



TWB Two-Way Air Defrost Unit Coolers

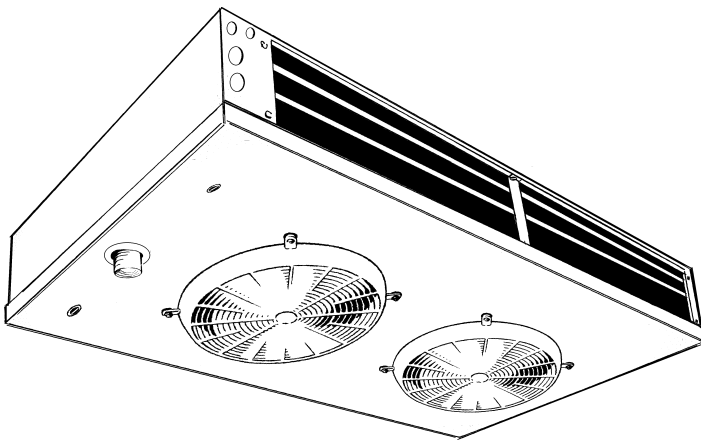
PRODUCT DATA & INSTALLATION

Bulletin R16-PDI10-2

1043852

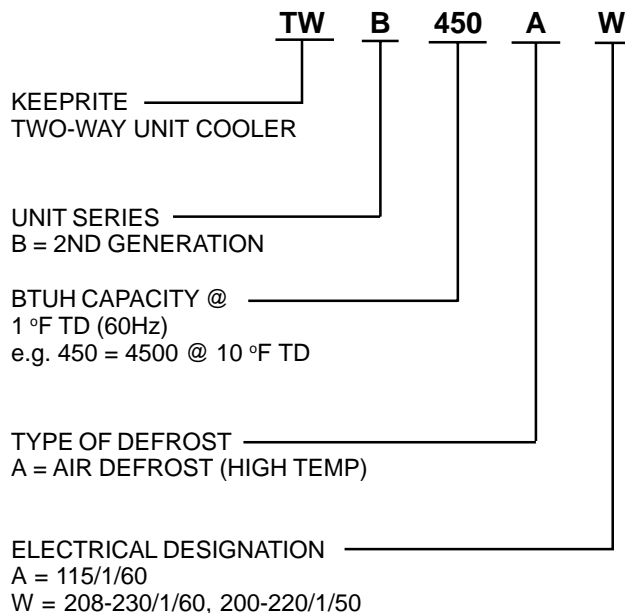
**High Temperature
(35 °F / 1.7 °C or Higher) Applications**

**Electrical Power:
115/1/60, 208-230/1/60, 200-220/1/50**



- * NSF approved "flush to ceiling" mount.
- * Cleanable, durable textured aluminum cabinet.
- * Thermally protected fan motor for long life and dependability.
- * Compact size maximizes usable storage space.
- * Dual refrigeration coils and two-way air distribution reduces air velocities to minimize product dehydration. Air enters through fan and discharges two ways out of each coil side.
- * Single fan models include 36" motor power cord.

NOMENCLATURE



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60Hz SPECIFICATIONS

60Hz Capacity Data - BTUH

	MODEL NUMBER TWB										
	87	126	166	203	250	300	450	600	900	1200	
1 °F TD	87	126	166	203	250	300	450	600	900	1200	
10 °F TD	870	1260	1660	2030	2500	3000	4500	6000	9000	12000	
15°F TD	1305	1890	2490	3045	3750	4500	6750	9000	13500	18000	
CFM	130	180	237	270	440	440	928	807	1242	1677	
REFRIG. CHARGE*:	LBS KG	0.4 0.18	0.5 0.24	0.7 0.30	0.8 0.37	0.9 0.41	1.2 0.52	1.4 0.63	2.2 1.01	3.3 1.48	3.9 1.77
UNIT WEIGHT:	LBS KG	12 5.4	13 5.9	14 6.4	16 7.3	18 8.2	20 9.1	71 32.2	76 34.5	104 47.2	120 54.4

* R22 at +20 °F S.S.T. with coil 30% full

60 HZ Fan Motor Electrical Data

MODEL	FAN MOTOR QUANTITY (1/25 HP ea)	115/1/60			208-230/1/60		
		TOTAL FLA	MIN. CIRC. AMPACITY	MAX. FUSE (AMPS)	TOTAL FLA	MIN. CIRC. AMPACITY	MAX. FUSE (AMPS)
TWB87A	1	1.1	1.4	15	0.6	0.8	15
TWB126A	1	1.1	1.4	15	0.6	0.8	15
TWB166A	1	1.1	1.4	15	0.6	0.8	15
TWB203A	1	1.1	1.4	15	0.6	0.8	15
TWB250A	1	1.1	1.4	15	0.6	0.8	15
TWB300A	1	1.1	1.4	15	0.6	0.8	15
TWB450A	2	2.2	2.8	15	1.2	1.5	15
TWB600A	2	2.2	2.8	15	1.2	1.5	15
TWB900A	3	3.3	4.1	15	1.8	2.3	15
TWB1200A	4	4.4	5.5	15	2.4	3.0	15

50Hz SPECIFICATIONS

50Hz Capacity Data - BTUH

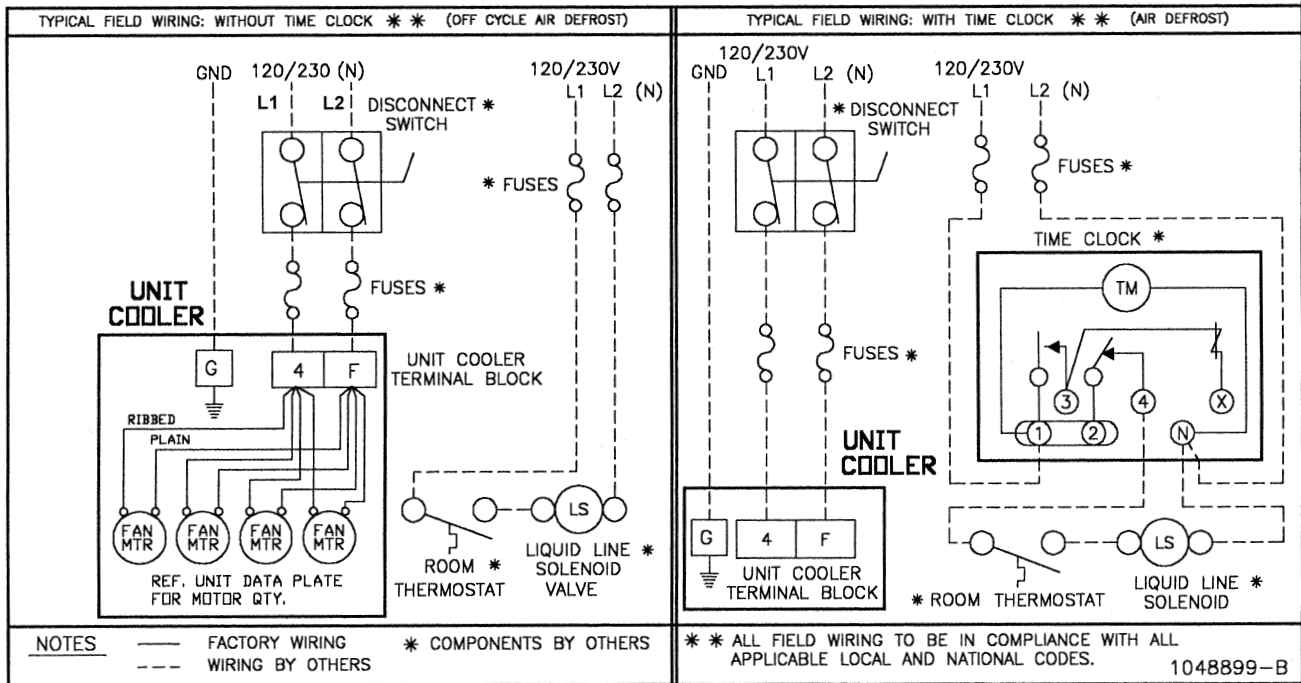
	MODEL NUMBER TWB										
	87	126	166	203	250	300	450	600	900	1200	
1 °F TD	80.0	115.9	152.7	186.8	230.0	276.0	414.0	552.0	828.0	1104.0	
10 °F TD	800	1159	1527	1868	2300	2760	4140	5520	8280	11040	
15°F TD	1105	1600	2108	2577	3174	3809	5713	7618	11426	15235	
CFM	108	149	197	224	365	365	770	670	1031	1392	
REFRIG. CHARGE*:	LBS KG	0.4 0.18	0.5 0.24	0.7 0.30	0.8 0.37	0.9 0.41	1.2 0.52	1.4 0.63	2.2 1.01	3.3 1.48	3.9 1.77
UNIT WEIGHT:	LBS KG	12 5.4	13 5.9	14 6.4	16 7.3	18 8.2	20 9.1	71 32.2	76 34.5	104 47.2	120 54.4

* R22 at +20 °F S.S.T. with coil 30% full

50 HZ Fan Motor Electrical Data

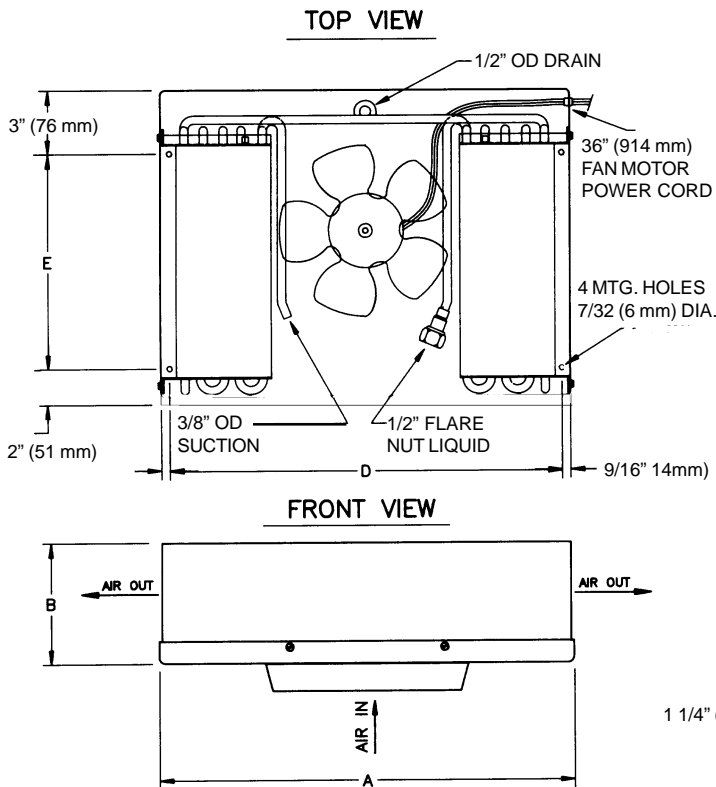
MODEL	FAN MOTOR QUANTITY (1/25 HP ea)	200-220/1/50		
		TOTAL FLA	MIN. CIRC. AMPACITY	MAX. FUSE (AMPS)
TWB87A	1	0.6	0.8	15
TWB126A	1	0.6	0.8	15
TWB166A	1	0.6	0.8	15
TWB203A	1	0.6	0.8	15
TWB250A	1	0.6	0.8	15
TWB300A	1	0.6	0.8	15
TWB450A	2	1.2	1.5	15
TWB600A	2	1.2	1.5	15
TWB900A	3	1.8	2.3	15
TWB1200A	4	2.4	3.0	15

WIRING DIAGRAM



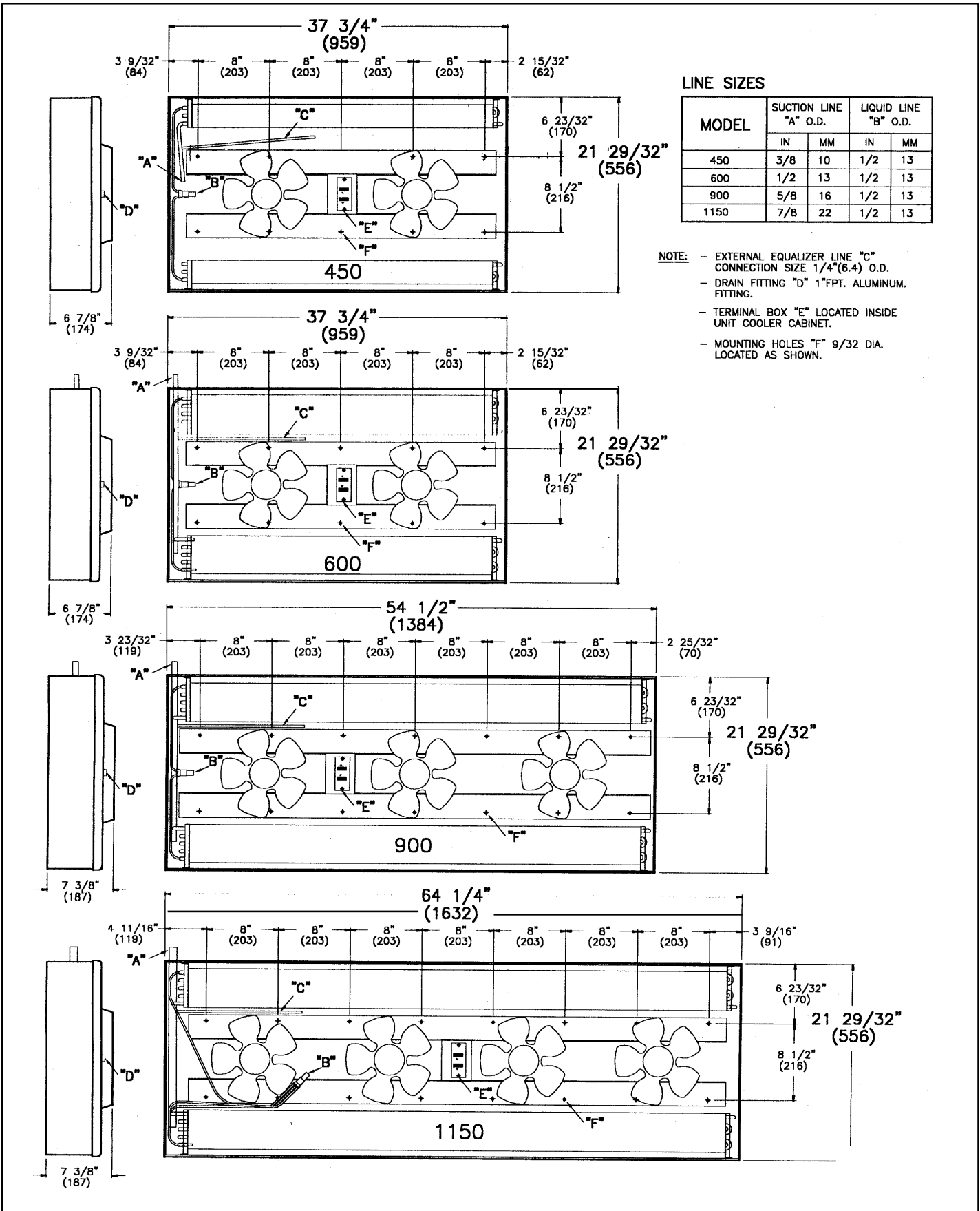
NOTE: Wiring diagram applicable to multiple fan models.
Single fan models use 36" powercord(bare wire terminations) connected directly within motor.

DIMENSIONAL DATA SINGLE FAN MODELS



MODEL	DIMENSIONAL DATA - INCHES (MM)				
	A	B	C	D	E
TWB87A	18 7/8 (479)	4 1/2 (114)	14 3/4 (375)	17 3/4 (451)	9 3/4 (248)
TWB126A	18 7/8 (479)	4 1/2 (114)	14 3/4 (375)	17 3/4 (451)	9 3/4 (248)
TWB166A	18 7/8 (479)	5 1/2 (140)	14 3/4 (375)	17 3/4 (451)	9 3/4 (248)
TWB203A	18 7/8 (479)	5 1/2 (140)	14 3/4 (375)	17 3/4 (451)	9 3/4 (248)
TWB250A	21 7/8 (555)	5 1/2 (140)	19 3/4 (502)	20 3/4 (527)	14 3/4 (375)
TWB300A	21 7/8 (555)	5 1/2 (140)	19 3/4 (502)	20 3/4 (527)	14 3/4 (375)

DIMENSIONAL DATA MULTIPLE FAN MODELS



LINE SIZES

MODEL	SUCTION LINE "A" O.D.		LIQUID LINE "B" O.D.	
	IN	MM	IN	MM
450	3/8	10	1/2	13
600	1/2	13	1/2	13
900	5/8	16	1/2	13
1150	7/8	22	1/2	13

- NOTE:**
- EXTERNAL EQUALIZER LINE "C" CONNECTION SIZE 1/4"(6.4) O.D.
 - DRAIN FITTING "D" 1" FPT. ALUMINUM FITTING.
 - TERMINAL BOX "E" LOCATED INSIDE UNIT COOLER CABINET.
 - MOUNTING HOLES "F" 9/32 DIA. LOCATED AS SHOWN.

TXV SELECTION

TXV (Expansion Valve) Selections

All Units require the use of a TX valve. These can be mounted within the cabinet at the flare connection (single fan models) or refrigerant distributor stub (two to four fan models). Single fan models use an internally equalized valve. Two through four fan models require an externally equalized valve (external equalizer tube connection is provided for ease of installation).

Two, Three and Four Fan Models use a distributor with a fixed orifice size (nozzles do NOT require to be field selected or installed).

ALCO TXV SELECTIONS 35 °F AND UP ROOMS

TWB UNIT MODEL	10 °F TD				15 °F TD			
	BTUH	R134a	R22	R404A/R502	BTUH	R134a	R22	R404A/R502
87	870	HF 1/4 MC	HF 1/4 HC	HF 1/8 RC	1305	HF 1/4 MC	HF 1/4 HC	HF 1/8 RC
126	1260				1890			HF 1/4 RC
166	1660				2490			HF 1/4 RC
203	2030	HF 1/2 MC		HF 1/4 RC	3045	HF 1/2 MC	HF 1/2 HC	HF 1/4 RC
250	2500				3750			HF 1/2 RC
300	3000	HFES 1/2 MC	HFES 1/2 HC	HFES 1/2 RC	4500	HF 3/4 MC	HFES 1 HC	HF 1/2 RC
450	4500				6750			HFES 1/2 RC
600	6000	HFES 3/4 MC	HFES 1 HC	HFES 1 RC	9000	HFES 1 MC	HFES 1 1/2 HC	HFES 1 RC
900	9000				13500			HFES 1 1/4 RC
1150	11500	HFES 1 MC	HFES 1 1/2 HC	HFES 1 1/4 RC	17250	HFES 1 1/2 MC	HFES 2 HC	HFES 1 1/2 RC

NOTE: Above selections are based on 100 °F entering liquid temperatures. Where available use the HFESC series valve (in place of HFES) which includes sweat fittings with a removable/cleanable inlet screen.

SPORLAN TXV SELECTIONS 35 °F AND UP ROOMS

TWB UNIT MODEL	10 °F TD	10 °F TD			15 °F TD			
	BTUH	R12/R134a*	R22	R404A*/R502	BTUH	R12/R134a*	R22	R404A*/R502
87	870	GJ 1/8 C	GV 1/5 C	GS 1/8 C	1305	GJ 1/8 C	GV 1/5 C	GS 1/8 C
126	1260				1890	GS 1/4 C		
166	1660				2490			GJ 1/4 C
203	2030	GJ 1/4 C		GS 1/4 C	3045	GJ 1/2 C	GV 1/3 C	GS 1/4 C
250	2500				3750			
300	3000	EGJE 1/2 C	EGVE 1/2 C	EGSE 1/2 C	4500	EGJE 1/2 C	EGVE 3/4 C	EGSE 1/2 C
450	4500		6750		EGVE 1 C		EGSE 1 C	
600	6000	EGJE 1 C	EGVE 1 C	EGSE 1 C	9000	EGJE 1 1/2 C	EGVE 1 1/2 C	EGSE 1 C
900	9000				13500			
1200	12000				18000			EGSE 1 1/2 C

* Valve part numbers are coded for R134a (may be used on R12) and R404A (also may be used on R502)

NOTE: Above selections are based on 100 °F entering liquid temperatures.

INSTALLATION INSTRUCTIONS

INSPECTION

Careful inspection of all parts when received for loss or damage in transit is very important - Remember, you, the consignee, must make any claim necessary against the transportation company. Shipping damage or missing parts, when discovered at the outset, will prevent later unnecessary and costly delays.

Electrical characteristics should also be checked at this time to ensure that they are as ordered.

APPLICATION

Two-Way Unit Coolers are designed for use in +35 °F (1.7 °C) and up temperature applications such as reach in boxes, display cases, back bars, walk-in rooms and any other cooler applications where a low velocity, uniform air flow is required. The compact and low height unit provides maximum useable product storage space. At room temperatures above 34 °F (1.1 °C) and evaporating temperatures no lower than 27 °F (-2.8 °C) the air flowing through the coil will accomplish the defrost.

INSTALLATION

The installation and start up of Unit Coolers should only be performed by qualified refrigeration mechanics. This equipment should be installed in accordance with all applicable codes, ordinances, and local by-laws.

LOCATION

The Unit Cooler is designed to be mounted to the ceiling of the box or cabinet. Refrigeration piping and electrical connections are routed to the rear sides (through the knock-outs). The unit must be mounted to a level ceiling to ensure complete drainage from the condensate pan to the drain fitting. Refer to the dimensional drawings for the drain fitting and mounting location details.

DRAIN LINE

The drain line should be run from the drain connection, sloping at least 4" per foot (approx.30%). A trap outside the room will prevent warm air

from entering through the tubing. Connection should be made to proper drainage facilities that comply with local regulations.

PIPING

Refrigerant line sizes are important and are not necessarily the same size as the connections at the condensing unit or evaporator. If in doubt refer to a recognized source. (Manufacturer's Engineering Manual, Ashrae Manuals, etc.)

WIRING

Wire system in accordance with governing standards and local codes. A 36" (142 mm) power cord has been provided for ease of installation (on single fan units only). Ensure all connections are tight and secure. Multiple fan units have a junction terminal box for conduit connections.

SYSTEM CHECK

Before Start Up:

1. Ensure wiring is in accordance with codes.
2. Refrigerant lines are properly sized and routed.
3. Thorough leak check, evacuation and dehydration has been performed.
4. Drain line has been checked for free flow.

After Start Up:

1. Fan has been checked for correct air flow and no obstructions.
2. Expansion valve superheat has been checked for proper operation. (Superheat of the coil should be around 5 to 6 °F for a 10 °F TD.)

MAINTENANCE

The unit should be periodically inspected for any dirt or build up on the fin surface and cleaned if necessary with a soft whisk or brush.

The fan motor is permanently lubricated and should not require service.

SERVICE PARTS LIST

MODEL TWB	FAN MOTORS			MOTOR MOUNT	FAN BLADE	FAN GUARD	TERMINAL BOARD
	115/1/60	208-230/1/60	200-220/1/5- 0				
87	1043871	-	-	1043860	1043870-001	1043293	-
126	1043871	-	-	1043860	1043870-002	1043293	-
166	1043871	-	-	1043860	1043870-003	1043293	-
203	1043871	-	-	1043863	1043870-004	1043293	-
250	1043871	-	-	1043863	1043870-005	1043294	-
300	1043871	-	-	1043863	1043870-005	1043294	-
450	1043871	1048800	1048800	1043863	1043870-005	1043294	1048825
600	1043871	1048800	1048800	1043863	1043870-005	1043294	1048825
900	1043871	1048800	1048800	1043863	1043870-005	1043294	1048825
1200	1043871	1048800	1048800	1043863	1043870-005	1043294	1048825

SERVICE LOG

DATE	COMMENTS

PROJECT INFORMATION

System	
Model Number	Date of Start-Up
Serial Number	Service Contractor
Refrigerant	Phone
Electrical Supply	Fax



NATIONAL REFRIGERATION & AIR CONDITIONING PRODUCTS INC.

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Specifications Subject to Change Without Notice