

HUSSMANN®



Micro-Distributed Medium Temperature Roll-In (DD5X5FRW)

**with R-290 (Propane)
Refrigerant**

WARNINGS:

If the information in these instructions are not followed exactly, a fire or explosion may result, causing property damage, personal injury or death.

Installation and service must be performed by a qualified installer or service agency.

**READ THE ENTIRE MANUAL BEFORE
INSTALLING OR USING THIS
EQUIPMENT.**

The unit uses R-290 (propane) gas as the refrigerant. R-290 (propane) is flammable and heavier than air. It collects first in low areas but can be circulated by the fans. If propane gas is present or even suspected, do not allow untrained personnel to attempt to find the cause. The propane gas used in the unit has no odor. The lack of smell does not indicate a lack of escaped gas. If a leak is detected, immediately evacuate all persons from the store, and contact the local fire department to advise them that a propane leak has occurred. Do not let any persons back into the store until the qualified service technician has arrived and that technician advises that it is safe to return to the store. No open flames, cigarettes or other possible sources of ignition should be used inside or in the vicinity of the units.

**FAILURE TO ABIDE BY THIS WARNING COULD
RESULT IN AN EXPLOSION, DEATH, INJURY
AND PROPERTY DAMAGE.**

IMPORTANT!
*Keep in store for
future reference!*

MANUAL- I/O ROLL-IN R-290



***Installation &
Operation Manual***
Shipped With Case Data Sheets

**P/N 3053878_C
November 2019**

**3053880 Spanish
3053879 French**

 **WARNING**

This equipment uses a flammable refrigerant. Installation, service and repair should be done only by qualified and trained technicians in accordance with this manual.

If a leak is detected, follow store safety procedures. It is the store's responsibility to have a written safety procedures in place. The safety procedure must comply with all applicable codes such as local fire department's codes.

At minimum, the following actions are required:

- Immediately evacuate all persons from the store, and contact the local fire department to advise them that a propane leak has occurred.
- Call Hussmann and/or a qualified service agent and inform them that the presence of propane has been detected.
- Do not let any persons back into the store until the qualified service technician has arrived and that technician advises that it is safe to return to the store.
- The propane gas used in the unit has no odor. The lack of smell does not indicate a lack of escaped gas.
- A hand-held propane leak detector ("sniffer") should be used before any repair and/or maintenance is attempted. All repair parts must be identical models to the ones they are replacing.
- No open flames, cigarettes or other possible sources of ignition should be used inside the building where the units are located until the qualified service technician and/or local fire department determines that all propane has been cleared from the area and from the refrigeration systems.



PERSONAL PROTECTION EQUIPMENT (PPE)

Personal Protection Equipment (PPE) is required whenever installing or servicing this equipment. Always wear safety glasses, gloves, protective boots or shoes, long pants, and a long-sleeve shirt.



1. If the information in these instructions are not followed exactly, a fire or explosion may result, causing property damage, personal injury or death.
2. Installation and service must be performed by a qualified installer or service agency.
3. This unit is designed only for use with R-290 (propane) gas as the designated refrigerant.

THE REFRIGERANT LOOP IS SEALED. ONLY A QUALIFIED TECHNICIAN SHOULD ATTEMPT TO SERVICE!

- Propane is flammable and heavier than air.
- It collects first in the low areas but can be circulated by the fans.
- If R-290 (propane) is present or even suspected, do not allow untrained personnel to attempt to find the cause.
- The propane gas used in the unit has no odor.
- The lack of smell does not indicate a lack of escaped gas.
- If a leak is detected, immediately evacuate all persons from the store, and contact the local fire department to advise them that a propane leak has occurred.
- Do not let any persons back into the store until the qualified service technician has arrived and that technician advises that it is safe to return to the store.
- A hand-held propane leak detector (“sniffer”) shall be used before any repair and/or maintenance.
- No open flames, cigarettes or other possible sources of ignition should be used inside the building where the units are located until the qualified service technician and/or local fire department determines that all propane has been cleared from the area and from the refrigeration systems.
- Component parts are designed for propane and non-incendive and non-sparking. Component parts shall only be replaced with identical repair parts.

FAILURE TO ABIDE BY THIS WARNING COULD RESULT IN AN EXPLOSION, DEATH, INJURY AND PROPERTY DAMAGE.

ATTENTION

Merchandiser must operate for 24 hours before loading product!

Regularly check merchandiser temperatures.

Do not break the cold chain. Keep products in freezer before loading into merchandiser.

Medium temperature merchandisers are designed for loading **ONLY** pre-chilled products.

Low temperature merchandisers are designed for loading **ONLY** frozen products.



IMPORTANT
KEEP IN STORE FOR FUTURE REFERENCE
Quality that sets industry standards!

12999 St. Charles Rock Road • Bridgeton, MO 63044-2483

U.S. & Canada 1-800-922-1919 • Mexico 1-800-890-2900

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**INSTALLATION
TOOL LIST**

Unloading From Trailer:

Lever Bar (also known as a Mule,
Johnson Bar, J-bar, Lever Dolly,
and pry lever)
Moving Dolly

Setting Case Line-Up:

Level, 4 ft suggested
Ratchet
1/4 in. Socket
5/16 in. Socket
1/2 in. Socket
Battery Drill/Screw Gun
Caulking Gun
10 in. Adjustable Crescent Wrench

REVISION HISTORY

REVISION B — NOVEMBER 2019

1. Updated cover page

REVISION B — NOVEMBER 2018

1. Updated condensing unit drawings


REVISION A — JULY 2018


1. Original Issue




This warning does not mean that Hussmann products will cause cancer or reproductive harm, or is in violation of any product-safety standards or requirements. As clarified by the California State government, Proposition 65 can be considered more of a 'right to know' law than a pure product safety law. When used as designed, Hussmann believes that our products are not harmful. We provide the Proposition 65 warning to stay in compliance with California State law. It is your responsibility to provide accurate Proposition 65 warning labels to your customers when necessary. For more information on Proposition 65, please visit the California State government website.

ANSI Z535.5 DEFINITIONS

- 

• **DANGER** – Indicate[s] a hazardous situation which, if not avoided, will result in death or serious injury.
- 

• **WARNING** – Indicate[s] a hazardous situation which, if not avoided, could result in death or serious injury.
- 

• **CAUTION** – Indicate[s] a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE** – Not related to personal injury – Indicates[s] situations, which if not avoided, could result in damage to equipment.



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WARRANTY



CAUTION

**Do not store items or flammable
materials atop the unit.
Do not walk on case.**

**IMPORTANT
KEEP IN STORE FOR FUTURE REFERENCE**

Quality that sets industry standards!

This merchandiser is NSF® certified.

12999 St. Charles Rock Road • Bridgeton, MO 63044-2483

U.S. & Canada 1-800-922-1919 • Mexico 1-800-890-2900

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INSTALLATION

UL LISTING

These merchandisers are manufactured to meet ANSI/UL 471 standard requirements for safety. Proper installation is required to maintain the listing.

FEDERAL / STATE REGULATION

These merchandisers at the time they are manufactured, meet all federal and state/ provincial regulations. Proper installation is required to ensure these standards are maintained. Near the serial plate, each merchandiser carries a label identifying the environment for which the merchandiser was designed for use.

ANSI/NSF-7 Type I – Display Refrigerator / Freezer
Intended for 75°F (24°C) / 55%RH Ambient Application

ANSI/NSF-7 Type II – Display Refrigerator / Freezer
Intended for 80°F / 55%RH Ambient Application

ANSI/NSF-7 – Display Refrigerator
Intended for Bulk Produce

LOCATION

These merchandisers are designed for displaying products in air conditioned stores where temperature is maintained at or below the ANSI/NSF-7 specified level and relative humidity is maintained at or below 55%.

Placing refrigerated merchandisers in direct sunlight, near hot tables or near other heat sources could impair their efficiency.

Like other merchandisers, these are sensitive to air disturbances. Air currents passing around merchandisers will seriously impair their operation. Do NOT allow air conditioning, electric fans, open doors or windows, etc. to create air currents around the merchandisers. To prevent sweating on the exterior

surfaces of merchandisers, there must be a MINIMUM CLEARANCE OF 3 INCHES (76.2 MM) between the merchandisers and other fixtures or walls. Product should always be maintained at proper temperature. This means that from the time the product is received, through storage, preparation and display, the temperature of the product must be controlled to maximize the life of the product.

SHIPPING DAMAGE

All equipment should be thoroughly examined for shipping damage before and during unloading. This equipment has been carefully inspected at our factory. Any claim for loss or damage must be made to the carrier. The carrier will provide any necessary inspection reports and/or claim forms.

Apparent Loss or Damage

If there is an obvious loss or damage, it must be noted on the freight bill or express receipt and signed by the carrier's agent; otherwise, carrier may refuse claim. The carrier will supply necessary forms.

Concealed Loss or Damage

When loss or damage is not apparent until after equipment is uncrated, a claim for concealed damage is made. Upon discovering damage, make request in writing to carrier for inspection within 15 days and retain all packing. The carrier will supply inspection report and required claim forms.

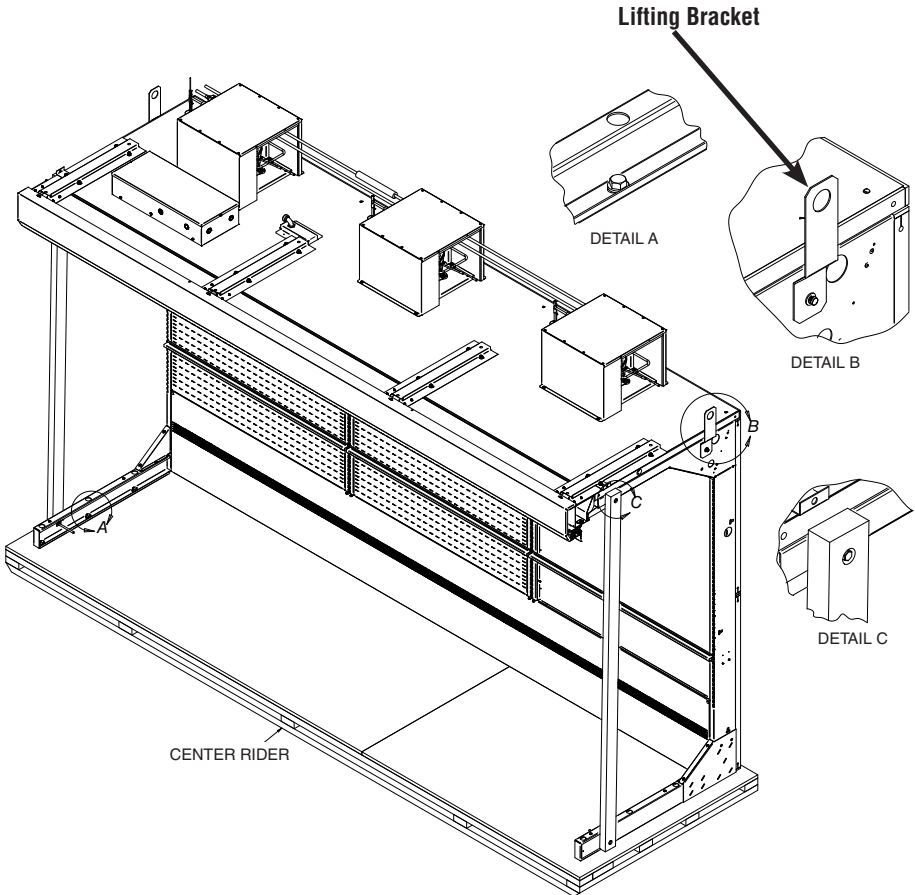
EXTERIOR LOADING

Do NOT walk on top of merchandisers or damage to the merchandisers and serious personal injury could occur. THEY ARE NOT STRUCTURALLY DESIGNED TO SUPPORT EXCESSIVE EXTERNAL LOADING such as the weight of a person. Do not store items or flammable materials atop the unit.

POSITION AND UNPACK CASE

These cases are typically joined to another case in a lineup.

1. Move the roll-in case using a forklift to where it will be positioned in the lineup.
2. Attach lifting straps to each lifting bracket.
3. Remove the bolts attaching the case to the rider.
4. Lift the case and move the rider out of the way.
5. Lower the case to sit on the floor.
6. Remove the lifting straps.
7. Remove the end interior panels, end interior back panels and bottom cover in order to prepare the case for joining.





LEVELING

Merchandisers must be installed level to ensure proper operation of the refrigeration system and to ensure proper drainage of defrost water. When leveling merchandisers, use a carpenter's level. Metal leveling shims or wedges are provided with each merchandiser for use if needed.

NOTE: BEGIN LINEUP LEVELING FROM THE HIGHEST POINT OF THE STORE FLOOR.

Place shims under the rail and make sure that they are positioned at a base component (crossbar). This transfers the weight directly from the loaded case through to the floor.

Placing shims at other locations will cause uneven distribution of weight leading to piping leaks, as well as sagging or wracked doors.

Bottom front supports must be shimmed if not in full contact with the floor.



CAUTION

Excessive ambient conditions may cause condensation and therefore sweating of doors. Facility operators should monitor doors and floor conditions to ensure safety of persons.

CASE JOINING

Sectional construction means that two or more merchandisers may be joined in line yielding one long continuous display requiring only one pair of ends. Joining kits and instructions are shipped with each merchandiser. A partition kit is required to join unlike fixtures. Use the packaged hardware in the partition or “joining kit”. Instructions are shipped with the partition kit.

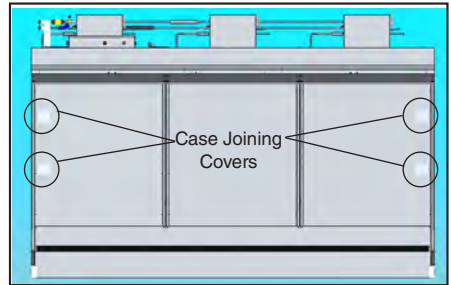
ALL JOINTS MUST BE AIR-TIGHT TO PREVENT FORMATION OF ICE OR CONDENSATION.

IMPORTANT:

Before installing the cases together at the end base uprights, install the EPS insulation with the gasket onto the end base uprights.

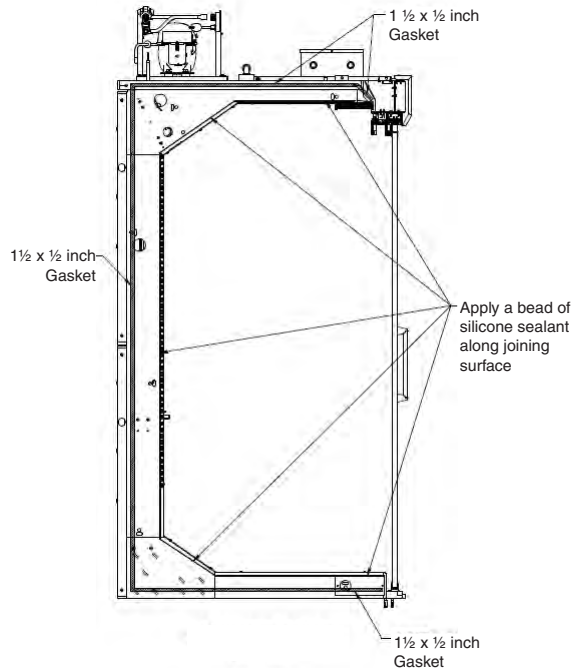
Install the case joining bolts. Run the case drain piping. Reinstall the bottom back cover, interior back panels and top panels.

Front View of Case



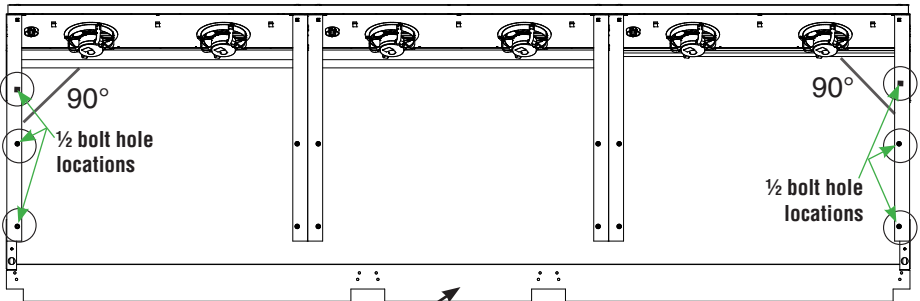
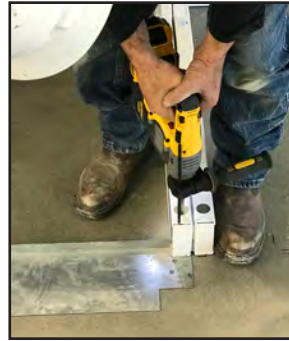
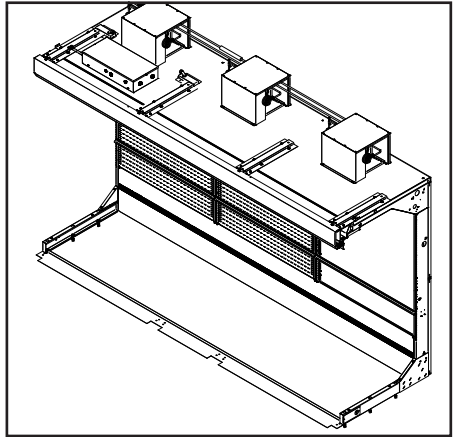
Case joining covers are located behind interior back panels.

Joining Locations



CASE INSTALLATION

1. Position door alignment guide at the front of the two end base uprights that mount to the floor.
2. It is important to make sure the end base uprights are 90° from the back-foam assemblies before installing the 6 anchor bolts in the concrete. Use a square as shown below.
3. The door alignment guide positioned at the front will make sure the two end base uprights are in the correct location.
4. Drill ½ diameter holes 2¾ inches deep in the concrete. Three on each end of the case. Clean out concrete dust from holes.
5. Install the ½ diameter anchor bolts. Tighten nuts to secure case to the floor.



Door Alignment Guide

Drill hole through base upright into floor.



BASE UPRIGHT COVER INSTALLATION

1. Install the lefthand insulation. Fit the bottom in first as shown in Step 1.
2. Install the lefthand lower cover using supplied painted screws.
3. Install the lefthand upper cover.
4. Install silicone sealant to gap and install trim piece.
5. Repeat for righthand cover.
6. Apply silicone sealant to joint of both roll-in cases, and install trim piece.

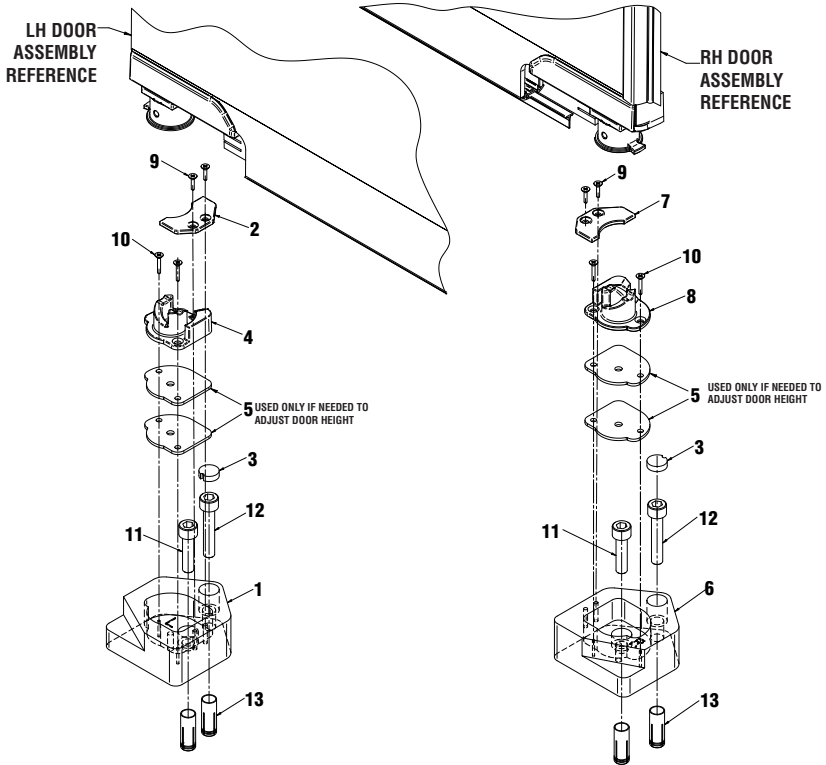


DOOR INSTALLATION

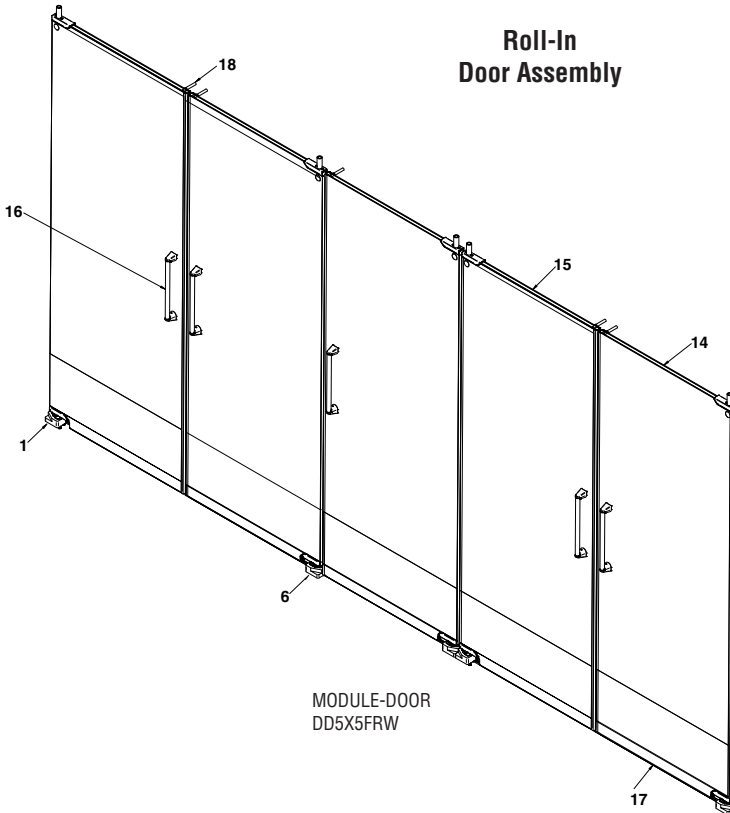
Door Assembly Parts

See door base plate assembly instructions on Page 1-8.

ITEM	PART NUMBER	TITLE	QTY
1	3037425	BASE PLATE-DOOR LH	2
2	3037440	COVER-PIVOT BEARING LH	2
3	3037434	CAP	5
4	3037433	SWIVEL GUIDE-DOOR LH	2
5	3037438	SPACER-DOOR HEIGHT	10
6	3037426	BASE PLATE-DOOR RH	3
7	3037439	COVER-PIVOT BEARING RH	3
8	3037432	SWIVEL GUIDE-DOOR RH	3
9	3038299	SCREW-LOWERING HD 3X12	10
10	3038314	SCREW-LOWERING HD 3X16	10
11	3038297	BOLT-M8 X 30	5
12	3038296	BOLT-M8 X 40	5
13	3038298	INSERT-M8 CONCRETE	10
14	3037430	ASSEMBLY-DOOR RH	3
15	3037431	ASSEMBLY-DOOR LH	2
16	3037552	HANDLE-DOOR	5
17	3048438	WIPER-DOOR BOT CLR .366X25.98	5
18	3053841	DAMPENER-DOOR DD5X5FRW	5



ITEM	PART NUMBER	TITLE	QTY
1	3071389	BASE PLATE-DOOR LH	2
2	3037440	COVER-PIVOT BEARING LH	2
3	3037434	CAP	5
4	3073779	SWIVEL GUIDE-DOOR LH	2
5	3037438	SPACER-DOOR HEIGHT	10
6	3071390	BASE PLATE-DOOR RH	3
7	3037439	COVER-PIVOT BEARING RH	3
8	3073782	SWIVEL GUIDE-DOOR RH	3
9	3038299	SCREW-LOWERING HD 3X12	10
10	3038314	SCREW-LOWERING HD 3X16	10
11	3038297	BOLT-M8 X 30	5
12	3038296	BOLT-M8 X 40	5
13	3038298	INSERT-M8 CONCRETE	10
14	3037430	ASSEMBLY-DOOR RH	3
15	3037431	ASSEMBLY-DOOR LH	2
16	3037552	HANDLE-DOOR	5
17	3048438	WIPER-DOOR BOT CLR .366X25.98	5
18	3053841	DAMPENER-DOOR DD5X5FRW	5



DOOR BASE PLATE INSTALLATION

1. Mark the holes (10) for the door base plates in the door alignment guide as shown in Figure 1.
2. Drill $\frac{3}{8}$ inch diameter holes $1\frac{3}{4}$ inches deep in the concrete. Clean out concrete dust from holes. Leave the template in place when drilling these holes.
3. Install the brass anchors.
4. Get the door base plates and hardware out of the packaging.
5. Take the door alignment guide, and turn it around to be able to use it in order to place the door hinge base plates between the cutouts as shown in Figure 2.
6. Fasten the door hinge base plates and door swivel guides to the floor. See Page 1-6.



Door Base Plates

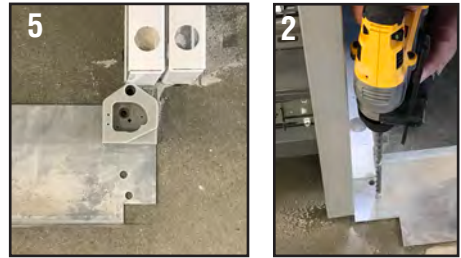


Figure 1: Steps 1-4

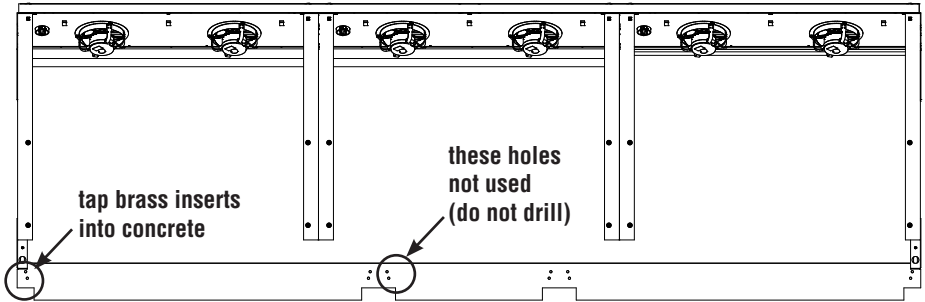
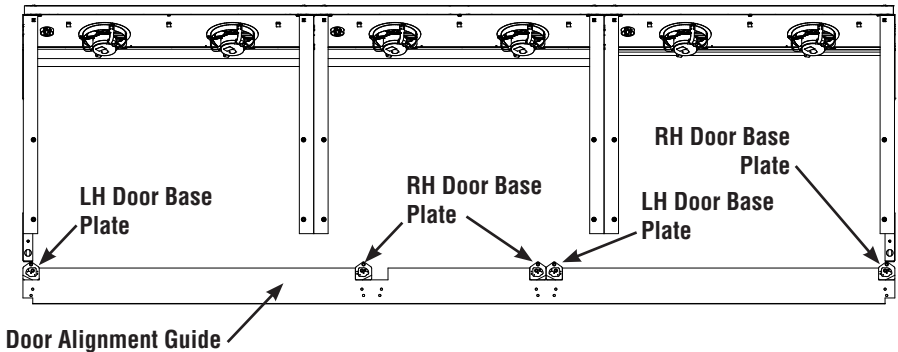


Figure 2: Step 5

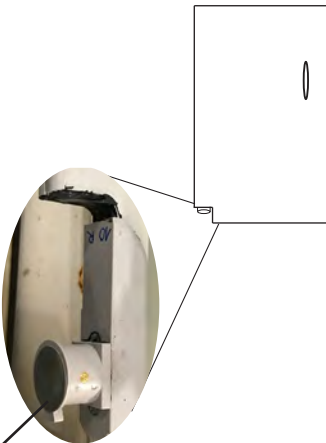


DOOR INSTALLATION

1. Remove the doors from the crate.

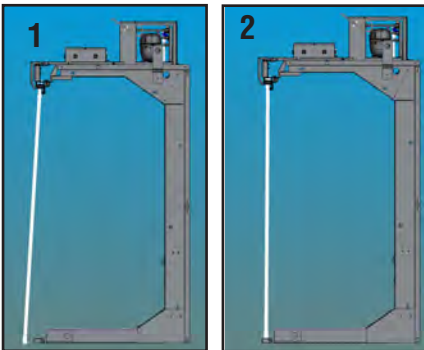


2. Remove foil from the bottom of the door hinge.

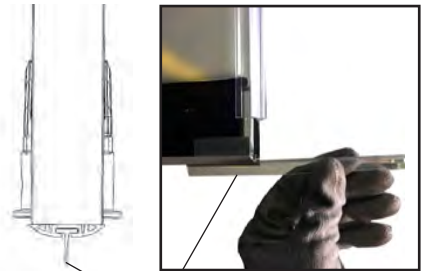


Remove Foil

3. Mount the lefthand and righthand doors into the upper door profile and then into the door hinge base plate mounted into the concrete floor.

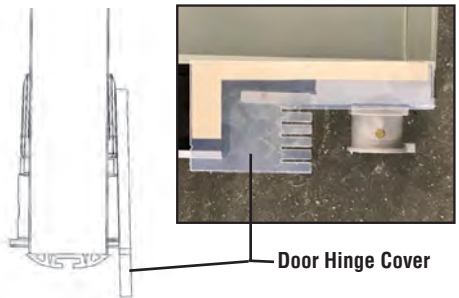


4. Get the bottom door wipe (in case packout). Door wipe is to be installed onto bottom of the doors. (The glass wipes need to be put in the cooler prior to installation and trimming excess length.)



Bottom Door Wipe

5. Locate the lefthand and righthand door hinge covers, and remove the adhesive liner. Mount hinge covers to the inside of the door. Lineup lefthand hinge cover notch with bottom of glass part of door.

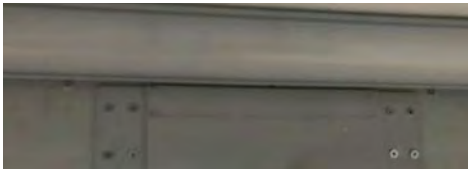
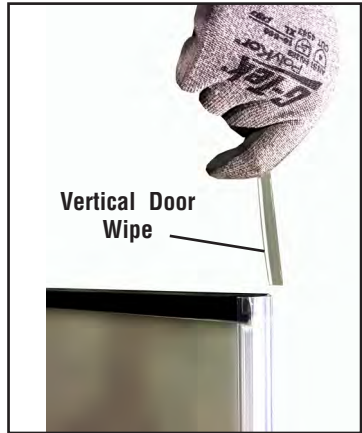


Door Hinge Cover

DOOR INSTALLATION

(Continued)

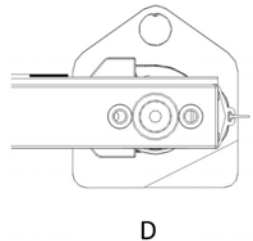
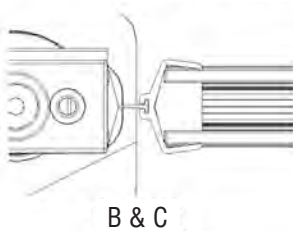
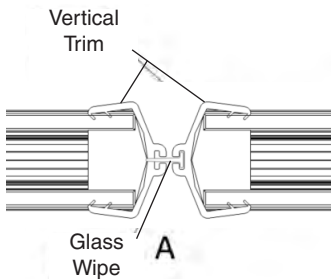
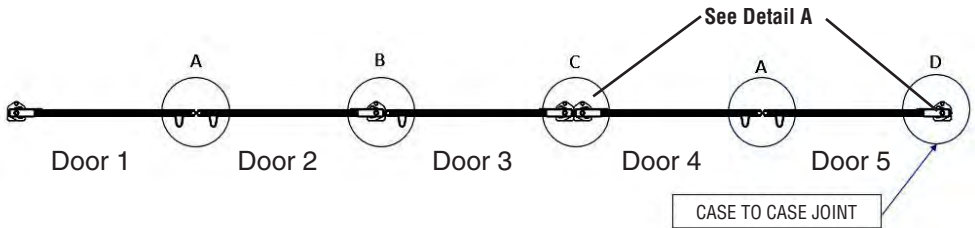
6. Get the vertical door wipes. The longer vertical door wipes, (qty 5) are mounted to the door handle side of the doors. The 2 shorter door vertical door wipes, (qty 2) are mounted on the hinge side of the doors. One is mounted between the two roll-in cases, and the other is mounted on the hinge side of the fourth door. (Removal of the door top hinge cover may be necessary to install the wipes into the vertical trim.)



Detail A: Door Top Hinge Cover

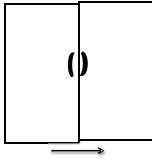
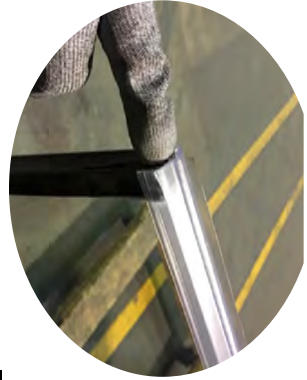
7. Install the glass wipes from the top edge of the vertical door wipe until it is aligned up with the bottom of the vertical door wipe. (The glass wipes need to be put in the cooler prior to installation and trimming excess length).

- Door 1: handle side vertical door trim only
 - Door 2: handle side vertical door trim and wipe
 - Door 3: handle side vertical trim and wipe
 - Door 4: handle side vertical trim and wipe. Hinge side vertical door trim only
 - Door 5: handle side vertical door trim and wipe. Hinge side vertical door trim only(hinge side is only at joint of both roll in cases)
- The hinge side door vertical trim that has the wipe can be put on prior to installing the doors. (Door 4 would be the door that needs this done.)

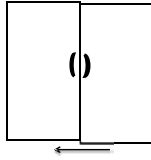


DOOR INSTALLATION**(Continued)**

8. Trim any excess glass wipes, and then place a drop of super glue at the top. This prevents the glass wipes from moving. See Detail A.
9. Adjust the doors to the right or left to remove the saw tooth on the top of the doors. (Some doors may need to be removed and spacers added to better adjust the doors.)



To Correct Shift the Bottom Plate to the Right



To Correct Shift the Bottom Plate to the Left

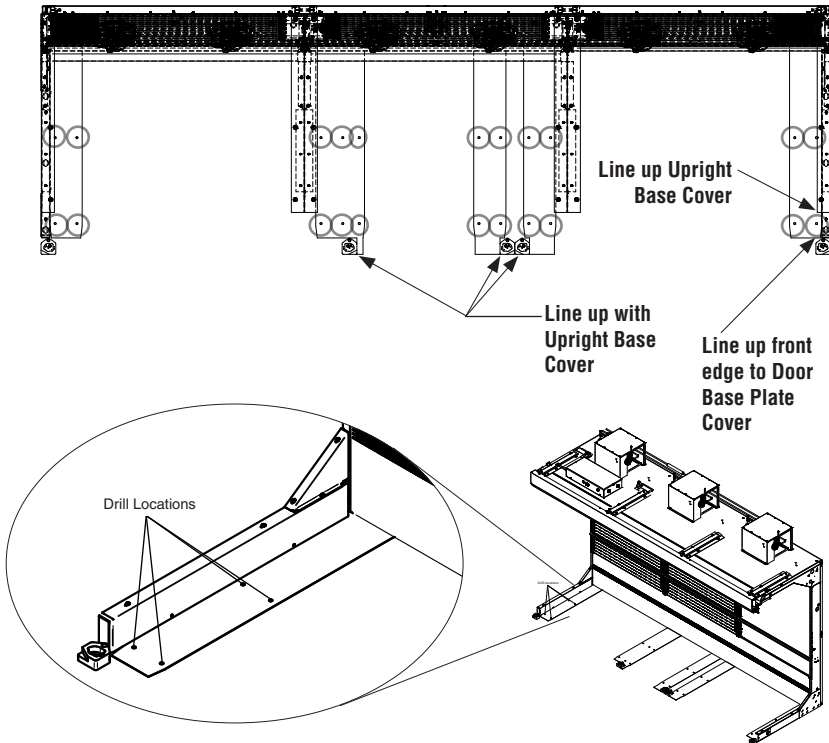
10. Install 2 caps (item 3), one pivot bearing cover (item 2 & 7) with 2 screws (item 9) to each door base plate. See Page 1-6.
11. Install dampers in the top door profile.
See Page 1-7.

**Installing Damper****Damper Installed**

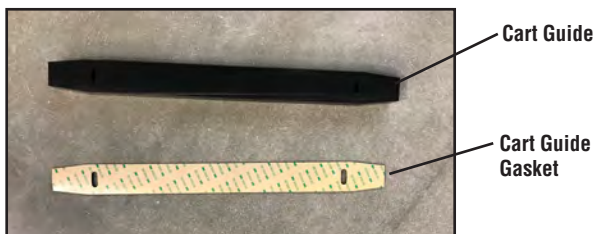
CART GUIDE INSTALLATION

(Optional Kit)

1. Place cart guide hole templates on the floor as shown below.



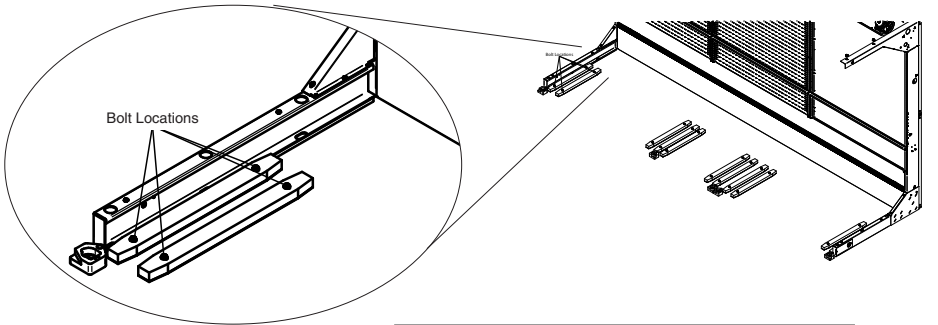
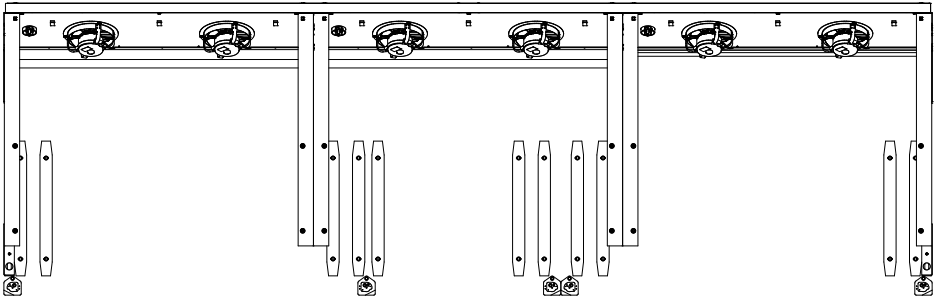
2. Drill $\frac{3}{8}$ inch diameter holes in the concrete $1\frac{1}{2}$ inches deep. Leave the template in place while drilling the holes. Clean out concrete dust from holes.
3. Place $\frac{1}{4}$ inch concrete anchors in the $1\frac{1}{2}$ inch deep holes.
4. Take the cart guides and cart guide gasket out of the packout bag.
5. Remove the tape liner on the cart guide gasket, and mount the gasket onto the cart guide.



CART GUIDE INSTALLATION

(Continued)

1. Place the cart guides on the floor. Secure cart guides to floor using 1/4 inch washer and 1/4 inch bolt. Bolts must be in center of slots.



ELECTRICAL / CONTROLLER / WATER / REFRIGERATION

DANGER

Due to risk of ignition resulting from incorrect parts or improper service, only Hussmann authorized personnel may service this equipment. Component parts shall be replaced only with like components. FAILURE TO USE AUTHORIZED TECHNICIANS COULD RESULT IN EXPLOSION, DEATH, INJURY AND PROPERTY DAMAGE.

ATTENTION

Merchandiser must operate for 24 hours before loading product!

Regularly check merchandiser temperatures.

Do not break the cold chain. Keep products in freezer before loading into merchandiser.

Medium temperature merchandisers are designed for loading **ONLY** pre-chilled products.

Low temperature merchandisers are designed for loading **ONLY** frozen products.



WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

This equipment uses a flammable refrigerant. Installation, service and repair should be done only by qualified and trained technicians in accordance with this manual.

If a leak is detected, follow store safety procedures. It is the store's responsibility to have a written safety procedure in place. The safety procedure must comply with all applicable codes such as local fire department's codes.

At minimum, the following actions are required:

- Immediately evacuate all persons from the store, and contact the local fire department to advise them that a propane leak has occurred.
- Call Hussmann and/or a qualified service agent and inform them that a propane sensor has detected the presence of propane.
- Do not let any persons back into the store until the qualified service technician has arrived and that technician advises that it is safe to return to the store.
- The propane gas used in the unit has no odor. The lack of smell does not indicate a lack of escaped gas.
- A hand-held propane leak detector (“sniffer”) should be used before any repair and/or maintenance is attempted. All repair parts must be identical models to the ones they are replacing.
- No open flames, cigarettes or other possible sources of ignition should be used inside the building where the units are located until the qualified service technician and/or local fire department determines that all propane has been cleared from the area and from the refrigeration systems.

ELECTRICAL

These self-contained merchandisers have watercooled condensers. Each 4 ft section of case module has a dedicated refrigeration system. For roll-in cases, the condensing unit is located on top of the case. These merchandisers are controlled by the CoreLink Controller. DD5X5FRW cases may be installed as standalone cases with ends, or as part of a lineup.

MERCHANDISER ELECTRICAL DATA

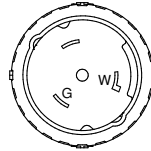
Refer to merchandiser serial plate or case data sheets for electrical information.

PLUG

The plug cord is 10ft long and is located on the left hand rear of the merchandiser. Disconnect power before servicing. Merchandisers require a dedicated electrical circuit with ground. 12AWG is the minimum sized acceptable wire for a 20-amp circuit. 10 AWG for a 30-amp circuit.

- The DD5X5FRW-W requires a dedicated 50-amp / 125V circuit with a grounded wall receptacle (NEMA L5-50P).
- Always use a dedicated circuit with the amperage stated on the unit.
- Plug into an outlet designed for the plug.
- Do not overload the circuit.
- Do not use long or thin extension cords. Never use adapters.
- If in doubt, call an electrician.

ALWAYS CHECK THE SERIAL PLATE FOR COMPONENT AMPERES.



NEMA L5-50P

⚠ WARNING

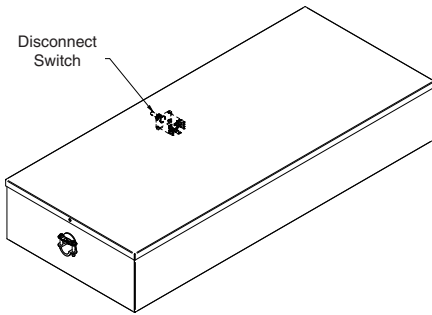
— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

MAIN DISCONNECT SWITCH

The DD5X5FRW cases are equipped with a main disconnect switch. The switch will interrupt power to the entire case. The switch is located in the electrical box on top of the case, right side when facing the back of the case. The switch is positioned towards the back of the case. The following image shows the disconnect switch.

THE DISCONNECT SWITCH MUST BE TURNED OFF BEFORE SERVICING THE MERCHANDISER(S).



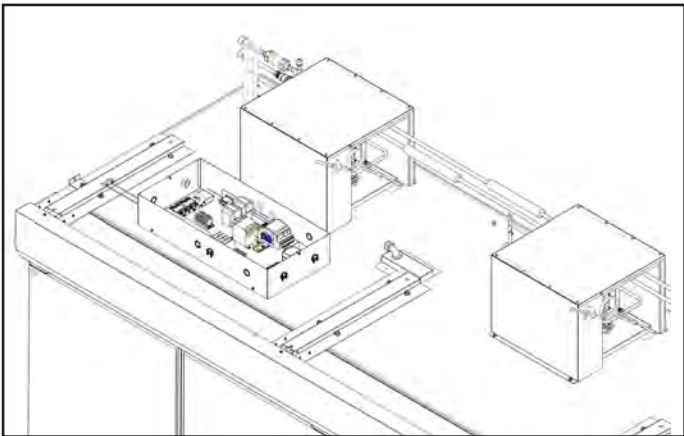
ATTENTION
INSTALLER

It is the installing contractor's responsibility to consult local agencies for local code requirements.

WARNING

*Merchandiser Must be grounded!
All wiring must be in compliance
with NEC and local codes.*

All the electrical connections are to be made in the electrical box, located on top of the case at the right side.



CASE ELECTRONIC CONTROLLER

**IMPORTANT!**

Disconnect electrical power before beginning any service on electrical or electronic equipment. **DO NOT** work around live electrical circuits. Make sure the case is switched off before working on electrical connections. All operations must be carried out by qualified personnel.

Check that the supply voltage is correct before connecting devices. Never use power that differs from that indicated in the manual. Power supplies other than those specified can seriously damage the refrigeration system or other components and parts.

Separate the cables of the analogue inputs from those of the digital input and the serial line cables from the power cables (resistive as well as inductive), in order to prevent malfunction due to electromagnetic interference.

All system components should be obtained from Hussmann to ensure system compatibility and reliability.

Make connections as short as possible, and do not wind them around electrically connected parts. When connecting loads, follow connection diagrams carefully.

Never connect the secondary of the supply transformer to the earth.

The low voltage connections must have reinforced insulation.

When using the digital inputs of the CoreLink Case Controller use another transformer in order to prevent the digital inputs from malfunctioning or being damaged.

To avoid causing static discharge, do not touch the electronic components on the boards.

DO NOT use the same secondary of the controllers power. Doing so can result in damage to case controller.

DO NOT exceed the maximum current capacity of the onboard controller relays. Always verify the capacity of the output used.

DO NOT plug in accessory devices that are not approved by Hussmann.

DO NOT exceed the maximum current capacity of the onboard controller relays.

Always verify the capacity of the output used.

DO NOT plug in accessory devices that are not approved by Hussmann.

GND is Common(-), not earth ground. Do not earth ground this device.

Permitted Use

- ▶ Food Display Merchandisers
- ▶ Coolers
- ▶ Self-Contained
- ▶ Remote Cases

Improper Use

- ▶ HVAC
- ▶ Unspecified Installation
- ▶ Deviation from established Legislation and Standards

Hussmann is not responsible for misuse or device. Hussmann is not held responsible for deviation from this manual and its intended use. If you have any questions, contact your Hussmann representative for details.

In case of failure or faulty operation, send the controller back to the distributor with a detailed description of the fault.

The controller should not be used for purposes different from those described in this manual. It cannot be used as a safety device.

CASE ELECTRONIC CONTROLLER

Roll-In self-contained R-290 cases are controlled by a CoreLink Electronic Controller, for refrigeration and defrost control and control of lights and fans. The controller is factory programmed with the required parameters to safely operate the merchandiser and maintain required product temperature. There is no need to make adjustments to the controller, however, it is recommended that the program be checked at startup. Refer to the display case data sheet for discharge air temperature, setpoint, defrost cycle and other information.



Control Operation

The case temperature is controlled by cycling the compressor ON and OFF based on the discharge air temperature. The case is divided into three control sections for 5-door cases. The discharge air temperature sensor is located above the honeycomb at the center of each control section. Compressors are cycled based on its own sensor TD control temperature. The second and third compressor has a 5-second delay at each startup to prevent excessive startup current. The discharge air temperature is set for 31°F.

There are two methods for accessing CoreLink: The wireless connection kit directly at the CoreLink hosted by Web UI on a connected smart device, or users can use Building Automated System (BAS) to change parameters from a single, central location. For explanation of wireless connection at the case, consult the CoreLink user manual under Web User Interface Section.

Defrost is time-initiated, and is programmed with the correct number of defrosts per day and the correct termination. DD5X5FRW cases have two 60-minute defrosts every 12 hours.

Additional Safeties

CoreLink incorporates additional safeties to protect the case from critical failures in an MDS installation. These safeties may, or may not be installed, depending on case model.

Following safeties protects the compressors in the event of water system failure or any other blockages in the heat exchanger.

Some or all of the safeties are enabled depending on the case model.

Compressor Discharge Temperature Safety

The controller will alarm and disable the compressor output until the temperature falls below threshold.

Compressor Pressure Safety Switch

The controller will disable compressor output when the pressure safety switch is activated. Compressor will resume operation when the safety switch is deactivated.

Compressor Run-time Safeties

Additional run-time safeties are incorporated to protect the compressor and MDS products.

HACCP (Hazard Analysis and Critical Control Points) Temperature Sensor

Controller has input for HACCP temperature reading to be reported out to system managers.
No control logic is active on this sensor.

Night Curtain

In the cases with motorized night curtain, output from CoreLink sends a signal to the motor to open/close the night curtains. This can be activated using a command at the controller or from a schedule in BAS system.

Available Expansion Modules
HSVD20 - Dual Valve Driver

Used for additional IO for Micro-Distributed Setups.

Application

The application will have the option to support up to three separate zones. To maintain case temperature, the application will use discharge air temperatures and safeties to manage cold operations.

Internal Web Server

The CoreLink case controller features a friendly user interface that can be accessed by web browser.

This Web UI can be accessed by in store network via windows computer or with a wireless link device that can be viewed by technician through smart devices.

Data Logging

The case control application has internal logging for each sensor along with critical operation data. Data is available for local download.

- 2-minute intervals
- 14-day capacity
- Advanced analytics; web user interface
- CSV format with 15 critical data points

Onboard data logging allows user to review performance data from the past week. User can see Min/Max/Average data along with saving data sets and importing data sets for view.

Factory Restore

The CoreLink application has a configuration file with the complete and optimized default case settings.

Anytime a user wants to default to factory settings they can simply access the user interface and force a factory reset.

Save / Load Feature

The CoreLink Case Controller is setup from the factory with a specific product configuration when a customer purchases a display case.

This specific configuration is hardcoded into the controller and is the factory default file. Also included are three user presets that a user can save or load custom configuration settings. These settings allow customers to make small tweaks in the field that can improve performance or target temperatures.

Standalone Operation

Controller is configured from the factory to run as a standalone controller. Field network integrations are done to provide additional capabilities to the controller. In case of network failure of BAS managing additional control functions, controller will default to its standalone settings and regulate display case until network connection is restored.

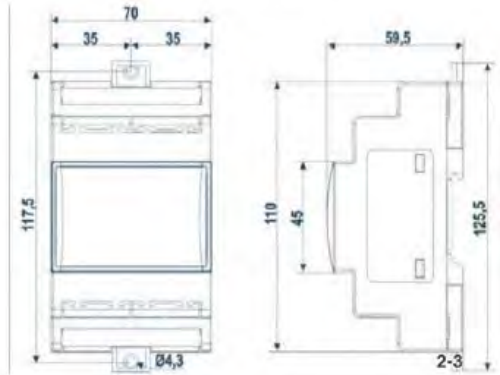
In case of network failure to building automation system managing case setpoints, the controller will default to program settings in internal memory and continue to regulate display case until network connection is restored.

Bios Version: 2017011600
 Web UI Version: 1.3.0
 Application Version: 2.0.0

4 DIN Devices



Controller Label



LED Indicators

Programming Sequence USB Flash Drive	
Yellow Status LED	Time
Flashing	10 secs
Illuminated Solid ON	2 min 10 secs
Flashing	25 secs
Dim	10 secs
Illuminated Solid ON	30 secs
Reboot	See Boot Sequence

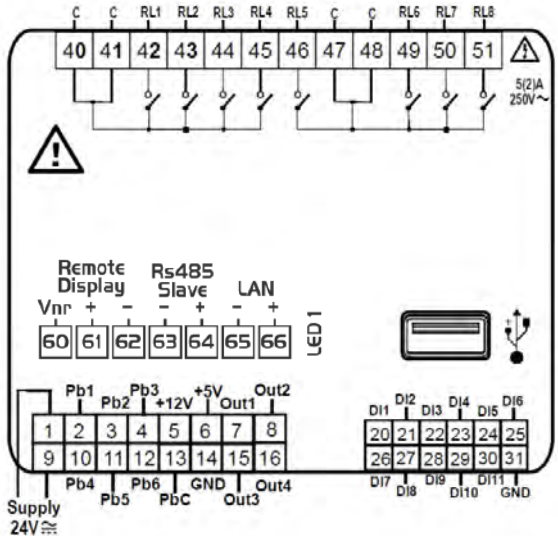
Boot Sequence	
Yellow Status LED	Time
Off	5 secs
Dim	10 secs
Illuminated Solid ON	30 secs
Blinking / Normal Operation	Indefinitely



Status Yellow LED
 Power Indicator Green LED





CoreLink Case Controller IO

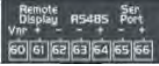
Output Relays



Digital Inputs

Connector	Description
	Connector for 24Vac/dc power supply Analogue inputs (Pb1 - Pb6), Pbc Additional Power (+5Vdc, +12Vdc, GND) Analogue outputs (Out1 - Out4, GND)
	24Vac/dc digital inputs (DI1 - DI11, GND) Note: Not a dry contact switch, power supply 24Vac or 24Vdc required to activate switch If using 24Vdc, pin 31 is GND
	Network Connector Hussmann Controller Display, maximum 1 terminal per CoreLink RS485 Slave connector Serial port (LAN or RS485)
	USB port for downloads (BIOS, application, configuration files, remote display applications network configurations, website) and uploads (log files) Connection with the computer via a USB-ETHERNET converter Connection with wireless connection kit
	Digital relay outputs 4 NO relays, 2 common Note: Pin 40,41 common to pins 42,43,44,45
	Digital relay outputs 4 NO relays, 2 common Note: Pin 47,48 common to pins 46,49,50,51

		Connector for 24Vac/dc power supply Analogue inputs (Pb1 - Pb6), Pbc Additional Power (+5Vdc, +12Vdc, GND) Analogue outputs (Out1 - Out4, GND)
Input No.	Type of Input	Description
1	Supply	Reference "-" /GND (24Vac or 24Vdc)
2	Pb1	Config analog input (NTC, PTC, 0 - 20mA, 4 - 20mA, 0 - 10V, 0 - 1V, 0 - 5V, DI, CPC, CPC High)
3	Pb2	Config analog input (NTC, PTC, 0 - 20mA, 4 - 20mA, 0 - 10V, 0 - 1V, 0 - 5V, DI, CPC, CPC High)
4	Pb3	Config analog input (NTC, PTC, 0 - 20mA, 4 - 20mA, 0 - 10V, 0 - 1V, 0 - 5V, DI, CPC, CPC High)
5	(+12V)	Additional power +12Vdc
6	(+5V)	Additional power +5Vdc
7	Out1	Analogue output (0 - 10V, 4 - 20mA, Relay)
8	Out2	Analogue output (0 - 10V, 4 - 20mA, Relay)
9	Supply	Reference "+" power supply (24Vac or 24Vdc)
10	Pb4	Config analog input (NTC, PTC, 0 - 20mA, 4 - 20mA, 0 - 10V, 0 - 1V, 0 - 5V, DI, CPC, CPC High)
11	Pb5	Config analog input (NTC, PTC, 0 - 20mA, 4 - 20mA, 0 - 10V, 0 - 1V, 0 - 5V, DI, CPC, CPC High)
12	Pb6	Config analog input (NTC, PTC, 0 - 20mA, 4 - 20mA, 0 - 10V, 0 - 1V, 0 - 5V, DI, CPC, CPC High)
13	Pbc	Common analogue inputs (NTC, PTC, DI, CPC, CPC High)
14	GND(-)	Additional power reference 5Vdc and 12Vdc, analogue inputs (0 - 20mA, 4 - 20mA, 0 - 10V, 0 - 1V, 0 - 5V), analogue outputs. Note: Pressure sensors GND reference terminate
15	Out3	Analogue output (0 - 10V, 4 - 20mA, Relay)
16	Out4	Analogue output (0 - 10V, 4 - 20mA, Relay)
		24Vac/dc digital inputs (DI1 - DI11, GND) Note: Not a dry contact switch, power supply 24Vac or 24Vdc required to activate switch If using 24Vdc, pin 31 is GND
20	DI1	Digital input 24Vac/dc
21	DI2	Digital input 24Vac/dc
22	DI3	Digital input 24Vac/dc
23	DI4	Digital input 24Vac/dc
24	DI5	Digital input 24Vac/dc
25	DI6	Digital input 24Vac/dc
26	DI7	Digital input 24Vac/dc
27	DI8	Digital input 24Vac/dc
28	DI9	Digital input 24Vac/dc
29	DI10	Digital input 24Vac/dc
30	DI11	Digital input 24Vac/dc
31	GND(-)	Reference "-" for digital inputs from 1 to 11 (Note: Dry Contacts N/A, Source Required)
		Digital relay outputs 4 NO relays, 2 common Note: Pin 40,41 common to pins 42,43,44,45
40	C	Common relays 1,2,3 and 4 (MAX 10A)
41	C	Common relays 1,2,3 and 4 (MAX 10A)
42	RL1	Relay normally open contact
43	RL2	Relay normally open contact
44	RL3	Relay normally open contact
45	RL4	Relay normally open contact
		Digital relay outputs 4 NO relays, 2 common Note: Pin 47,48 common to pins 46,49,50,51
46	RL5	Relay normally open contact
47	C	Common relays 1,2,3 and 4 (MAX 10A)
48	C	Common relays 1,2,3 and 4 (MAX 10A)
49	RL6	Relay normally open contact
50	RL7	Relay normally open contact
51	RL8	Relay normally open contact

		Network Connector Hussmann Controller Display, maximum 1 terminal per CoreLink RS485 Slave connector Serial port (LAN or RS485)
60	Remote Display	Connection for Hussmann Case Display remote terminal (Vnr)
61	Remote Display	Connection for Hussmann Case Display remote terminal (+)
62	Remote Display	Connection for Hussmann Case Display remote terminal (-)
63	RS485 Slave	RS485 Slave connection (-)
64	RS485 Slave	RS485 Slave connection (+)
65	LAN	LAN Connection (-)
66	LAN	LAN Connection (+)

First Power

The CoreLink case controller requires roughly 45 seconds to boot before any regulation will begin. At the end of the boot cycle you will probably notice the case lights will illuminate and cases equipped with night curtains will open to the default position.

Micro-Distributed Operation

The zones are controlled by a combination of Air Discharge sensors. These sensors are used to regulate refrigeration around Setpoint + Deadband. The average of those sensors will call compressors ON/OFF together. Additional time delays are incorporate to stage compressors.

Application

All parameters are accessible from the controllers website or BAS system. To review settings or make adjustments please refer to the connection methods listed in this manual.

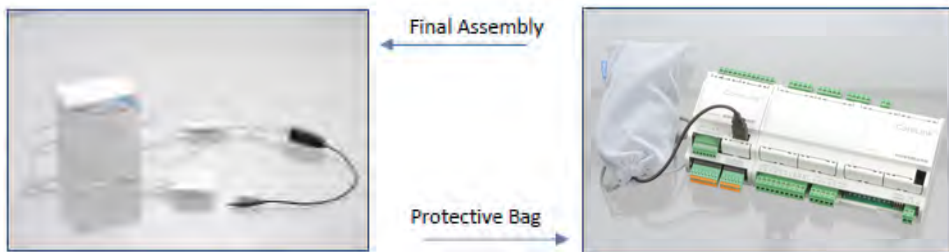
NO display is provided at the case unless opt.

Refrigeration

Users can find typical settings in the refrigeration menu of website. Case temp can be adjusted from here.

Defrost

CoreLink will manage defrost per its own defrost schedule or from external source such as BAS system for defrost coordination. Users can find typical settings in the defrost menu of website.



Connecting Device

1. Locate USB port at the case and connect the USB cable provided in the kit to the CoreLink controller.
 Note: Some cases require connection directly to the CoreLink controller and others might provide a dedicated remote mounted USB port or cable accessible from the top of the case.
2. After connecting the device allow time for the wireless router to establish connection with the case controller, about 30 seconds. The solid GREEN LED indicates a good connection.

LED Status

Solid – The router is connected to the case controller

Blinking – Router is disconnected from case controller

Note – LED might not be visible with the protective bag. If the device cannot be connected following through the next steps, rechecking the connection and ensuring the LED is turned on would be a first diagnostic step.



3. Using any of following devices, establish wireless connection to this CoreLink Wireless connection device

PC

Mobile devices

Tablets

Note – CoreLink UI is a browser based UI and can be supported on any device.

4. Select the wireless device in the network menu to Connect.
 - a. Router Device Name: **HSM_CORELINK_AP**
 - b. Router Password: **HussmannCL1234**
 - c. After successful connection proceed to next step...
 Note: SSID and password are case-sensitive. Refer device manual if needed assistance with establishing wire

- Open Browser on the connected device.

Note: CoreLink UI is supported on all the browsers and it has been tested with the following versions. Users can try with other browsers at their own discretion.

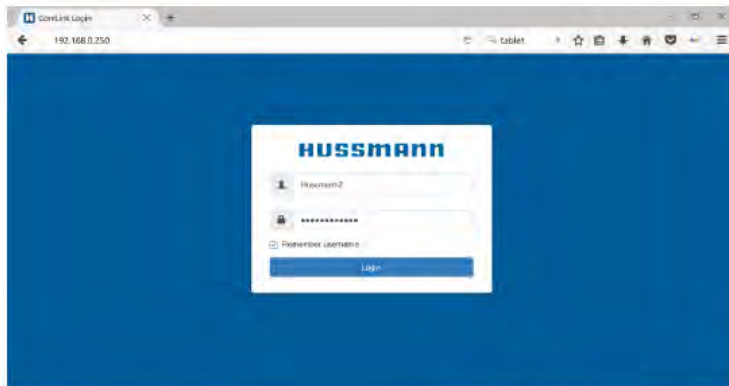
Google Chrome
 Mozilla Firefox
 Safari
 Internet Explorer 10 or higher
 Microsoft Edge



- Enter the following IP address into the browser Address Bar.



- CoreLink IP address is defaulted to 192.168.0.250. If the store installation is setup to use Ethernet port for additional communications, this address could be changed to a different address. Refer to store refrigeration network to identify the IP address. This Wireless connectivity might not connect to the CoreLink if CoreLink default settings are changed to connect store Ethernet or other Ethernet network connections.

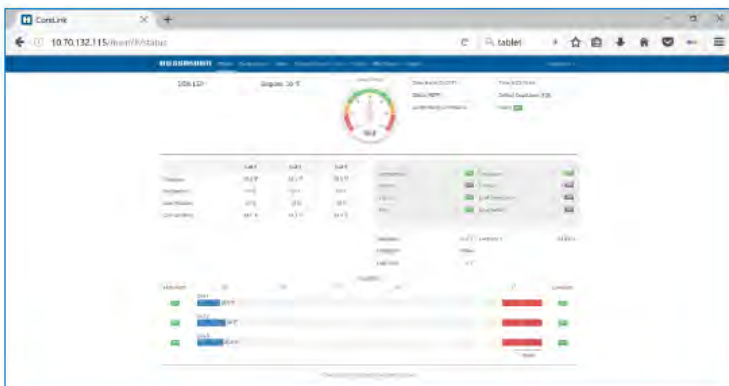


Level 1 Access – Store Level user

Level 2 Access – Technician

User Name: Hussmann1
 Password: Hussmann

User Name: Hussmann2
 Password: Corelink1234



CONTROLLER TROUBLESHOOTING

Issue	Trouble shooting steps
Not all data is visible	Try clearing your browser's cache. If there is an update of CoreLink SW revision, sometimes there is a need to clear the browser cache to have the complete data available. This will be provided in the revision log for future changes. If the Web UI has been revised you may need to clear your browser's cache in order for the Web UI to work correctly and see new updates. Try looking in Web UI history settings.
Cannot connect to controller Web UI is not being loaded	<p>Check the following steps</p> <ol style="list-style-type: none"> 1. Check the green LED on the Wireless device. 2. Check CoreLink is powered on .If the user forces a controller to reboot, allow at least 1 minute for the controller to restart and establish connection with the Wi-Fi router. Users will be unable to connect to the case controller until the controller is fully rebooted. 3. Ensure your device is connected to the Wireless settings provided above 4. Check signal strength - Signal Strength Low – Low signal strength can be caused by physical obstructions such as walls or objects. If you are receiving low signal strength, try to reposition yourself or the device to improve signal strength. <p>If ongoing problems continue, please contact your local IT personal or Hussmann Help Center</p>
Unable to login	User credentials are case-sensitive. If the controller continues to reject your user credentials, please check the spacing or Caps Lock button latched on. Remember previous point if controller is not fully rebooted.

Note – CoreLink Wireless UI Connectivity device Reset – Users should never reset the provided wireless device. Doing so will revert settings back to factory default and not allow connection to the CoreLink controller. If this happens please contact your local IT personal or Hussmann Help Center for correction details.



DANGER

Risk of fire or explosion. R-290 (propane) refrigerant is flammable, and the refrigeration system should be serviced or repaired only by trained service personnel. Do NOT puncture refrigerant tubing.

REFRIGERATION

Each DD5X5FRW self-contained case is equipped with its own compressor, one for every 4 ft. The refrigeration system is factory charged and sealed. Each case has one electronic controller.

These self contained merchandisers use R-290 (propane), refrigerant. All models have compressor(s). The systems employ capillary tubes for refrigerant flow control. If the capillary tube becomes plugged or damaged, replace the entire capillary tube. Refer to the case serial plate for refrigerant charge information. The following illustration shows the details of the refrigeration system.

CONDENSING UNIT ACCESS

Condensing units are located on top of the case. The condensing unit(s) have an electrical box for wire connections and field service. All the cases and condensing units' electrical connections are done at the factory.

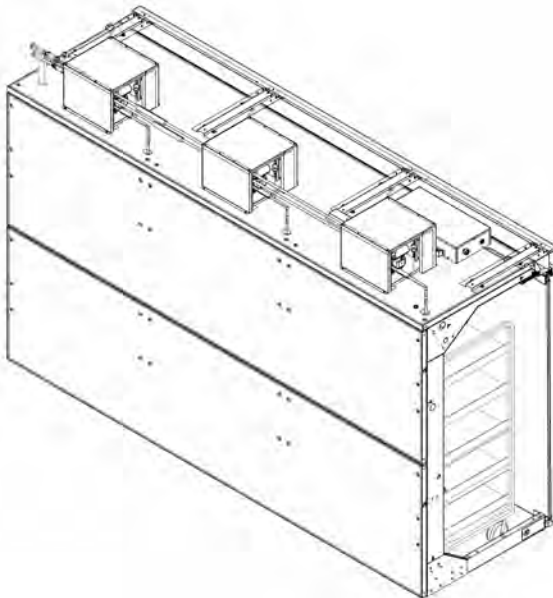
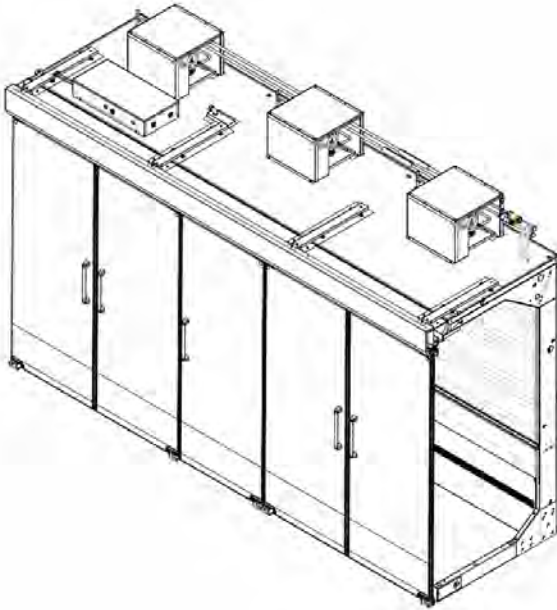
WARNING

**Attention trained service personnel:
Mandatory safety service procedures
must be followed when servicing
refrigeration system.**

WARNING

**Opening condensing unit electrical
box exposes personnel to electrical
hazard and should only be performed
by a qualified service technician.**

CONDENSING UNIT VIEWS



WATER - (For Condensers)

Water-cooled condensers are designed to operate with a water/propylene glycol solution, supplied at a temperature of 41°F to 118°F (7.2°C to 10°C). A minimum of 10 percent propylene glycol by weight is recommended. If water piping is run outdoors, 35 percent propylene glycol by weight will give burst protection, (not freeze protection), to approximately -40°F (-40°C). Regardless of the amount of propylene glycol, it must be ensured that the water loop has adequate corrosion inhibitors.

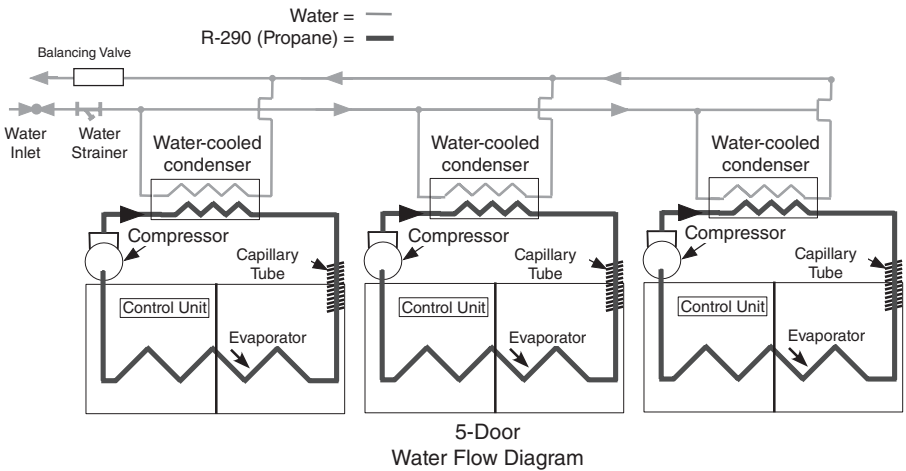
The inlet and outlet water connections are attached using a 3/4 inch adapter. Use clamps (not supplied) to tighten the hoses in place.

There are hand valves for system isolation located on the inlet and outlet water connections. The hand valves, hose adapter and their locations on the case are shown on the illustrations on the next page. Trapped air must be removed at high points of the water piping.

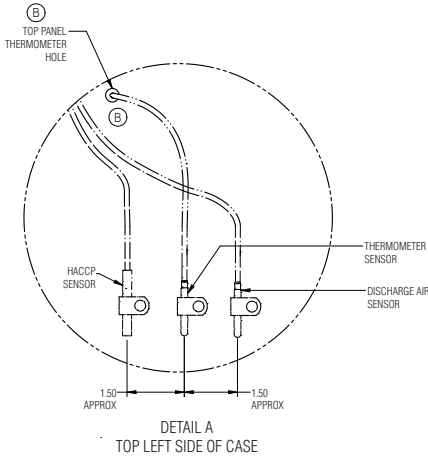
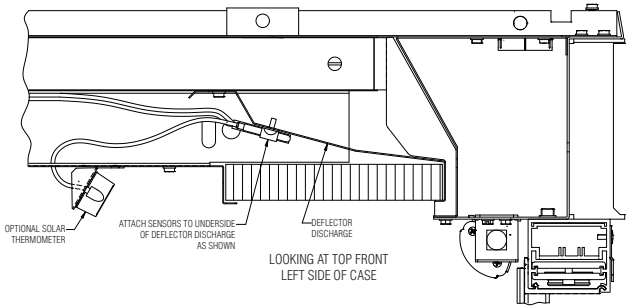
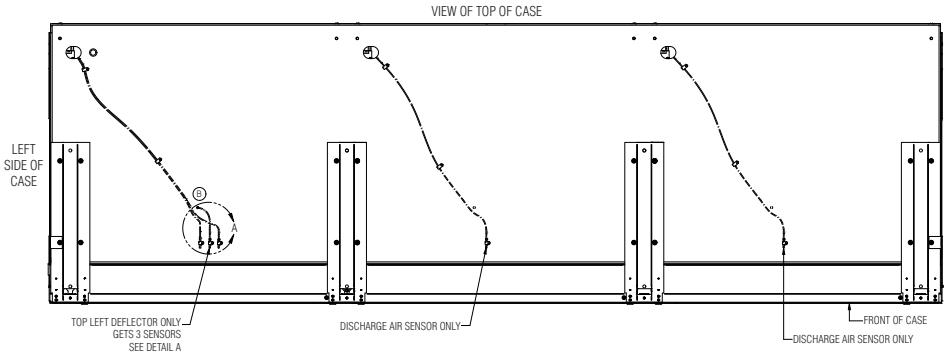
The water flow requirements for each case are:

5-Door: 4 Gallons per Minute (GPM)

Auto balance valves are provided.



Top Mounted Connections Water and Electrical



Hussmann recommends using DOWFROST™ inhibited propylene glycol.

Pre-diluted solutions (35% inhibited propylene glycol) of DOWFROST™ are available from Dow. The ingredients in DOWFROST™ have been approved by the FDA and are listed as chemically acceptable by USDA.

The Dow Chemical Company
Midland, MI 48674
1-800-447-4369
www.dow.com

Requirements on system fluid:

Pre-mixed 35% inhibited propylene glycol

Typical Fluid Properties

Solution Composition is 35% inhibited propylene glycol by weight

pH of Solution 8.0 – 10.0
Specific Gravity (at 60°F) 1.033
Viscosity (at 20°F) 14.2 cP
Boiling Point of Solution 217°F
Freezing Point of Solution 2°F
Refractive Index (at 72°F) 1.3733

System Balancing

Balancing may be required to provide adequate coolant flow to each circuit in order to maintain the required waterflow. Balancing is achieved through the setting of balance valves located throughout the system piping.

The installation contractor must consult and be familiar with the manufacturer's Material Safety Data Sheets (MSDS) before handling any secondary fluid. The MSDS contains proper disposal and safety methods.

Automatic Balancing Valves

Case may be equipped with automatic balancing valves. The case will maintain the correct flow rate. The cooling system pressure must be between 5 to 30 psig for proper operation of the automatic balancing valves.

PRE-INSTALLATION SYSTEM CLEANING

Dow recommends the new piping system be cleaned using a 1-2% solution of trisodium phosphate (TSP), or equivalent cleaner and distilled or deionized water to remove grease, mill scale, or other residues from construction.

Repeat this process if necessary until the drained solution is clear and free from visible debris. The system should then be drained and flushed again using distilled or deionized water.

Hussmann only recommends distilled or deionized water for system flushing with 2% TSP. Dry nitrogen can be used for the initial pressure test, (60 to 75 psi), hold for three hours.

NOTICE

Use only distilled or de-ionized water for flushing with 2 percent TSP. Use a pre-mixed inhibited glycol solution. If the mixing is to be done on site, use only distilled or de-ionized water. Do not use tap water.

DRIP PIPING

WASTE OUTLET AND WATER SEAL

The waste outlet location. Drip piping is located behind the bottom cover and runs parallel to the merchandiser (see Data Sheet for exact locations).


INSTALLING DRIP PIPING

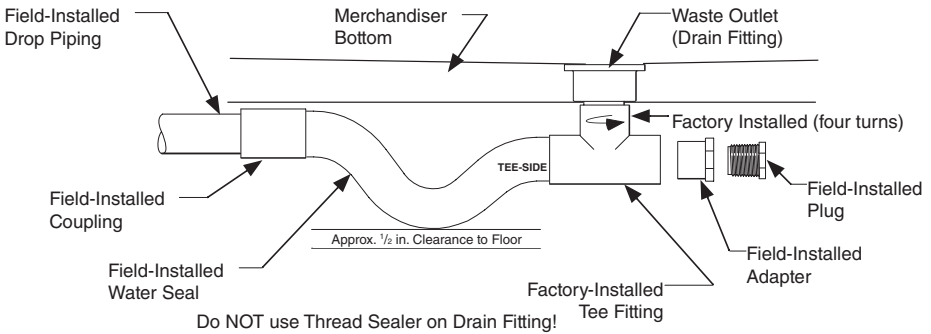
Poorly or improperly installed drip pipes can seriously interfere with the merchandiser's operation and result in costly maintenance and product losses. Please follow the recommendations listed below when installing drip pipes to ensure proper installation.

- Never use drip piping smaller than the nominal diameter of the pipe or water seal supplied with the merchandiser.
- When connecting drip piping, the water seal must be used as part of the drip piping to prevent air leakage or insect entrance. Never use two water seals in series in any one drip pipe. **DOUBLE WATER SEALS IN SERIES WILL CAUSE AN AIR LOCK AND PREVENT DRAINING.**
- Pitch the drip piping in the direction of flow. There should be a minimum pitch of $1/4$ in. per ft (20 mm per 1 m).
- Avoid long runs of drip piping. Long runs make it impossible to provide the pitch necessary for good drainage.

CAUTION

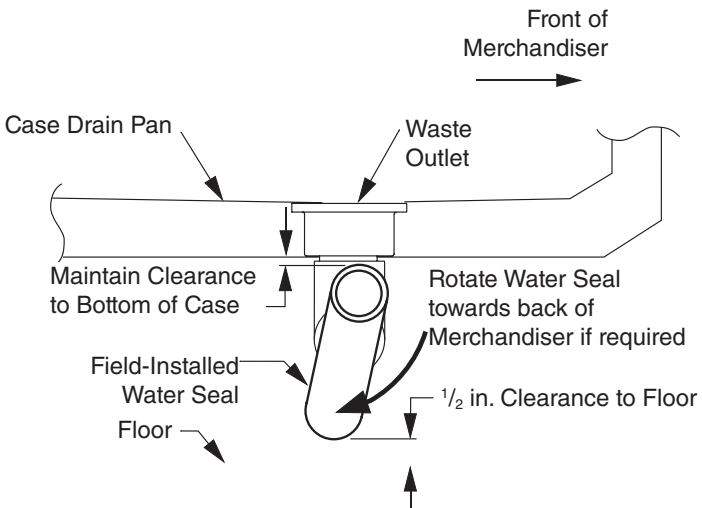
Splashguard brackets MUST be installed before piping merchandiser.
(See Page 1-3)

- Provide a suitable air break between flood rim of the floor drain and outlet of drip pipe. To meet code on low base merchandisers, it may be necessary to install a field-supplied drip pipe reducer. An alternative is to cut the last section of drip pipe at an angle.
 
- Prevent drip pipes from freezing sweating or freezing:
 - A. Do NOT install drip pipes in contact with uninsulated suction lines. Suction lines should be insulated with a non-absorbent insulation material.
 - B. Where drip pipes are located in dead air spaces, such as between merchandisers or between a merchandiser and a store wall, provide means to prevent drip pipe from sweating. External ventilation fans may be required to prevent sweating.



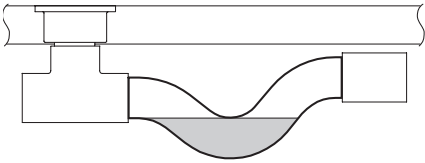
1. Tee is factory-installed. Do not overtighten threads, or the drain fitting or tee may become damaged.
2. Do NOT use thread sealer on ABS drain fitting. If sealer is used the ABS drain fitting may crack or leak! (If a tee needs to be installed it should be tightened no more than 4 turns.) Do not overtighten threads.
3. Dry fit the supplied water seal / trap to ensure approximately 1/2 in. of clearance from the bottom of the trap to the floor as shown.

NOTE: It may be necessary to rotate water seal (trap) inside the tee a few degrees to ensure clearance at two locations. There must be clearance 1) between the bottom of the water seal and the floor, and 2) between the top of the water seal outlet and the bottom of the merchandiser. Do not over-rotate or gravity seal may be compromised. Always rotate trap bottom toward merchandiser support rail.

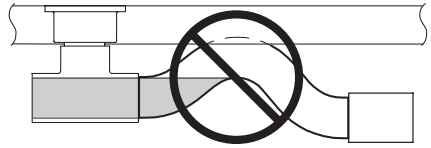


4. Install remaining PVC drain parts using recommended PVC cleaner, primer and cement per manufacturer's recommendations.
5. Thread plug into the adapter until snug but not to exceed four full rotations.
6. Installed drip piping may require additional support depending on the number and location of the hub floor drains. The installer should always provide adequate support to all drip piping arrangements to prevent excess stress on all drip piping components. The installer must provide additional support when "evac" type waste water systems are applied.

It is the installing contractor's responsibility to consult local agencies for local code requirements.



**Water Seal
Correct**



**Water Seal
NOT Correct**

NOTES:

START UP / OPERATION

If a leak is detected, follow store safety procedures. It is the store's responsibility to have a written safety procedures in place. The safety procedure must comply with all applicable codes such as local fire department's codes.

At minimum, the following actions are required:

- Immediately evacuate all persons from the store, and contact the local fire department to advise them that a propane leak has occurred.
- Call Hussmann and/or a qualified service agent and inform them that a propane sensor has detected the presence of propane.
- Do not let any persons back into the store until the qualified service technician has arrived and that technician advises that it is safe to return to the store.
- The propane gas used in the unit has no odor. The lack of smell does not indicate a lack of escaped gas.
- A hand-held propane leak detector ("sniffer") should be used before any repair and/or maintenance is attempted. All repair parts must be identical models to the ones they are replacing.
- No open flames, cigarettes or other possible sources of ignition should be used inside the building where the units are located until the qualified service technician and/or local fire department determines that all propane has been cleared from the area and from the refrigeration systems.

**DANGER**

Due to risk of ignition resulting from incorrect parts or improper service, only Hussmann authorized personnel may service this equipment. Component parts shall be replaced only with exact manufacturer and model number components. FAILURE TO USE AUTHORIZED TECHNICIANS COULD RESULT IN AN EXPLOSION, DEATH, INJURY AND PROPERTY DAMAGE.

12 HOURS AFTER STARTUP CHECKLIST

- Check case temperature.
- Check if there is any CoreLink alarm.
- Check water connections for leaks or accumulation of water.
- Verify the fans are running.
- Check compressor's amperage, and validate with the information on serial plate.
- Check the door operation again to ensure doors open and close properly once the case is down to operating temperature.
- Check that all inspection plates and covers have been properly replaced.
- Inspect for any water accumulation due to incorrect or unsealed penetrations where electrical or other lines pass through insulated walls of the case.
- Verify that the lights are "ON". If lights are "OFF", check the illumination schedule and circuit breaker for the lights.
- Check the water outlet temperature from each condensing unit. Water outlet temperature should be less than 10° above water inlet temperature.

**WARNING**

Possible hazardous condition. Follow safety procedures outlined by store safety management.

Prior to Start-up Check List

- Is the case connected to its proper nameplate power supply?
- Is there power on at the breaker panel?
- Is the cooling water system on and circulating water through the condenser(s)?
- Are there any leaks from condenser water connections? Clamps may need to be tightened.
- Are the doors properly leveled and self closing? Check each door at the fully open position and at 1-inch open position.
- Do evaporator fans rotate freely? Are they plugged in? (Fans are behind interior back panel; manually rotate each fan to confirm free rotation and visually inspect that they are plugged into the receptacles.)

Starting up the case

- Ensure the water flow is on, and turn the disconnect switch to the ON position.

The case(s) will start automatically within 4 minutes. The controller will be activated and the case will begin to cool down.

NOTE: Compressor startups are staggered to prevent high electrical circuit demand.

Once the cases are running, listen for any unusual sounds or events. Examples include: evaporator fan blade interference. Compressors should run continuously at startup. Use an amperage meter to check the current to each compressor.



WARNING

Possible hazardous condition. Follow safety procedures outlined by store safety management.

CHECK each fan to ensure it is running. The discharge air output at the top inside front of the case (honeycomb area) should be relatively even across the length of the case. VERIFY there are no leaks at connections for the condenser water.

STARTUP AND OPERATION

See the merchandiser's Technical Data Sheet for refrigerant settings and defrost requirements. Bring merchandisers down to the operating temperatures listed on the data sheet.

Excessive ambient conditions may cause condensation and therefore sweating of doors. Facility operators should monitor doors and floor conditions to ensure safety of persons.

STOCKING

Product should NOT be placed in merchandisers until all refrigeration controls have been adjusted and merchandisers are at proper operating temperature.

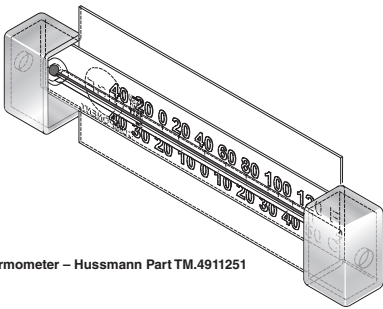
Proper rotation of product during stocking is necessary to prevent product loss. Always bring the oldest product to the front and set the newest to the back.

AIR DISCHARGE AND RETURN FLUES MUST REMAIN OPEN AND FREE OF OBSTRUCTION AT ALL TIMES to provide proper refrigeration and air curtain performance. Do not allow product, packages, signs, etc. to block these grilles. Do not prop doors open while stocking. And keep the doors closed as much as possible to prevent coil frosting and high merchandiser temperature.

INSTALLING FDA/NSF REQUIRED THERMOMETER

The following pages provide the same information that ships with the thermometer. This requirement does not apply to display refrigerators intended for bulk produce (refer to Page 1-1). Please note that the tape cannot be exposed after installation.

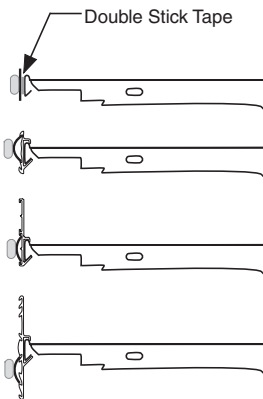
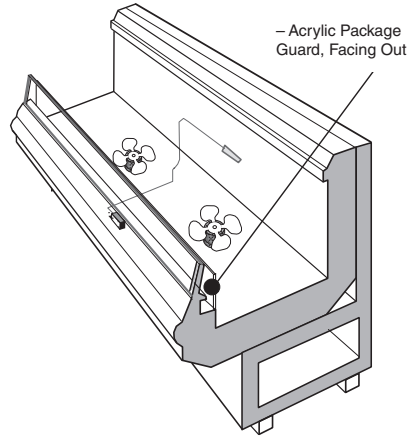
This is an NSF-7 & US FDA Food Code Required Thermometer



Thermometer – Hussmann Part TM.4911251

Hussmann Corporation • 12999 St. Charles Rock Road • Bridgeton, MO 63044-2483 U.S. & Canada
1-800-922-1919 • Mexico 1-800-890-2900E • www.hussmann.com
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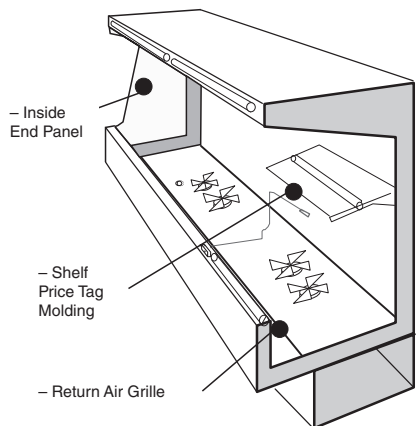
Suggested Mounting Locations in Single Deck Glass Front Impact Merchandisers



Flexible Plastic Fits in Price Tag Moldings

Hussmann P/N 0429971_C

10/2007



Suggested Mounting Locations in Multi-deck Merchandisers

Important – Please read!

This thermometer is provided in response to United States Food and Drug Administration (US FDA) Food Code [<http://www.fda.gov/>] and National Sanitation Foundation (NSF / ANSI) Standard 7 [<http://www.nsf.org/>]

Each installation will be different depending on how the unit is stocked, shopping patterns in the department and ambient conditions of the store. The suggested locations provided herein are possible locations. It is the responsibility of the purchaser / user to determine the location within the food storage area of the unit that best meets the code requirements above.

The thermometer may need to be moved several times to find the warmest location. Mounting options include flexible plastic for price tag molding application, magnet applied to back of flexible plastic for steel end wall, and double stick tape. Tape must not be exposed after installation.

Questions about either code should be addressed to local agencies or other appropriate officials.

Keep with merchandiser

or give to store manager.

DO NOT DESTROY.

MAINTENANCE

CARE AND CLEANING

Long life and satisfactory performance of any equipment is dependent upon the care it receives. To ensure long life, proper sanitation and minimum maintenance costs, these merchandisers should be thoroughly cleaned, all debris removed and the interiors washed down, weekly.

Fan Plenum

The fan plenum is located behind the interior back panels. Remove the back panels to get access to the fans.



Glass Doors

Wipe inside of glass with isopropyl alcohol and a soft cloth. Allow surface to dry before closing door. Use of other cleaners or abrasives may damage the surface, and/or void the warranty. Refer to manual that ships with doors.



Interior Surfaces

The interior surfaces may be cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions with no harm to the surface.

Exterior Surfaces

The exterior surfaces should be cleaned with a mild detergent and warm water to protect and maintain their attractive finish. **NEVER USE ABRASIVE CLEANSERS OR SCOURING PADS.**

Do NOT Use:

- Abrasive cleansers and scouring pads, as these will mar the finish.
- Coarse paper towels on coated glass.
- Ammonia-based cleaners on acrylic parts.
- Solvent, oil or acidic based cleaners on any interior surfaces.

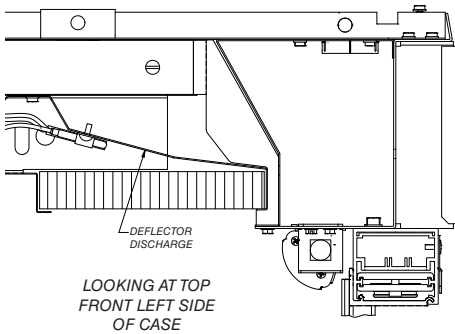
Do Use:

- Remove the product and all loose debris to avoid clogging the waste outlet.
- Store product in a refrigerated area such as a freezer. Remove only as much product as can be taken to the freezer in a timely manner.
- **First turn off refrigeration, then disconnect electrical power.**
- Thoroughly clean all surfaces with soap and hot water. **DO NOT USE STEAM OR HIGH WATER PRESSURE HOSES TO WASH THE INTERIOR. THESE WILL DESTROY THE MERCHANDISERS' SEALING CAUSING LEAKS AND POOR PERFORMANCE.**
- The fan plenum is located behind the interior back panels. The plenum should be cleaned regularly according to store environment conditions.
- Take care to minimize direct contact between fan motors and cleaning or rinse water.
- Rinse with hot water, but do NOT flood. **NEVER INTRODUCE WATER FASTER THAN THE WASTE OUTLET CAN REMOVE IT.**
- Allow merchandisers to dry before resuming operation.
- After cleaning is completed, turn on power and refrigerant to the merchandiser.
- Verify that merchandiser is working properly.

CLEANING HONEYCOMB ASSEMBLIES

Honeycombs should be cleaned every six months. Dirty honeycombs will cause merchandisers to perform poorly. The honeycombs may be cleaned with a vacuum cleaner. Soap and water may be used if all water is removed from the honeycomb cells before reassembling. Be careful not to damage the honeycombs.

1. Pull the honeycomb assembly out of the interior top panel to remove it.
2. Clean and dry the honeycomb.
3. After cleaning, reassemble in reverse order of removal.



CLEANING STAINLESS STEEL SURFACES

Use non-abrasive cleaning materials, and always polish with grain of the steel. Use warm water or add a mild detergent to the water and apply with a cloth. Always wipe rails dry after wetting.

Use alkaline chlorinated or non-chlorine containing cleaners such as window cleaners and mild detergents. Do not use cleaners containing salts as this may cause pitting and rusting of the stainless steel finish. Do not use bleach.

WARNING

Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

Clean frequently to avoid build-up of hard, stubborn stains. A stainless steel cleaning solution may be used periodically to minimize scratching and remove stains. Rinse and wipe dry immediately after cleaning. Never use hydrochloric acid (muriatic acid) on stainless steel.

CLEANING COILS

NEVER USE SHARP OBJECTS AROUND COILS.
Use a soft brush or vacuum brush to clean debris from coils.

Do not puncture coils!

Do not bend fins. Contact an authorized service technician if a coil is punctured, cracked, or otherwise damaged.

Do NOT use chlorine or ammonia-based cleaners to clean aluminum coils.

ICE in or on the coil indicates the refrigeration and defrost cycle is not operating properly. Contact an authorized service technician to determine the cause of icing, and to make adjustments as necessary. To maintain product integrity, move all product to a cooler until the unit has returned to normal operating temperatures.

WARNING

Do NOT allow cleaning agent or cloth to contact food product.

SERVICE

Before Beginning Any Service or Repair:

Use a hand-held propane leak detector (“sniffer”) to ensure no propane is present in the immediate area, the inside of the display case and the inside of the refrigeration system.

Keep the area clear of all customers and non-essential or unauthorized personnel.

Verify that all repair parts are identical models to the ones they are replacing. Failure to do so can result in an explosion, death, injury and property damage.

Brazing must not begin before all propane has been cleared from the immediate area, the inside of the displays case and the inside of the refrigeration system.

If a leak is detected, follow store safety procedures.

It is the store’s responsibility to have a written safety procedure in place. The safety procedure must comply with all applicable codes such as local fire department’s codes.

At minimum, the following actions are required:

- Immediately evacuate all persons from the store, and contact the local fire department to advise them that a propane leak has occurred.
- Call Hussmann and/or a qualified service agent and inform them that a propane sensor has detected the presence of propane.
- Do not let any persons back into the store until the local fire department advises that it is safe to return to the store.



WARNING

Only Hussmann or factory trained technicians should service or repair this R-290 (propane) equipment.

Failure to follow instructions can result in an explosion, death, injury and property damage.

- The propane gas used in the unit has no odor. The lack of smell does not indicate a lack of escaped gas.
- A hand-held propane leak detector (“sniffer”) should be used before any repair and/or maintenance is attempted. All repair parts must be identical models to the ones they are replacing.
- No open flames, cigarettes or other possible sources of ignition should be used inside the building where the units are located until the qualified service technician and/or local fire department determines that all propane has been cleared from the area and from the refrigeration systems.



WARNING

— LOCK OUT / TAG OUT —

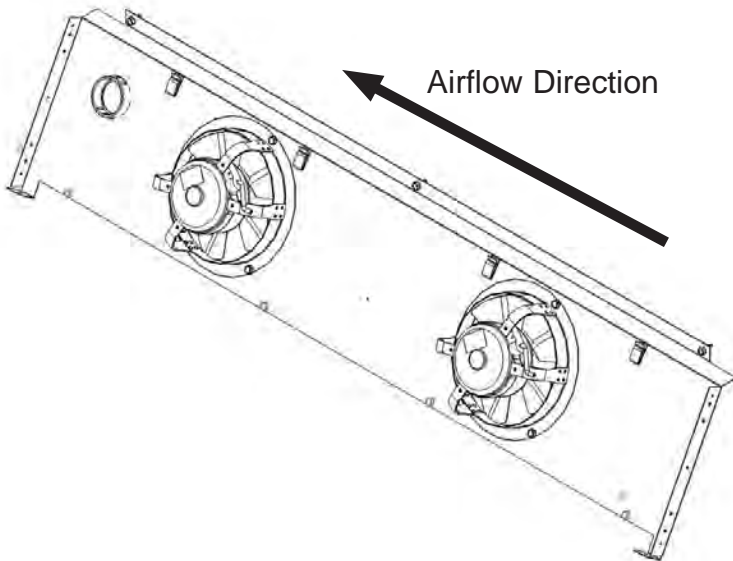
To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

REPLACING FAN MOTORS AND BLADES

See cross section for location of evaporator fans. Should it ever be necessary to service or replace the fan motors or blades be certain that the fan blades are re-installed correctly.

For access to these fans:

1. Turn off power.
2. Remove interior top and back panels.
3. Disconnect fan from wiring harness.
4. Remove screws holding fan motor/bracket assembly to plenum and remove assembly.
5. Replace fan motor/bracket assembly and reinstall screws.
6. Reconnect fan to wiring harness.
7. Turn on power.
8. Verify that motor is working and blade is turning in the correct direction.
9. Replace interior top and back panels. Bring merchandiser to operating temperature before restocking.

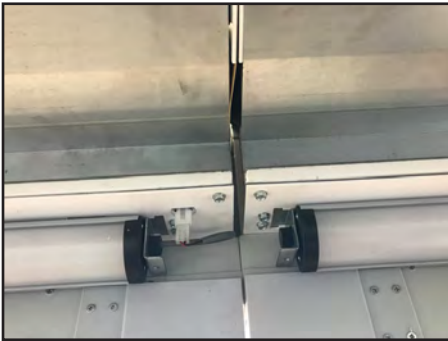


REPLACING DOOR OR DOOR FRAME PARTS

Parts for Reach-in doors and door frame assemblies must be ordered direct from the door manufacturer. This includes the glass doors, door frame assemblies, LED lighting, hold open slides, and power cords.

Refer to specific warranty supplied with the door. The manufacturers have a warranty against moisture penetration, a warranty against tempered glass breakage, and a warranty on power supplies. Lamps are not covered by Hussmann or the door manufacturer.

Replace LED fixtures with like fixtures.



REPAIRING ALUMINUM COIL

The aluminum coils used in Hussmann merchandisers may be easily repaired in the field. Materials are available from local refrigeration wholesalers.

Hussmann recommends the following solders and technique:

Solders

Aladdin Welding Products Inc.

P.O. Box 7188

1300 Burton St.

Grand Rapids, MI 49507

Phone: 1-800-645-3413

Fax: 1-800-645-3414

X-Ergon

1570 E. Northgate

P.O. Box 2102

Irving, TX 75062

Phone: 1-800-527-9916

NOTE:

Hussmann Aluminum melts at 1125°F (607°C)

Aladdin 3-in-1 rod at 732°F (389°C)

X-Ergon Acid core at 455°F (235°C)

Technique:

1. Locate Leak.
2. REMOVE ALL PRESSURE.
3. Brush area UNDER HEAT.
4. Use PRESTOLITE TORCH ONLY.
Number 6 tip.
5. Maintain separate set of stainless steel brushes and USE ONLY ON ALUMINUM.
6. Tin surface around area.
7. Brush tinned surface UNDER HEAT,
thoroughly filling the open pores around leak.
8. Repair leak. Let aluminum melt solder,
NOT the torch.
9. Don't repair for looks. Go for thickness.
10. Perform a leak check.
11. Wash with water.
12. Cover with a good flexible sealant.



HUSSmann®

**To obtain warranty information
or other support, contact your
Hussmann representative.
Please include the model and
serial number of the product.**

Hussmann Corporation, Corporate Headquarters: Bridgeton, Missouri, U.S.A. 63044-2483 01 October 2012

