air in at the bottom and discharges out the top. The unit may be mounted in a mullion or against a back or side wall.

When mounting to the mullion of under counter refrigerators, mounting holes are located on both ends of the unit for attaching to "customer furnished" mounting brackets.

When wall mounted, four "L" type brackets and eight stainless steel sheet metal screws are provided to attach the brackets to side panels.

IMPORTANT: A minimum of 2 inches must be provided between the top of the unit and the top of the cabinet.

A top barrier is supplied and must be used if combustible material is above the unit. On reverse flow models the barrier may be used to direct the air straight out or up at a 45° angle. Holes and slots are provided to adjust the barrier. If noncombustible material is used above the unit, the barrier may be discarded if desired.

Knockouts are provided for bringing the refrigerant piping through either end of the cabinet. An electrical knockout is provided into an internal junction box.

Part	Standard	Reverse
Description	Down Flow	Up Flow
115V Motor	25300701	25300701
208/230V Motor	25300801	25300801
Fan Blade	5102C	5117C
Fan Guard (13-17)	5076E	5076E
Fan Guard (23)	5077E	5077E
Motor Mount	91179001	91179001
Drain Pan (13-17)	74422002	74422002
Drain Pan (23)	74436002	74436002

Wall Mount Back Bar Unit Cooler



Dimensional Diagram



Dimensional Data

Model	BTUH		Moto	r Data	Dimensions (In.)						Approx. Ship Wt.	
BB	10°F TD	CFM	Qty.	HP	W	Α	B	С	D	E	F	(Lbs.)
L10	1,000	90	1	1/150	19 ³ / ₄	19¹/ ₈	18	17 ¹ / ₂	7 ¹ / ₁₆	-	16 ⁵ / ₈	17
M11	1,100	90	1	1/150	19 ³ / ₄	19 ¹ / ₈	18	17 ¹ / ₂	7 ¹ / ₁₆	-	16 ⁵ / ₈	16
L15	1,500	180	2	1/150	26 ¹ / ₄	25 ⁵ / ₈	24 ¹ / ₂	24	4 ¹³ / ₁₆	8 ⁵ / ₈	231/8	20
M16	1,600	180	2	1/150	26 ¹ / ₄	25 ⁵ / ₈	24 ¹ / ₂	24	4 ¹³ / ₁₆	8 ⁵ / ₈	23 ¹ / ₈	19

NOTE: All units have 3/8 O.D. suction, 1/2 O.D. sweat inlet connection and 1/2 O.D. drain.

Expansion Valve Recommendations

Low	-10	°F Sat. Suction	Тетр.	-15	°F Sat. Suction	Temp.		
Temp	BTUH @	R-4	04A	BTUH @	R-4	04A		
Model	10°F TD	Alco	Sporlan	15°F TD	Alco	Sporlan		
BBL10	1000			1500	HFS-1/8SZ	EFS-1/8Z		
BBL15	1500	HFS-1/85Z	EFS-1/8Z	2250	HFS-1/4SZ	EFS-1/6Z		
	Med 25°F Sat. Suction Temp. 20°F Sat. Suction Temp.							
Med	25°F	Sat. Suction Te	mp.	20°F	Sat. Suction T	emp.		
Med Temp	25°F BTUH @	Sat. Suction Te R-22	mp. 2	20°F BTUH @	Sat. Suction Te	emp. 2		
Med Temp Model	25°F BTUH @ 10°F TD	Sat. Suction Te R-22 Alco	mp. 2 Sporlan	20°F BTUH @ 15°F TD	Sat. Suction To R-2 Alco	emp. 2 Sporlan		
Med Temp Model BBM11	25°F BTUH @ 10°F TD 1100	Sat. Suction Te R-22 Alco	mp. 2 Sporlan	20°F BTUH @ 15°F TD 1870	Sat. Suction T R-2 Alco	emp. 22 Sporlan		

Replacement Parts

Description	All Sizes Part No.
115V Motor	25300701
208/230V Motor	25300801
Fan Blade	5101B
Fan Guard	5054D
Motor Mount	91179001

Mounting

The Wall Mount Back Bar Unit Cooler is a low height unit designed for undercounter applications. Air is drawn in at the bottom of the unit and discharged out the front. Two mounting angles are included with the unit and should be installed to space the unit 3/4" off the wall. Air deflector(s) are included and can be mounted over the top half of the fan guard to direct the air up. The deflector may be left off if total horizontal air movement is desired. If used, the deflector can be field formed to direct the air where needed. Locating holes and screws are provided.



Electric Defrost Wiring, Model BBL



Dual Aire Unit Cooler



Dimensional Data

							Con	(In.)	Approx.	
Dual Aire		D	imens	ions	(In.)	Coil			Ship Wt.	
Models	н	W	D	Α	В	С	Inlet	Suction	Drain	(Lbs.)
009	8 ¹ / ₂	11 ¹ / ₂	8 ⁷ / ₈	6	4	3 ¹ / ₂	¹ / ₂ FN	3/ ₈ ID	1/2 OD	8
012	8 ¹ / ₂	17 ¹ / ₂	8 ⁷ / ₈	12	4	9 ¹ / ₂	¹ / ₂ FN	³ / ₈ ID	1/2 OD	10
015	9 ¹ / ₂	17 ¹ / ₂	10 ⁷ / ₈	12	4	9 ¹ / ₂	¹ / ₂ FN	3/ ₈ ID	1/ ₂ OD	12

Expansion Valve Recommendations

	25°F	Sat. Suction	Temp.	20°F Sat. Suction Temp.			
Model	BTUH @	R-2	22	BTUH @	R-22		
Size	10°F TD	Alco	Sporlan	15°F TD	Alco	Sporlan	
009	850			1275			
012	1150	HFS-1/4HC	EFV-1/5C	1725	HFS-1/4HC	EFV-1/5C	
015	1500			2250			

Mounting

- 1. Drill holes in ceiling or backwall and insert #10 screws to within 1/16" of surface.
- 2. Attach expansion valve drip pan to drain pan of unit.
- 3. Check all screws for tightness.
- Hang unit using keyhole slots, adjusting mounting screws as necessary. Tighten screws from inside of cabinet. Remove drain pan to reach screws.

WARNING:

All power must be disconnected before cleaning drain pan. It also serves as cover of hazardous moving parts, and operation of unit without pan in place constitutes a hazard.

Replacement Parts

	Replace	ement Part fo	or Size:	
Description	009	012	015	
Drain Pan	66974002	66958002	66980002	
Valve Drip Pan	66982001	66982001	66982001	
Fan Panel	66970001	66956001	66976001	
Motor (115/1)	5025S	5025S	5026S	
(208-230/1)	5026T	5026T	5026T	
Top Panel	66973001	66957001	66979001	
Fan (115/1)	5124A	5126A	5127A	
(208-230/1)	92726001	92726002	5127A	
Motor Mount	91746001	91746001	91746001	

*Optionally available are molded harness for motor connection in the following lengths:

30" (4318K001)

48" (4318K002)



Dimensional Data

Twin Flow	Dimensions (In.)											Fan		Approx. Ship Wt.	
Model	Α	B	C	D	Е	F	Ĝ	Н	J	K	L	М	Qty.	Dia.	(Lbs.)
09	16 ¹ / ₈	19 ¹ / ₈	7 ⁹ / ₁₆	4	2 ⁵ / ₁₆	9 ⁹ / ₁₆	2 ³ / ₄	4 ⁷ / ₈	4 ¹ / ₂	8 ⁵ / ₈	2 ¹ / ₂	2 ⁵ / ₈	1	5 ¹ / ₂ "	12
13	16 ¹ / ₈	19 ¹ / ₈	7 ⁹ / ₁₆	4	2 ⁵ / ₁₆	9 ⁹ / ₁₆	2 ³ / ₄	4 ⁷ / ₈	4 ¹ / ₂	8 ⁵ / ₈	2 ¹ / ₂	2 ⁵ / ₈	2	5 ¹ / ₂ "	14
18	16 ¹ / ₈	19 ¹ / ₈	7 ⁹ / ₁₆	4	2 ⁵ / ₁₆	9 ⁹ / ₁₆	2 ³ / ₄	5 ³ / ₄	4 ¹ / ₂	8 ⁵ / ₈	2 ¹ / ₂	2 ⁵ / ₈	1	8"	15
25	18 ¹ / ₈	26 ¹ / ₈	11 ¹ / ₁₆	4	2 ⁵ / ₁₆	13 ¹ / ₁₆	2 ³ / ₄	6 ³ / ₄	5 ¹ / ₂	12 ¹ / ₈	3 ¹ / ₂	2 ⁵ / ₈	2	8"	23
35	18 ¹ / ₈	26 ¹ / ₈	11 ¹ / ₁₆	4	2 ⁵ / ₁₆	13 ¹ / ₁₆	2 ³ / ₄	6 ³ / ₄	5 ¹ / ₂	12 ¹ / ₈	3 ¹ / ₂	2 ⁵ / ₈	2	8"	24
45	211/8	29 ¹ / ₈	8 ³ / ₁₆	7 ³ / ₄	3 ⁷ / ₁₆	19 ⁵ / ₈	3 ¹ / ₂	9 ¹ / ₄	8	13 ⁵ / ₈	5 ¹⁵ / ₁₆	4 ¹ / ₄	2	8"	34
55	21 ¹ / ₈	29 ¹ / ₈	8 ³ / ₁₆	7 ³ / ₄	3 ⁷ / ₁₆	10 ⁵ / ₈	3 ¹ / ₂	8 ¹ / ₂	8	13 ⁵ / ₈	5 ¹⁵ / ₁₆	4 ¹ / ₄	1	12"	34

NOTE: All units have 1/2 I.D. suction, 1/2 O.D. sweat inlet connection and 1/2 O.D. drain.

Expansion Valve Recommendations

	25°F. S	Sat. Suction	Temp.	20°F	Sat. Suctio	n Temp.
Model	BTUH @	R-	22	BTUH @	R-:	22
Size	10°F. TD	Alco	Sporlan	15°F. TD	Alco	Sporlan
09	900			1350		
13	1300	HF S ¹ / ₄ HC	EFV ¹ / ₅ C	1950	HFS-1/4HC	EFV-1/5C
18	1800			2700		
25*	2500	HFES-1/ HC	EFVE-1/.C	3750	HFES-1/, HC	EHFE-1/C
35*	3500	4.10	3=	5250	- 2	3
45*	4500	HFES-1/, HC	EFVE-1/.C	6750	HFES-1HC	EFVE-1C
55*	5500	2	- 2-	8250		

*Sizes 25, 35, 45 & 55 use external equalized valves.

Replacement Parts

Twin Coil	Mo	tor	Fan	Fan	Motor
Models	115V	208/230V	Blade	Guard	Mount
09	25300701	25300801	5101B	5054D	91179001
13	25300701	25300801	5101B	5054D	91179001
18	25303201	25303301	23100201	H50328	23101401
25	25303201	25303301	23100201	H50328	23101401
35	25303201	25303301	23100201	H50328	23101401
45	25303201	25303301	23100201	H50328	23101401
55	5036S	5036T	5110E	5055F	40003001

Mounting

The Twin Flow unit cooler is designed for mounting from the top of the cooler. Drill holes for bolts or screws according to dimensions given in Dimensional Diagram and Data. Double keyhole slots are provided so screws may be installed first and then the unit positioned over the screw head and slid left or right, then tighten screws to secure the unit.

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