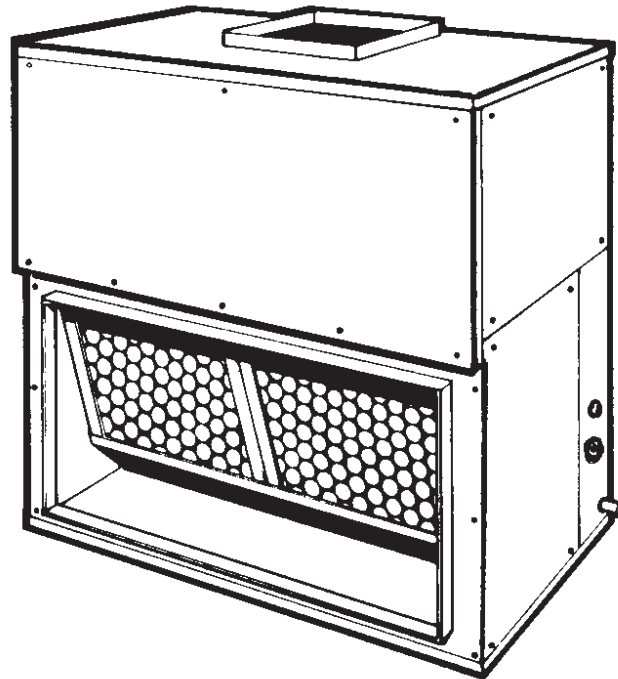


MODELS K5EU090A50A & K4EU120A50A (WORLD 50 HZ)

035-12122



GENERAL

These completely assembled blower units are manufactured under ISO 9002 Quality System Certification and include a well-insulated cabinet, a DX cooling coil with copper tubes and aluminum fins, an expansion valve, a distributor, throwaway filters, a centrifugal blower, a blower motor, a blower motor contactor, an adjustable belt drive and a small holding charge of Refrigerant-22. Blower motors and adjustable drives are factory-installed on all units.

The units are shipped in the vertical position with a vertical air discharge. The blower section can be repositioned as shown in Figure 1 for horizontal applications.

REFERENCE

Additional information for the accessories on this equipment is available in the following instructions:

- Electric Heater - 550.13-N10.1V
- Supply Air Plenum - 550.13-N10.2V
- Return Air Grille - 550.13-N10.3V
- Base - 550.13-N10.4V

Installer should pay particular attention to the words: *NOTE*, *CAUTION* and *WARNING*. Notes are intended to clarify or make the installation easier. Cautions are given to prevent equipment damage. Warnings are given to alert installer that personal injury

- Hot Water & Steam Coil - 550.13-N10.7V

Renewal Parts:

- Refer to Parts Manual for complete listing of replacement parts on this equipment.

All forms may be ordered from:

**Publications Distribution Center
Unitary Products Group
P.O. Box 1592, York, PA 17405**

INSPECTION

As soon as a unit is received, it should be inspected for possible damage during transit. If damage is evident, the extent of the damage should be noted on the carrier's delivery receipt. A separate request for inspection by the

CAUTION

THIS PRODUCT MUST BE INSTALLED IN STRICT COMPLIANCE WITH THE ENCLOSED INSTALLATION INSTRUCTIONS AND ANY APPLICABLE LOCAL, STATE, AND NATIONAL CODES INCLUDING, BUT NOT LIMITED TO, BUILDING, ELECTRICAL, AND MECHANICAL CODES.

WARNING

INCORRECT INSTALLATION MAY CREATE A CONDITION WHERE THE OPERATION OF THE PRODUCT COULD CAUSE PERSONAL INJURY OR PROPERTY DAMAGE.

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MAINTENANCE

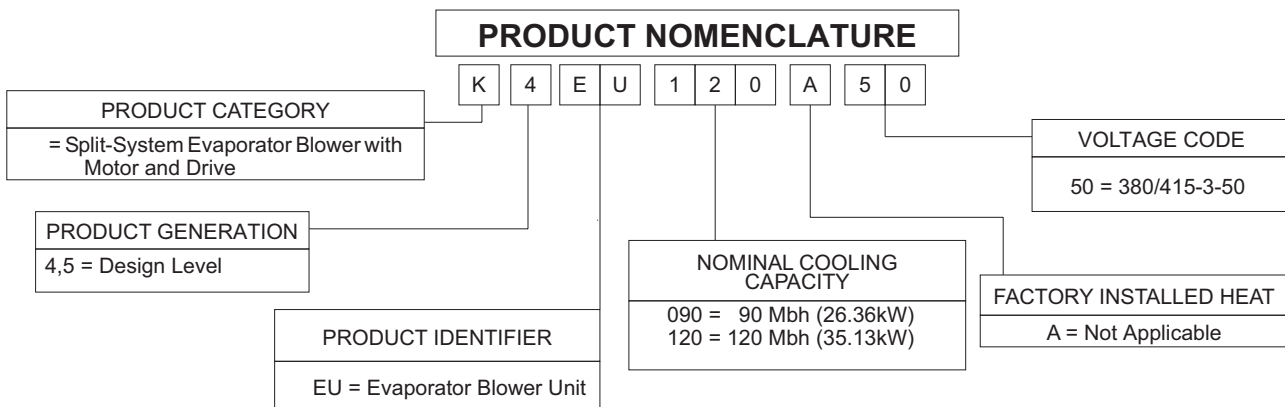
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INSTALLATION

carrier's agent should be made in writing. See Local Distributor for additional information.

LIMITATIONS

These units must be installed in accordance with applicable national, local and municipal safety codes.

If components are to be added to a unit to meet local codes, they are to be installed at the dealer's and/or the customer's expense. Refer to Table 1 for Unit Application Data.

LOCATION

These blower units are not designed for outdoor installation. They must be located within the building structure, either inside or outside the conditioned space.

These Evaporator Blower sections allow for vertical or horizontal installation in any area offering proper electrical supply, duct

They may be installed either with ductwork or matching plenum and inlet grille.

The unit should be located as close to the condensing unit as practical and positioned to minimize bends in the refrigerant piping.

Units being installed vertically or horizontally can be set directly on a floor or platform, or they can be supported by metal or wooden beams.

Units being installed horizontally can be suspended from above. Four $\frac{3}{8}$ " (9.5mm) weld nuts are provided in the unit frame to accommodate hanger rods. Knockouts must be removed from the unit panels to expose these weld nuts. Refer to Figure 1 for their location and the individual load on each hanger rod.

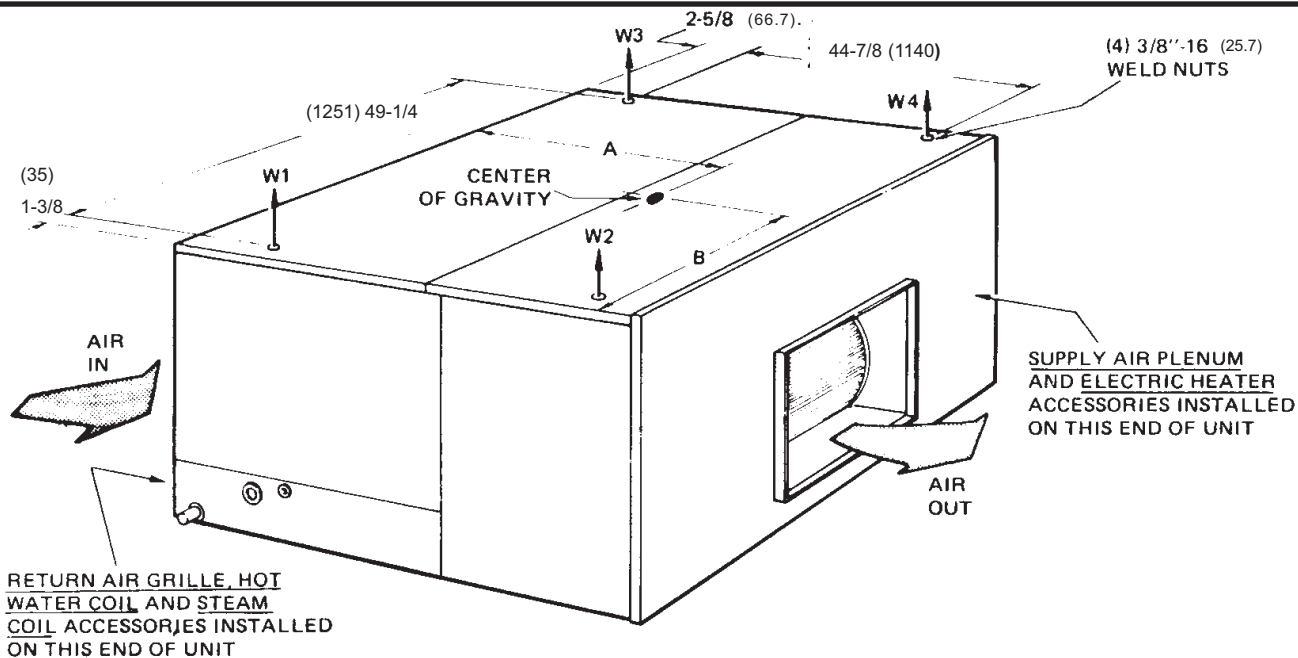
WARNING: Be careful when attaching the hanger rods. They must not be allowed to turn or slip.

TABLE 1 - UNIT APPLICATION DATA

MODEL	Power Supply	Voltage Variation*		Supply Air Range CFM/m ³ /s		Entering Air Temperature, °F(°C)			
						Cooling-db/wb		Heating-db	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
KEU090	380/415-3-50	342	457	2400 / 1.3	3600 / 1.7	68/57(20/14)	95/72(18/22)	40(4.4)	77(25)
KEU120	380/415-3-50	342	457	3200 / 1.5	4800 / 2.3	65/57(20/14)	95/72(18/22)	40(4.4)	77(25)

* Utilization Range "A" in accordance with ARI Standard 110.

and drain connections.



Model	Center of Gravity Dimensions, (In./mm)		Weight Distribution (lbs/kg)				
	A	B	W1	W2	W3	W4	TOTAL
KEU090	26 3/4 / 667	23 3/4 / 603	85 / 38.5	93 / 42.2	70 / 32	77 / 34.9	325 / 147.4
KEU120	26 3/8 / 676	24 3/8 / 613	85 / 38.5	93 / 42.2	70 / 32	80 / 36.2	330 / 149.7

FIG. 1 - UNIT SUSPENSION MOUNTING (Horizontal)

CLEARANCES

The clearances listed on the unit dimension drawing (Figure 9) are required for the proper service and operation of the unit.

RIGGING AND HANDLING

Be careful when moving the unit. Do not remove any packaging until the unit is near its final location.

The packaging consists of a bottom wooden skid that can be lifted with a fork truck from any direction, a cardboard container that covers the entire unit, and strapping that secures the cardboard container to the bottom of the skid.

These units can be rigged with slings under the bottom skid.

CAUTION: Spreader bars should be used to prevent slings from crushing the unit panels and frame.

Before rigging any unit, determine its weight from Table 2. Before rigging a unit for horizontal installation, make sure that its weight will be distributed equally.

VERTICAL/HORIZONTAL INSTALLATION

The unit is shipped for vertical installation with a vertical air discharge as shown in Figure 2, but may be converted for horizontal installation as shown in Figure 2 by interchanging the solid bottom panel and the return air duct flange.

DUCT CONNECTIONS

All ducts should be designed and installed in accordance with applicable national and/or local codes.

Refer to Figure 3 for suggested method of connecting supply air ductwork.

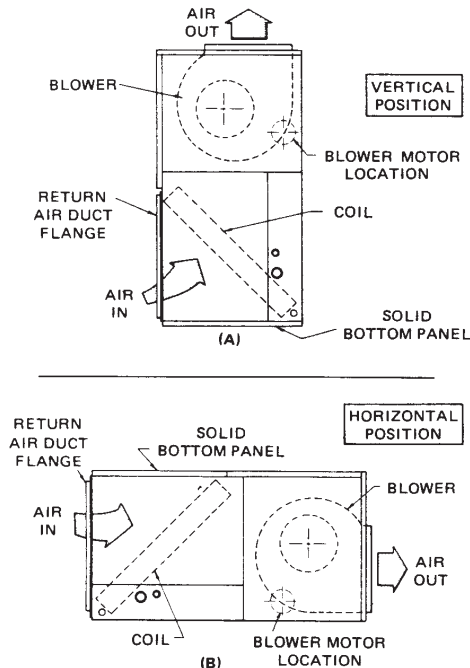


FIG. 2 - VERTICAL AND HORIZONTAL APPLICATION

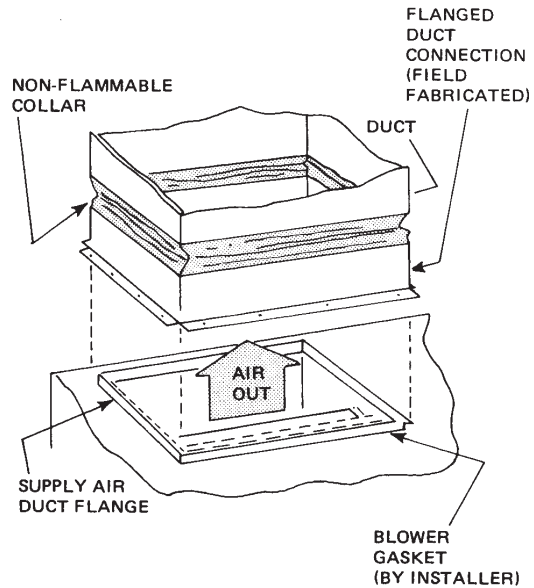


FIG. 3 - SUPPLY AIR DUCT CONNECTION

Ducts should be sized no smaller than the duct flanges on the unit or the accessory electric heater (if used). Refer to the unit dimensions (Figure 1) and the heater detail (Figure 4) for these sizes.

Use flexible fiber glass or plastic cloth collars or other non-flammable material at the unit duct connections to minimize the transmission of noise and vibration.

Insulate all ductwork running through unconditioned areas to prevent moisture condensation and to provide more economical operation.

The return air duct flange is factory-mounted on the front of the unit, but it can be reversed with the solid bottom panel for horizontal applications. When the return air grille is used, the duct connection frame is not used.

NOTE: If return air duct is not used, applicable Installation codes may limit the unit to installation only in a single story residence.

The field installed air plenum and return air grille accessories should be used in place of ductwork only when a free blow/free return application is practical.

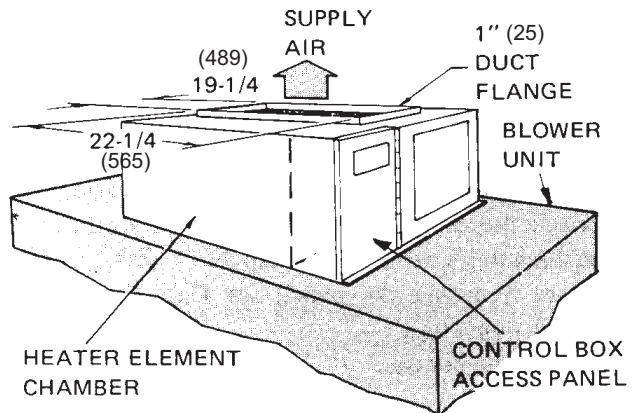


FIG. 4 - ELECTRIC HEATER ACCESSORY

Table 2 - PHYSICAL DATA

Model		KEU090	KEU120
Evaporator Coil	Rows Deep	3	3
	Rows High	27	32
	Finned Length (in./mm)	46 / 1168	46 / 1168
	Fin/Inch	13	13
	Tube O.D. (in./mm)	3/8 / 9.5	3/8 / 9.5
	Face Area (Ft. ² /m ²)	8.6 / 0.80	10.2 / 0.95
Centrifugal Blower	Wheel Dia. x Width	inches	15 x 15
		mm	381 x 381
Blower Motor*	Nominal Rating (HP/kW)	1 1/2 / 1.12	2 / 1.5
Filters (4 Req'd)	Size	inches	16 x 25 x 1
		mm	406 x 635 x 25
	Face Area (Ft. ² /m ²)	11.1 / 1.03	11.1 / 1.03
Weight (Lbs./kg)	Operating		325 / 147
			330 / 150
Accessory Weights(Lbs/kg)	Electric Heaters	10 kW	63 / 28.6
		16kW	66 / 30
		26 kW	71 / 32
		36 kW	74 / 33.6
	Supply Air Plenum		102 / 46
	Base		60 / 27
	Return Air Grille		15 / 6.8
	Hot Water Coil		105 / 48

*All of these 1450 RPM motors have a solid base, a 56 frame, inherent protection and permanently lubricated ball bearings. Refer to Table 7 for additional motor and drive data.

NOTE: Refer to the appropriate condensing unit installation instruction for charging data.

REFRIGERANT MAINS

Many service problems can be avoided by taking adequate precautions to provide an internally clean and dry system, and by using procedures and materials that conform with established standards.

Hard drawn copper tubing should be used where no appreciable amount of bending around pipes or other obstructions is necessary. Use long radius ells wherever possible. If soft copper is used, care should be taken to avoid sharp bends which may cause a restriction.

Pack fiber glass insulation and a sealing material such as Permagum around refrigerant lines where they penetrate a wall to reduce vibration and to retain some flexibility.

Support all refrigerant lines at minimum intervals (8 ft./2.4m) with suitable hangers, brackets or clamps.

Braze all copper to copper joints with Sil-Fos 5 or equivalent brazing material. **Do not use soft solder.**

Never braze or solder liquid and suction lines together. The complete suction line should be insulated with no less the 1/2" (12mm) ARMAFLEX or equivalent. If the liquid line is installed in warm space, it must be insulated.

If it is desirable to tape or wire the liquid and suction lines together for support purposes, they must be completely insulated from each other.

INSTALLING REFRIGERANT MAINS

The units are evacuated and dehydrated at the factory and shipped with a holding charge (1 lb./2.2kg) of Refrigerant-22. The suction and liquid connections are sealed with copper disks.

WARNING: Provisions for recovering refrigerant releases must be available during all phases of installation, leak testing and charging. Do NOT release refrigerant into the atmosphere. A Schrader valve is provided for refrigerant recovery.

If the unit has already lost its holding charge, it should be leak tested and the necessary repairs should be made. If the unit has maintained its holding charge, you can assume that it has no leaks and proceed with the installation.

Make sure the refrigerant in the lines has been recovered, then drill a small hole through the discs to prevent any internal pressure from blowing them off and to allow the flow of dry nitrogen through the connections when unbrazing the closures.

NOTE: To minimize the possibility of system failure due to dirt and moisture, a filter-drier must be installed in each liquid line as close to the evaporator as possible. Filter-driers are not supplied with the evaporator blowers. They are supplied with the matching condensing sections.

The temperature required to make or break a brazed joint is sufficiently high to cause oxidation of the copper unless an inert atmosphere is provide.

CAUTION: Dry nitrogen should flow through a brazed joint at all times when heat is being applied and until the joint has cooled.

The liquid, suction and drain connections inside the unit must be piped to the outside. Refer to Unit Dimensions for locations and dimensions of these connection.

Before brazing the refrigerant lines to these connections, remove the short panel from the unit frame and slide it (along with the grommets) onto the refrigerant lines. After the brazed joints have cooled, slide the panel back into place and secure it to the unit frame.

NOTE: These units can only be piped from one side of the unit.

EXPANSION VALVE BULB

On KEU090 units the expansion valve bulb must be fastened in a 4 o'clock position to the suction line outside the cabinet after the piping connections have been made.

On KEU120 units fasten the expansion valve bulb on the suction header 8" (203mm) below the top of the header and adjacent to the coil.

Use the clamps provided with the valve to secure the bulb in position.

DRAIN CONNECTION

The drain line **MUST** be trapped because the coil is located on the negative side of the supply air blower. It must also be protected from freezing temperatures.

A $\frac{3}{8}$ " (22.2mm) OD stub connection is provided within the cabinet on both ends of the condensate drain pan for either left hand or right hand piping connections. Refer to Figure 5 for recommended drain piping.

The drain line is located on the same end of the coil section as the refrigerant connections. The line should be insulated where moisture drippage will be objectionable or cause damage to the area. Seal the unused drain connection with a suitable mastic.

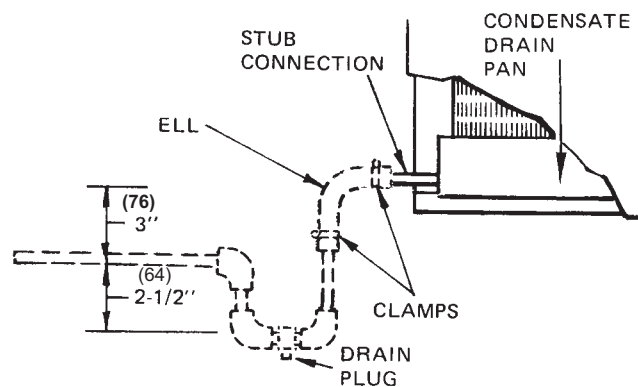


FIG. 5 - RECOMMENDED DRAIN PIPING

The 3" (76mm) dimension must equal or exceed the negative static pressure developed by the supply air blower. If it does not, condensate will not drain properly and may overflow the drain pan. The trap must be at least $2\frac{1}{2}$ " (63mm) deep to maintain a water seal under all operating conditions, especially during blower start-up.

NOTE: Refer to Figure 9 for minimum clearance requirements.

SUPPLY AIR BLOWER ADJUSTMENT

The RPM of the supply air blower will depend on the required airflow, the unit accessories and the static resistances of both the supply and the return air duct systems. With this information, the RPM for the supply air blower can be determined from the blower performance in Table 4.

Knowing the required blower RPM and the blower motor HP, the setting (turns open) for the supply air motor pulley can be determined from Table 3.

Each motor pulley has:

1. A threaded barrel with two flats (or notched recesses) 180 degrees apart.
2. A movable flange with one set screw.

After the movable flange has been rotated to the proper number of "turns open", the set screw should be tightened against the flat on the barrel to lock the movable flange in place. If the pulley includes a locking collar, the locking collar must be loosened to adjust the setting of the movable flange.

Note the following:

1. The supply airflow must be within the limitations shown in Table 1.
2. All pulleys can be adjusted in half-turn increments.
3. The tension on the belt should be adjusted for a deflection of $\frac{3}{16}$ " (5mm) per foot (305mm) of belt span with an applied force of approximately 3 lbs (1.4kg). This adjustment is made by moving the blower motor mounting plate. Refer to Figure 6. Turning the adjustment bolt (B) moves the motor mounting plate up or down. Note - Never loosen the two nuts (C). Four hex nuts (A) have to be loosened to move the mounting plate and retightened after the mounting plate has been moved to the proper position.
4. All pulleys are factory aligned.
5. All supply air motor pulleys are factory set at three "turns open."

After the supply air blower motor is operating, adjust the resistances in both the supply and the return duct systems to balance the air distribution throughout the conditioned space. The job specifications may require that this balancing be done by someone other than the equipment installer.

To check the supply air airflow after the the initial balancing has been completed:

1. Drill two holes $\frac{5}{16}$ " (8mm) dia. in the side panel as shown in Figure 8.
2. Insert at least 8" (200mm) of $\frac{1}{4}$ " (6.3mm) O.D. tubing into each of these holes for sufficient penetration into the air flow on both sides of the evaporator coil.

NOTE: The tubes must be inserted and held in a position perpendicular to the air flow so that velocity pressure will not affect the static pressure reading.

- Using an inclined manometer, determine the pressure drop across a dry evaporator coil. Since the moisture on an evaporator coil may vary greatly, measuring the pressure drop across a wet coil under field conditions would be inaccurate. To assure a dry coil, the refrigerant system should be de-energized while the test is being run.
- Knowing the pressure drop across a dry coil, the actual airflow through the unit can be determined from the curve in Figure 7.

If the airflow is above or below the specified value, the supply air motor pulley may have to be readjusted. After one hour of operation, check the belt and pulleys for tightness and alignment.

WARNING: Failure to properly adjust the total system air quantity can result in extensive blower damage.

TABLE 3 - SUPPLY AIR BLOWER MOTOR PULLEY ADJUSTMENT

TURNS OPEN*	BLOWER DRIVE RANGE (RPM)	
	KEU090	KEU120
	650 - 850	700 - 910
5	650	700
4	690	740
3	730	780
2	770	830
1	810	870
0	850	910

* Pulleys can be adjusted in half-turn increments.

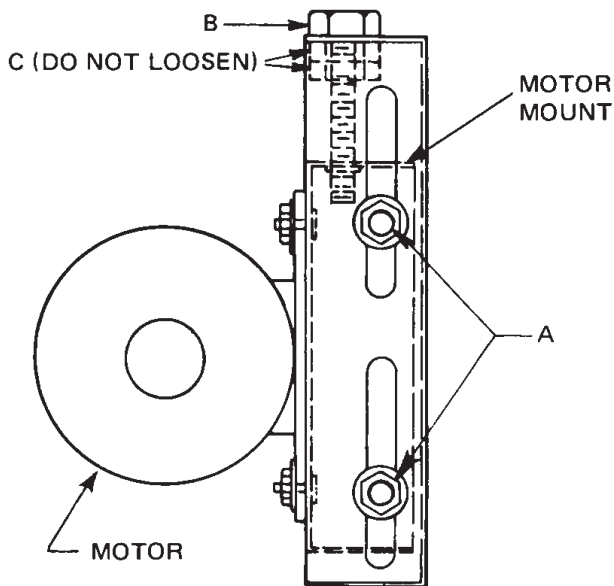


FIG 6 - TYPICAL MOTOR MOUNTING ASSEMBLY

After readings have been obtained, remove the tubes and seal up the drilled holes in the side panel with 5/16" (8mm) dia. dot plugs (P/N 029-13880) available through normal parts ordering procedure.

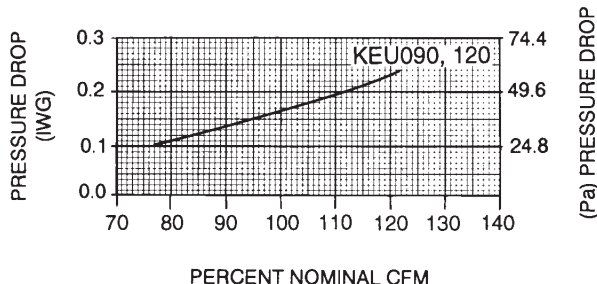
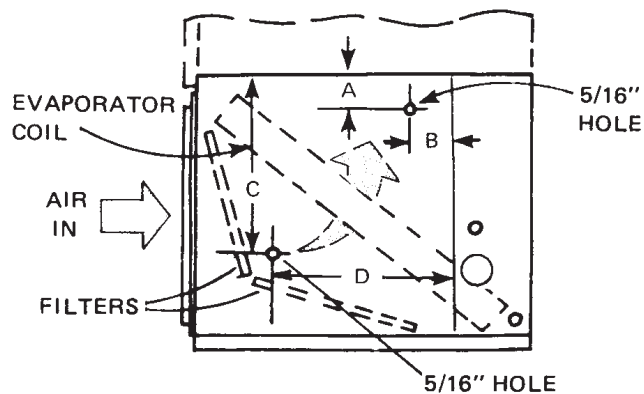


FIG. 7 - PRESSURE DROP ACROSS A DRY EVAPORATOR COIL VS SUPPLY AIR CFM



DIMENSIONS (in./mm)			
A	B	C	D
3 / 76	3 / 76	14 / 356	12 / 305

NOTE: DE-ENERGIZE THE REFRIGERANT SYSTEM BEFORE TAKING ANY TEST MEASUREMENTS TO ASSURE A DRY EVAPORATOR COIL.

FIG. 8 - HOLE LOCATIONS (PRESSURE DROP READINGS)

TABLE 4 - BLOWER PERFORMANCE

KEU090 - SUPPLY AIR BLOWER PERFORMANCE¹ - (CFM)															
BLOWER SPEED RPM	AIRFLOW														
	ESP ² (IWG)	OUTPUT (BHP)	INPUT (kW)	ESP ² (IWG)	OUTPUT (BHP)	INPUT (kW)	ESP ² (IWG)	OUTPUT (BHP)	INPUT (kW)	ESP ² (IWG)	OUTPUT (BHP)	INPUT (kW)	ESP ² (IWG)	OUTPUT (BHP)	INPUT (kW)
	2400 CFM			2700 CFM			3000 CFM			3300 CFM			3600CFM		
600	0.35	0.62	0.59	0.26	0.70	0.66	0.13	0.78	0.73	-	-	-	-	-	-
655	0.49	0.70	0.66	0.41	0.78	0.72	0.30	0.87	0.82	0.07	0.96	0.90	-	-	-
700	0.60	0.77	0.73	0.53	0.85	0.80	0.43	0.95	0.89	0.29	1.06	0.99	0.12	1.17	1.09
800	0.92	0.97	0.90	0.85	1.06	0.99	0.77	1.18	1.10	0.65	1.30	1.21	0.49	1.42	1.32
880	1.18	1.11	1.04	1.11	1.24	1.16	1.03	1.37	1.28	0.91	1.50	1.38	0.77	1.64	1.53
900	1.24	1.15	1.07	1.18	1.28	1.19	1.10	1.42	1.32	0.98	1.55	1.43	0.84-	1.70	1.57
1000	1.58	1.35	1.26	1.53	1.48	1.38	1.46	1.63	1.48	1.37	1.81	1.65	1.24	2.02	1.85

KEU090 - SUPPLY AIR BLOWER PERFORMANCE¹ - (m³/s)															
BLOWER SPEED RPM	AIRFLOW														
	ESP ² (Pa)	OUTPUT (kW)	INPUT (kW)	ESP ² (Pa)	OUTPUT (kW)	INPUT (kW)	ESP ² (Pa)	OUTPUT (kW)	INPUT (kW)	ESP ² (Pa)	OUTPUT (kW)	INPUT (kW)	ESP ² (Pa)	OUTPUT (kW)	INPUT (kW)
	1.1 m ³ /s			1.3 m ³ /s			1.4 m ³ /s			1.6 m ³ /s			1.7 m ³ /s		
600	87	0.46	0.59	64	0.52	0.66	32	0.45	0.73	-	-	-	-	-	-
655	122	0.52	0.66	102	0.58	0.72	74	0.65	0.82	17	0.72	0.90	-	-	-
700	149	0.57	0.73	131	0.63	0.80	107	0.71	0.89	72	0.79	0.99	30	0.87	1.09
800	228	0.72	0.90	211	0.79	0.99	191	0.88	1.10	161	0.97	1.21	122	1.06	1.32
880	293	0.83	1.04	275	0.92	1.16	255	1.02	1.28	226	1.12	1.38	191	1.22	1.53
900	308	0.86	1.07	293	0.95	1.19	273	1.06	1.32	243	1.15	1.43	208	1.27	1.57
1000	392	1.01	1.26	379	1.10	1.38	362	1.21	1.48	340	1.35	1.65	308	1.50	1.85

KEU120- SUPPLY AIR BLOWER PERFORMANCE¹ (CFM)															
BLOWER SPEED RPM	AIRFLOW														
	ESP ² (IWG)	OUTPUT (BHP)	INPUT (kW)	ESP ² (IWG)	OUTPUT (BHP)	INPUT (kW)	ESP ² (IWG)	OUTPUT (BHP)	INPUT (kW)	ESP ² (IWG)	OUTPUT (BHP)	INPUT (kW)	ESP ² (IWG)	OUTPUT (BHP)	INPUT (kW)
	3200			3600			4000			4400			4800		
700	0.49	1.01	0.94	0.34	1.17	1.09	0.14	1.33	1.24	-	-	-	-	-	-
800	0.84	1.25	1.16	0.71	1.42	1.32	0.53	1.60	1.48	0.30	1.80	1.64	-	-	-
900	1.18	1.48	1.38	1.06	1.70	1.57	0.91	1.92	1.75	0.70	2.18	1.99	0.43	2.45	2.24
950	1.37	1.61	1.50	1.26	1.86	1.71	1.11	2.12	1.95	0.90	2.39	2.18	0.65	2.67	2.44
1000	1.56	1.75	1.62	1.46	2.02	1.85	1.32	2.30	2.10	1.13	2.60	2.38	0.87	2.90	2.65


KEU120 - SUPPLY AIR BLOWER PERFORMANCE¹ (m³/s)															
BLOWER SPEED RPM	AIRFLOW														
	ESP ² (Pa)	OUTPUT (kW)	INPUT (kW)	ESP ² (Pa)	OUTPUT (kW)	INPUT (kW)	ESP ² (Pa)	OUTPUT (kW)	INPUT (kW)	ESP ² (Pa)	OUTPUT (kW)	INPUT (kW)	ESP ² (Pa)	OUTPUT (kW)	INPUT (kW)
	1.5 m ³ /s			1.7 m ³ /s			1.9 m ³ /s			2.0 m ³ /s			2.3 m ³ /s		
700	122	0.75	0.94	84	0.87	1.09	35	0.99	1.24	-	-	-	-	-	-
800	208	0.93	1.16	176	1.05	1.32	131	1.19	1.48	74	1.034	1.64	-	-	-
900	293	1.10	1.38	263	1.27	1.57	226	1.43	1.75	174	1.62	1.99	107	1.83	2.24
950	340	1.20	1.50	312	1.39	1.71	275	1.58	1.95	223	1.78	2.18	161	1.99	2.44
1000	387	1.30	1.62	362	1.50	1.85	327	1.71	2.10	280	1.94	2.38	216	2.16	2.65

¹ Unit resistance is based on a wet evaporator coil and clean filters.

² Available static pressure in IWG (Pa) to overcome the resistance of the duct system and any accessories added to the unit. Refer to Table 6 for the resistance of these accessories and to Table 7 for additional motor and drive data

NOTE: Motors can be selected to operate into the service factor because they are located in the moving air stream, upstream of any heating device.

LEGEND:

 RPM range for the standard factory-mounted drive components.


 Exceeds the BHP limitation of the standard factory-mounted blower motor

TABLE 5 - ACCESSORY STATIC RESISTANCE (IWG)**KEU090**

ACCESSORY		EXTERNAL STATIC PRESSURE DROP RESISTANCE IWG/pA				
BLOWER CFM/m ³ /s		2400 / 1.1	2700 / 1.3	3000 / 1.4	3300 / 1.6	3600 / 1.7
Electric Heat	10k W	0.01 / 2.5	0.01 / 2.5	0.01 / 2.5	0.02 / 5.0	0.02 / 5.0
	16 kW	0.01 / 2.5	0.02 / 5.0	0.02 / 5.0	0.03 / 7.4	0.04 / 10.0
	26 kW	0.03 / 7.4	0.4 / 10.0	0.05 / 12.4	0.06 / 15.0	0.07 / 17.4
	36 kW	0.05 / 12.4	0.07 / 17.4	0.08 / 20.0	0.10 / 25.0	0.11 / 27.0
Supply Air Plenum		0.03 / 7.4	0.03 / 7.4	0.04 / 10.0	0.05 / 12.4	0.06 / 15.0
Return Air Grille		0.02 / 5.0	0.03 / 7.4	0.04 / 10.0	0.05 / 12.4	0.06 / 15.0

Add these pressures to the ESP values in the respective blower performance table.

KEU120

ACCESSORY		EXTERNAL STATIC PRESSURE DROP RESISTANCE IWG/pA				
BLOWER CFM/m ³ /s		3200 / 1.5	3600 / 1.7	4000 / 1.9	4400 / 2.1	4800 / 2.3
Electric Heat	10 kW	0.02 / 5.0	0.02 / 5.0	0.03 / 7.4	0.03 / 7.4	0.04 / 10.0
	16 kW	0.03 / 7.4	0.04 / 10.0	0.05 / 12.4	0.06 / 15.0	0.07 / 17.4
	26 kW	0.06 / 15.0	0.07 / 17.4	0.09 / 22.3	0.11 / 27.0	0.13 / 32.2
	36 kW	0.09 / 22.3	0.11 / 27.0	0.14 / 35.0	0.17 / 42.2	0.20 / 50.0
Supply Air Plenum		0.05 / 12.4	0.06 / 15.0	0.07 / 17.4	0.08 / 20.0	0.10 / 25.0
Return Air Grille		0.05 / 12.4	0.06 / 15.0	0.07 / 17.4	0.08 / 20.0	0.10 / 25.0

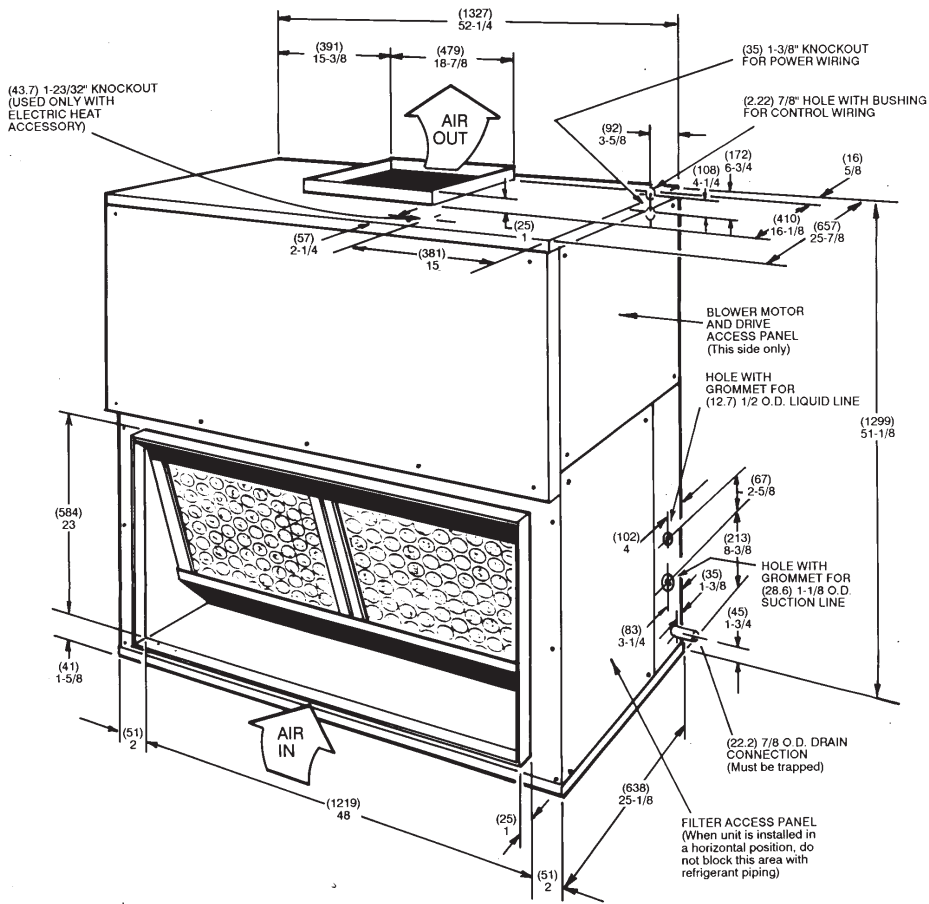
Add these pressures to the ESP values in the respective blower performance table.

TABLE 6 - ELECTRICAL DATA

Model	Blower Motor HP/kW	Power Supply	FLA	Maximum Fuse Size* Amps	Maximum Wire Length* * Ft.(m)
KEU090	1½ / 1.1	380/415-3-50	3.7	5	650 / 197
KEU120	2 / 1.5	380/415-3-50	4.5	5	500 / 152

* Dual element, time delay fuses.

** Based on three 60° C, 14 AWG, insulated copper conductors in steel conduit and a 3% voltage drop.



ACCESSORIES

- ELECTRIC HEATER
Add 15" (381mm) to Unit Height when using 10, 16, 26 or 36kW Heater
- SUPPLY AIR PLENUM
Add 27" (686mm) to Unit Height when used
- BASE
Add 24" (610mm) to Unit Height when used

MINIMUM CLEARANCES (in./mm)

Side with RETURN AIR opening	- 24 / 610
Side with SUPPLY AIR opening	- 24 / 610 ¹
Side with PIPING CONNECTIONS	- 61 / 1549 ²
Side opposite PIPING CONNECTIONS	- 26 / 66 ³
Bottom	- 4

- ¹ Overall dimension of the unit will vary if an electric heater, a supply air plenum or a base is used.
- ² This dimension is required for removal of the DX coil. Only 26" is required for normal servicing.
- ³ If the DX coil has to be removed, this dimension is required to loosen screws that secure the coil to the unit frame. This dimension will also be required for blower motor access if the piping connections are made on the opposite side of the unit.
- ⁴ Allow enough clearance to trap the condensate drain line.

All dimensions are in millimeters and inches. They are subject to change without notice. Certified dimensions will be provided upon request.

FIG 9 - UNIT DIMENSIONS AND CLEARANCES

TABLE 7 - BLOWER MOTOR AND DRIVE DATA

Model	Motor (HP/kW)*	Blower Range (RPM)	Adjustable Motor Pulley		Fixed Blower Pulley		Belt		MOTOR SPECIFICATIONS
			Pitch Dia (In./mm)	Bore (In./mm)	Pitch Dia (In./mm)	Bore (In./mm)	Designation	Pitch Lg. (In./mm)	
KEU090	1½ / 1.1	650/850	3.4 - 4.4 / 86 - 112	¾ / 22.2	7.5 / 190	1 / 25	A37	38.3 / 973	•1450 RPM •380/415-3-50 •Solid base •56 Frame •Inherently protected Permanently lubricated ball bearings
KEU120	2 / 1.5	700/910	3.4 - 4.4 / 86 - 112	¾ / 22.2	7.0 / 178	1 / 25	A37	38.3 / 973	

*All motors are 1450 RPM and have a 56 frame, inherent protection and permanently lubricated ball bearings The motors have a solid base and a 1.15 service factor. All 3-phase motors are wired for 380/415V power supply.

POWER AND CONTROL WIRING

Install electrical wiring in accordance with applicable national, local and municipal codes. The unit should be grounded in accordance with these codes.

Remove the 1⅜" (35mm) knockout from the unit rear panel. Route the power wiring conduit through this opening. Connect the conduit to the required field-supplied fitting and the power wiring to blower motor contactor 10M in unit control box.

If the unit includes an electric heat accessory, route the power wires into heater control box instead of the unit. Refer to the electric heat instructions for additional installation information.

CONTROL WIRING

Route the low voltage control wiring through the ⅞" (22.2mm) hole (with bushing) in the units rear panel. Add ½" (25mm) conduit fitting to the ⅞" (22.2mm) hole in the unit control box, route control wiring through this opening and connect them to the terminals on block 4TB.

Refer to Table 6 to size the disconnect switch, the power wiring and the fuses. Refer to Figure 10 for typical field wiring.

NOTE: Three phase motor rotation may be incorrect when the unit is first started up. Reverse phase (leads L1 and L2) at contactor to obtain the correct rotation.

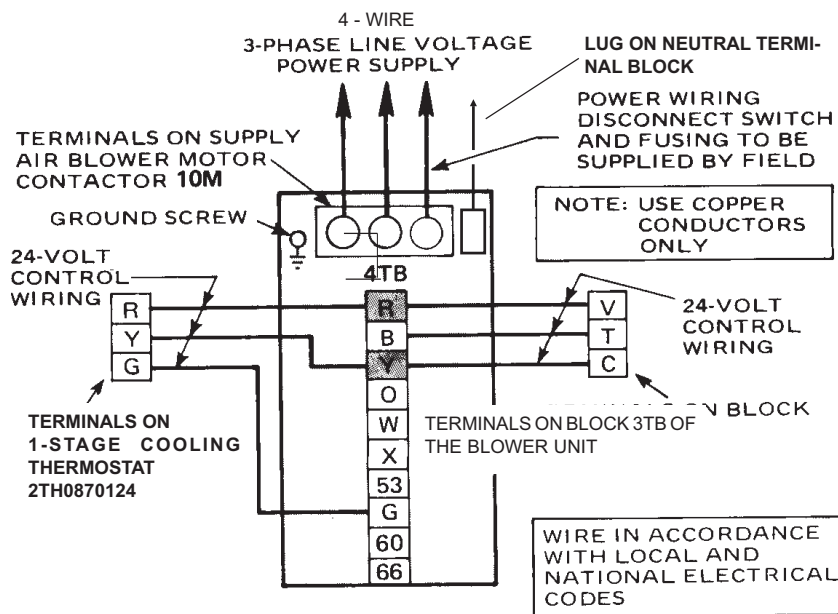


FIG. 10 - TYPICAL FIELD WIRING (Cooling only)

MAINTENANCE

FILTERS — The filters must be replaced as often as necessary to assure good air flow and filtering action.

Refer to the unit dimension detail (Figure 9) for the location of the filter access panel.

EVAPORATOR COIL — Do not allow dirt to accumulate on the evaporator coil or other parts of the evaporator air circuit. Clean as often as necessary to assure good system performance. Use a brush, vacuum cleaner attachment or other suitable means.

LUBRICATION — The bearings for the blower shaft and the blower motors are permanently lubricated and should not require additional lubricant.

DRAIN PAN — The drain pan should be inspected regularly to assure proper drainage.

BELTS — Maintain belt tension to extend belt life. Replace when signs of failure begin to appear.



Heating and Air Conditioning