

# **BREEZAIRE** PRODUCTS COMPANY

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

## **WKSL 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** \_\_\_\_\_

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**.

## **INSTALLATION INSTRUCTIONS FOR WKSL SERIES COOLING UNITS**

The **BREEZAIRE** WKSL Series cooling units are designed to, when installed in a properly constructed enclosure, provide a constant, selectable temperature between 48°F and 63°F while reducing the excess relative humidity to the proper 50% to 75%. **BREEZAIRE** cooling units are designed to lower the temperature, while removing only excessive moisture. In a properly constructed enclosure this process can raise the relative humidity. The unit does not add moisture to the enclosure. The unit does not include a heating system and will not warm the enclosure. The WKSL Series is not intended to cool service cabinets, which are maintained at lower temperatures and opened or entered frequently.

The WKSL Model has a digital electronic (Sentry III) thermostat that adds additional safety and convenience features:

Large, easy to read, green LED display.

Accurate, easy to adjust (no tools needed), readable set points with continuous reading of enclosure temperature or displaying of the set point when changing enclosure temperatures.

Power outage protection, which delays unit start up after power outages.

Blocked airflow protection, which shuts down unit and protects wine in case of high temperatures caused by condenser blockage.

Controls temperature by enclosure intake air sensors or an optional bottle probe.

The WKSL 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 WKSL components.* The installation and proper operation must be warranted by the installer. Before installation, the purchaser and installer should carefully read the enclosed Limited Warranty.

### **ENCLOSURE CONSTRUCTION GUIDELINES**

To use the below SIZING GUIDE, the enclosure to be cooled must be built to the following minimum specifications. If the enclosure cannot be 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 walls, floors and ceilings should have a vapor barrier. This vapor barrier should be installed on the warm side of the insulation. All interior walls and floors should be lined with a minimum of R-11 insulation and exterior walls and ceiling insulation value should be a minimum of R-19. There should be no glass doors and/or windows.

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 fill the 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.

No enclosure wall should receive direct sunlight or strong wind.

These are mechanical pieces of equipment, they will make noise and the condensing unit will produce heat. Unit installation and location are not only important inside the wine cellar, but just as important, is where the warm exhaust air from the condensing unit is being rejected.

## SIZING GUIDE & SPECIFICATIONS

This guide is to be used only for enclosures meeting the above construction requirements. Glass doors and/or windows are not included in our calculations and should not be used in a wine enclosure. Note: All units are 115 Volt, 60 Hz

<b>BREEZAIRE</b> Model	Enclosure Volume	Electrical	Dimensions (inches)	Weight (lbs)
WKSL2200 Fan/Coil	265 cu.ft.	1 Amp	14.25W x 14.125H x 7.75D	25
WKSL2200 Condenser		4 Amps	14.25W x 14.125H x 11.00D	35
WKSL4000 Fan/Coil	1000 cu.ft.	1.5 Amps	14.25W x 19.75H x 12.375D	45
WKSL4000 Condenser		7.5 Amps	14.25W x 19.75H x 12.375D	55

## INSTALLATION

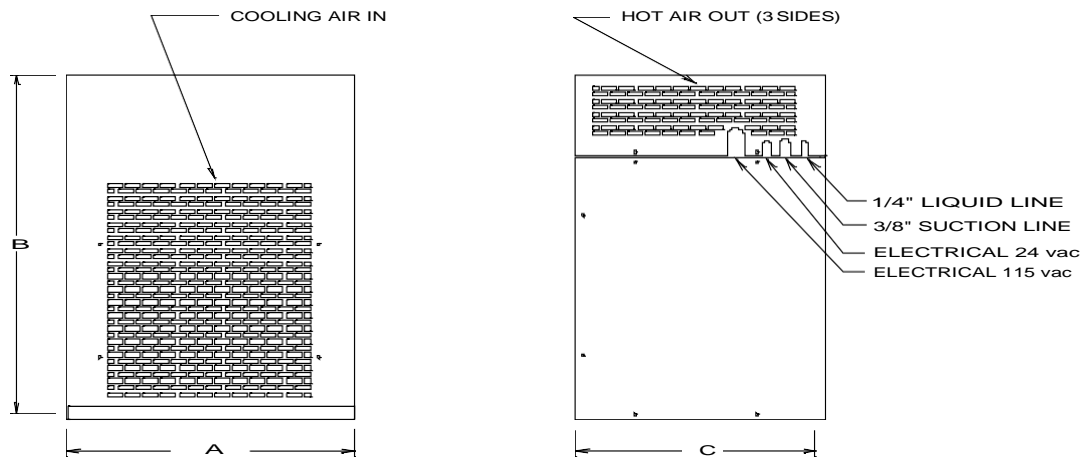
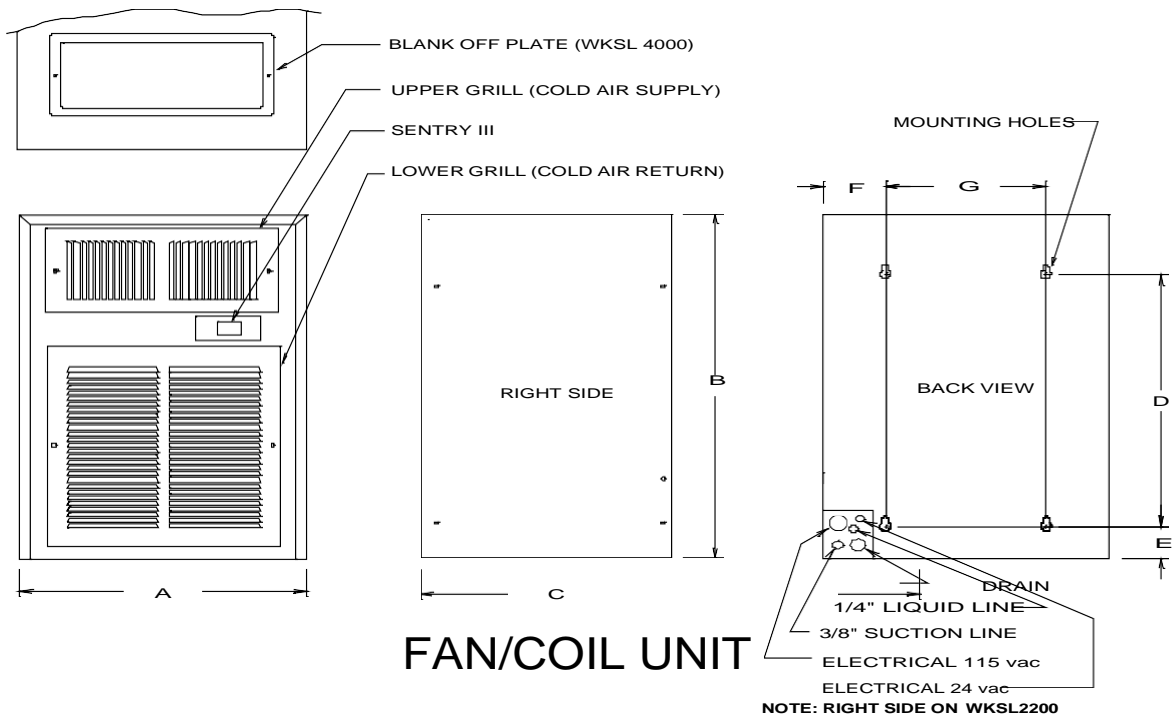
**BREEZAIRE** recommends the use of a licensed refrigeration technician to install the WKSL systems. Installation of the unit's line set through a fire rated wall must be done in accordance with your local building codes. **If your installation cannot be performed in accordance with these instructions contact your dealer.**

The units must be installed in the upright position and are not designed to have ductwork attached on either the condenser or evaporator units. Do not drill any holes into the units. This may damage the units, promote rust, and will void the warranty.

The WKSL system consists of two components, the condensing unit and the fan/coil unit. The condensing unit includes the compressor, condenser coil, fan assembly and two service ports. The fan/coil unit includes SENTRY III digital electronic thermostat, evaporator coil, and fan assembly.

**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. (**Note for WKSL 4000 only** - If the unit must be mounted below the midpoint 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 ¼" 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. The warm exhaust air must be unobstructed for at least 3 feet. If the condenser inlet temperature exceeds 85°F the unit's rated BTU's will be decreased. If the condenser location goes below 20°F a crankcase heater or fan speed control should be installed. The condensing unit should be elevated to avoid any possible flooding and shaded from direct sun light. Install the condensing unit so that cleaning the condenser inlet will not be difficult.



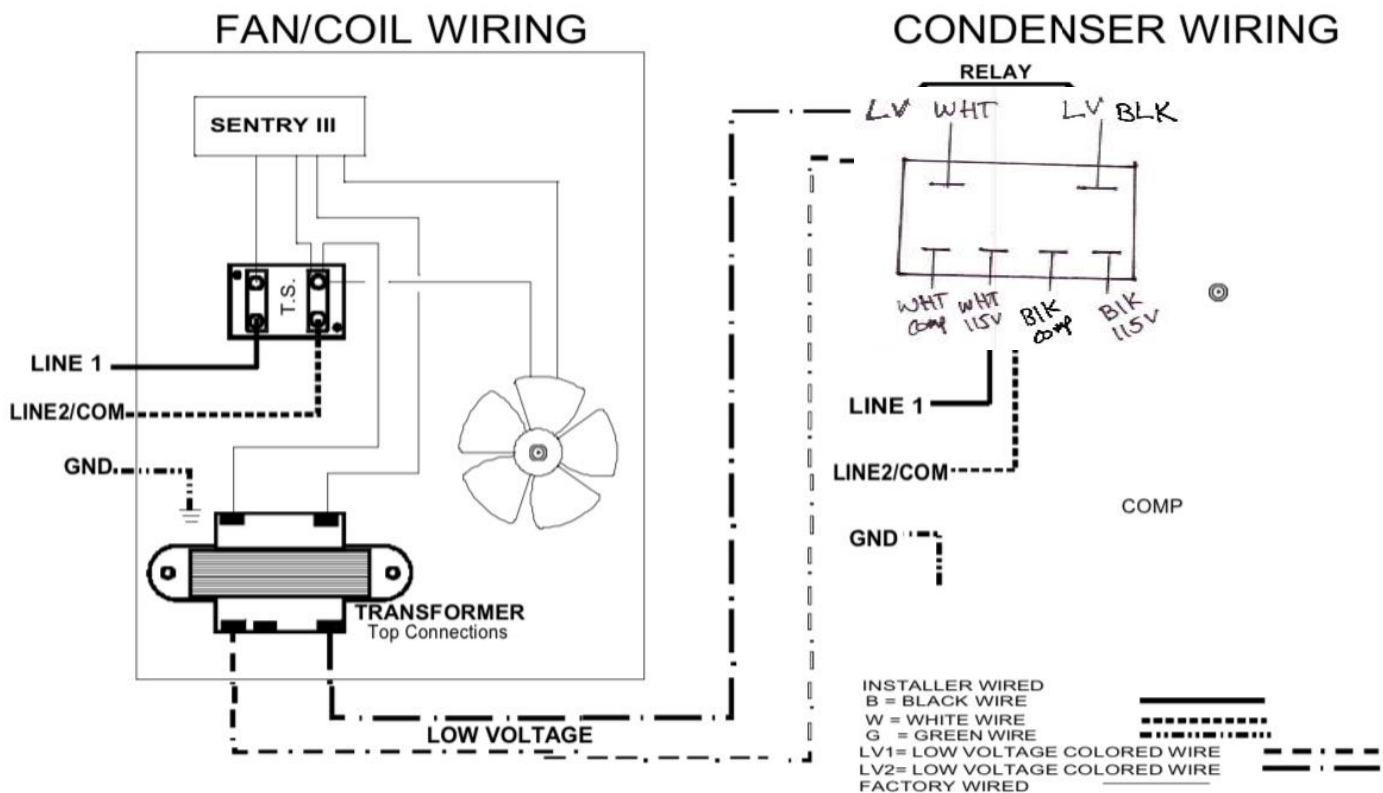
Model	Dimensions in Inches						
	A	B	C	D	E	F	G
WKSL2200 Fan Coil	14.25	14.125	7.75	9	2.437	3.562	7
Condenser	14.25	14.125	11	N/A	N/A	N/A	N/A
WKSL4000 Fan Coil	14.25	19.75	12.375	14.5	1.875	3.125	7.875
Condenser	14.25	19.75	12.375	N/A	N/A	N/A	N/A

**Plumbing the system:** The two units are connected by a ¼ inch "liquid line" copper tube, and a 3/8 inch "suction line" copper tube. The line-set should have a maximum calculated length no longer than 50 ft. for each line. (Note: Enclose the suction line in a flexible insulation jacket to prevent condensation from forming on the tube.) 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 charging valve assembly body with an appropriate wrench when removing or tightening the cap or opening and closing the valve. The sight glass and strainer/dryer are separate pieces supplied with the unit. The sight glass and strainer/dryer should be connected to the condensing unit's liquid line. If the condensing unit is mounted 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 ½ inch O.D. plastic fitting for removal of condensate. Connect a ½ inch I.D. vinyl hose to the fitting and route the hose to an approved drain. Ensure the ½ inch I.D. vinyl hose has an air break installed within 2 to 10 inches from unit connection. A condensate pump is required if the vinyl drain hose has any vertical rise, significant horizontal or near horizontal run.

**Wiring the system:** 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 the relay in the condensing unit. Both the fan/coil and condensing unit must be connected to properly grounded electrical sources of adequate capacity (see unit specification for unit electrical requirements).



**Charging the system:** After all components have been connected, reinstall the access valve cores and open the valves. Pressure test the complete system for a minimum of six hours.

If no leaks are found, 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 both the condensing unit and the fan/coil, slowly feed refrigerant (R134A) into the suction service port. 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. With the wine cellar at 55° and the condenser intake at 85° the low side pressure should be 30 to 35 psi.

**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.**

## OPERATION

### Please read the Sentry III Owner's Manual

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 construction and contents. The on/off time of a unit will depend on the Liquid Mass (the amount of wine) in the wine cellar Breezair requirements a min of 50%

The Sentry III thermostat is factory set to approximately 55°F. Unless the temperature falls below that which is desired, do not change the Sentry III setting for at least 3 days.

During normal operation the Sentry III's readout will display the temperature of the air entering the intake of the cooling unit. If the optional bottle probe is installed the intake air sensor will be disconnected and the temperature of the probe will be displayed. The temperature being displayed is also the temperature used by the control system to turn the cooling unit on and off.

After initial cool down, the "on-off" cycle should be relatively constant. The percentage of "off" time will depend on enclosure construction, placement of unit, contents, and the surrounding outside temperatures.

The Sentry III's set point can be adjusted no lower than 48°F or higher than 63°F. **NOTE: If the enclosure is not cooling to the current set point, lowering the set point temperature further will not help. (See ENCLOSURE PROBLEMS section)**

The Sentry III set point (desired enclosure temperature) may be changed by pressing and holding the "SET" button while momentarily pressing the "COOLER" or "WARMER" button. When the "SET" button is pressed the readout will automatically change and display the current set point temperature

Should the operation of the cooling unit be interrupted by a power outage or by raising the set point temperature while the unit is running the Sentry III's internal delay will be activated and the unit will not restart for approximately three (3) minutes. NOTE: This delay may also occur on initial power-up.

## MAINTENANCE

The **BREEZAIRE** cooling unit requires very little maintenance. To maintain optimal performance, the condenser coil should be inspected and cleaned every three months use a vacuum (with brush attachment) to remove dirt and lint from the inlet of the condenser coil. 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, that the large majority are due to improper unit selection or enclosure construction. In some cases, improper placement or installation may cause the unit's performance to be compromised. Should the cooling system be suspected of malfunctioning, check the temperature of the air being exhausted from the upper part of the exterior condenser's grille. 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 cold side (fan/coil unit) with that leaving the upper smaller grille. If the air leaving the unit is at least 6<sup>o</sup>F ore colder than the temperature entering, the unit is working properly.

In situations 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 slow, natural evaporation from a small unglazed clay water container. Do not use a humidifier.

Improper placement or installation may cause the unit's performance to be degraded. If the condensing unit is located in a confined area with poor ventilation or duct work, it will not be able to reject the heat and moisture it is removing from the enclosure and a malfunctioning unit will be suspected. If the flow of fresh air to or from the exterior condensing unit is stopped or restricted for any reason the unit could heat rather than cool the enclosure.

Proper sealing of the enclosure through the use of a 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. Also close the door on a piece of paper, if you can pull the paper through the door seal, it means air and moisture are also entering into your enclosure. Because of the temperature difference between the inside and outside, very small cracks can allow large amounts of outside air into the enclosure. Please beware that moisture will pass through solid concrete, brick, paint, paper and wood. A newly constructed room may contain fresh wood, paint, concrete and other building materials containing large amounts of moisture. This condition can cause symptoms similar to a poorly sealed enclosure, but will gradually go away.