



Wine Cellar Cooling Systems
酒卫酒窖冷却系统

Humidifier
加湿机

Installation, Operation and Maintenance Guide

50 Hz Application
安装，操作及维修指南
50 赫兹专用

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制造商

美国空气创新公司

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INTRODUCTION 引言

Dear Customer:

Congratulations and thank you for purchasing a Wine Guardian® Humidifier. We believe it to be the best wine cellar humidifier on the market and hope that you will agree.

This guide is intended to help the installer and owner of the Wine Guardian Humidifier to properly install and maintain the equipment. In order to ensure optimal performance, the equipment should be installed properly and have proper care and maintenance. Please read this guide carefully, especially the safety instructions, and keep it for future reference.

尊敬的客户：

祝贺并感谢您购买酒卫®牌加湿机。我们认为这是的市场上最好酒窖加湿机器，希望你能认同。

本指南旨在帮助安装人员和酒卫加湿机业主正确安装和维护设备。为了确保最佳的性能，设备应正确安装并有适当的维护和保养。请仔细阅读本指南，尤其是安全指示，并保留日后参考

Receiving, Unpacking and Inspection 接受，拆包和检查

This Wine Guardian Humidifier is shipped in a cardboard box. Each humidifier and humidistat is factory assembled and tested prior to shipment. There are two models of the Wine Guardian humidifier. The stand-alone model (see Figure 4.0) is supplied with its own grille, wall bracket and transformer and is intended to be mounted separately and independently of the cooling unit. The basic or integrated humidifier is intended to be mounted on a Wine Guardian cooling unit (see Figure 6.0) and is supplied with an adapter.

Upon receipt and before opening the container, inspect the packing crates or boxes for obvious signs of damage or mishandling. Write any discrepancy or visual damage on the bill of lading before signing.

Find the packing slip and check for completeness of contents. Make sure it is the correct model you ordered, including factory options and accessories.

Your Wine Guardian Humidifier has a humidistat that gets wired to the terminal strip on the Wine Guardian unit and a drain line that requires piping to an open floor drain or condensate pump. Inspect all equipment for any sign of damage or loose parts caused during transit. Immediately report all visual or concealed damage to the carrier and file a claim.



此酒卫加湿机装于纸箱。工厂对每一个加湿机，和湿度调节器在发货前经过测试。有两种酒卫加湿机型号。独立型（见图 4.0）随带自己的格栅，墙架，变压器，是为了分开安

装，不与冷却装置接触。基本或集成加湿机是拟安装在酒卫冷却装置（参见图 6.0）主机上，并带有接口配板。

在收到并打开包装之前，检查包装箱是否明显的包装损坏或处理不当的地方。写下任何关于提单签署前明显损坏和差异的地方。

查找装箱单和检查内容的完整性。请确保它是正确的机型，包括工厂选项和配件。

酒卫加湿机湿度调节器用电线接入酒卫主机接线板终端，并带有排水管线，需要用管道接入地漏排水口或冷凝排水泵。检查所有的任何损坏或在运输途中造成的松动部件标设备。立即将所有可见的或隐蔽的损坏文件报告给承运人。

NOTE: If this procedure is not followed, the shipping company may reject the claim and the consignee may suffer the loss. Do not return the shipment to the factory.



注意：如果不遵循这一程序，船运公司可以拒绝索赔和收货人很可能蒙受损失。请不要将设备运回工厂。

General Description 总体描述

The Wine Guardian Humidifier is a self-contained unit designed specifically for wine cellars. It has been designed for easy installation and operation, either as a freestanding unit or mounted on a Wine Guardian cooling unit. Wine Guardian uses a humidistat to sense and control the amount of moisture needed to be added to the cellar. Humidifiers are not intended to remove moisture, only add moisture. All components are of a high quality, standard commercial grade. The freestanding humidifier also comes with a sealed, plug-in transformer and lead cord to allow the unit to operate independently of a Wine Guardian cooling unit.

Wine Guardian Humidifiers are the evaporative drip pad-type. Air from the cellar is drawn over a distribution pad that is saturated with water from a distribution tray. As the air passes through the pad, it absorbs moisture through evaporation of the water. This raises the humidity of the leaving air that returns to the cellar. Hot water is recommended for use with the humidifier; however the system will work using cold water. Hot water increases the capacity of the humidifier to evaporate the water as it passes through the pad. The hot water also leaves fewer solids on the surfaces of the pad and flushes contaminants out of the pad. Excess water is collected in the bottom trough and exits through the drain.

To avoid build-up of mineral deposits on the pad and potentially causing blockage of the air flow, it is recommended that hard water be treated (filtered and softened). Install a 5- or 10-micron in-line water filter ahead of the humidifier to keep dirt from fouling the inlet screen and the evaporation pad inside. If the water has a high mineral content, a softener may be needed to prevent excessive scale from building up too rapidly on the pad.

Additionally, to insure adequate wetted surfaces and to help flush away excess minerals, the water flow is set to always have a flow of water to the drain. When operating, the humidifier will use approximately 4 to 8 liters of water per hour depending on the water pressure in the building. About 60% of that will pass through and go out the drain. There is a strainer and an orifice in the

line to restrict the flow of water but a throttling valve may be needed to keep too much water from going to the pad. All that is needed is a steady dripping of water out of the drain to ensure adequate wetting and flushing of the pad media. Excess water does not negatively impact the humidifier's operation but neither does it contribute to more humidification. The drain volume is too much for just a bucket. A gravity drain line should be piped to an open floor or sink drain, or a condensate pump may be used where a gravity drain is impractical. This excess drain water can be discharged directly onto the ground. The discharge of the drain can be combined into the condensate drain from the cooling unit.

The humidistat, located in the cellar, will automatically turn on the humidifier whenever the cellar humidity is below the set point and turns it off when the cellar humidity reaches set point. The recommended setpoint is 55% for wine cellars. This humidity level is high enough to prevent corks from drying out and low enough to prevent mold from forming. When the unit turns on, the water solenoid valve opens and the fan turns on. When mounted and connected to a Wine Guardian cooling unit, the humidistat also controls the main fan to circulate air to and from the cellar.

总体描述

酒卫加湿机是专为酒窖设计的一个自我封闭式设备。它的设计易于安装和操作，无论是作为一个独立的机器单位，或装置在酒卫冷却主机上。酒卫使用湿度调节器控制窖内水分含量。加湿器不是要除去水分，只补充水分。所有组件都是高品质，高标准的。该独立加湿机还带有一个密封的，插入式变压器，导致电线，可单独运行，不一定依靠酒卫的主机冷却装置。

酒卫加湿机是滴灌垫型蒸发加湿器。水由分布托盘(**distribution tray**)滴灌在分布垫上，窖内空气从浸泡过的分布垫抽出。空气穿过分布垫，吸收通过蒸发的水分。湿度提高后的空气再返回窖内。加湿机推荐使用热水，但系统也可用冷水。热水增加水蒸发的能力，提高了加湿机的单位加湿量。热水可减少分布垫的表面固物，也便于污染物的冲出。多余的水被收集在底部的排水槽，并通过出口。

为了避免分布垫矿物质集结而导致空气流动堵塞的可能，建议做硬水处理（过滤和软化）。加湿机进水管安装 5 - 或 10 - 微米管内过滤器，以防止屏幕进灰尘污垢。如果水的矿物质含量高，可能需要加软化剂，以防止分布垫短期内形成大量矿物质集结。

此外，为了保证足够的湿润表面，并帮助清除多余的矿物质，水的流动量设置应保证总是有水流入下水道。操作时，各建筑物水压不等，每加湿机用水量大约在每小时 4 至 8 公升，其中的 60% 水穿过机身后流失。尽管加湿机进水管装有带小孔的过滤塞限制进水量，配置一个节流阀可能会更好得避免分布垫接受太多的水分。加湿机只要有足够的滴水量湿润分布垫的全部面积即可。多余的水分虽不影响加湿机的工作性能，但也不等于会提高窖内的湿度。多余水排放量会超于接水桶量。坠落排水管线应通过管道输送到一个开放的地面或水池漏口，或冷凝泵。超额的排放水可直接排放在地上。该排水管可以与冷却机凝结水管组合一起排出。

每当酒窖湿度低于设定值，窖内湿度调节器自动打开加湿机。一旦湿度达到设定点后，加

湿机将自动关闭。建议的酒窖设定值是 55%。这个湿度值足以防止瓶塞干燥，也足够低，以防止窖内产生霉菌。加湿机启动后水电磁水阀门打开，风扇开启。如果加湿机与酒卫冷却主机集成组装并连接，湿度调节器也控制主风机的空气流通。



CAUTION



警告

CAREFULLY FOLLOW THE INSTALLATION INSTRUCTIONS INCLUDED WITH THE HUMIDIFIER.
REFER TO THE MANUFACTURER'S INSTRUCTIONS CONTAINED IN THE BOX FOR THE HUMIDISTAT. WE RECOMMEND YOU KEEP THESE INSTRUCTIONS IN A FOLDER ALONG WITH THIS GUIDE FOR FUTURE REFERENCE.

仔细按照加湿机安装箱内的说明。请参阅湿度调节器制造商的说明书。我们建议您把这些说明书放在统一的文件夹里，供未来参考。

Size and Capacity 尺寸大小和制湿量

The Wine Guardian Humidifier uses a 254mm wide x 780mm high x 51mm thick expanded coated aluminum pad. Its rated output capacity for wine cellars is 16°C and 50%RH is 6.0 liters per day (1pd) with 16°C water supply 12.5 1pd with 32°C water, and 19.3 1pd with 49°C water. The weight of an operating humidifier is approximately 4.5kg. See Figure 1.0 dimensions.

酒卫加湿机使用了 254 毫米宽 x 780 毫米高 x 51 毫米厚的扩大涂层铝制分布垫。其酒窖额定输出制湿量为 16° C, 50%相对湿度 (RH)。制湿量：用 16°C 水，每一天 6.0 升；用 32°C 水，每一天 12.51 升；用 49°C 水，每一天 19.3 升。加湿机运转时重量约为 4.5 公斤左右。参见图 1.0 尺寸大小。

OVERVIEW

– refer to call-outs on drawing. See Figure 2.0

Adapter plates – metal plates used to mount the humidifier to the different sizes of Wine Guardian cooling units.

Cabinet – the cabinet and access doors are constructed of 0.063” gauge aluminum with a powder coated finish. This affords corrosion protection and an attractive, maintenance-free appearance. Areas in contact with cold temperatures are lined with a dense, closed-cell insulation to prevent condensation.

Distribution tray – the plastic water trough into which the water drips and is distributed evenly over the drip pad through several holes evenly spaced in the trough.

Drain – collects excess water at the bottom of the pad and is piped to an external drain.

Electrical controls – most of the electrical components and controls are located inside the humidifier enclosure. All wiring is done in accordance with the National Electrical Code. Wires are numbered and color coded to match the wiring diagrams.

Evaporative drip pad – the expanded metal pad through which the cellar air flows and the water drips down the surfaces.

Factory tested – all Wine Guardian Humidifiers are run in the factory and tested for operational performance prior to shipment.

Fan – turns “On” and “Off” on signal from the humidistat when humidity in the cellar is required. The fan draws air across the evaporative drip pad to absorb moisture.

Grille – for freestanding applications only. Used to separate the inlet air from the discharge air.

Orifice – small fitting with a very small hole in the center to restrict the flow of water.

Strainer – conical shaped stainless steel screen in a plastic frame to capture any sediment in the water and keep it from plugging the orifice.

Water solenoid valve – opens and closes to control the flow of water into the distribution trough on signal from the humidistat.



概述 - 参考。见图 2.0

接口配板 - 加湿机用此金属板连接不同大小的酒卫冷却主机。

外壳 - 外壳和检修门的构造使用 0.063 英寸合金铝，粉末涂层，美观，防腐蚀，免维护。与低温接触面板的背面粘有致密绝缘内衬，以防结露。

分布托盘 - 塑料水槽接收水滴，通过均匀分布的小孔把水均匀地流到分布垫上。

排水 - 收集分布垫流下的多余的水，用管道输出窖外。

电气控制 - 电气元件和控制大部分位于加湿机机箱内部。所有接线工作是在与国家电气规程规定。电线的编号和颜色编码，以匹配布线图。

滴灌蒸发垫 - 扩大金属垫，又称“分布垫”，水从上滴下来，空气穿过分布垫。

工厂测试 - 所有的酒卫加湿器在工厂运行和测试，然后装船。

风扇 - 根据酒窖里的湿度要求湿度调节器控制风扇的“开”“关”。风扇拉过分布垫吸收后蒸发的水分。

格栅 - 只为独立型加湿机使用。用来隔离进气和排气。

过滤塞 – 带小孔的过滤塞用于限制进水流量。

过滤网 - 锥形，带塑料框架的不锈钢屏幕用以捕捉水中沉积物，保证带小孔的过滤塞不堵塞。

电磁水阀 – 进水槽内水的流动（打开和关闭）由湿度控制器控制。

Dimensional Drawing 尺寸图

(所有尺寸以 MM 为单位)

(All dimensions in Metric MM)

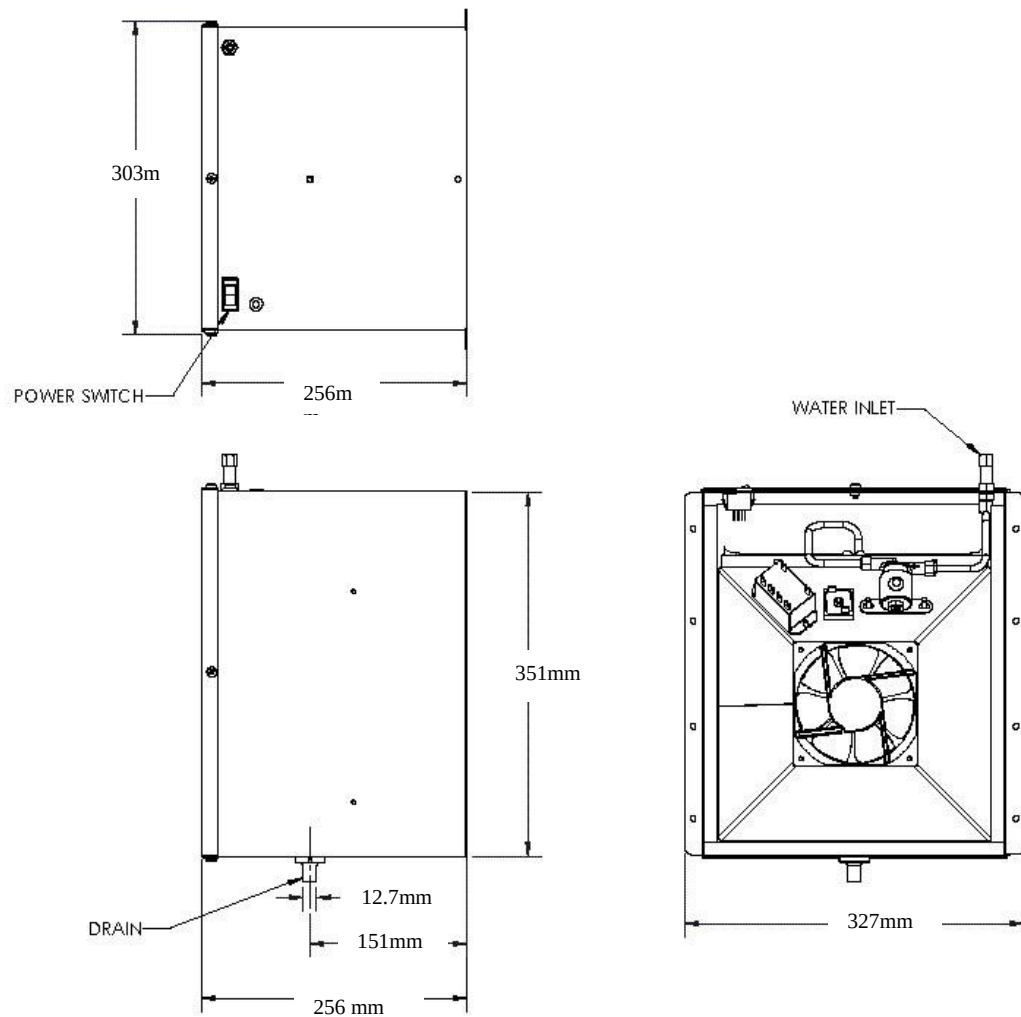


Figure 1.0

Component Parts Cutaway Drawing 构件切角图

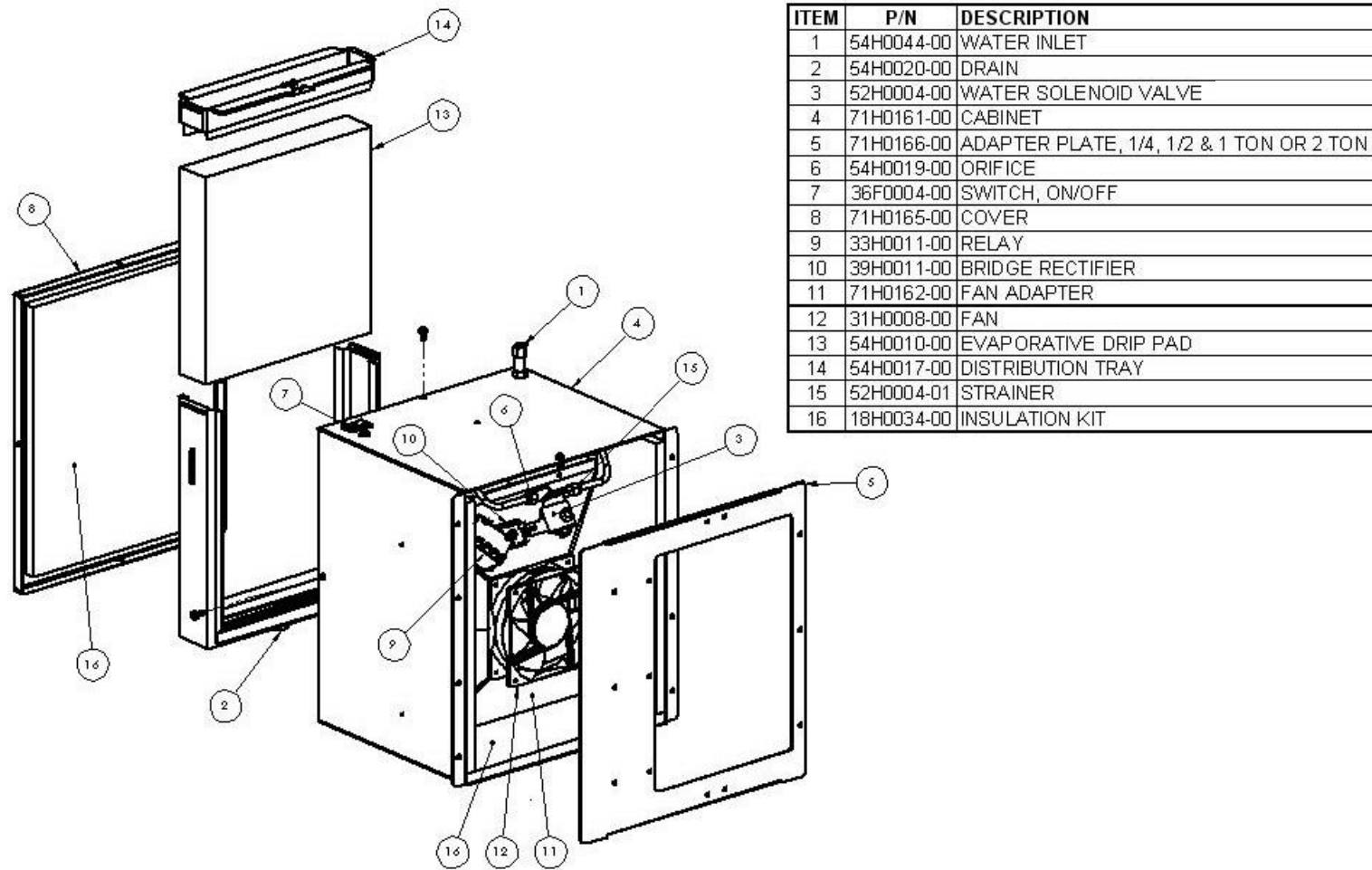


Figure 2.0

Wiring Diagram

接线图

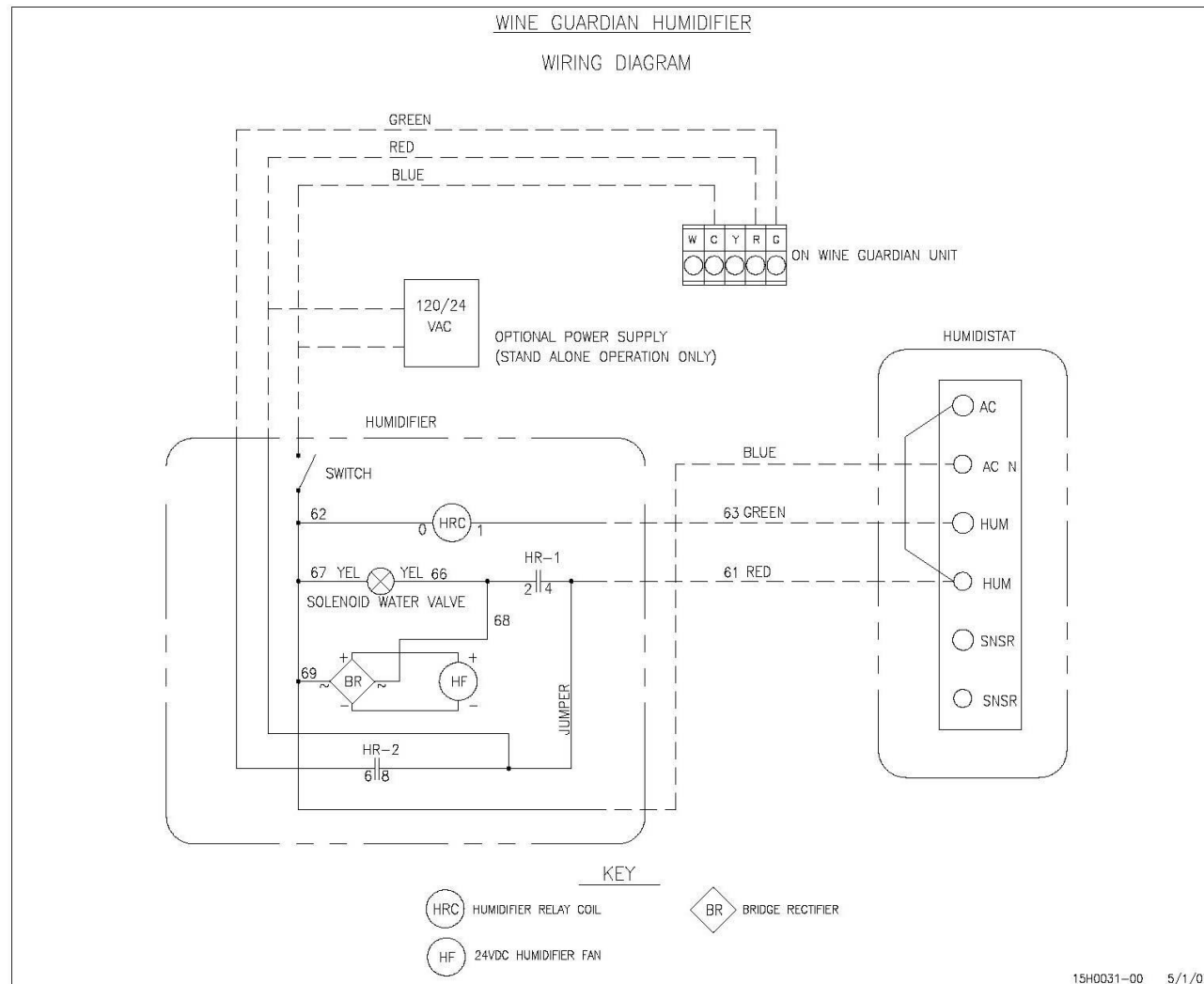


Figure 3.0

Safety 安全

The Wine Guardian Humidifier uses only 24-volt power. However, that power comes from a transformer, which uses 120-volt power. Therefore, before servicing the humidifier, be sure to disconnect the main power to the cooling unit or to the humidifier.

The water supply to the humidifier may be hot. Turn off the humidifier and allow the water to cool before servicing the humidifier.

酒卫加湿机使用的只有 24 伏电源。然而，这种力量来自一个 120 伏电源变压器。因此，在维修加湿机前，一定要断开冷却装置或加湿机主电源。

加湿机供水可能很热。关闭加湿机，让水冷却后再维修加湿机。



CAUTION



警告

**METAL EDGES CAN BE SHARP AND CAUSE INJURY IF NOT HANDLED PROPERLY.
FAN BLADES CAN ALSO BE SHARP. DO NOT PUT FINGERS OR OTHER OBJECTS
INTO A MOVING FAN.**

金属边缘如果处理不当可能会产生尖锐而造成伤害。
风扇叶片也很尖。别用手指或其它物体
伸进一个旋转的风扇。

Installation 安装



CAUTION



警告

**HUMIDIFIER MAY NOT BE INSTALLED WHERE IT MIGHT BE EXPOSED TO FREEZING
TEMPERATURES. IF THE COOLING UNIT IS MOUNTED OUTSIDE, THE HUMIDIFIER WILL HAVE TO
BE MOUNTED IN THE SUPPLY DUCT TO THE CELLAR INSIDE THE BUILDING OR MOUNTED AS A
FREESTANDING UNIT INSIDE THE CELLAR.**

加湿机不要安装在接触冰点的地方。如果冷却机组安装室外，加湿机可安装在室内送风管里，或作为一个独立单位装在窖内。

Pre-Installation Check

To check for any possible non-visible shipping damage, you may wish to test the unit before actually installing it. To do so, remove the unit from its packaging and set it on any sturdy level surface. If a freestanding unit, plug in the unit. If the unit is to be mounted into a cooling unit, you need to wire the humidifier to the cooling unit and the cooling unit must be turned on. Then turn on the rocker switch on top of the humidifier. The switch light should come on. This indicates the unit has power. Set the humidistat above the room humidity. The unit should now come on. The water solenoid should open and the fan should come on. Listen for any unusual noise or vibration. Turn the humidistat below the room condition and the unit should go off.

安装前检查

检查运输中可能出现的不明显的损坏，请进行安装之前测试。为此，打开包装，将所有机器安置在坚固的水平表面上。如果是一个独立的机器，接通插头即可。如果加湿机与冷却装置集成安装，加湿机线路应接入冷却主机，冷却主机必须开启。然后打开加湿器顶部的摇杆开关。该开关灯亮。这表明该机器已通电。将湿度调节设置高于房间湿度，加湿机会启动。水电磁阀应打开，风扇开启。聆听任何不寻常的噪音或振动。将湿度调节设置降低高于房间湿度，加湿机应关机。



DANGER



危险

- **NEVER MODIFY THIS EQUIPMENT. CHANGES OR MODIFICATIONS MAY VOID THE WARRANTY, CAUSE DAMAGE TO THE EQUIPMENT, AND/OR CREATE A SAFETY HAZARD.**
- **NEVER PLACE ANYTHING ON TOP OF THE UNIT. NEVER BLOCK OR COVER ANY OF THE OPENINGS OR OUTLETS OF THE UNIT.**
- **NEVER ALLOW ANYTHING TO REST ON OR ROLL OVER THE POWER CORD, AND NEVER PLACE THE UNIT WHERE THE POWER CORD IS SUBJECT TO WEAR OR ABUSE.**
- **DO NOT REMOVE OR OPEN ANY ACCESS DOOR OR COVER UNLESS THE UNIT IS UNPLUGGED.**

不要修改此设备。变更或改装可能导致保修失效，可造成设备的损坏，和/或造成安全隐患。

切勿在机器上放置任何物品。切勿阻塞或遮盖机器的各个开口。

绝不允许任何物体或轮子压轧电源线，避免将机器单元的电源线受到磨损或虐待。

没有切断电源前，不要删除或打开任何检修门或盖子。

Free Standing Installation with Stand-Alone Model

独立型自由站立安装

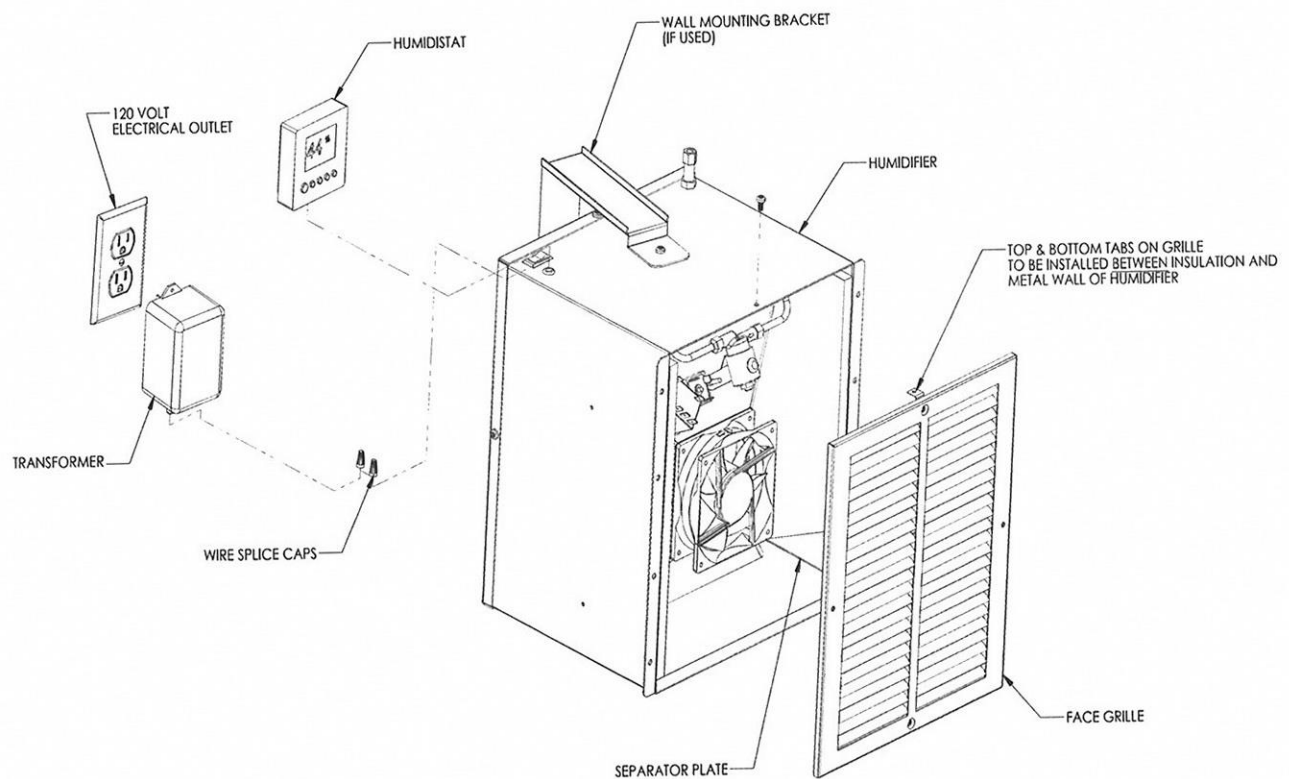


Figure 4.0

Stand-Alone Installation

- 1) Mount the face grille onto the humidifier box so that the separation plate slides in on top of the fan and between the insulation on the sides. The two metal tabs (top and bottom) should slide in between the insulation and the metal wall. Install two screws (top and bottom) into the metal tabs to secure the grille in place.
- 2) Determine where unit will be mounted.
 - a. If wall mounted, use metal bracket provided. Secure bracket to wall with small hole on top, larger hole on the bottom. Install humidifier onto the bracket with drain tube on bottom. Secure the bracket to the humidifier at the top using the screw provided.
 - b. If shelf mounted, drill a 1" diameter hole in the shelf and mount humidifier with the drain on the bottom through the hole.
 - c. If through-the-wall mounted, frame opening to fit outside dimension of unit. Allow for drain line, flanges and water line. Slide unit into opening and secure into place (flanges at front can be used). Fill in any gaps between the humidifier and the wall framing with insulation.

独立安装

1) 安装加湿机 格栅框，分离板应从顶部插入风扇上端和绝缘层之间。两个金属片（顶部和底部）用以固定插入绝缘层和金属墙的分隔板。安装两个螺丝穿过金属片（顶部和底部）固定格栅。

2) 确定机器安装位置。

a 如果是挂墙式安装，使用提供的金属支架。将支架固定到墙上，顶部小洞，底部大洞。装入加湿机时，注意底部的排水管。使用提供的螺丝固定加湿机顶部。

b 如果用货架安装，货架上应钻一个 1 英寸 直径的小孔，加湿机底部排水管就此穿过。

c 如果是穿墙式安装，打孔大小应以设备外形尺寸为准。注意允许排水管线，进水管和法兰盘的空间。机器插入后应固定（法兰盘用于前端）。用保温绝缘材料填补加湿机与墙体框架 之间空间漏洞。

NOTE: In all mounting arrangements make sure the humidifier is level and plumb in all directions.

3) Install a 6.35 mm water line from the water supply into the opening on the top of the humidifier. Use flexible tubing to allow the unit to be rotated. A shut-off valve (not provided) is recommended to isolate the humidifier from the water system when needed.

4) Install a 12.70 mm flexible drain line from the bottom of the humidifier to an open drain or connect into the drain line from the cooling unit.

5) Install the humidistat on the wall where it is open to the cellar and can be read easily, approximately 1.5 metres above the floor.

6) Connect the wires from the humidifier to the terminals on the transformer. Plug the transformer into a 120v standard outlet.

注意：所有安装布置，应确保加湿机的水平和垂直。

3) 加湿机顶部应安装一个 6.35 毫米的供水管。便于设备旋转，请使用灵活的软管。万一需要隔离水源，建议装置一个关断阀门（未提供）。

4) 加湿机底部，安装一个 12.70 毫米灵活排水管线，接到地面的排水口，或用管线连接到冷却装置的排水管。

5) 窖内湿度调节器应安装在便于阅读的地方（墙上），离地面大约 1.5 米。

6) 连接加湿机电源线到变压器的端口。插入标准的 120 伏电源。

Stand-Alone Humidifier Mounting (Typical) 独立加湿机安装（典型）

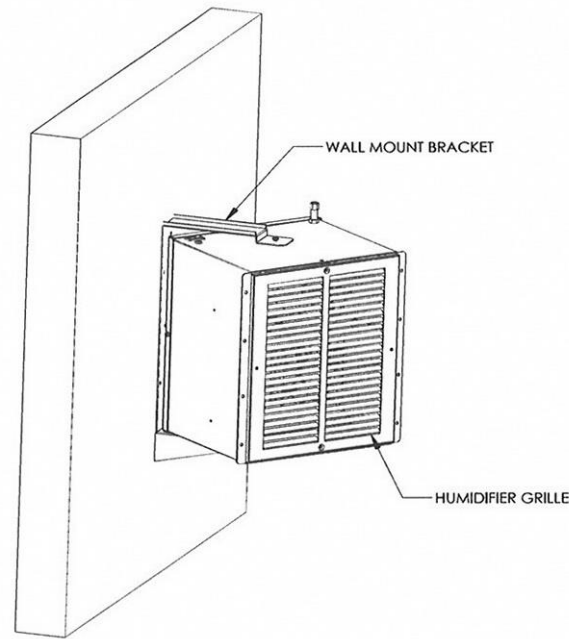


Figure 5.0

Wine Guardian-Mounted (Integrated Installation)

酒卫安装(集成安装)

NOTE: Integrated humidifiers can be mounted in either of the two side openings of the cooling unit on the cooling or evaporator end only. Do not mount the humidifier on the condenser end of the unit. If a duct connection is in that position, move the duct connection to the top or other side.

注：集成式加湿机可以安装在冷却装置两个侧面开口或蒸发器尾端。不要把加湿机安装在冷凝器尾端。如果管道已安装在这个位置，移动管道连接到顶部或另一侧。

- 1) Remove side access panel on the side of the cooling unit where you wish to mount the humidifier.
打开冷却主机侧面的检修口，选好加湿机安装位置。
- 2) Select the proper adapter plate for the cooling unit, (WG 40, WG 75 and WG100 units use the same adapter plate; WG175 units require a larger adapter plate that must be ordered separately) and install in the side opening using the screws from the panel removed above. The adapter plate allows the humidifier to be mounted in either a forward position or back toward the center by simply rotating the adapter plate 180 degrees.

选择正确的冷却机型接口配板（WG40，WG75 和 WG100 型号机组使用相同尺寸的接口配板；WG175 型号需要最大的接口配板，此件必须单独订购），用卸下的螺丝把它固定

在侧面开口处。接口配板允许将加湿机安装在任一向前或向后的位置，只需旋转接口配板 180 度即可。

- 3) Install a 12.70 mm flexible drain line from the bottom of the humidifier to an open drain or connect into the drain line from the cooling unit.
加湿机底部，安装一个 12.70 毫米灵活排水管线，接到地面的排水口，或用管线连接到冷却装置的排水管。
- 4) Install a 6.35 mm hot water line from the water supply into the opening on the top of the humidifier. A shut off valve (not provided) is recommended to isolate the humidifier from the water system when needed.

加湿机顶部应安装一个 6.35 毫米的供水管。便于设备旋转，请使用灵活的软管。万一需要隔离水源，建议装置一个关断阀门（未提供）。

Integrated Humidifier Cut-Away Drawing 集成安装加湿机切面图

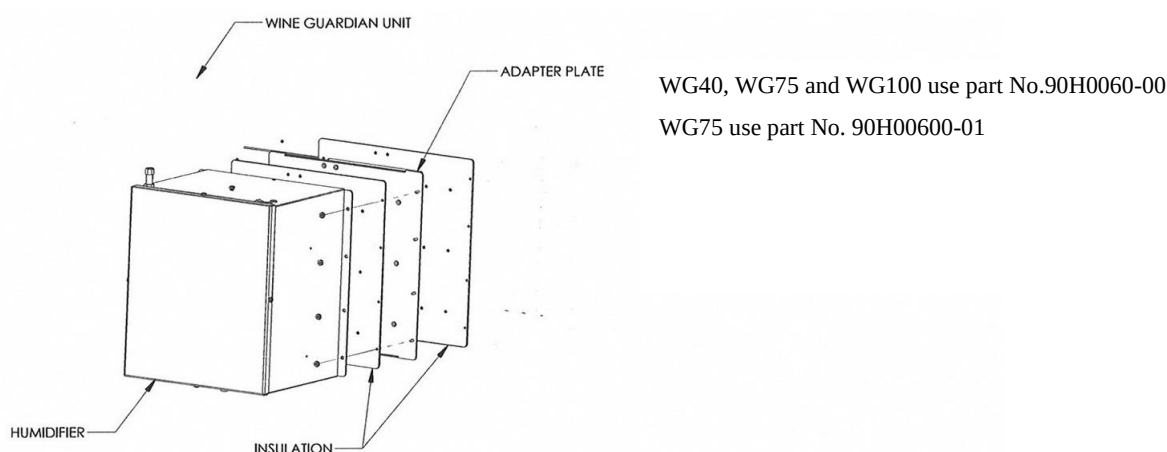


Figure 6.0

Mounting the Humidistat 湿度调节器安装

Each Wine Guardian Humidifier comes with a humidistat and 7.6 metres of humidistat cable pre-wired to unit. The unit also comes with 1.5 metres of 3-wire, 24-volt power cable that connects to the terminal on the side strip of the Wine Guardian Unit. (See Step 3 next page.) If you need to remove the wires, please note the color-coding and replace the wires in the correct location. After the wires are re-installed, test with a slight pulling motion back on the wire. If additional wiring is needed, it can be spliced onto the factory-furnished wire. Be sure to match colors for continuity and to insulate each wire separately with electrical tape

每个酒卫加湿机带有一个接好的湿度调节器（或称“恒湿器”）和 7.6 米的电线。该装置还配备了 1.5 米长的 3 股，24 伏电源线，专为连接酒卫主机装置侧边的接线板终端。（见下页步骤 3。）如果你需要删除电线时，请注意颜色编码，替换电线颜色搭配正确。

电线重新安装后，在电线上做一个轻微的拉回测试。如果需要额外的布线，拼接到工厂提供的线路上。为了保持连续性，尽量用同一颜色的电线，并用绝缘胶带使每根电线分开。



CAUTION



警告

BE SURE THAT EACH COLORED WIRE IS IN ITS PROPER COLOR-CODED SLOT ON THE TERMINAL STRIP AND THAT THEY ARE TIGHT. MIS-CONNECTED HUMIDISTAT WIRING MAY RESULT IN IMPROPER OPERATION AND/OR CAUSE DAMAGE TO THE UNIT AND HUMIDISTAT.

电线颜色与接线板终端的颜色必须正确匹配，各终端线路接紧。接错的线路可能导致操作不正常和/或损害机器和湿度调节器。

- 1) Mount the humidistat on a solid surface away from doors, corners, air outlets or other drafty or heat generating equipment. Do not mount directly on an outside wall or wall adjacent to a boiler room.
1) 湿度调节器应安装在坚实的墙壁上，尽量远离门口、角落、送风口、或其它串风的地方，尽量远离生热设备。不要直接挂载在外墙或毗邻锅炉的房间。
- 2) Use a piece of foam insulation behind the humidistat to insulate it from the hot or cold surface. The recommended height is 1.2 metres to 1.5 metres above the floor. The humidistat is often located next to the thermostat.
2) 在湿度调节器后面使用一块泡沫绝缘材料以远离受热或冷的表面。建议离地面高度为1.2 米至 1.5 米。在湿度调节器通常位于恒温器的旁边。
- 3) For the unit-mounted humidifier, wire the humidifier to the terminal strip on the Wine Guardian cooling unit using the wire provided. Be sure to match the wire color with the color code on the terminal strip.
3) 为集成安装的加湿机，用提供的电线将加湿机连接酒卫主机装置侧边的接线板终端。一定要注意，电线的颜色与接线板终端的色码匹配。

Start-Up and Operation 启动和运行

Now that the installation is complete, it's time to start the unit.

- 1) Check to make sure all connections are secure.
- 2) Turn on the cooling unit if so mounted.
- 3) Turn on the rocker switch on the top of the humidifier.
- 4) Test the operations by setting the humidistat above the room condition. The humidifier should come on, the water solenoid should open, and water should flow. It may take a few minutes for water to appear in the drain line.
- 5) Set the humidistat below the room condition and the humidifier should shut off.
- 6) Follow the manufacturer's directions with the humidistat for troubleshooting.

现在安装完成，是启动机器的时候。

- 1) 检查，以确保所有的连接都是牢固的。
- 2) 如果是集成安装，启动 冷却装置。
- 3) 打开加湿机顶部摇杆开关。
- 4) 将湿度调节设置高于房间湿度，加湿机会启动。水电磁阀应打开，水应该流动。这可能需要几分钟的时间直到水流出排水管。
- 5) 将湿度调节设置降低高于房间湿度，加湿机应关机。
- 6) 按照湿度调节器制造商的指示做故障排除。

Humidistat 湿度调节器



CAUTION



警告

THE HUMIDISTAT IS USED IN A BROAD RANGE OF APPLICATIONS AND THE MANUFACTURER'S LITERATURE CONTAINS INFORMATION THAT MAY NOT BE SPECIFIC TO YOUR WINE CELLAR APPLICATION. REFER TO THE MANUFACTURER'S INSTRUCTIONS CONTAINED IN THE BOX WITH THE HUMIDISTAT. WE RECOMMEND YOU FOLLOW WINE GUARDIAN'S HUMIDISTAT INSTRUCTIONS AND SIMPLY RETAIN THE HUMIDIFSTAT MANUFACTURER'S INSTRUCTIONS IN A FOLDER ALONG WITH THE WINE GUARDIAN OPERATION AND MAINTENANCE MANUAL FOR FUTURE REFERENCE.

湿度调节器广泛的应用在制造商的文献中，包含的信息可能不是特别针对您的酒窖中的应用。请参阅制造商的湿度调节器说明书。我们建议您按照酒卫的湿度调节器的指示，把这些说明书于酒卫操作和维护手册保留统一的文件夹里，供未来参考。

1) Disregard the wiring diagrams shown within the manufacturer's instructions. Refer to the wiring diagram shown in this guide on page 8. The remote outdoor sensor is not required for wine cellar applications and should not be programmed for use.

1) 忽略了在制造商指示中的布线图。如参照接线图，此指南第 8 页所示。远程室外传感器不是必须的，不应程序化使用。

2) Set the humidistat at the desired humidity, recommended between 55% and 60%, which is adequate to prevent drying out of corks and not so high as to risk mold growth. Over-humidifying can cause mold growth and sweating on surfaces and loosening of labels on bottles.

2) 湿度调节器设置在所需的湿度，建议 55% 和 60%，这是足以防止软木塞干燥，而霉菌的生长风险也不是那么高。过度加湿会导致霉菌生长，表面出汗和瓶子的标签松动。

NOTE: The humidifier can only add moisture, not remove it. Removal, or dehumidification, is a function of the cooling system as it lowers the temperature of the air below its dew point at which moisture condenses out onto the cooling coil and into the condensate drain. Therefore, the humidistat will only control the addition of moisture.

注意：加湿器只能补充水分，而不除湿。除湿，是冷却系统的功能，因为它将空气温度降低至其在该湿气凝结出到冷却线圈和冷凝水排放的温度。因此，湿度调节器将只控制水分的增加。

The amount of humidification and dehumidification is mostly dependent on the relative humidity of the ambient air and on the quality of the insulation and vapor barrier in the cellar. In southern climates, humidification is not normally the dominant need, just cooling and dehumidification. In northern, colder climates, winter weather will result in low humidity levels indoors. This requires more need for humidification to keep the moisture level in the cellar up above 40%, especially in higher elevations where the air is drier.

加湿和除湿的数额主要是对周围空气相对湿度和关于在地窖绝缘和防潮层的质量而定。在南部的的气候，加湿一般不占主导地位的需要，只需冷却和除湿。在北部，气候寒冷，冬季的天气将导致室内湿度低。这需要更多的加湿，需要保持酒窖里水分含量高达 40% 以上，特别是在海拔较高的地方，空气干燥。

Inspection and Start-Up Checklist 检查和启动检查清单

Handling and Installation 搬运和安装

- 1) Mount unit on solid, level surface.
- 2) Allow sufficient space for access to unit and accessories.
- 3) Provide proper electrical service.
- 4) Provide hot water to humidifier.
- 5) Install drain line with proper pitch.
- 6) Install ductwork, fittings and grilles properly.
- 7) Insulate all cold duct surfaces.
- 8) Do not obstruct airflow.

- 1) 机组安装在坚实，平整的表面。
- 2) 为机组和配件进入（维修）准备足够的空间。
- 3) 提供适当的电力服务。
- 4) 为加湿机提供热水。
- 5) 排水管线安装适当的角度。
- 6) 正常安装风管道，管件和格栅。
- 7) 所有冷风管道表面应隔热绝缘。
- 8) 不要阻碍通风。

Unit Start-up 机组启动

- 1) Conduct visual inspection.
- 2) Check all wiring connections.
- 3) Make sure all duct, grilles and panels are in place.
- 4) Start unit.
- 5) Check connections for air leaks and water leaks.
- 6) Check for excessive noise or vibration.
- 7) Check for operation of humidifier.

- 1) 进行目视检查。
- 2) 检查所有的接线方式。
- 3) 确保所有的管道，格栅和面板到位。
- 4) 启动机器。
- 5) 检查是否有漏气和漏水的连接管道。
- 6) 检查过多的噪音或振动。
- 7) 检查加湿机运作。

Maintenance 保养



CAUTION



警告

BEFORE PERFORMING MAINTENANCE ON THE UNIT, READ AND UNDERSTAND THE SAFETY INFORMATION CONTAINED IN THIS GUIDE.

维护机器前，请阅读和理解安全指南。

The Wine Guardian Humidifier is designed for minimal maintenance. Never oil any part of the humidifier. Always disconnect the electrical power to the humidifier and the cooling unit if used.

酒卫加湿机的设计只需极少的维护。任何部分都不要上油。维护机器前，请务必切断加湿机和冷却主机的电源。

A regular maintenance program prolongs the life of the humidifier and maintains the humidity in the cellar. Frequency of cleaning and replacement of the drip pad depends on the inlet water conditions and the cleanliness of the cellar air. The drain system may also trap dust and dirt. When water no longer stays on the pad or mineral build-up has started to reduce airflow, the pad needs to be replaced.

建立定期的维护计划可延长了加湿机的寿命，确保酒窖中的湿度。清洗和更换分布垫（或称“滴灌垫”）的频率取决于进水条件和窖内空气洁净度。该排水系统也可能捕获尘埃和污垢。当水不再停留分布垫（或称“滴灌垫”）上，或矿物质积聚开始减少空气流动，分布垫则需更换。

Suggested maintenance schedule: 建议的维修时间表:

Monthly – may change to quarterly depending on experience with individual cellar:

- √ Check drain – clean is needed – confirm steady flow of water while in operation
- √ Check for noise or vibration

每月 -可能会根据酒窖情况调整至每季度:

- √ 检查排水 –必须清洁- 确认操作时稳定的水流量
- √ 检查噪音或振动

Yearly – in addition to above:

- √ Clean the humidifier and replace humidifier pad if needed (see procedures below)
- √ Inspect cabinet for corrosion or rusting – clean and paint
- √ Check for any loose insulation, fasteners, gaskets or connections
- √ Check wiring connections and integrity of cords
- √ Check operation of humidifier fan and water solenoid
- √ Check to be sure the water supply tube is aimed at the center of the distribution tray between the two center holes.

每年 –在每月维修的基础上：

- ✓ 清洁加湿机，如果需要更换加湿机分布垫（见以下步骤）
- ✓ 腐蚀或生锈检查 -清洁和油漆
- ✓ 检查是否有任何松动的绝热材料，紧固件，垫片或连接口
- ✓ 检查线路连接和电源线的完整性
- ✓ 检查加湿机风扇和电磁水阀的运行
- ✓ 检查供水管瞄准到分布托盘中间位置的两个小孔。

Cleaning the Humidifier and Replacement of Evaporative Drip Pad

清洁加湿器，蒸发滴灌垫更换

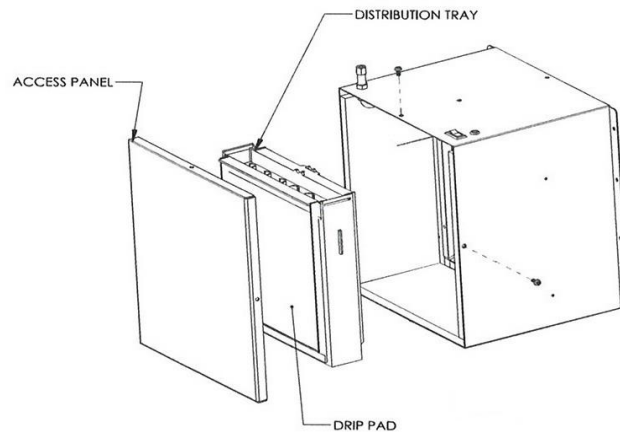


Figure 7.0



CAUTION



警告

BEFORE STARTING WORK, BE SURE THE POWER TO THE WINE GUARDIAN COOLING UNIT AND HUMIDIFIER ARE TURNED OFF.

MAKE SURE THE POWER CORD IS DISCONNECTED FROM THE POWER SOURCE.

开始工作之前，应确保酒庄冷却装置及加湿机的电源供应处于关闭状态。

确保电源线从电源切开。

- 1) Start by disconnecting the electrical power and shutting off the water supply.
首先切 开电源和供水。
- 2) Remove the access panel at the back of the humidifier.
拆下在加湿机背面的检修口。
- 3) Remove the drip pad and its plastic holder from the unit as an assembly by grasping the top of the holder and pulling toward you, top first. Be sure the water feed tube is clear of the top distribution tray.

拉分布垫和塑料架是一个组合， 抓紧塑料架顶部拉向你自己，应先拆顶部。要确保分布托盘顶部不接触滴水管。

- 4) Pull one side of the humidifier pad assembly frame toward you and remove the distribution tray from the frame.
拉加湿机分布垫 装配架一侧，从架上移开分布托盘。
- 5) Slide the humidifier evaporator pad out of its frame. Clean the frame by twisting and flexing it to loosen any calcium deposits, or use a putty knife.
分布垫即可滑出塑料架。轻轻扭曲塑料架来松动钙质沉积物，或使用油灰刀清理。
- 6) Carefully scrape any mineral deposits from the tray and frame. Be sure the frame drain hole has nothing blocking it. Remove any calcium deposits from the “V” notches in the distribution tray but do not scrape off the granular coating from the bottom. This textured surface helps ensure even water flow for maximum performance.
小心地刮去托盘和框架上的任何矿物质。要确保框架上的排水孔没有任何阻挡。取下“V”形切口在分布盘，注意不要刮除颗粒涂层。这种粗糙表面有助于确保最高性能的水流量。
- 7) To clean the drain, pour some hot water mixed with a cleaning solution into the pan to flush the dirt down the drain tube.
清洁排水，倒入一些热水和清洁剂混合将污垢冲入排水管。
- 8) Check the humidifier pad. If dirty or excessive mineral deposits are present, install a new evaporative pad. Replace the pad by sliding the pad back into the frame. Note: the pad must be installed in the correct position. There is a colored spot painted on one end of the pad. This is the top of the pad and must be installed with the **colored spot UP**, next to the distribution trough. There is no inlet or outlet side for the airflow, only the requirement that the colored spot be on the top.
检查加湿机分布垫。如果污垢和矿物沉积，替换一个新的分布垫。将分布垫滑入框架。注意：分布垫必须安装在正确的位置。分布垫的一端有一个彩色点。这是垫子的顶部，有彩色点一端朝上，紧贴分布槽底。不需要进出气流方向指示，只要求彩色点在顶部。。
- 9) Reattach the distribution tray to the frame by snapping it into place.
重新将分布配盘与分布垫框架推扣到位
- 10) Reinstall the entire pad, frame and tray assembly, making sure the drain fits into the drain fitting at the bottom and that the entire unit snaps into place and is held securely.
将整个分布垫，框架和托盘组装重新安装，注意底部排水管接口，而整个机组卡入到位。
- 11) Be sure the water feed tube is aimed into the center of the tray. 确保供水管瞄准到分布托盘中间位置。
- 12) Turn on the water and power. 打开进水阀和电源。
- 13) Check for operation. See instructions under Start-Up. Be sure water is flowing into the distribution tray and flows freely out the holes and over the pad. If water flow is not a steady flow, the strainer and/or orifice may need service. See below.
检查运行情况。参见启动说明。确认水流入分布托盘并自由流出小孔，流下分布垫。如果水流量不稳定，锥形过滤网 和/或 过滤塞可能需要维修。见下文。
- 14) Replace the humidifier access cover.
盖上加湿机器检修盖。

Humidifier Water Line Maintenance (See Figure 8.0)

加湿机进水管线维修（见图 8.0）

- 1) Repeat steps 1 and 2 above.
重复以上 1 和 2 步骤。
- 2) Disconnect the water line at the inlet to the solenoid valve.
断开电磁阀门的进水口水管。
- 3) Remove the in-line strainer from inside the inlet fitting by using a small flat-bladed screwdriver. Do not insert anything into the strainer that has a sharp end on it as it might penetrate the strainer and render it useless.
通过使用一个小的平头螺丝刀从入口装置内部移除内部过滤网。不要插入锋利的物体进入过滤网，这样做可能冲破过滤网，使其毁坏无法使用。
- 4) Clean the strainer by flushing under hot water or immersing in a demineralizing solution to break down the mineral deposits. Inspect and replace the strainer if it cannot be cleaned or if the screen is damaged. 用热水冲洗或将过滤网浸泡于矿物质清除剂中，以除去矿物质沉积。如果过滤网的矿物质不能被清除，或者屏幕已损坏，请换新过滤网。
- 5) Reinstall the strainer in the valve inlet and replace the tubing and tighten the compression nut. Double wrench to prevent damage and leaks. 将过滤网装入阀门和进水管，拧紧压紧螺母。双扳手，以防损坏和泄漏。
- 6) Disconnect the water line on the outlet of the solenoid valve.
断开电磁阀门的出水口水管。
- 7) Remove the orifice from the copper tube and make sure this small opening is unplugged.
移开铜管内的过滤塞，确保这个小孔没有堵塞。
- 8) Replace the orifice and reconnect the outlet water line. Double wrench to prevent leaking.
放回过滤塞，并重新连接出水口水管。双扳手，以防漏水。
- 9) Reinstall the in-line strainer and reconnect the inlet water line. Double wrench to prevent leaking. 重新安装管内过滤网，然后重新连接进水管。双扳手，以防漏水。
- 10) Turn on water supply and reconnect electrical power to the humidifier. 打开供水和重新连接电源至加湿机。
- 15) Check to be sure the water supply tube is aimed at the center of the distribution tray between the two center holes. This will ensure even distribution of water across the entire tray and equally into each of the six holes, thereby evenly wetting the entire surface of the drip pad. 确保供水管瞄准到分布托盘中间的两个中心小孔之间的位置。这将确保水滴均匀分布在整个分布托盘的 6 个孔里，从而均匀地润湿分布垫的整个表面。

Water Line Maintenance Detail 进水管维修详细

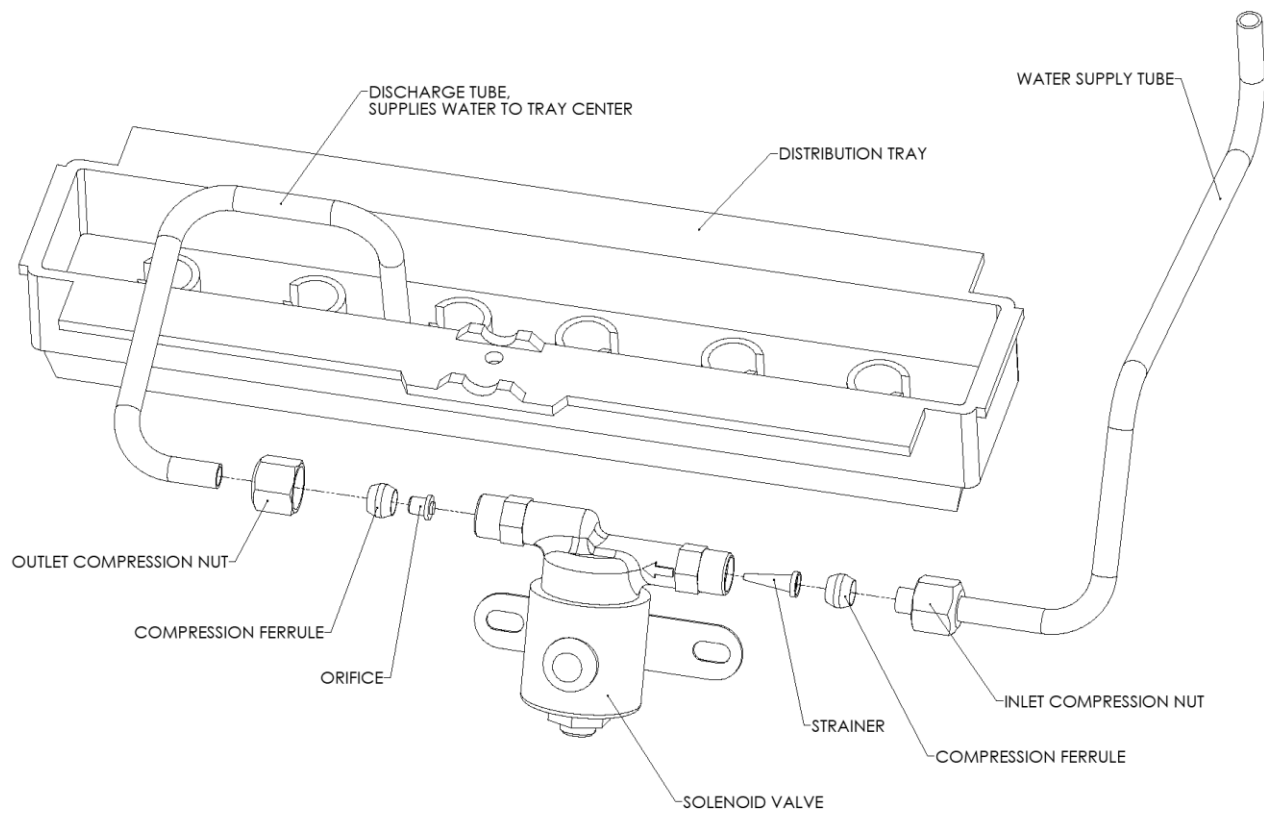


Figure 8.0

Directory of Terms 缩写语言索引

Ambient Air – The surrounding area outside the cellar such as a room, basement, garage or outdoors.

环境空气 - 酒窖外的周围，如一个房间，地下室，车库或室外区域

CLS – Cubic litres per second. A unit of measurement for the amount of air handled by the fan.

CLS-立方升每秒。一种用于空气由风机处理量的测量单位。

Condensate / Condensation – The water formed out of the air when it is cooled below a certain temperature (called dew point). Often referred to as “sweating” on pipes and cold surfaces. This water collects at the bottom of the evaporator or cooling coil and drains out of the unit through the drain line.

凝结水/冷凝 当低于某一特定温度时空气中的水分会凝结成水。通常被称为管道和冷表面“出汗”。这种水通过蒸发器底部或冷却盘管或透过排水渠底的排水管线收集。

Condenser (Heat Rejection) Section / Coil – The Condenser Section uses the compressor, condenser coil and fan to remove heat from the refrigerant to the ambient air *outside* the wine cellar. The word condenser refers to the condensation of the refrigerant from gas to liquid phase.

冷凝器（散热）第/线圈 - 冷凝器部分使用压缩机，冷凝器线圈和风扇制冷剂去除酒窖外的空气热量。这个词指的是冷凝器的制冷剂从气体冷凝成液体。

CE– Certificate of European conformity CE-符合欧洲认证

Exhaust Air – The air leaving the evaporator or condenser section of the Wine Guardian unit.

排风 - 空气离开酒卫冷却主机机组蒸发器或冷凝器部分。

Evaporator (Cooling) Section / Coil – The Evaporator Section uses the cooling coil and the fan to remove heat from the air *inside* the wine cellar to the refrigerant, cooling the air and condensing moisture out of the air. The word evaporator refers to the evaporation of the refrigerant from liquid to gas phase in the coil. The Evaporator Section is connected to or inside the wine cellar.

蒸发器（制冷）组/线圈 - 蒸发段采用风扇冷却线圈和去除酒窖内的空气热的制冷剂，冷却空气中的空气和水分冷凝出来。这个词是指蒸发器的制冷剂从液态气体在线圈蒸发。蒸发段是连接酒窖或在酒窖内部。

Flexible Duct – Round ducts with steel reinforced plastic liners, a layer of insulation and an outer plastic layer used to convey the air from the unit to the cellar or ambient space.

柔性管道 - 钢纤维增强的塑料管 带间层绝缘材料，外面有塑料层，以用来传送从主机组到酒窖的空气或环境空间。

Grille or Diffuser – Inlet or outlet plates to direct the airflow or protect the inside of the unit.

格栅或扩散片 – 空气进口或出口引导板，或机器的保护板。

Heat Gain / Loss – The amount of cooling or heating expressed in watts transferred between the wine cellar and the ambient space. The Wine Guardian must offset this load.

热增益/损失 - 酒窖和环境空间的冷却或加热的总额用瓦表示。酒卫系统必须抵消这种负荷。

Inlet Air – The air entering the evaporator and condenser sections of the Wine Guardian unit. **NEC**– National Electrical Code

进气 - 空气进入机组的蒸发器和冷凝器部分。 **NEC** 公司，美国国家电气规程

Recovery – The amount of cooling the unit does to return the cellar to its set point temperature after some new load is introduced, such as people or new cases of warm wine entering the cellar.

恢复 – 增加新的负载后，如进入人或暖酒进窖，主机恢复酒窖设定温度所需的制冷量。

Return Air - The air leaving the cellar and returning to the inlet of the evaporator coil.

回风 - 空气离开酒窖并返回到蒸发器盘管的入口。

SP – Static pressure. Unit of measurement (mm of water or pascals of water column) of the pressure of the air handled by the fan.

静压 - 静态压力。计量单位（水或水柱帕斯卡毫米）的风扇所处理的空气压力。

Set Point – The desired temperature or humidity set on the thermostat or humidistat.

设置点 – 在恒温或恒湿设置 所需的温度或湿度。

Supply Air - The air entering the cellar from the discharge of the evaporator coil.

供应空气 - 空气通过蒸发器线圈进入酒窖。