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Installation Instructions

ACU Series Wine Cellar Cooling Unit

Thank you for choosing an Allavino Cooling Unit (ACU). Our products are of the highest quality and will provide many years of trouble-free service when installed and maintained correctly. Please take a few minutes and read this entire instruction manual before beginning installation. For future reference, you may record information about your cooler and its installation in the fields below.

Model

Serial Number

Installer

Date

Overview

Allavino Cooling Units (ACU) are designed to, when installed in a properly-constructed enclosure, maintain ideal conditions for wine storage. The unit provides a selectable temperature between approximately 48°F and 63°F (9 - 17°C) while reducing the relative humidity to the proper 50% to 75%.

Our units are designed only to remove excess moisture. A reduction in temperature can raise the **relative** humidity of the enclosure, but it should be noted that the unit does not add moisture to the environment. In especially dry climates, moisture may need to be added from other sources to achieve an ideal relative humidity.

The unit does not include a heating system and will not warm the enclosure. The ACU Series is not intended to cool service cabinets, which are maintained at lower temperatures and opened or entered frequently.

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

- ◆ A large, easy to read, green 7-segment LED display.
- ◆ Accurate, easily adjustable set points with continuous reading of enclosure temperature.
- ◆ A dedicated set button that, when pressed, displays the set temperature point and enables adjustment of the enclosure temperature.
- ◆ Power outage protection, which delays unit start up after power outages and other interruptions of power.
- ◆ Blocked airflow protection, which shuts down unit and protects wine in case of high temperatures caused by condenser blockage.
- ◆ Enclosure air sensors and an optional bottle probe port to monitor and control wine temperature.

Enclosure Construction

To use the below **Sizing Guide**, the enclosure must be built to the following minimum specifications. If the enclosure cannot be built to these specifications, consult your Allavino dealer for assistance in choosing the correct unit. Allavino cooling units are not warranted to cool a specific enclosure, and the suitability of said enclosure is left to the customer.

- ◆ 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 the exterior wall/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/switches, and any pipes or vents which go through the enclosure should be sealed to prevent air and moisture leakage into the room. Concrete 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 behind the door frame's molding.
- ◆ Enclosure lighting should be of low wattage, with a timer to ensure lights are not left on when the enclosure is unoccupied. Recessed lighting should not be used, as it will allow outside air to enter the enclosure.
- ◆ The ambient temperature surrounding the enclosure should not exceed the desired temperature by more than 25°F (14°C). No enclosure wall should receive direct sunlight or strong wind.
- ◆ This is a mechanical piece of equipment, it will make noise and produce heat on the warm side exterior condenser grille. Remember, unit installation location is not only important inside the wine cellar, but just as important is where the warm side exhaust air is being rejected.

Figure 1 - Sizing Guide & Specifications

This guide is applicable only to enclosures that meet the construction requirements above. All units are 115V 60 Hz.

Cooler Model	Cellar Volume	Electrical	Dimensions (in)	Weight
ACU 3000	650 cubic feet	5 Amps	14.25W × 19.75H × 21.63D	76 lbs.
ACU 4000	1000 cubic feet	7 Amps	14.25W × 19.75H × 21.63D	81 lbs.

Note: Glass doors and windows are not included in our calculations and should not be used in your wine enclosure.

Unit Location

Proper ventilation is essential for optimal ACU performance. This section outlines the factors that must be considered when selecting an ideal location for your Allavino Cooling Unit.

The unit must be installed upright in a location where both the warm air exhaust on the back and the cold air exhaust on the front have a **minimum 3 feet of clearance** from any obstructions. The unit is not designed to have ductwork affixed to any of its ventilation ports.

The warm air exhaust must be able to disperse excess heat and humidity into a well-ventilated space. Stuffy or humid laundry rooms, closets, bathrooms, garages, crawl spaces, attics, and basements are inappropriate locations for the cooler exhaust. The warm air intake of the unit must have a constant supply of fresh air, less than 85°F (29°C).

Inadequate airflow may cause the unit's performance to be degraded. If the unit exhausts into a confined area with poor ventilation or duct work, it will not be able to eliminate the heat and moisture that it removes from the enclosure, resulting in unsatisfactory performance. In severe cases, the unit could heat rather than cool the enclosure.

Similarly to the warm air side, the air flowing from the upper cold side grille must be able to flow out freely into the enclosure. It is preferred that the unit be mounted near the ceiling, and as close to the center of the wall as possible.

Finally, do not install the unit in a location where its removal will be difficult or impossible. It may be necessary to periodically remove the unit to clean the condenser coil.

Pre-Installation Testing

Before installing the unit, inspect it for any damage sustained during shipping.

Test the unit by placing it in a room where the temperature is above 65°F (18°C). Position the unit to allow cold air to flow from the evaporator outlet. (See Figure 3) Plug the unit's electrical cord into a properly grounded electrical outlet of adequate capacity (see unit specification for unit electrical requirements).

Allow the cooler to run for a minimum of 15 minutes. There should be a flow of cool air from the evaporator side upper grille (see Figure 3) and warm air should be flowing from the upper opening on the warm air exhaust (condenser) grille (see Figure 4).

Installation

Modifications must be made to the enclosure to accommodate the cooling unit. The directions in this section provide guidance for this process.

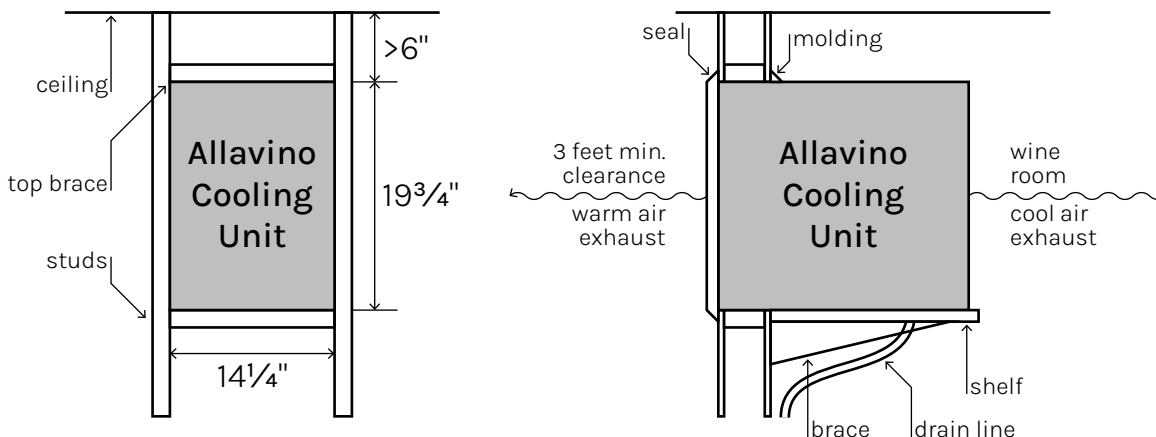
Creating A Mounting Location: Make a hole through the wall as illustrated in Figure 2. The dimensions of the hole should be approximately ¼ inch larger than the width and height given in the specifications. Allavino units should **not** be installed in a fire rated wall without consulting your local building inspector and building codes.

If the unit is to be installed above floor level, construct a shelf as shown. This shelf must be capable of supporting the weight indicated in the specifications in Figure 1. Cut a hole in the shelf that corresponds to the pull down drain tube's

location on the underside of the unit. **TIP:** Insulation placed between the unit and the shelf will reduce additional noise and help reduce condensate from forming on the underside of the unit.

Place the unit through the opening, with the warm air exhaust side flush to the outside of the wall (see Figure 2). The unit may alternatively be installed with the cold side flush to the inside wall, however it

Figure 2 - Installation Diagram



is critical that the warm air exhaust grille and vapor barrier are properly installed as specified by the directions in the following section.

Ensuring A Proper Barrier: Seal the opening around the unit with high-quality weather stripping and cover with an appropriate molding. Attach the molding to the wall, not the unit itself. Do not drill any holes in the cooling unit; it may damage the unit, promote rust, and void the warranty.

Attach the warm air exhaust condenser grille to the unit and to the wall with the screws supplied with the grille. Please remember that in all cases, the warm air exhaust condenser grille must be directly attached to the warm side of the unit. Do not leave an air gap between the unit's surface and the warm air exhaust condenser grille. **The unit will not work properly without this grille.** The exhaust condenser grille has only a white primer coat. If the exhaust condenser grille is installed on an outside wall, it should be coated with an appropriate paint.

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

Operation

The Sentry III system operates intelligently to protect the wines within its enclosure. This section explains how the unit functions when it is plugged in.

The thermostat has no "off" position; therefore it will begin to run within 5 minutes of being plugged in. On initial start-up, the cooling unit will reduce the temperature of the enclosure slowly. The unit may run constantly or cycle on and off for short periods. The time required to reach the desired temperature will vary, depending on the enclosure construction and contents.

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

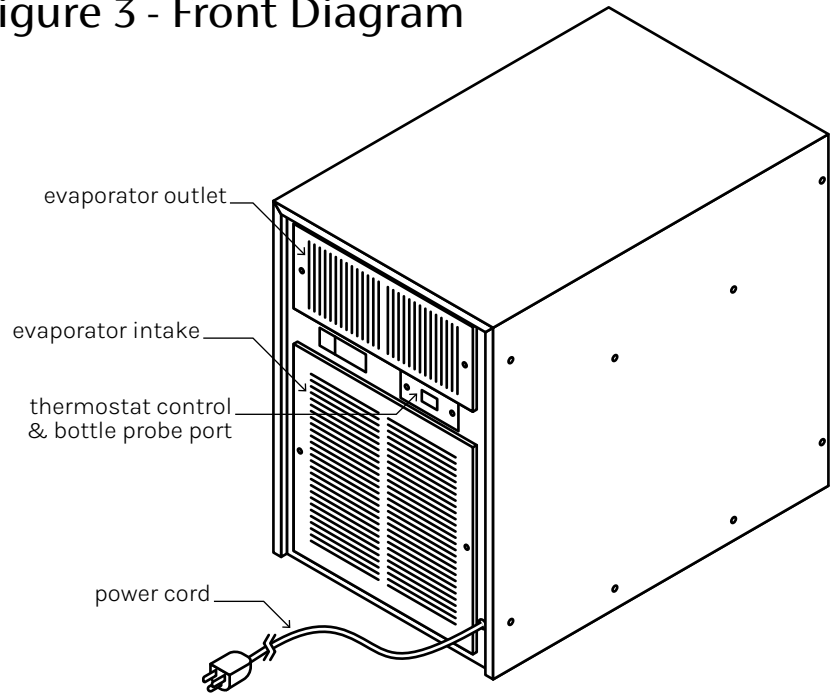
During normal operation, the Sentry III thermostat's readout will display the temperature of the air entering the intake of the cooling unit. If the optional bottle probe is installed, the intake air sensor will be disconnected and the temperature of the probe will be displayed instead. The temperature 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 the enclosure's construction, as well as the placement of the unit, its contents, and the surrounding ambient temperature.

Changing the Set Temperature: If it is necessary to adjust the temperature of the enclosure, wait until the appropriate phase of the cooling cycle: the thermostat should be lowered while the unit is running, or raised while the unit is off. The set point can be adjusted no lower than 48°F or higher than 63°F.

The desired enclosure temperature may be changed by

Figure 3 - Front Diagram



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.

If the enclosure is not cooling to the current set point, see the **Troubleshooting** section for possible solutions. Lowering the set point temperature further will not help and may risk overheating the unit.

Start-Up Delay: 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.

If the operation of the unit is stopped, either by unplugging it or by turning the thermostat, do not restart it for at least 10 minutes.

Maintenance

The Allavino cooling unit requires very little maintenance. To maintain optimal performance, the condenser coil should be inspected and cleaned every 3 months. Remove the exhaust condenser grille located outside the enclosure and use a vacuum (with brush attachment) to remove dirt and lint from the fins of the condenser coil.

If the condenser coil becomes blocked, preventing proper air flow, the unit will overheat. This will cause a loss in cooling efficiency and eventually result in a failure of the unit which is not covered under warranty.

Troubleshooting

Although problems are rarely encountered with Allavino cooling units, the large majority of issues are due to improper unit selection or enclosure construction. Read on for common issues and their possible solutions.

Inadequate Cooling: Should the unit run frequently with only a slight reduction in enclosure temperature, the cooling system may be suspected of malfunctioning. To confirm this, check the temperature of the air being exhausted from the upper part of the warm air exhaust condenser grille. If it is not warm, a further check may be made by comparing the air temperature entering the lower grille on the cold side (evaporator side) with that leaving the upper cold side grille (see Figure 3). If the air leaving the unit is not 6°F (3°C) or more degrees colder than the temperature entering, this indicates an issue with the cooling system. Should these symptoms be encountered, contact your dealer.

Should the unit fail to cool the enclosure, the unit's Sentry III system will turn off when the enclosure temperature rises to approximately 75°F. The unit will not restart until the enclosure temperature is lowered to approximately 65°F or the unit is disconnected and then re-connected to the power supply. This feature is disabled for approximately 45 minutes after the unit is connected or re-connected to a power supply to allow initial cooling of the enclosure.

Inadquate Enclosure Seal: Proper sealing of the enclosure through the use of a vapor barrier and weather stripping cannot be over emphasized. The unit will not be able to maintain the proper conditions if fresh; moisture-laden air is constantly being introduced into an improperly sealed enclosure. If the cooling system seems to be functioning, but the unit is still running too frequently or producing an excessive amount of condensation, then the enclosure seals should be reevaluated.

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 be aware 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.

Low Humidity: 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, only use slow, natural evaporation from a small porous water container. Do not use a humidifier.

Drain Tube Usage

Your unit is equipped with a Pull-down Drain tube to prevent condensate overflow. To temporarily drain excess amounts of condensate, engage the drain tube and provide a receptacle or drain to receive the excess condensate.

Extending the Drain Tube: To extend and open the drain, use a pair of small pliers to grab the red plastic plug and vinyl tubing. Pull the plug and tubing down approximately 6 inches until it snaps into the locked position and the "Grey Fitting" is visible through the drain hole (see Fig. 4). Remove the bottom red plug. Now the cooling unit will drain any condensate that is standing above ¼" deep in the base pan.

Closing the Drain Tube: To close the drain tube, simply replace the red stopper and push the vinyl tubing back up into the bottom of the cooling unit. This action extends the top of the tube above the water line, preventing it from draining. **CAUTION:** Do not push the entire length of tubing back up into the drain hole.

Installing a Drain Line: To extend the drain tube into a basement drain or container, acquire a length of vinyl tubing with an inside diameter of ½" from a local hardware store. Slip this larger piece of tubing over the pull-down drain tube. **CAUTION:** Always have the extended drain line running "down hill". This is a gravity flow system. If a horizontal run is encountered, an air vent or condensate pump may be required to maintain drainage.

Do not drill or tap the drain hole. Doing so will result in rusting of the metal base and void the unit's warranty.

Figure 4 - Drain Diagram

