

# User Guide Supplement

For BevMax Models  
Equipped with  
Propane (R290)  
Refrigeration  
Unit



**CRANE**

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December 2016 P/N M148.0

# Specifications

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- **This document** is intended as a supplement to the full User's Guide, and that document should be reviewed and referred to for all normal set-up procedures.
- **NOISE LEVEL**
  - This machine operates at less than 70 db (A).
- **ACCEPTABLE AMBIENT OPERATING TEMPERATURE RANGE.**
  - This equipment was designed and tested to work properly in a temperature range of 10°C to 32°C (50°F to 90°F) in still air (65% Relative Humidity, non-condensing). Usage at ambient conditions outside the range of the testing may cause unacceptable appearance or performance.
- **STORAGE CONDITIONS**
  - The machine is capable of being stored in a temperature range of -18°C to 68°C (0°F to 155°F). Storage temperatures below 0°C (32°F) require that the operator to take the required precautions to ensure that any water is removed from the condensate system prior to storage.
- **INDOOR USE ONLY**
  - This machine is designed to be used in an Indoor Setting only. Indoor Setting is defined as inside a structure constructed with four walls and a roof, and sufficiently protected from ambient conditions and not subjected to the effects of weathering. Any other usage is in direct violation of these instructions, and will void the warranty of the machine and its components.

# Specifications

## BevMax with Propane

| Specifications                      | Model 5800-4HC<br>Wide | Model 3800-4HC<br>Narrow |
|-------------------------------------|------------------------|--------------------------|
| Height                              | 72 inches              | 72 inches                |
| Width                               | 47 inches              | 40 inches                |
| Depth                               | 32.5 inches            | 32.5 inches              |
| Floor Space                         | 10.7 Sq ft             | 9.02 Sq ft*              |
| Container Size                      | 63.6 Cu Ft.            | 54.16 Cu ft              |
| Shipping Weight                     | 715 lbs.?              | 654 lbs.?                |
| Voltage (AC)                        | 120V                   | 120V                     |
| Running Amperes                     | 7.5A                   | 7.5A                     |
| Propane Refrigerant Charge (R290)   | 120g                   | 120g.                    |
| Compressor size (hp)                | Super 1/3              | Super 1/3                |
| High Side Test Pressure             | 425 PSig               |                          |
| Low Side Test Pressure              | 115 PSIg               |                          |
| High Side Operating Pressure @ 90°F | 220PSIg                |                          |
| Low Side Operating Pressure@ 90°F   | 40 PSIg                |                          |

# Product Safety

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- The refrigerant gas contained in the cooling system is flammable. Pay special attention to all warning and cautions, both in this document, and as posted in the machine.
- Service should be performed by only a trained person, familiar with cooling systems using a flammable gas, and properly equipped with the correct tools and leak detection devices designed for use with this family of gas.
- Do not attempt to interchange electrical parts from older models into these new machines. Using the correct OEM parts from Crane reduces the potential for an issue, as well as maintaining a safely operating machine.
- Please have the machine serial number, and if possible the refrigeration unit S/N, along with your customer information available when you call.
- Currently, no specialized training or certification is required for handling units with R290 gas, but specialized training is recommended. Contact the Crane Support team for this information.

# Risks of Propane Usage

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- Propane is a simple asphyxiant. Unlike natural gas, propane is denser than air. It may accumulate in low spaces and near the floor.
- When abused as an inhalant, it may cause hypoxia (lack of oxygen), pneumonia, or cardiac failure or arrest.
- Propane has low toxicity since it is not readily absorbed and is not biologically active. Commonly stored under pressure at room temperature, propane and its mixtures will flash evaporate at atmospheric pressure and cool well below freezing. The cold gas, which appears white due to moisture condensing from the air, may cause frostbite.
- Propane is denser than air. If a leak in a propane fuel system occurs, the gas will have a tendency to sink into any enclosed area and thus poses a risk of explosion and fire. The typical scenario is a leaking cylinder stored in a basement; the propane leak drifts across the floor to the pilot light on the furnace or water heater, and results in an explosion or fire. This property makes propane generally unsuitable as a fuel for boats.
- A risk associated with propane storage and transport is known as a BLEVE or boiling liquid expanding vapor explosion.
- Courtesy of Wiki

# Benefits of Propane Usage

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- No special tools are required. A standard R134a charging manifold for confirming the correct operating pressures of the refrigeration system is used, however, the shortest possible hoses should be used, due to the minimal charge. Twelve inches is the recommended length. Recommended PPE for working on a R290 unit is safety glasses and gloves
- Maximum charge in R290 Refrigeration units is limited by law to 150 grams (5.3 ounces), which is about half of the nominal charge of a comparable R134a unit.
- R290 has been proven to have better thermodynamic efficiencies, including more energy efficient, lower carbon footprint, and lower electrical operating cost.
- R290 units pass the current EPA Energy Star III requirements.
- The only recommended special tools required are:
  - A combustible gas meter/R290 electronic leak detector
  - A safety placard advising No Smoking nor Open Flames that can be displayed when work is underway
- The Global Warming Potential (GWP) for R290, Propane is listed as 3, compared to a GWP of 1340 for an equivalent amount of R134a.
- No recovery equipment is mandated for R290, as the EPA has ruled that this gas can be vented into the atmosphere

# Cautions & Definitions

**It is critical that all cautions and warnings be reviewed and complied with during the unpacking, installation, operation, and repair of this machine**



**CAUTION:** This machine is designed for indoor usage only. Any other usage will void the Manufacturer's Warranty



**CAUTION:** Any procedure marked with the symbol at left requires that the Machine have the power applied and a shock hazard exists. Only a trained and authorized person should attempt these repairs.



**CAUTION:** It is important that this machine is hooked up to the proper voltage and polarity for your country. Use a Voltmeter to verify voltage and polarity. Should the reading be any different than a normal reading or if you are unsure of what the reading should be, contact an electrician.



**CAUTION:** Different countries may have unique plug arrangements. Ensure that the machine is properly grounded before operating. .



**CAUTION:** The power cord for all machines are of a type X attachment. If the power cord is damaged, it should be replaced by a trained service agent, or a similarly qualified person in order to avoid a hazard.

# Cautions & Definitions

## Refrigeration Unit



**DANGER:** Propane gas (R290) is flammable, odorless gas. While working on a machine, no smoking and no open flames should be permitted.



The refrigeration unit in this machine does not contain any User Serviceable parts. In the event of any failure the entire unit must be returned complete to Crane. Ground shipment should be used for transportation only



**CAUTION:** Propane gas (R290) is heavier than air, and can be considered an asphyxiant. May displace oxygen and cause rapid suffocation, and is odorless. In the event of an accidental release, evacuate, then ventilate the area. Do not permit any ignition sources to approach until the area has been safely ventilated



A vending machine having a flammable refrigerant shall not be intended for use in lobbies or locations of egress, such as a hallway or public corridor.



Use caution when handling, moving, and use of the vender to avoid either damaging the refrigerant tubing, or increasing the risk of a leak. **Do Not Puncture Refrigerant Tubing** or use any tools in the vicinity of the exposed tubing.



# Cautions & Definitions



**CAUTION:** The machine is a heavy item. Ensure that sufficient personnel are available for lifting and transporting the machine. Use proper lifting procedures and equipment.



**CAUTION:** This machine is designed to dispense pre-packaged beverage and similar products.



•**CAUTION:** Risk Of Fire Or Explosion. Flammable Refrigerant Used. Consult Repair Manual/Owner's Guide Before Attempting To Service This Product. All Safety Precautions Must Be Followed.



**CAUTION:** If this machine is used to dispense perishable food, and local health codes require that the machine monitor the cabinet temperature, and prevent vending when the temperature exceeds a defined limit for a period of time, then the Health Code function must be enabled for those affected selections – see Health Code Setup



**CAUTION:** The electronic system components in this machine utilize static sensitive components. Precautions for handling sensitive devices should be observed when handling these items.



## Additional Warnings

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- The shipping carton of the vender that employs a flammable refrigerant shall be marked with proper handling instructions in compliance with U.S. government regulations. The caution marking in the next paragraph shall also appear on the shipping carton.
  - **CAUTION – Risk Of Fire Or Explosion Due To Puncture Of Refrigerant Tubing; Follow Handling Instructions Carefully. Flammable Refrigerant Used.**
- The following warning should be present on the exterior of the cabinet:
  - **CAUTION – Risk Of Fire Or Explosion. Dispose Of Properly In Accordance With Federal Or Local Regulations. Flammable Refrigerant Used**
- Servicing shall be done by factory authorized service personnel, so as to minimize the risk of possible ignition due to incorrect parts or improper service, including the use of proper parts
- Minimum installation clearances of no less than 4 inches (10.5 cm) to the nearest structures must be observed.
- Tubing access points, where servicing components may be attached, such as the process tubes adjacent to the compressor, shall be marked with a permanent red color.
- It is recommended that a properly certified fire extinguisher be available, and included in any tool kit before working on a machine with a R290 refrigeration system.
- Checking the surrounding area for the presence of R290 using a known working leak detector of the correct design is a good practice before commencing work on a machine.
- Do not use the system tubing as a grasping point for moving a refrigeration unit.

# Product Identification

- Machines which include a R290 refrigeration system will be identified on the machine serial number label as a Model 5800HC or 3800HC
- Additional warning and caution labels will be placed on the cabinet, and on the refrigeration unit.



# Product Identification

## Basic Refrigeration Components

- A: Cap Tube Assembly
- B: Warning Labels
- C: 3 Row Condenser Coil
- D: 5 Row Evaporator coil
- E: Evaporator Fan
- F: Compressor
- G: Red colored Process Tubes



# Critical Non-Sparking Components

UL requirements for this machine require the use of non-sparking components in areas where a potential spark could ignite a refrigerant leak. Use only OEM parts in this machine.

## Unique R290 Parts

|           |  |
|-----------|--|
| CR0028528 | ASSY, REFR DECK DOM, R290 BV4              |
| CR0028537 | OVERLOAD,CMPSR,FFU130UAX                   |
| CR0028545 | RELAY, COMP START FFU130UAX                |
| CR0028577 | A, START CAP, 378-454UF 165V               |
| 80450187  | A,FAN CONDENSER EM&S 9W 115v,CW            |
| CR0022409 | MOTOR, EVAPORATOR ECPLUS 115V              |
| CR0029251 | HARNESS, COMPRESSOR, POWER (at compressor) |
| CR0029219 | ASSY,DEL CUP BRUSHLESS MTR BV4             |
| CR0029544 | ASSY, AC DIST BOX R290 BV                  |
| CR0029547 | ASSY, XY BEV R290                          |
| CR0028703 | MOTOR, PLANETARY, BRUSHLESS                |
| CR0028755 | BOARD, Y MOTOR, HYDROCARBON                |
| 80493056  | HARNESS,X/Y E-CHAIN R290 BV4               |
|           | Y chain harness E chain                    |

# Refrigeration Unit Wiring

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# Key Operational Information

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- Machines which include a R290 refrigeration unit have met or exceeded the current EPA Tier III certification.
- The harness from the refrigeration unit to the junction/power box in the machine has a unique connector to prevent connection to a non propane equipped unit or control system. The junction box will be marked to indicate the proper usage.
- Machines containing an R290 (Propane) refrigeration units have been built and tested to meet the requirements for a flammable gas. Interchanging parts from older machines to a R290 machines is not permitted.

# Handling the Refrigeration Unit

- The refrigeration system can be removed from the front of the unit. Please note that it is a high pressure system. Handle and lift the system only by the handle as shown in the picture . Do not lift or move the deck by using any other components as a handle.
- Retain the packaging provided with the replacement unit to return the defective unit to Crane
- Contact Crane directly to obtain a replacement refrigeration unit and an RGA to return the existing unit.
- Please call Crane Merchandising System to obtain a replacement at 888-353-9725, Option 2
- Please have the machine serial number, and if possible the refrigeration unit S/N, along with your customer information available when you call



Use caution when handling, moving, and use of the vender to avoid either damaging the refrigerant tubing, or increasing the risk of a leak. **Do Not Puncture Refrigerant Tubing** or use any tools in the vicinity of the exposed tubing.