

SAPPHIRE®



4-Pour Wine Bar Instruction Manual



SW643TZBLK

This manual contains important information regarding your unit. Please read this manual thoroughly prior to equipment set-up, operation, and maintenance. Failure to comply with regular maintenance guidelines outlined in this manual may void the warranty. Waste products are treated by specialized companies, please do not discard them by yourself.

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Note: The company reserves the design changes to the product. If the product you purchased is incomplete to the product manual, do not change the performance and use, please use it with confidence.


IMPORTANT SAFEGUARDS

Please thoroughly read these SAFETY PRECAUTIONS before operating the unit.

The purpose of the safety precautions in this manual is to ensure safe and correct use of the unit to minimize risks that could cause serious damage and injury to you or other persons. The safety precautions are divided into **WARNINGS** and **CAUTIONS**. Cases where improper handling of the unit could lead to death or serious injury are listed under the “**⚠ WARNING**” heading. However, the cases listed under the “**⚠ CAUTION**” heading could also lead to serious results. To ensure the safety, adhere strictly to both types of safety precautions.

- Keep ventilation on openings, in the appliance enclosure or in the built-in structure, clear of obstruction.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons to avoid a hazard.
- The appliance shall be disconnected from its power source during cleaning or maintenance and when replacing parts.
- Storage: During periods of inactivity or before storing, remove all beverages from the appliance, disconnect it from the supply and clean the appliance and its accessories thoroughly. Keep the door(s) of the appliance open, to allow all humidity to escape. Prop the door open with a piece of wood or the like to prevent the door from closing completely. Like this, mold or bad smell can be prevented. Store the appliance in a dry, protected environment, preferably at room temperature. To protect the appliance from dust, cover it with a cloth that allows air circulation on the inside of the appliance. You can also store the appliance in its original packaging. Keep the appliance out of reach of children.
- Regularly check the power plug and power cord for damage. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons to avoid a hazard.
- Refrigerants must be evacuated and disposed of by a qualified specialist per federal and local regulations before the appliance is scrapped. **CAUTION:** Please keep the appliance away from fire or similar glowing substances before you dispose of it. Please remove the door before you dispose of the appliance.
- Component parts shall be replaced with like components to minimize the risk of possible ignition due to incorrect parts.
- The appliance is to be installed per the Safety Standard for Refrigeration Systems, ANSI/ASHRAE 15.
- **WARNING:** Keep clear of obstructions on all ventilation openings in the appliance enclosure or in the structure for building-in.
- **WARNING:** Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.
- **WARNING:** Do not damage the refrigerant circuit.
- **WARNING:** Do not use electrical appliances inside the storage compartments of the appliance, unless they are of the type recommended by the manufacturer.
- **WARNING:** The light must not be replaced by the user! If the light is damaged, contact the customer helpline for assistance.
- **WARNING:** To avoid a hazard due to instability of the appliance, it must be fixed per the instructions.
- **WARNING:** To reduce flammability hazards the installation of this appliance must only be carried out by a suitably qualified person.

 **WARNING:** Improper handling of the unit could lead to death or serious injury.

 **CAUTION:** Improper handling of the unit could lead to serious results depending on the circumstances.

Text set off by the exclamation mark '!' contains information that should be strictly adhered to. After reading the instruction manual, store it in an easily accessible place where the user(s) of this product can easily find it.



The symbol is a warning and indicates the refrigerant and insulation blowing gas are flammable.

WARNING: Risk of fire / flammable materials.


WARNING: Do not store explosive substances such as aerosol cans with a flammable propellant in this appliance.

WARNING: When positioning the appliance, ensure the supply cord is not trapped or damaged.


WARNING: Do not locate multiple portable socket-outlets or portable power supplies at the rear of the appliance.


WARNING: The refrigerant and insulation blowing gas are flammable. When disposing of the appliance, do so only at an authorized waste disposal center. Do not expose to flame.

PRECAUTIONS FOR INSTALLATION - WARNINGS:


 Installation should be performed only by the dealer or a qualified expert. Attempting to install the unit yourself could result in water leakage, refrigerant leakage, electrical shock, or fire.

PRECAUTIONS FOR USE - WARNINGS:

 All repairs, disassembly and modifications should be performed only by qualified technicians. Attempting to perform these tasks yourself could result in a fire, malfunction, and injury.


 Never splash water directly onto the product or wash with water as a short-circuit and electrical leakage could result.


 Never put flammable or volatile substances into the unit as an explosion and fire could result.


 Do not damage, modify, excessively bend, strain, twist or bundle up the power cord. Also, placing heavy objects on the power cord or squeezing it in a tight place could damage it, possibly resulting in electrical shock or fire.


 Use a dedicated wall outlet. Do not use extension cords or convenience receptacles as this could result in electrical shock, overheating and a fire.


 Never use flammable spray cans or leave flammable substances near the unit. Sparks from electrical switches could result in an explosion and fire.

 The cooler is intended for storage and display of beverages. Do not use for other purpose than intended as this could adversely affect items placed in the unit.

 Never attempt to insert fingers, sticks, etc. into the cold air suction outlet, as a circulation fan is rotating at high speed inside the outlet. Injury, electrical shock, and improper operation could result.

 For indoor use only. Using the unit in a location exposed to rain could result in electrical leakage and electrical shock.

 Never place heavy objects or items containing water on top of the unit. Objects could fall and cause injury, and spilled water could deteriorate the insulation of electrical components and result in electrical leakage.

 Install the unit in a location where the floor is sturdy enough to support the load of the unit. If the floor is not sturdy enough or installation is incorrectly performed, the unit could tip over and the falling shelves and products could cause personal injury.

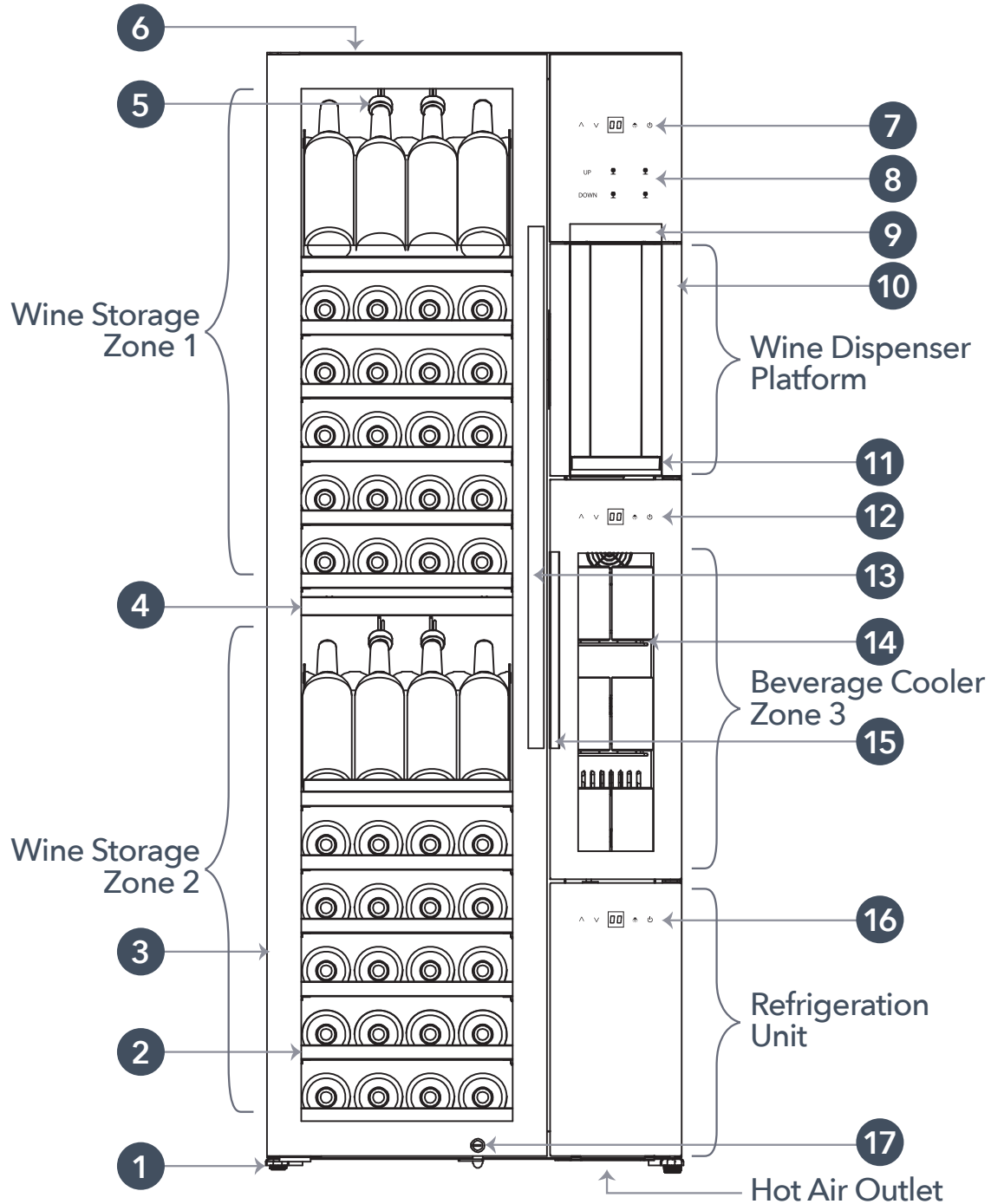
- ⚠ If you find gas leakage, please don't touch the appliance. Unplug the unit, open doors and windows for ventilation. Refrigerant leakage could cause explosion, fire, and fire injury.
- ⚠ Store the unit in a location where it is not exposed to rain. Using a unit that has been exposed to rain could result in electrical leakage and electrical shock.
- ⚠ Keep away from hot air sources, the cooling performance is reduced if the unit is placed near heat sources such as hot plates and stoves, and if it is exposed to direct sunlight.
- ⚠ Leave disassembly and disposal of the unit to qualified experts.
- ⚠ Should the unit need temporary storage, make sure not to store the unit in a location where children play and take precautions so that the door cannot be completely closed. This will minimize the risk that a child becomes trapped inside the compartment.
- ⚠ WELL VENTILATED PLACE - Please make sure there is more than 10cm space between UPRIGHT COOLER and the wall. If there is no space, cooling capacity can drop down.
- ⚠ If installation in a damp location is unavoidable, also install an electrical leakage circuit breaker. If no electrical leakage circuit breaker is installed, electrical shock could result.
- ⊘ Never hang from the door or climb onto the unit. The unit could tip over or fall and cause material damage or injury.
- ⚠ Before moving the unit, disconnect the power cord plug from the wall outlet, and make sure that the power cord is not damaged during transport. A damaged power cord could result in electrical shock and/or fire.
- ⚠ Grasp the handle when closing the door. Holding at other positions could result in pinched fingers and injury.
- ⊘ Do not push hand against or apply excessive force to glass surfaces as the glass could break and cause injury.
- ⚠ When disconnecting the power cord plug from the wall outlet, hold at the plug main body close to the outlet. Pulling the cord could cause wire breakage, possibly resulting in overheating and fire.
- ⚠ Make sure that the unit does not tip over or fall when it is moved. A falling unit could cause serious injury.
- ⊘ Do not throw items onto the shelves and do not place items totaling more than 40 lbs (20 kg) on each shelf. The shelf could fall, possibly causing injury.
- ⚠ Be sure to attach and secure shelves correctly. An improperly attached shelf could fall and cause injury.

SPECIFICATIONS

Model	SW643TZBLK	Rated Frequency	60Hz
Volume of Wine Storage (Zones 1 & 2)	6.9 cu. ft. (196L)	Max. Input Current	1.5A
Volume of Argon Bottle Chamber (Cylinder Chamber)	.7 cu. ft. (20L)	High Side	250 PSI
Volume of Beverage Cooler (Zone 3)	.7 cu. ft. (20L)	Low Side	88 PSI
Refrigerant / Amount	R600a / 1.34 oz (38g)	Insulation Agent	Cyclopentane
Rated Voltage	110~120V~		

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PRODUCT DIAGRAM



NO.	DESCRIPTION
1	Leveling Leg
2	Shelf (12)
3	Glass Door
4	Divider
5	Cork (4)
6	Cabinet

NO.	DESCRIPTION
7	Zone 1 Temperature Controls
8	Wine Dispenser Controls
9	Wine Dispensing Spout
10	Argon Bottle Chamber
11	Drip Tray
12	Zone 3 Control Panel

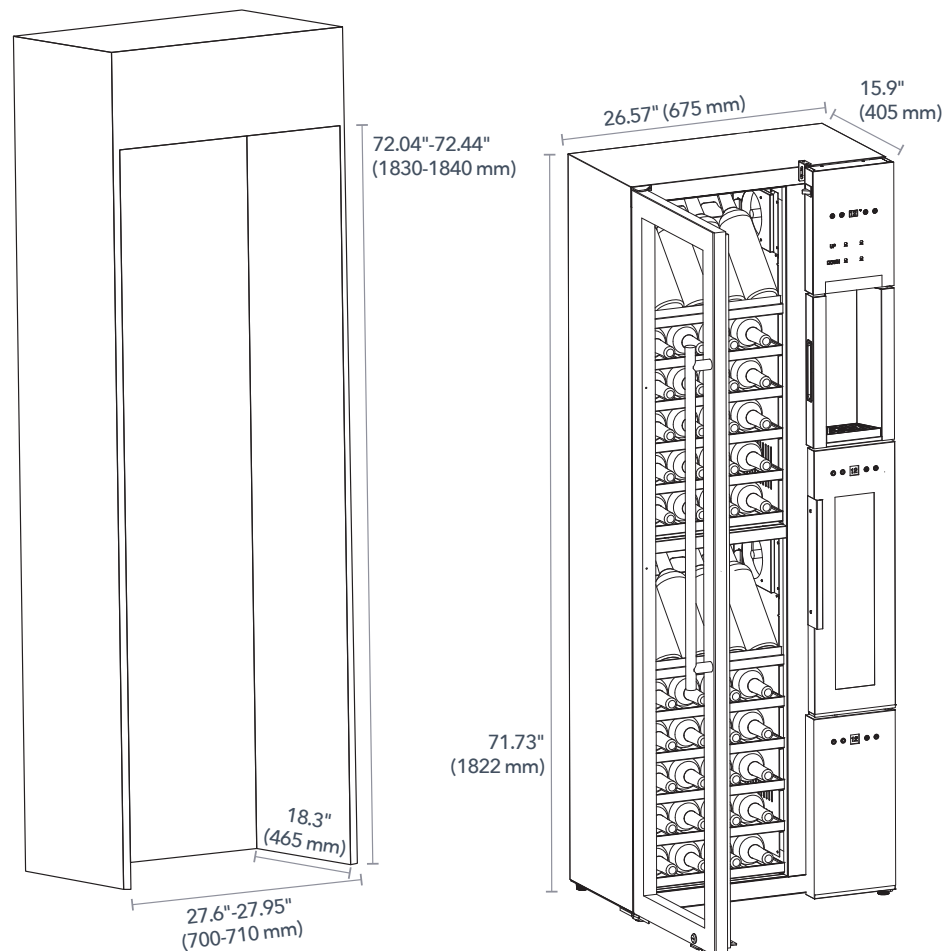
NO.	DESCRIPTION
13	Door Handle
14	Shelf (3)
15	Right Middle Door Handle
16	Zone 2 Control Panel
17	Lock

CHECK YOUR PRODUCT:

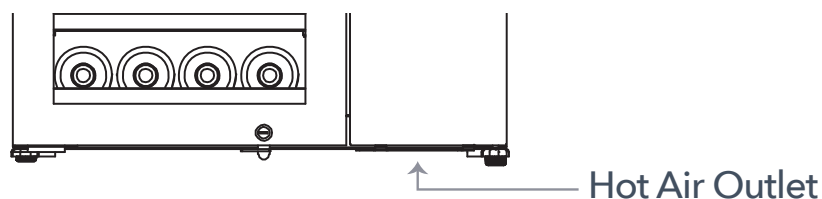
- Once you receive this product, please confirm that the package is intact, no defect in appearance, or visual damages, etc.
- Open the door, check if the internal components and accessories are accounted for (such as shelves, manual, etc.)

INSTALLATION:

1. Carefully place the machine in the designated spot, and ensure that the place is clean, level, and sturdy.



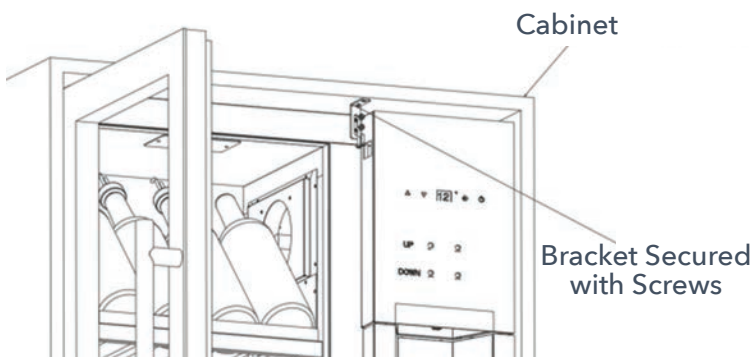
2. Keep away from heat or high humid locations, such as laundry rooms
3. The angle cannot be greater than 45 degrees during handling. Do not lay or invert unit.
4. If unit is angled more than 45 degrees, you must wait for two (2) hours before it can be powered on.
5. Ensure that the local ventilation equipment is good, otherwise it will affect the efficiency of the machine.
6. Do not block airflow around unit. Keep bottom unblocked, to prevent cooling problems. As shown here:



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ANTI-TIP BUILT-IN INSTALLATION:

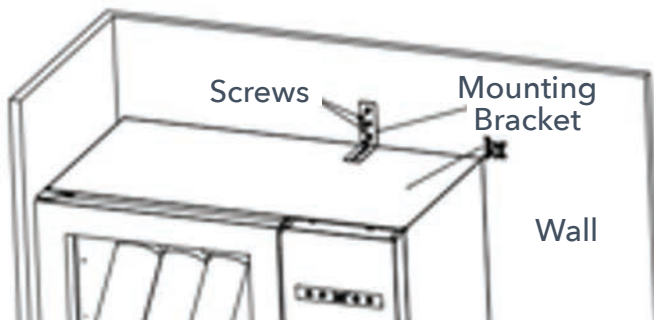
The installation of the Built-In Install Anti-Tip device is illustrated below:



1. Place unit into the cabinet as shown in the diagram
2. Affix bracket with screws as shown in the diagram
3. The distance between the machine and the wall on the left, right sides must be at least 5/8" (15mm) the distance from the top must be least 3/8" (10mm) the distance from the back must be least 1-1/8" (30mm).

ANTI-TIP FREE STANDING INSTALLATION:

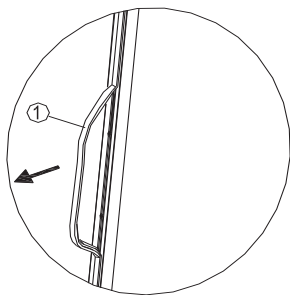
The installation of the Free-Standing, Anti-Tipping Brackets Anti-Tip in the is illustrated below



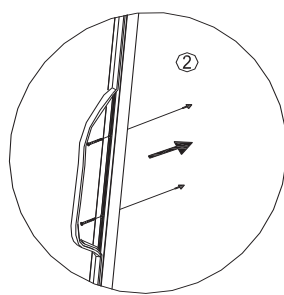
1. Place the unit flush against the wall
2. Take out the mounting bracket and screw from the accessory plastic bag,
3. Affix the mounting bracket on the top of the box,
4. Affix the other side on the wall, as shown

DOOR HANDLE INSTALLATION

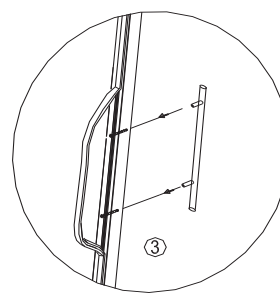
Please follow the following four steps to install the door handle:



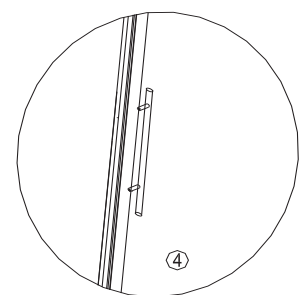
1. Remove door gasket



2. Remove the door handle, screws and washers from the door handle bag or instructions



3. Insert screws into pre-drilled holes. Place washer on exterior door glass, and align the handle. Secure screws and handles with screwdrivers.

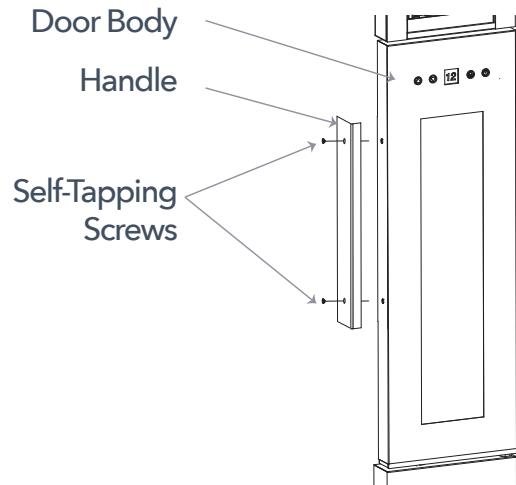


4. Replace the door gasket and make sure it is installed flush

BEVERAGE COOLER DOOR HANDLE INSTALLATION

Please install the door handle according to the following diagram:

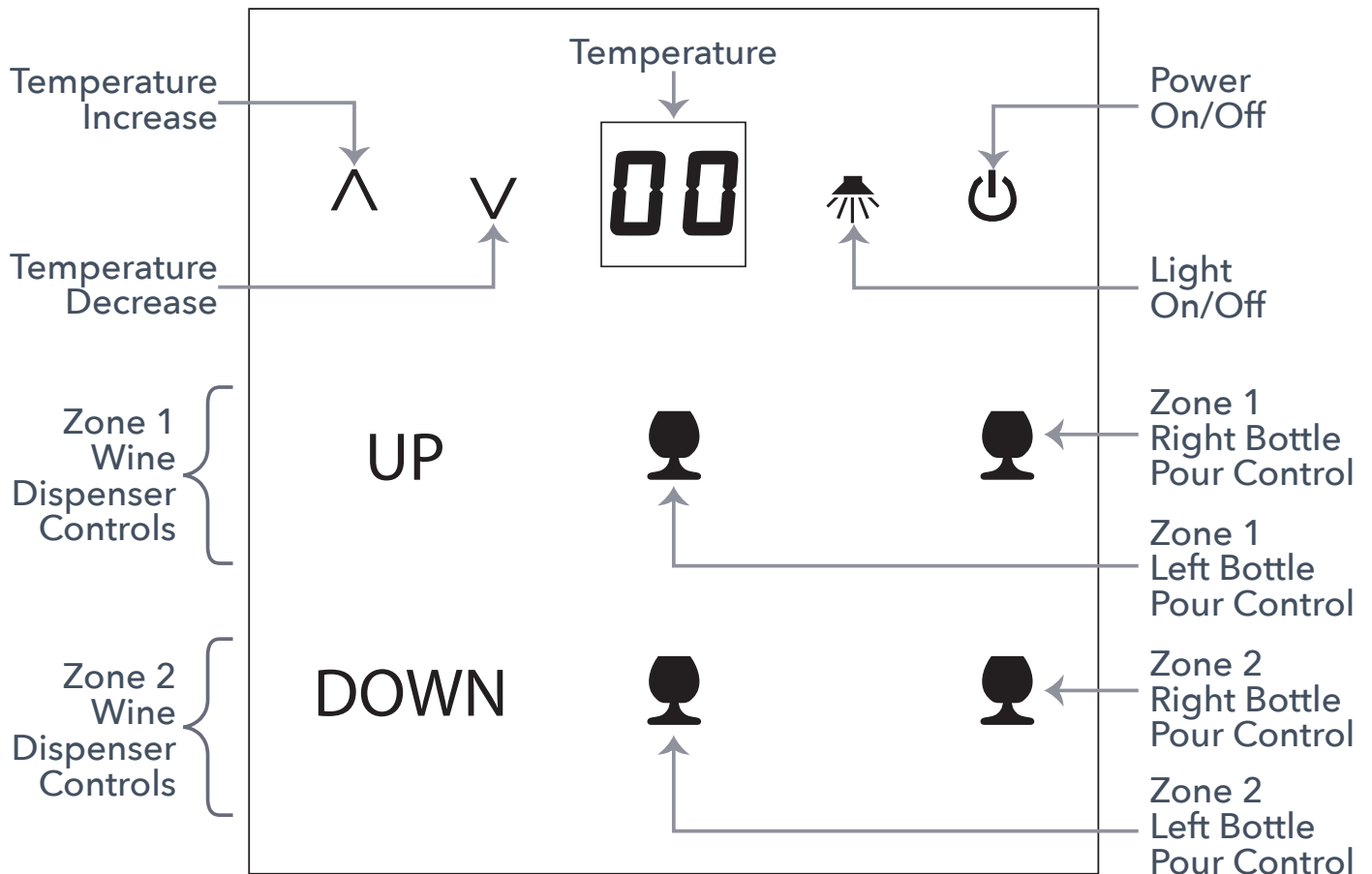
Place the handle as shown on the door body, align the mounting holes with the holes on the door body, and then fix the screws with a manual screwdriver.



Make sure the voltage is 110V/60Hz, and check if each area functions properly:

1. Test power, lights and temperature of each zone. Check the buttons are sensitive and there is no abnormal phenomenon.
2. Open each cabinet, check if the compressor and the lamp function normal.
3. Check the operation of the lock and key.

CONTROL PANEL



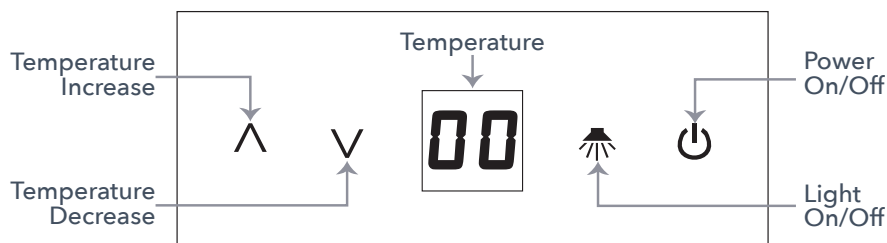
Temperature Settings

Option 1

- Wine Storage (Zone 1 and Zone 2) -
Temperature Setting Range: 50°F~ 65°F (10°C ~ 18.3°C)
- Beverage Cooler (Zone 3) -
Temperature Range: 38°F~ 65°F (3.3°C~ 18.3°C)

Option 2

- Wine Storage (Zone 1 and Zone 2) -
Temperature Setting Range: 41°F~ 72°F (5°C ~ 22°C)
- Beverage Cooler (Zone 3) -
Temperature Range: 33°F~ 72°F (1°C~ 22°C)



Preferred storage zone temperatures can be pre-set and saved.

- Each time the button is pressed, the temperature will increase or decrease 1 degree.
- To set the temperature, hold down the key.
- If it is not set within 5 seconds, the system will automatically return to the original setting. If the temperature sensor is faulty, the digital management will display the E3 symbol.



To change between Celsius and Fahrenheit:

- Press and hold the Beverage Cooler (Zone 3) control panel by pressing the Temperature Increase and Decrease buttons with two fingers at the same time for about 3 to 5 seconds.



Turn the sound ON or OFF:

- The sound is default set to ON.
- You can turn the sound ON or OFF by simultaneously pressing and holding the upper wine cooler (Zone 1) Temperature Increase and Decrease buttons for 3 seconds

Power

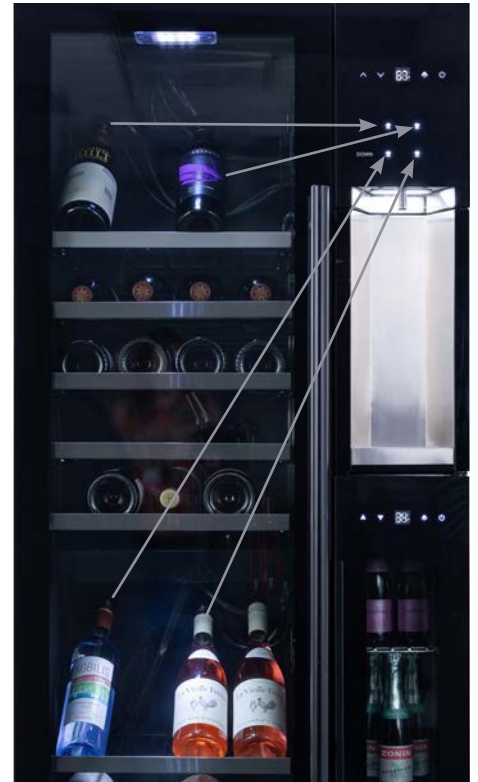
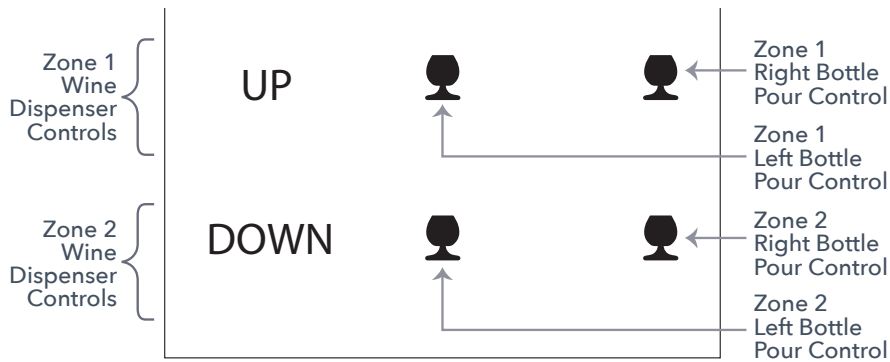
- The  Power Button of Zone 1 (Upper Wine Storage) is the power switch that controls the whole unit, it is a Master Power Switch.
- Touch and hold  Power button for 3 seconds to turn the unit ON/OFF.

Standby Mode

- Touch the  Power button once to make the unit enter/exit Standby Mode.
- In Standby Mode, the wine dispensing function is still operable.
- You must touch the  Power button of the other zones to turn them ON. This way, you can use each zone separately.

Note: In Standby Mode, only the zone you turn on will work, the other zones are still in Standby Mode.

Wine Dispenser Controls:



- 'UP' corresponds to Zone 1 Wine Storage
- 'DOWN' corresponds to Zone 2 Wine Storage
- The Wine Glass Icons correspond to the bottles that are corked in the top rack of each zone.

Wine Pouring Operation:



- Align the wine glass to the dispenser, press the corresponding wine button
- Each press of the dispenser button will dispense about 1.7oz (50mL) of the wine.
- If the dispense button is held down it will dispense continuously.

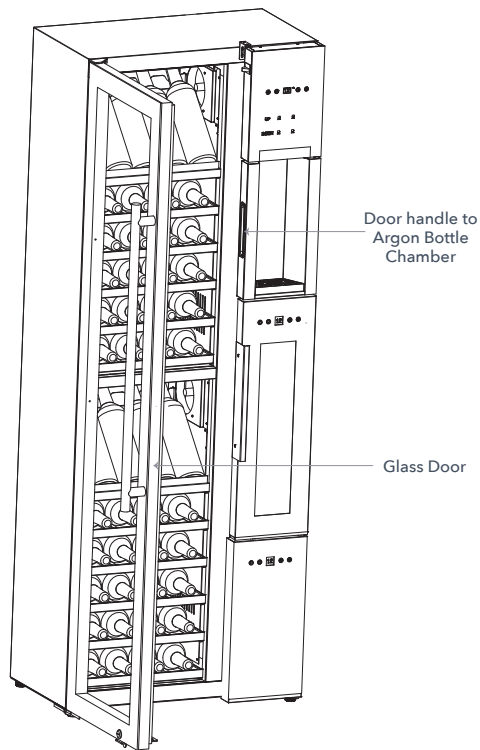
Bottle Cork Operation:

- De-cork / open the wine bottle
- Put the plug and tube into the mouth of the wine bottle
- Adjust the length of the tube to fit the depth of the bottle while holding the plug secure by pushing or pulling tube
- Place bottle on shelf at an angle with the top of the bottle leaning against the support

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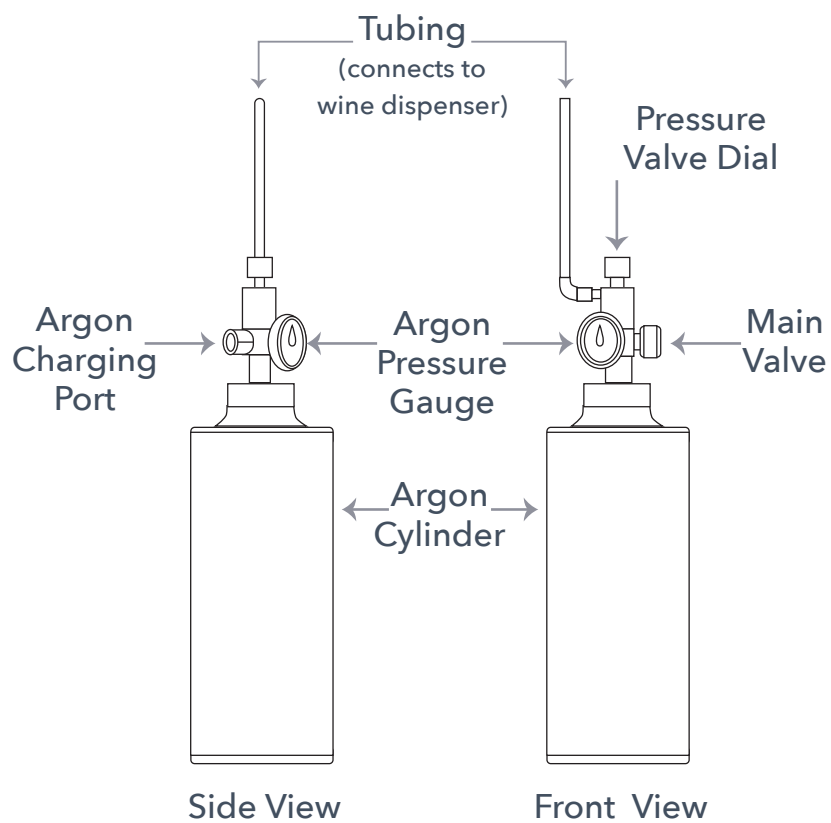
CYLINDER OPERATION

How to open the Argon Bottle Chamber:



- Open the glass door to see the handle for the Argon gas cylinder room.
- Pull door handle to open the Argon gas cylinder room.

CYLINDER OPERATION DIAGRAM:



Cylinder Operation:

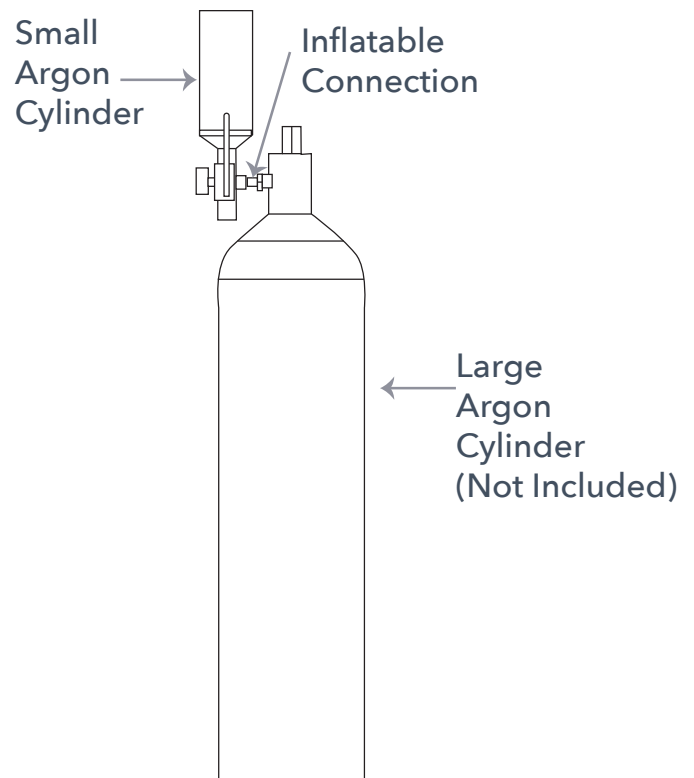
Note: Clockwise to close, Counter-clockwise to open. Only 1 cylinder will be connected at a time,



1. Open the door of the Argon Bottle Chamber
2. Lightly unscrew (Counterclockwise) the Gas Cylinder
3. Lightly unscrew (Counterclockwise) the Master Dial
4. Lightly unscrew (Counterclockwise) the Outlet Pressure Dial
5. After the two dials are opened, and the tubes and corks are in the appropriate wine bottles, close the door of the Argon Bottle Chamber, place a wine glass in the Wine Dispenser Platform and test the wine dispenser buttons.

Method of filling the small Argon cylinder

1. Filling the small Argon cylinder must be operated by a qualified professional.
2. Attach the filling connector to the outlet of the small Argon cylinder and the large Argon respectively, ensuring a good seal.
3. Then use a wrench to open the main switch on the large cylinder to fill the small cylinder until it can no longer be filled.



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The pointer represents the state of Argon Gas in the Cylinder



Green Area: Gas pressure is Good



Red Area: Gas pressure is Low

Yellow Area: Gas pressure is too high, over-inflated and needs to be deflated into the Green Area.

PLACEMENT PRECAUTIONS

- When placing items in the wine cabinet, please do not block the air outlets and the air outlets on the box, otherwise it will affect the uniformity and cooling effect of the temperature in the box;
- **DO NOT** place any other items inside the Argon Bottle Chamber.

CORRECT USE AND MACHINE MAINTENANCE

- Avoid opening the wine cabinet door too frequently to reduce air-conditioning leakage and cooling efficiency.
- If the door is more than 1 minute, the temperature digital management will display "E1" and the system will alarm, please close as soon as possible.
- When placing wine in cabinet, do not block the ventilation outlet on the right side of the cabinet, otherwise it will affect the cooling effect.
- **DO NOT** extend your fingers, sticks and other things into the air outlet for risk of danger and injury.
- **DO NOT** touch the compressor, for risk of injury and burns.
- **DO NOT** hang items on the door, for risk of danger and causing the unit to tip and fall.
- **DO NOT** block the air outlets. Keep 1 inch clearance from the front, sides and bottom of the body where the condenser outputs hot air.
- **DO NOT** touch the air outlets, for risk of injury and burns
- When the cabinet is not used for an extended period of time: remove all the goods in the cabinet, unplug the power plug, clean the cabinet, wipe and remove water and mildew, leave the door to dry.
- **DO NOT** damage the refrigeration loop pipe. The left and right sides of the cabinet and the box are installed with a refrigeration line, and if these parts open or you install other objects, it may cause the pipeline to rupture.
- When the gas cylinder is empty, remove gas cylinder, and regulator, and take to a qualified gas supplier to fill with Argon.
- **DO NOT** expose gas or gas cylinders to a heat source, for risk of danger and injury.
- **DO NOT** damage the hose and gas path to the wine, otherwise it will affect the dispensing.
- The maximum weight capacity of each shelf is: 40 lbs (20 kg)

CLEANING

- ⚠ To prevent any electrical shock hazards or injury by rotating circulation fan, always disconnect the power cord plug from the wall outlet before cleaning.
- ⚠ Do not splash water directly onto the cooler and do not wash with water. Short-circuit and electrical shock could result.
- ⊘ Never use polishing powder, soap powder, benzine, oil or hot water as there will damage the painting and plastic components.

Regularly clean the wine line and filter.

- Clean the inside and outside of the Wine Dispenser frequently.
- It is recommended to use only damp cloth and, if necessary, apply neutral soap-based detergents.
- If using a glass cleaner to clean the front of the unit, allow it to dry completely before restarting use.
- Turn off the unit when cleaning the inside of the unit.
- Avoid cleaning the inside of your product with scented cleaning agents.

Note:

To clean stainless steel surfaces, do not use chemicals, gasoline, alcohol, disinfectants, vinegar, detergents aggressive, acidic or abrasive cleaning agents.

Otherwise, you may create rough spots in the material that will be susceptible to oxidation.

TAPS AND TUBES:

Proper care of the taps and wine transport tubes guarantees a long life and impeccable and hygienic operation of your 4-Pour Wine Bar.

Cleaning the Taps

- The metal liquid outlet taps come into contact with air and this is where the wine and its sediments undergo changes in the case of long contact time, which can lead to lines clogging.
- Additionally, during the warm seasons of the year, wine drops can attract insects. For this reason, we recommend cleaning your taps regularly.
 1. Use a small pipe cleaner brush (not included) and warm water.
 2. Dip the pipe cleaner into warm water then insert it into the dispenser tap.
 3. Do this for all 4 taps.



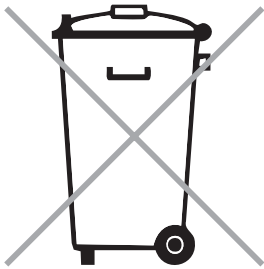
Cleaning the Tubes

- The silicone tubes are responsible for transporting wine do not come into contact with air during operation. Even so, over a long period of use they may need flushing from wine and its sediments, so clean the tubes at regular intervals with warm water.
- We especially recommend it if you start using a new wine, or if you change a bottle of wine that was sitting in the wine dispenser for a while.
 1. Connect a bottle filled with warm drinking water to clean each circuit to be used.
 2. Extract at least 700 fluid oz. (200 ml) of drinking water from the bottle in each circuit and discard this water after the cleaning.
 3. During the removal of the rubber stopper, some noise is common due to the system being pressurized.

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- If, despite following the previous care tips, deposits form in the taps and pipes, you can dissolve them with a mixture of drinking water and a light dose of pure citric acid powder.
 1. Follow the dosage instructions on the packaging .
 2. If necessary, leave the citric acid act for about 20 minutes on the pipes and taps and then rinse thoroughly with drinking water.
 3. Then proceed rinsing the tubing with water.
- Regular washing with citric acid powder, at intervals of 2 or 3 months, can help prevent red wine stains on silicone tubing. However, stains can't be avoided completely. Please note that stained tubes are not a hygiene risk. For reasons of visual appearance, stains can be eliminated by replacing the tubes during maintenance.
- For residues in taps that do not want to come out, leading to deterioration of the flow, it is recommended to call an authorized service to carry out an inspection /general maintenance on the system. (This service is not covered under the product warranty.)

DISPOSAL



To prevent any electrical shock hazards or injury by rotating circulation fan, always disconnect the power cord plug from the wall outlet before cleaning. This symbol on the product, or in its packaging, indicates that this product may not be treated as household waste. Instead, it should be taken to the appropriate waste collection point for the recycling of electrical and electronic equipment. For more detailed information about the recycling of this product, please contact your local council or your household waste disposal service.

TROUBLESHOOTING

If any fault occurs, please discontinue use. Do not attempt to repair yourself. This will void the warranty.

Fault Code Display Meaning

SERIAL NO.	CODE	MEANING
1	E2	Zone 1 Box (upper left temperature zone) - Temperature Sensor Fault
2	E4	Zone 2 Box (lower left temperature zone) - Temperature Sensor Fault
3	E6	Zone 3 Box (right temperature zone) - Temperature Sensor Fault
4	E9	Zone 3 (right) - Signal Line Fault Display
5	E9	Zone 1 (upper left) - Signal Line Fault Display
6	E1	Zone 1 (upper left) - Dew Point Sensor Failure
7	E3	Zone 2 (lower left) - Defrost Sensor Fault
8	E5	Zone 3 (right) - Defrost Sensor Fault
9	E9	Zone 2 (lower left) - Signal Line Fault Display

Troubles listed are for reference.

PROBLEM	INSPECTION POINTS
Not working at all	Check whether it is plugged-in
	Is it the fuse?
	Is it energized?
Not working	There is a heat source or sunlight nearby
	Surrounding ventilation poor
	Door was not closed properly or left open for too long
	Fan failure
Low Wine Flow	The gas cylinder is not charged or the air pressure is not enough
	The wine tube has a leak
	Controlling wine PCB failure
	Aging or too much pressure
Loud Noise	The cabinet is placed uneven or too close to the wall
	Press or fans fail
	There is a loose part or fall off

When replacing parts due to machine failure, please replace with parts of the same type to reduce the risk of fire caused by incorrect parts

Note: The following phenomena is not faulty

A) The compressor does not start:

If the set temperature is below room temperature, the compressor does not start, but the heater starts temperature compensation until it reaches the set temperature

B) Automatic startup of the compressor

When the temperature reaches the set temperature, the compressor will stop. The compressor will be activated again after the temperature is warmed to a certain extent, to ensure that the temperature is set in the unit.

C) Glass surface condensation

When there is a lot of humidity present in the room, the outer surface of the cabinet may develop condensation. If the temperature setting is low, the condensation will increase accordingly, this is too much humidity and is not a fault, just wipe it with a dry cloth.

D) Flow water:

When the cabinet is working, you may hear the sound of water flowing, this is a flow of refrigerant in the system, this is normal.

APPENDIX

101.DVS.3.3 Qualification of workers

Every working procedure that affects safety means shall only be carried out by competent persons.

Examples for such working procedures are

- a) breaking into the refrigerating circuit;
- b) opening of sealed components;
- c) opening of ventilated enclosures.

101.DVS.4.2 Checks to the area

Prior to beginning work on systems containing FLAMMABLE REFRIGERANTS, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the REFRIGERATING SYSTEM.

101.DVS.4.3 Work procedure

Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.

101.DVS.4.4 General work area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

101.DVS.4.5 Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e., non-sparking, adequately sealed, or intrinsically safe.

101.DVS.4.6 Presence of fire extinguisher

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available on hand. A dry chemical or CO2 fire extinguisher should be adjacent to the charging area.

101.DVS.4.7 No ignition sources

No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment shall be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

101.DVS.4.8 Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

101.DVS.4.9 Checks to the refrigerating equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times, the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.

The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS:

- a) The actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed;
- b) The ventilation machinery and outlets are operating adequately and are not obstructed;
- c) if an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
- d) marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;

e) refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

101.DVS.4.10 Checks to electrical devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment, so all parties are advised.

Initial safety checks shall include:

- a) that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- b) that no live electrical components and wiring are exposed while charging, recovering or purging the system;
- c) that there is continuity of earth bonding.

101.DVS.5 Repairs to sealed components

101.DVS.5.1 During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

101.DVS.5.2 Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc. Ensure that the apparatus is mounted securely. Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

101.DVS.6 Repair to intrinsically safe components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use. Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating. Replace components only with parts specified by the manufacturer. Other parts can result in the ignition of refrigerant in the atmosphere from a leak.

NOTE The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

101.DVS.7 Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

101.DVS.8 Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used. The following leak detection methods are deemed acceptable for all refrigerant systems. Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity might not be adequate, or might need recalibration. (Detection equipment shall be calibrated in a refrigerant-free area.)

Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed. Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine can react with the refrigerant and corrode the copper pipe-work.

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NOTE Examples of leak detection fluids are

- bubble method,
- fluorescent method agents.

- If a leak is suspected, all naked flames shall be removed/extinguished.
- If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to Clause 101.DVS.9.

101.DVS.9 Removal and evacuation

When breaking into the refrigerant circuit to make repairs - or for any other purpose - conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:

- a) safely remove refrigerant following local and national regulations;
- b) purge the circuit with inert gas;
- c) evacuate (optional for A2L);
- d) purge with inert gas (optional for A2L);
- e) open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems. For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

101.DVS.10 Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed. a) Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.

- b) Cylinders shall be kept in an appropriate position according to the instructions.
- c) Ensure that the REFRIGERATING SYSTEM is earthed prior to charging the system with refrigerant.
- d) Label the system when charging is complete (if not already).
- e) Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

101.DVS.11 Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

- a) Become familiar with the equipment and its operation.
- b) Isolate the system electrically.
- c) Before attempting the procedure, ensure that:
 - i) mechanical handling equipment is available, if required, for handling refrigerant cylinders;
 - ii) all personal protective equipment is available and being used correctly;
 - iii) the recovery process is supervised at all times by a competent person;
 - iv) recovery equipment and cylinders conform to the appropriate standards.

- d) Pump down refrigerant system, if possible.
- e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- f) Make sure that cylinder is situated on the scales before recovery takes place.
- g) Start the recovery machine and operate in accordance with instructions.
- h) Do not overfill cylinders (no more than 80 % volume liquid charge).
- i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- k) Recovered refrigerant shall not be charged into another REFRIGERATING SYSTEM unless it has been cleaned and checked.

101.DVS.12 Labeling

Equipment shall be labeled stating that it has been decommissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing FLAMMABLE REFRIGERANTS, ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

101.DVS.13 Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e., special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt. The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

WARNING



- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.)
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.

LIMITED WARRANTY COVERAGE

The Legacy Companies, warrants to the original purchaser of its SAPPHIRE products that they will be free from defects in materials and workmanship for the following time periods from the date of purchase shown on the sales receipt:

- Two (2) year Parts & On-site Labor
- Five (5) years Compressor Warranty (Parts only)

WARRANTY EXCLUSIONS

NO CONSEQUENTIAL DAMAGES:

SAPPHIRE and The Legacy Companies are not responsible for any economic loss or special, indirect or consequential damages including without limitation; loss of revenue and loss or damage arising from food or product spoilage claims.

WARRANTY IS NOT TRANSFERABLE:

This warranty is not transferable or assignable and applies only to the original verified purchaser.

NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR SERVICE:

There are no other warranties statutory, express, or implied. This Limited Warranty is the exclusive warranty and made in lieu of all other warranties including any implied warranties or any warranties of merchantability or fitness for a particular purpose.

FILING WARRANTY CLAIMS:

All warranty claims for SAPPHIRE products must be made directly through The Legacy Company's Technical Service Department. All claims should include: model and serial number, proof of purchase, date of installation, location purchased, and all pertinent information supporting the existence of the claim.

IMPROPER ELECTRICAL AND WATER CONNECTIONS:

SAPPHIRE and The Legacy Companies are not responsible for the repair or replacement of any failed or damaged components resulting from electrical power failure, the use of extension cords, low voltage or voltage spikes to the unit. Likewise, repair or replacement attributable to low water pressure, high water pressure or contaminated water are not covered by this Limited Warranty.

IMPROPER USAGE:

Neither SAPPHIRE nor The Legacy Companies assumes liability for parts or labor coverage for component failure or other damages resulting from improper usage or installation or failure to clean and/or maintain the product as set forth in the Owner's Manual provided with each unit.

CONSUMABLES:

This warranty does not include consumable parts such as water filters and light bulbs.

ADJUSTMENTS & CALIBRATIONS:

Adjustments including calibrations, leveling, tightening of fasteners, or utility connections normally associated with the original installation are the responsibility of the dealer, installer or the end user and not the responsibility of SAPPHIRE or The Legacy Companies and will not be considered warranty issues for this Limited Warranty.

CONSEQUENTIAL DAMAGES:

This warranty does not cover any defect due to, or resulting from, ordinary wear and tear, handling, abuse, misuse, or harsh chemical action, nor shall it extend to any product from which the serial number has been removed or altered, or modifications made by unauthorized service personnel or damage by flood, fire, earthquake or other Acts of God.

OUTSIDE U.S. & CANADA:

This warranty does not apply to, and SAPPHIRE and The Legacy Companies are not responsible for any warranty claims made on products sold or used outside of the United States and Canada or any territories of the United States of America.

ALL REPAIRS AND SERVICE MUST BE MADE BY A SAPPHIRE AUTHORIZED TECHNICIAN.

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