

# **BREEZAIRE** PRODUCTS COMPANY

8610 Production Avenue • San Diego, California 92121 • (858) 566-7465 • Fax (858) 566-1943

## **WKS 4000 SERIES** (USA only)

### **--INSTALLATION INSTRUCTIONS--**

Thank you for choosing a **BREEZAIRE** cooling unit. We believe our products are the best on the market and will provide many years of trouble free service.

Please take a few minutes and read this entire instruction before beginning the installation.

**Before removing the cooling unit from the box, please inspect for damage which might have been incurred during shipping. If damage is found, notify the Freight Company immediately. *BREEZAIRE* is not responsible for any damages incurred during shipping.**

**MODEL** \_\_\_\_\_ **SERIAL NUMBER** \_\_\_\_\_

**INSTALLED BY** \_\_\_\_\_ **DATE** \_\_\_\_\_

## INSTALLATION INSTRUCTIONS FOR WKS4000 SERIES COOLING UNITS

The **BREEZAIRE** WKS Series cooling units are designed to, when installed in a properly constructed enclosure, provide constant cooling, at a selectable temperature between 50° and 62° F, while reducing excess moisture. In a properly constructed enclosure this cooling process may raise the *relative* humidity to the proper 50% to 70%. The unit does not add moisture to the enclosure. The unit does not include a heating system and will not warm the enclosure. The WKS Series is not intended to cool service cabinets which are maintained at lower temperatures and/or opened frequently.

The WKS Series cooling unit, is shipped as components, not a working cooling system. Only after a qualified refrigeration installer has properly connected these components, pressured tested, evacuated, charged with refrigerant and tested their installation, can the unit be considered a cooling system. Proper installation is critical to the performance, reliability and longevity of the system. For this reason, **BREEZAIRE** can only warrant the quality of the WKS components. The installation and proper operation must be warranted by the installer. Before installation is to begin, the purchaser and installer should carefully read the enclosed Limited Warranty.

### ENCLOSURE CONSTRUCTION

To use the below SIZING GUIDE, the enclosure to be cooled must be built to the following minimum specifications. If the enclosure is not built to these specifications, consult your **BREEZAIRE** dealer for assistance in choosing the correct unit. **BREEZAIRE units are not warranted to cool a specific enclosure.**

All interior walls and floor should have a vapor barrier and a minimum of R-11 insulation. All exterior wall's insulation values should be a minimum of R-19. The ceiling should have vapor barrier and a minimum of R-19 insulation. The vapor barrier should be installed on the warm side of the insulation. There should be no glass windows or doors.

- ☞ All joints, door frames, electrical outlets or switches and any pipes or vents which go through the enclosure should be sealed to prevent air and moisture leakage into the room. Concrete, rock and brick are not insulation or moisture barriers.
- ☞ Doors into the enclosure should be of minimum size, insulated to R-11 and be tightly sealed with a high quality weather stripping. Be sure to seal the bottom of the door and the fill gap between the door's frame and wall before installing the cap molding.
- ☞ Enclosure lighting should be of low wattage, with a timer to insure lights are not left on when the enclosure is unoccupied. Recessed lighting should not be used as they will allow outside air to enter the enclosure.
- ☞ The ambient temperature surrounding the enclosure should not exceed the desired cellar's temperature by more than 25°. No enclosure wall should receive direct sunlight or strong wind.

### SIZING GUIDE & SPECIFICATIONS

*This guide is to be used only for enclosures meeting the above construction requirements.*

| BREEZAIRE Model   | Enclosure Volume | Electrical | Dimensions (inches)      | Weight (lbs) |
|-------------------|------------------|------------|--------------------------|--------------|
| WKS4000 Fan/Coil  | 1000 cu.ft.      | 1.5 Amps   | 14.25w x 19.75h x 12.38d | 45           |
| WKS4000 Condenser |                  | 7.5 Amps   | 14.25w x 19.75h x 12.38d | 55           |

Note: All units are 115 Volt, 60 Hz

### INSTALLATION

**BREEZAIRE** recommends the use of a licensed refrigeration technician to install the WKS4000. Installation of the unit's line set through a fire rated wall must be done in accordance with your local building inspector and building codes.

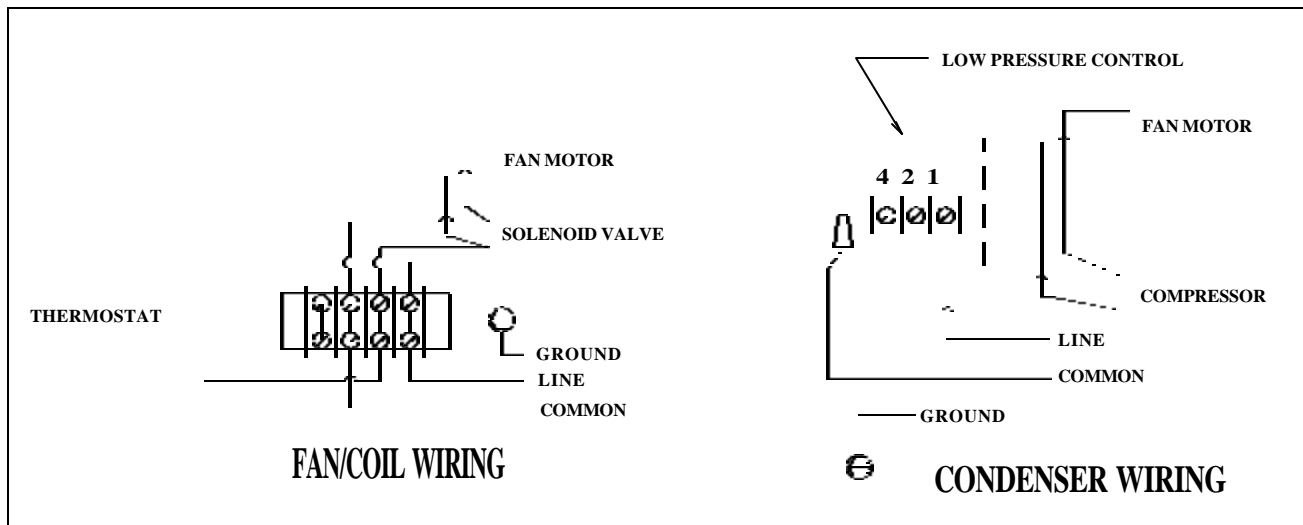
**The unit must be installed in the upright position and are not designed to have duct systems attached to either unit. Do not drill any holes into the cooling unit. This may damage the unit, promote rust, and will void the warranty.**

***If your installation cannot be performed in accordance with these instructions contact your dealer.***

- ☞ The WKS4000 consists of two components, the condensing unit and the fan/coil unit. The condensing unit includes the compressor, condenser coil, fan and two service ports. The fan/coil unit includes an internal, adjustable thermostat (50°-62°F), solenoid valve, expansion valve, evaporator coil, and fan. The sight glass and strainer/dryer are separate pieces supplied with the unit.
- ☞ **Mounting the fan/coil unit:** The fan/coil should be mounted within six inches of the ceiling and as close to the horizontal center of the wall as possible. If the unit must be mounted below the mid point of the wall, exchange the upper front grill with the blank off plate on the top of the unit. Air flow to and from the unit must be unobstructed for a minimum of 3 feet. The unit is mounted to the wall using the four slotted holes in the rear plate. The top holes should be approximately 10" from the ceiling. Mount the unit to a solid part of the wall using 1/4" lags or bolts. If necessary, attach two horizontal furring strips, at least 1" thick, solidly to the studs and attach the unit to the furring strips. Provisions must be made for passing the tubing set, wiring and drain tube through the wall.
- ☞ **Mounting the condensing unit:** Place the condensing unit on a solid foundation in a location with at least 1 foot of clearance on all sides and the warm exhausting air to be unobstructed for at least 3 feet. This location should be an area where the temperature is not higher than 90°F and lower than 20°F. The condensing unit should be elevated to avoid any possible flooding and shaded from direct sun light. Remove the screws and the cover. Do not open the access valves.
- ☞ **Plumbing the system:** The two units are connected by a 1/4 inch "liquid line" copper tube, and a 3/8 inch "suction line" copper tube. The line-set should not have a equivalent length longer than 100 ft. for each line. Reduce the line-set length by 10 feet for every hard 90° bend. Remove the cores from the access valves before soldering tubing to the valves. **Caution: hold valve body with**

**an appropriate wrench when removing or tightening the cap or opening and closing the valve.** The sight glass and strainer/dryer should be connected to the condensing unit's liquid line. Enclose the liquid and suction line together in a flexible insulation jacket to allow heat exchange and to prevent condensation from forming on the tube. If the condensing unit is mounted on a higher level than the fan/coil unit, a P-trap must be installed in the suction line at the evaporator discharge. The fan/coil unit is equipped with a 1/2 inch O.D. plastic fitting for removal of water from the condensate pan. Connect a 1/2 inch I.D. vinyl hose to the fitting and route the hose to an approved drain. A condensate pump is required if the vinyl drain hose has any vertical rise.

☞ **Wiring the system:** As the system uses a "pump down" controller, no wiring between the two units is required. Wire the system in accordance with local code and the wiring diagrams. Electrical connections are made to the terminal strip in the fan/coil and in the low pressure control on the condensing unit. When power is connected to the fan/coil unit the fan will begin operation and the solenoid valve will be energized. Both the fan/coil and condensing unit requires a standard 110 volt, 60 Hz properly grounded electrical outlet. Each circuit must be rated for a minimum of 10 amps.



**WARNING: THE COMPLETED SYSTEM MUST BE PRESSURED TESTED FOR A MINIMUM OF 6 HOURS AND THEN EVACUATED TO HOLD A 250 MICRON VACUUM FOR A MINIMUM OF 15 MINUTES. ANY LEAKS DISCOVERED AFTER REFRIGERANT CHARGING ARE THE SOLE RESPONSIBILITY OF THE INSTALLER.**

☞ **Charging the system:** After all components have been connected, reinstall the access valve cores and open the valves. With electrical power connected to the fan/coil unit energizing the solenoid valve, pressure test the complete system for a minimum of six hours. If no leaks are found, leave the fan/coil and solenoid valve energized, evacuate the system through both the liquid and suction service ports for a minimum of six hours. Replace the insulation and cover on the fan/coil unit. With electrical power connected to the condensing unit and the fan/coil unit running, slowly feed refrigerant (R12 or R409A) into the suction service port. As the suction pressure rises to 30 psi the condensing unit will start. Continue feeding refrigerant while maintaining a pressure above 15 psi to prevent the compressor from short cycling. Feed refrigerant until the sight glass is clear of bubbles. **Allow the system to operate for several hours and then check the refrigerant level in the sight glass again. Additional refrigerant may be required as the temperature of the enclosure is lowered to approximately 55° or the ambient temperature at the condensing unit rises above the temperature at which the unit was charged.**

### OPERATION

On initial start-up the cooling unit will reduce the temperature of the enclosure slowly. The unit may run constantly or cycle off for short periods. The time required to reach the desired temperature will vary, depending on the enclosure's construction and contents. The thermostat is factory set to approximately 55° F. Unless the temperature falls below what is desired, do not change the thermostat setting for at least 3 days. After initial cool down, the "on-off" cycle should be relatively constant. The percentage of "off" time will depend on enclosure's construction, contents, and surrounding outside temperatures.

### MAINTENANCE

The **BREEZAIRE** cooling unit requires very little maintenance. At least once every three months the condenser coil should be inspected and vacuumed to prevent any air blockage. The condenser coil, in the condensing unit is located outside the enclosure. Use a vacuum and brush attachment to remove the lint or dirt that may reside between the aluminum fins. **If the condenser coil becomes blocked preventing proper air flow the unit will over heat causing a loss in cooling efficiency and will result in failure of the unit not covered under warranty.**

### ENCLOSURE PROBLEMS

**BREEZAIRE** is extremely proud of the quality and reliability of its products. Experience has shown that of the small number of

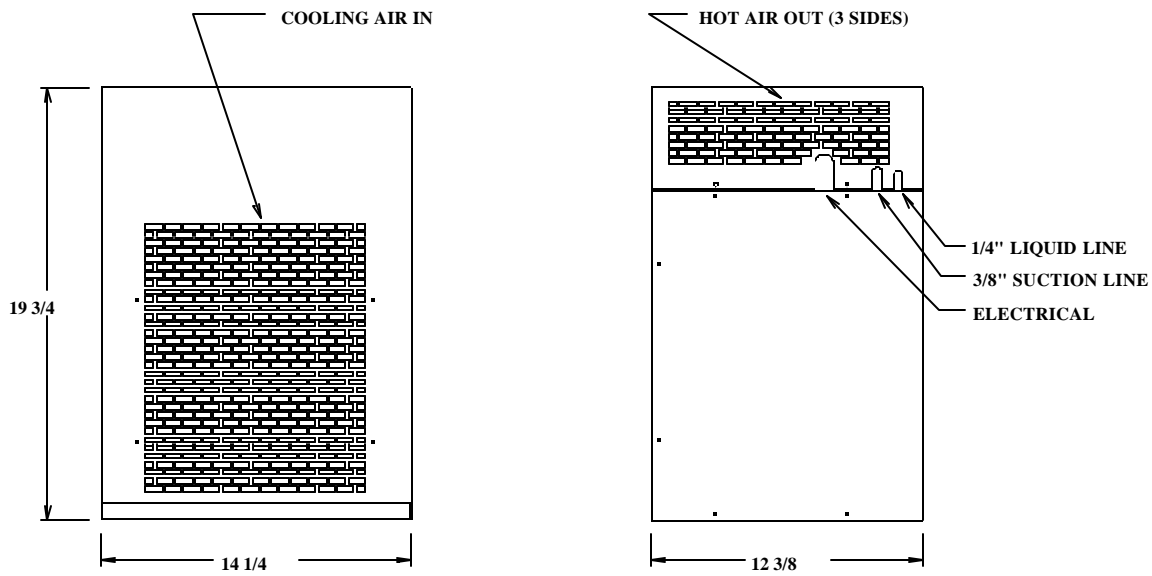
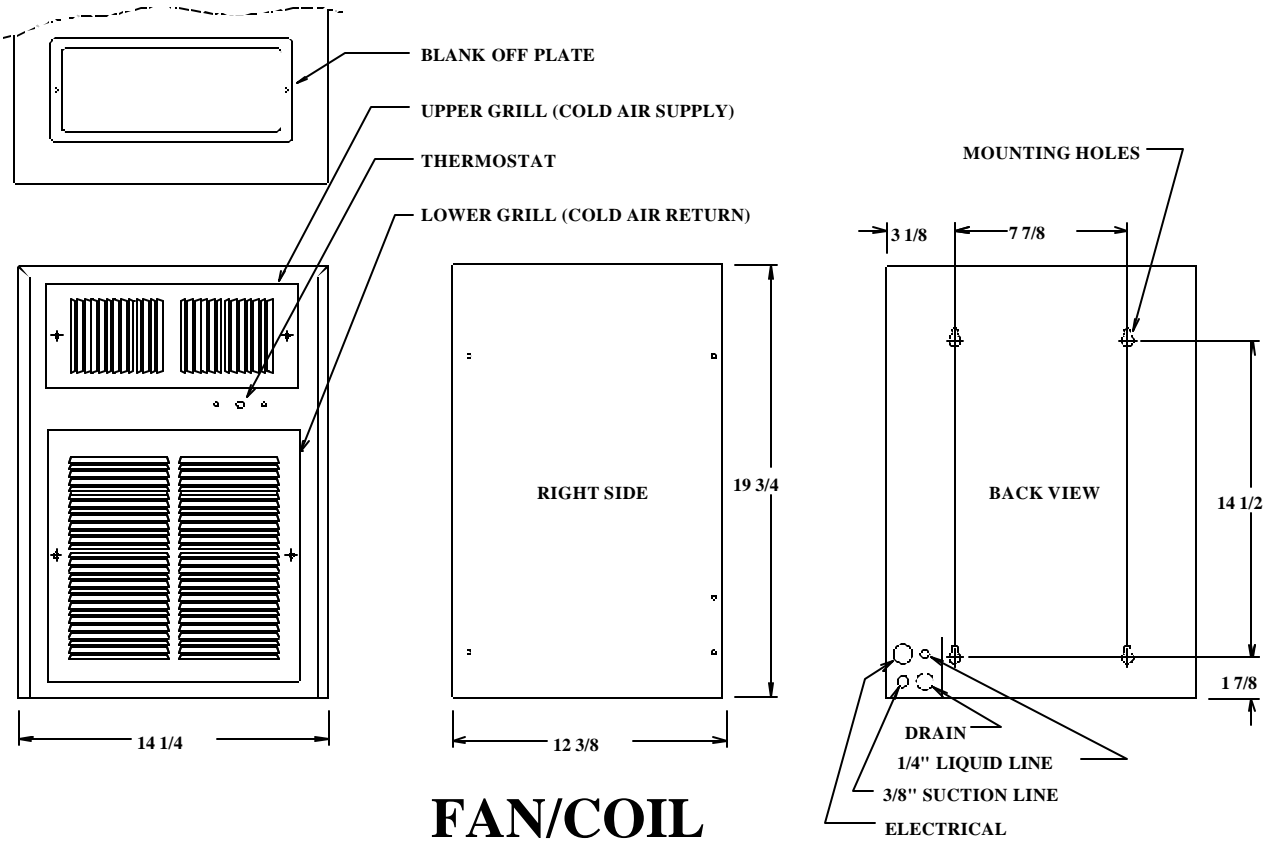
problems encountered, the large majority are due to improper unit selection or enclosure construction. Should the cooling system be suspected of malfunctioning, check the temperature of the air being exhausted from the condenser's exhaust grill. If it is warm, the unit is working. A further check may be made by comparing the air temperature entering the lower grill on the fan/coil unit with that leaving the top smaller grill. If the air leaving the unit is at least 6° F less than the temperature entering, the unit is working properly.

In some cases, improper placement or installation may cause the unit's performance to be degraded. **The condensing unit must have a constant supply of fresh air, less than 85° F.** If the condensing unit is located in a confined area with poor ventilation, the unit will not be able to reject the heat it is removing from the enclosure and a malfunctioning unit will be suspected. Similar symptoms may be caused by an obstruction to the free flow of air into or out of the condensing unit. In severe cases of reduced air flow, this unit may over heat and discharge exhaust heat into the fan/coil unit and then into the cool enclosure.

**Proper sealing of the enclosure through the use of a plastic vapor barrier and weather stripping cannot be over emphasized. The cooling system will not be able to maintain the proper conditions if fresh, moisture laden air is constantly being introduced into an improperly sealed enclosure. Symptoms of this condition are; unit runs all the time with only a slight reduction in enclosure temperature and/or water overflows from the unit.** One way of discovering gross air leaks is to stand inside the enclosure with the lights off, allow your eyes to adapt to the dark and look for light showing through cracks in the walls or around the door. Because of the temperature difference between the inside and outside, very small cracks can allow large amounts of outside air into the enclosure. Please be aware that moisture can pass through solid concrete, paint and wood.

Often a newly constructed room contains fresh wood, paint, concrete and other building materials. These materials contain large amounts of moisture. When placed into operation in this type of environment, the system will work harder to remove this extra moisture resulting in increased "on time".

In areas where the ambient relative humidity is very low, the desired enclosure relative humidity may not be achieved without adding moisture. To add moisture to the enclosure use only slow, natural evaporation from a small water container. Do not use a humidifier.



**WKS4000 09/01 PG5**  
**Limited Warranty**  
**WKS Series**  
(USA only)

**BREEZAIRE** Products Company warrants this product to be free from defects in material and workmanship and agrees to repair or replace any component which proves defective under these terms and conditions.

**Alteration, repair or attempted repair of the components by anyone not authorized by BREEZAIRE will void this warranty.**

**Who is protected**

This warranty may be enforced only by the original retail customer and is not transferable.

**Length of Warranty**

All components used in this unit are warranted for One year (12 months) from the date of original retail purchase.

**What is not covered**

1. Any unit on which the serial number has been removed, modified or defaced.
2. Damage, deterioration or malfunction resulting from, but not limited to:
  - a. Any shipment of the unit (claims for shipping damage must be presented to the shipper).
  - b. Installation or removal of the unit/component.
  - c. Installation into an enclosure of inadequate design that does not follow the minimum guide lines of the installation instructions.
  - d. Inadequate ventilation for the supply and exhausting condenser's air that does not follow the minimum guide lines of the installation instructions.
  - e. Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature, improper storage, unauthorized modification, electrical power surges, or failure to follow instructions supplied with the unit.
  - f. Exposure to corrosive environments such as, but not limited to, marine air, caustic pool chemicals, cleaning solvents, gasoline and petroleum products.
  - g. Burial of coverage by, but not limited to, dirt, snow, mud, storage shelves, fabric products, plant vegetation, and children's toys.
  - h. Any cause which does not relate to product defect.

**What BREEZAIRE will cover**

1. During the first *12 months* **BREEZAIRE** will pay for labor and materials to repair unit/components at our factory or at a **BREEZAIRE** authorized repair facility.
2. During the first *12 months* **BREEZAIRE** will, at the customer's request, ship to the customer any replacement component with a deposit, charged at the value of the component, plus the freight FedEx C.O.D. When the original component is returned to **BREEZAIRE** in a condition that allows testing of the component and if that component is determined defective, **BREEZAIRE** will refund the customer the cost of the component and freight.

**What BREEZAIRE will NOT pay for**

1. Installation or removal of the unit/component.
2. Handling or packaging of the unit/component.
3. Component repairs performed by anyone other than a **BREEZAIRE** authorized repair facility.
4. Any other damages, whether incidental, consequential or otherwise.

**How to obtain warranty service**

**BREEZAIRE** may require you to provide the original bill of sale or receipt as proof of purchase in order to obtain warranty service. Please retain any such proof of purchase.

If a problem is suspected with a **BREEZAIRE** cooling unit, please contact your dealer.

Do not return a unit/component without an authorization number from **BREEZAIRE**.

Should it be necessary to return your unit/component for warranty service, it must be packaged in the original packaging or similar packaging providing an equal degree of protection. Any freight charges must be prepaid, **BREEZAIRE** will not accept COLLECT shipments. If the unit/component is found to be defective **BREEZAIRE** will reimburse (during the first 12 months) the cost of shipping the unit at standard second day freight rates.

**LIMITATION OF IMPLIED WARRANTY**

**BREEZAIRE'S** SOLE LIABILITY FOR ANY DEFECTIVE PRODUCT IS LIMITED TO, AT OUR OPTION, THE REPAIR OR REPLACEMENT OF THE UNIT/COMPONENT.

**BREEZAIRE** SHALL NOT BE LIABLE FOR:

1. DAMAGE TO OTHER PROPERTY CAUSED BY ANY DEFECTS IN THE UNIT/COMPONENT, DAMAGES BASED UPON INCONVENIENCE, LOSS OF USE OF THE UNIT, LOSS OF TIME OR COMMERCIAL LOSS.
  2. ANY OTHER DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE.
- THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

While great effort has been made to provide accurate guidelines, **BREEZAIRE** cannot warrant its units to properly cool a particular enclosure. Customers are cautioned that enclosure construction, unit location and many other factors can affect the operation and performance of the unit. Therefore the suitability of the unit for a specific enclosure or application must be determined by the customer and cannot be warranted by **BREEZAIRE**.