VOLLRATH

Installation Instructions

For Units Utlizing R290 Refrigerant

Including but not limited to Hot/Cold/Frozen, Cold, Signature Server, Affordable Portable, and Frost-Top Units

UL GUIDANCE FOR PRODUCTS WITH R290 REFRIGERANT

This refrigerated buffet unit utilizes R290 Refrigerant, which is flammable. Follow all safety precautions for use of R290.

WARNING

Do not puncture refrigerant tubing.

Keep unit away from open flames, excessive heat, and sources of electrical sparks (and ignition?).

Per UL, the following is an explanation of the characters marked on the appliance. All models are Test Room Climate Class 5.
For Cold and Hot/Cold Modular Drop-Ins (except Signature Server models) FC-4CWW-0XYYY-ZZZ

- FC: Fabricator Component
- 4: Series
- CWW: C = normal pan orientation, CS = 90 degree pan orientation, P = Propane R290 refrigerant
- 0X: X = Number of full-size food pans 1 - 6
- YYY: Voltage
- ZZZ: N = NSF Std 7 compliant, R = standard refrigerated, FF = top panel with flat flange

For Hot/Cold/Frozen units FC-HCF-XXYYY-ZZZ

- FC: Fabricator Component
- HCF: Hot/Cold/Frozen Modular Drop-Ins
- XX: Pan Size
- YYY: Voltage
- ZZZ: Optional suffix to indicate Auto Drain (AD) or Flat Flange (FF) Top

WARNING

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

WARNING

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

WARNING

Do not use electrical appliances inside the food/ice storage compartments.

UL GUIDANCE FOR PRODUCTS WITH R290 REFRIGERANT CONTINUED

WARNING

Keep clear of obstruction 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.

WARNING

Do not damage the refrigerating circuit.

WARNING

Do not use electrical appliances inside the food/ice storage compartments.

WARNING

Component parts shall be replaced with like components so as to minimize the risk of possible ignition due to incorrect parts.

WARNING

Appliance is to be installed in accordance with the Safety Standard for Refrigeration Systems, ANSI/ASHRAE 15.

WARNING

- Do not use means to clean, other than those recommended by Vollrath®.
- 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.

WARNING

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, the following steps shall be completed prior to conducting work on the system.

Work procedure

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

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.

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.

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.

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.

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.

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, Vollrath® maintenance and service guidelines shall be followed. If in doubt, consult Vollrath 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.

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.

WARNING

Repairs to sealed components

- 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.
- 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.

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 als**o** take into account the effects of aging or continual vibration from sources such as compressors or fans.

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 re-calibration. (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.
- 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.

WARNING

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.

L. Labelling: Equipment shall be labelled stating that it has been de-commissioned 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.

⚠ WARNING

Flammable Refrigerant Hazard

This unit utilizes R290, which is a flammable refrigerant.

- Do not puncture refrigerant tubing.
- Keep unit away from open flames, excessive heat, and sources of electrical sparks.

PREPARATION

1. Reference Specification Sheet for control and unit cutouts.
2. For installation of a drop-in to cabinet with ignition sources:
   NOTICE: An ignition source is defined as any arcing or sparking electrical part such as a GFCI outlet, switch, relay, or other electrical contactor. Adjacent drop-in units may include ignition sources and should follow the installation instructions below.

   Option #1—Install partition wall on either side (or both if necessary) of drop-in. **ALL IGNITION SOURCES MUST BE INSTALLED ON THE OTHER SIDE OF THE PARTITION WALL.** Partition wall may be plywood, OSB, sheet metal, or other suitable material that completely blocks airflow. One 3” grommet pass-through is allowable in each partition wall, but must be located a minimum of 12” above the bottom of unit. The partition wall must be tight against the walls and countertop of the unit.

   Option #2—ignition source (GFCI breaker, switch, etc) must be installed in a UL-Listed NEMA-6 rated, sealed electrical box (reference McMaster-Carr item 7360K912). With ignition devices installed in the sealed box, the drop-in may be installed in a cabinet with no partition wall required. Any power cords attached to the box must be routed into the knockout with an appropriately sized UL-Listed DXOQ/7 liquid tight cord grip.

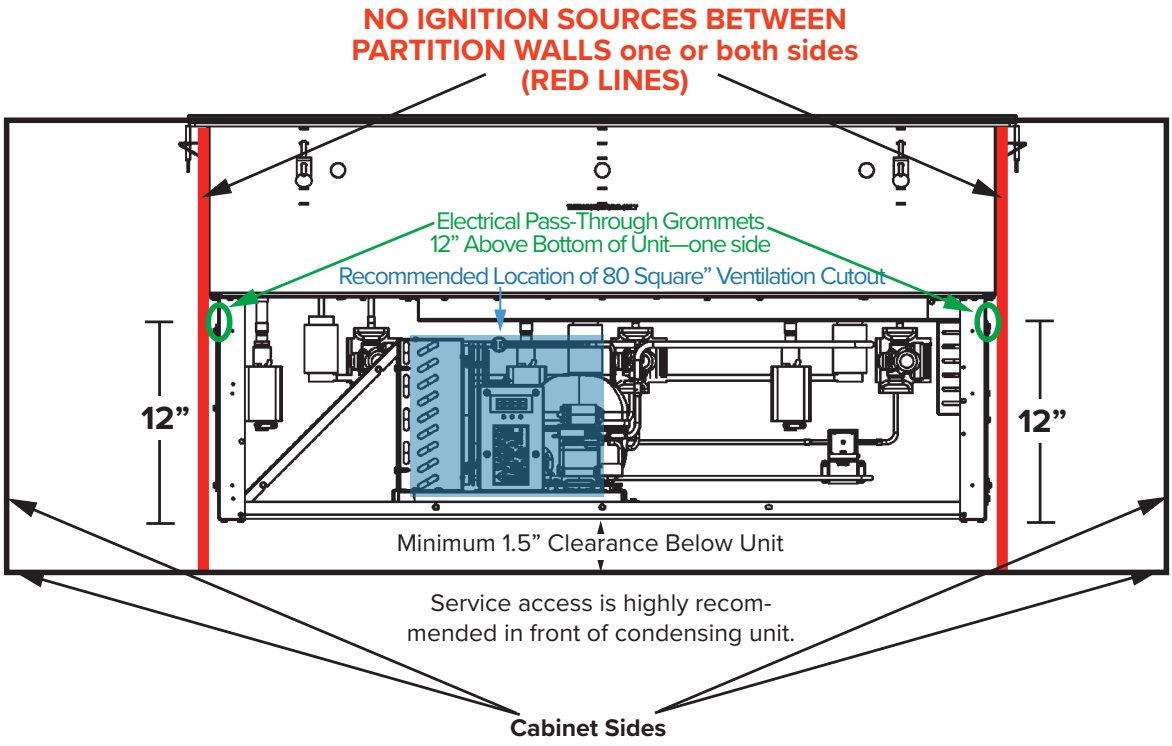
3. Ventilation Requirements:

DESCRIPTION	INTAKE		DISCHARGE	
	OPENING	CLEARANCE	OPENING	CLEARANCE
1 & 2-PAN COLD PAN AND 1-WELL HOT/COLD/FROZEN	80 sq, in.	3" from opening	80 sq. in.	3" from opening
3–6-PAN COLD PANS AND 2 & 3-WELL HOT/COLD/FROZEN	80 sq. in @ bottom	1.5" @ bottom		
4-WELL HOT/COLD/FROZEN	80 sq. in @ bottom, each condensing unit		160 sq. in.	

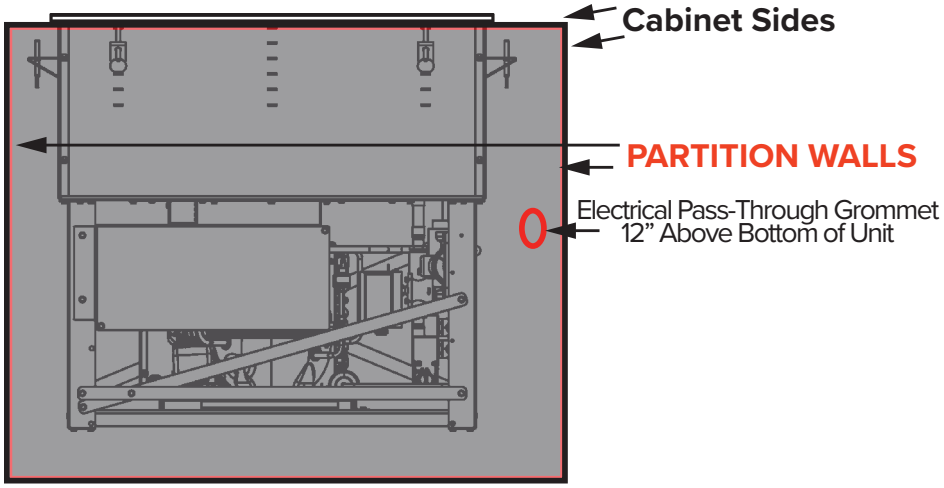
   Units in a lineup containing refrigerated units may not have exhaust or intake ventilation on the adjacent sides.

4. Drop the unit in place. Run power cord through partition wall grommet or underneath wall. For Option #2, run power cord through hole provided in sealed case.

OPERATOR SIDE VIEW



END VIEW



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