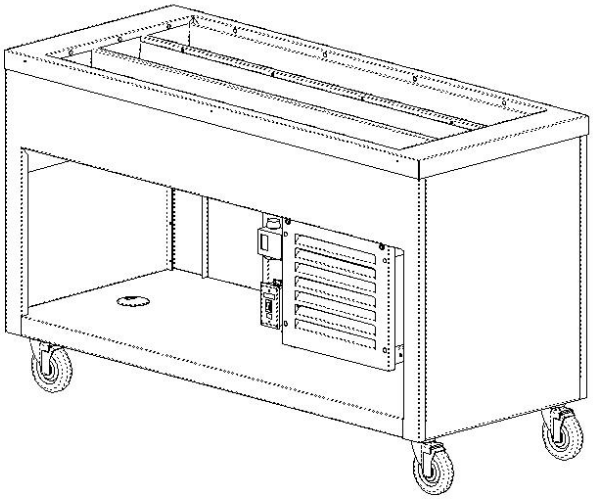
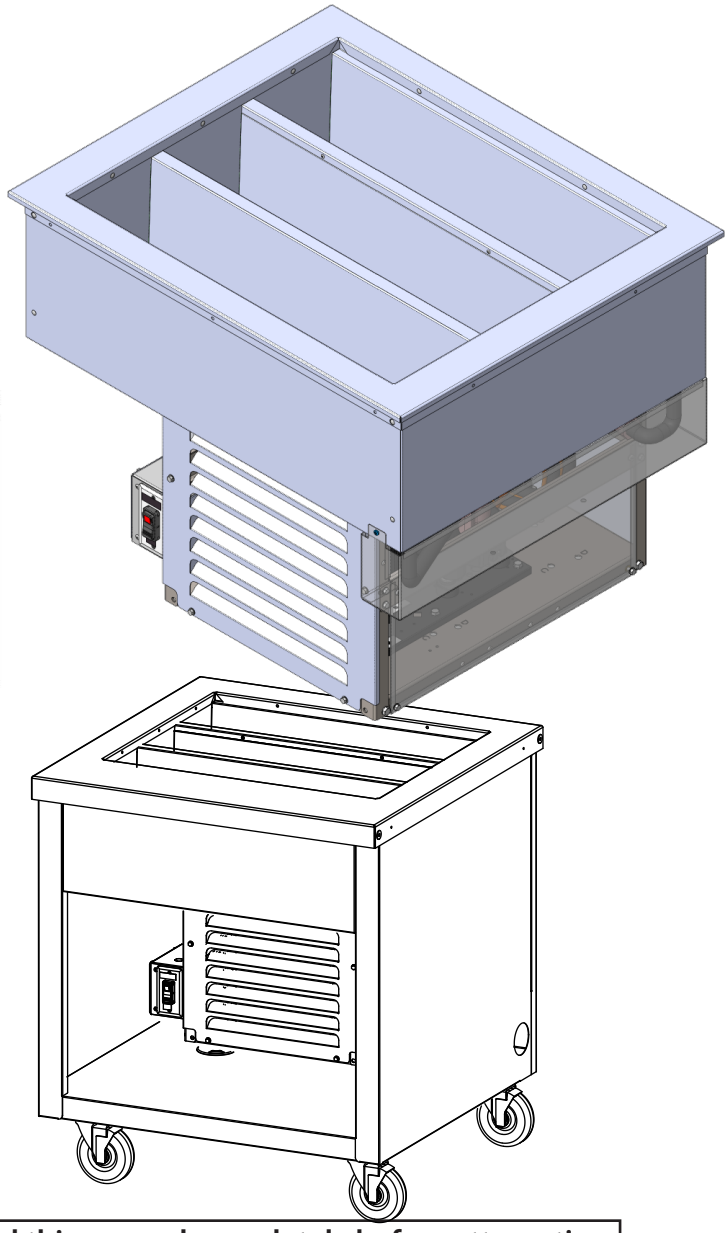
Your Solutions Partner

Installation and Operation Manual

R290 Tri-Channel - NSF7 - General Market

- Tri-Channel - Drop In
- Tri-Channel - AeroServ
- Tri-Channel - Thurmaduke





CAUTION: **Please read this manual completely before attempting to install, operate or service this equipment**

WARNING for CA residents: go to www.dukemfg.com/prop65 for prop 65 warning

P/N 529387
REV A 12/05/2024

TABLE OF CONTENTS

Important Safety Instructions 2
Specifications 4
Installation 6
Operation 11
Cleaning Instructions 12
Preventive Maintenance 12

IMPORTANT SAFETY INSTRUCTIONS

Throughout this manual, you will find the following safety words and symbols that signify important safety issues with regards to operating or maintaining the equipment.

WARNING — **Indicates a hazardous situation which, if not avoided, could result in death or serious injury.**

CAUTION — **Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.**

CAUTION — **Indicates Important Information**

 **Indicates electrical shock hazard which, if not avoided, could result in death or serious injury and/or equipment damage.**

 **Indicates hot surface which, if not avoided, could result in minor or moderate injury.**

 **Indicates risk of fire or explosion. Flammable refrigerant used which, if not avoided, could result in death or serious injury.**

CAUTION — **Electrical shock hazard. Do not wash with water jet or hose.**

In addition to the warnings and cautions in this manual, use the following guidelines for safe operation of the unit.

- Read all instructions before using equipment.
- For your safety, the equipment is furnished with a properly grounded cord connector. Do not attempt to remove or disconnect the grounded connector.
- Install or locate the equipment only for its intended use as described in this manual.
- Do not use corrosive chemicals on this equipment.
- Do not operate this equipment if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.
- This equipment should be serviced by qualified personnel only. Contact the nearest Duke authorized service facility for adjustment or repair.
- Do not block or cover any openings on the unit.
- Do not immerse cord or plug in water.
- Keep cord away from heated surfaces.
- Do not allow cord to hang over edge of table or counter.

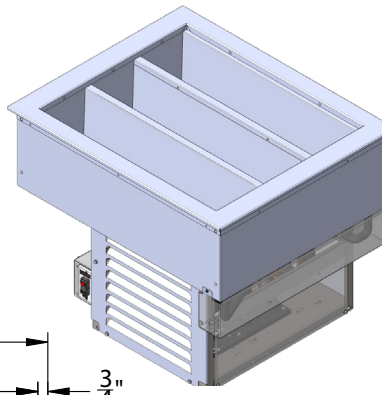
The following warnings and cautions appear throughout this manual and should be carefully observed.

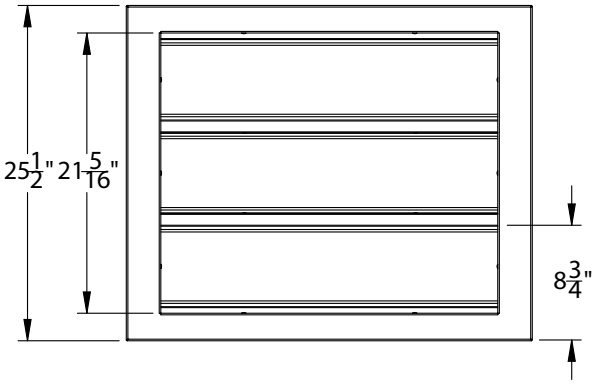
- Turn the unit off, disconnect the power source and allow unit to cool down before performing any service or maintenance on the unit.
- The procedures in this manual may include the use of chemical products. You must read the Material Safety Data Sheets before using any of these products.
- The unit should be grounded according to local electrical codes to prevent the possibility of electrical shock. It requires a grounded receptacle with dedicated electrical lines, protected by fuses or circuit breaker of the proper rating, in accordance with all applicable regulations.
- Disposal of the unit must be in accordance with local environmental codes and/or any other applicable codes.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

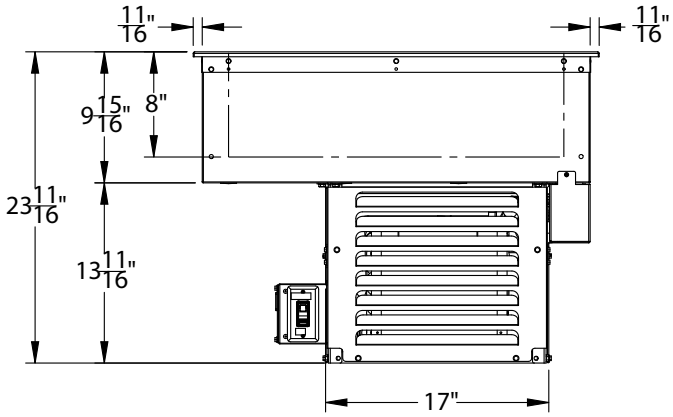
Do Not store explosive substances such as aerosol cans with a flammable propellant in this appliance.

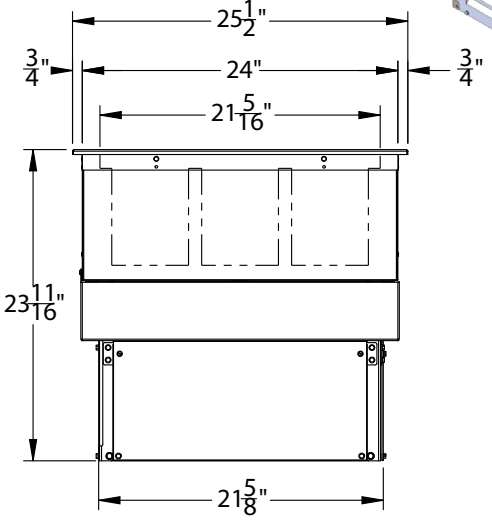
Do not drop or jar this unit as it contains a flammable refrigerant that could be released if the braised connections are damaged.

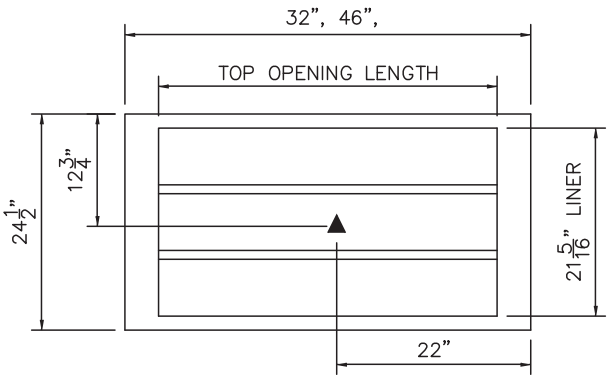
SPECIFICATIONS



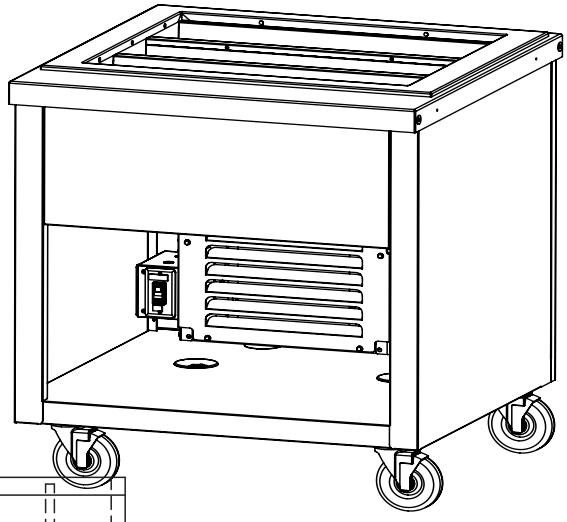


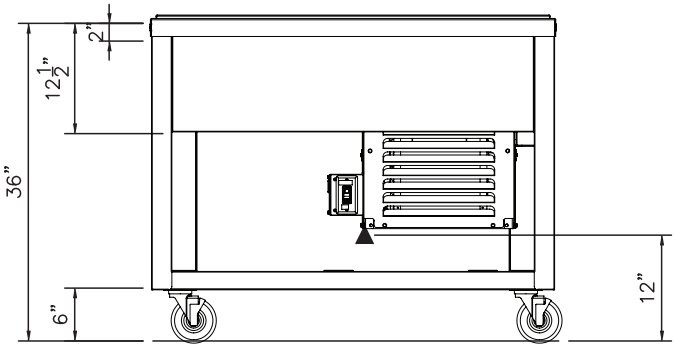


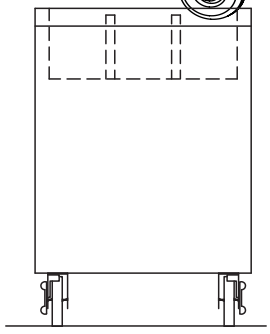




TOP VIEW







LEGEND
▲ ELECTRICAL CONNECTION

FRONT VIEW

RIGHT SIDE VIEW

SPECIFICATIONS

ELECTRICAL SPECIFICATIONS: 120V, 1P, 60Hz

DIMENSIONS:

Model	Description	AMPS	Refrig. R290	Top Length	Top Depth	Top Opening	Cutout-Length,	Cutout Depth
			Grams	in	in	in	in	in
ADI-1M-TC-P	Drop-in 1-Section	3.2	80	16.625	24.0	12.875	15.625	24.625
ADI-2M-TC-P	Drop-in 2-Section	3.2	90	29.375	24.0	25.625	28.375	24.625
372-25*-TC-P	Aero Serve 2-Sec.	3.2	90	32.125	24.625	25.625	31.875	24.375
TCM-32*-TC-P	Thurmaduke 2-Sec.	3.2	90	32.125	32.0	25.625	31.875	29.875

*** - SS for stainless steel body or PG for painted body**

Note:

1. **Shelves that are installed over the 1- and 2-Section Drop-Ins will be one size larger than the drop-in.**
2. **Drains are not available on Tri-Channel models.**

INSTALLATION

⚠ DANGER

EXPLOSION HAZARD:

• Do NOT puncture refrigerant tubing. Use extreme caution and follow all local/regional codes for transportation or relocation of hydrocarbon equipment.

This unit uses R290 flammable refrigerant. Follow handling instructions carefully in compliance with US and/or Canadian government regulations.

This unit must be installed in an isolated cabinet with a partition when necessary.

Keep all ventilation openings clear of obstructions at all times.

Do NOT use electrical appliances inside of the food storage compartments or inside the cabinet under the unit.

Do NOT use mechanical devices or any other means to accelerate the defrosting process.

1. Cut the appropriate opening in the countertop for the unit being installed. Refer to "Countertop Cutout Dimensions" in this section.
2. Cut opening in the cabinet for intake vent.
   a. The cutout must be 100% of the condenser coil size.
3. Cut opening in the cabinet for exhaust vent.
   a. The opening for the exhaust must be cut no more than 1" (25 mm) from cabinet floor.
   b. The opening should be a minimum of 150% of the intake area
   c. The opening for the exhaust must be located on the opposite side of the condensing unit.

Survey the installation site

Take into account the need for louvered or grill-style openings in the cabinetry to provide proper ventilation for the unit as well as access to the control panel.

One of these ventilation openings must be in front of the condensing coils with the other on the opposite side of the condensing coils. If multiple refrigerated wells are installed in the same counter, each unit must intake cool air and expel hot air. The user side of the cabinet can be fully open or the cabinet may be enclosed on all four sides. The condensing unit/ condenser mechanical assembly must be isolated from GFCI outlets, adjacent appliances and other electronic devices not supplied with the original appliance using full partitions.

Partitions must fully extend from the back of the unit to the front user side and from the bottom base shelf to the bottom of the counter top.

The cabinet must be designed to allow access for ventilation of 100% intake area and a minimum of 150% exhaust area, control access, and maintenance/cleaning access.

INSTALLATION

⚠WARNING

- Cabinet design may be fully enclosed as show in installation figure A, or in a cabinet with the user side open as shown in figure B.
- Unit must be isolated using a full partition within the cabinet between all other appliances and electrical devices
- If a GFCI is to be installed in any cabinet configuration, a full partition is required to isolate it from the condenser coil assembly. In addition to isolating the GFCI.
- Convenience Outlets – are prohibited and cannot be used with R290 models.
- **DO NOT** use installation cabinet for storage of any items. Cabinet must be used only to keep condensing unit isolated from all other objects.

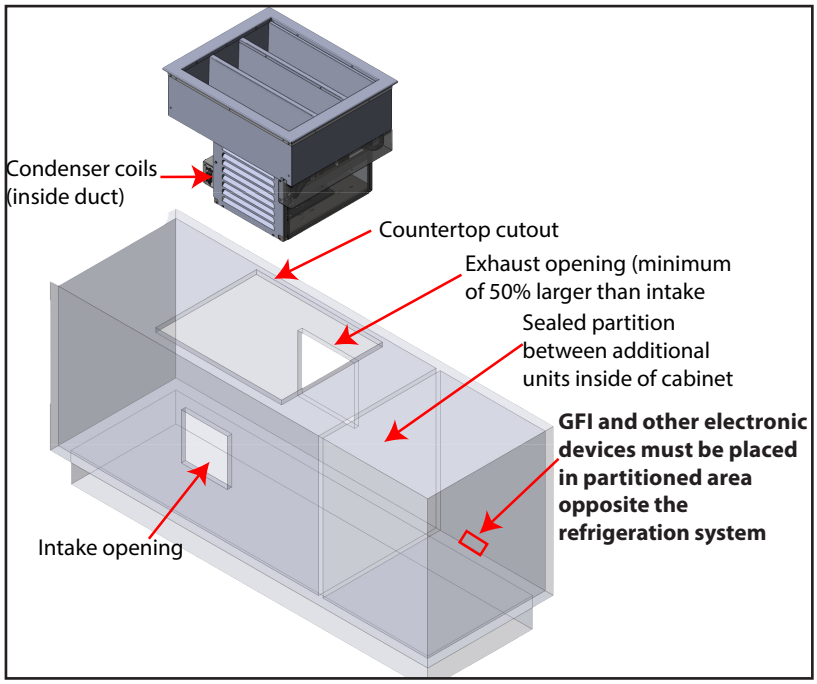


Figure A

KNOCKOUT FOR PARTITION WALL

If the application requires that a hole or an electrical knockout be placed in the partition wall, please adhere to the following requirements.

- The electrical cut-out shall be located at the bottom rear of the partition wall, 3" from the rear wall and 3" from the base and be no more than 2-3/4" in diameter to allow the usage of a 3" diameter bladder grommet or air-block grommet must be used.
- Once the electrical cord has been installed, verify that the there are not air gaps surrounding the grommet or supply cord. If there are any air gaps present, the area must be sealed with silicone sealant.

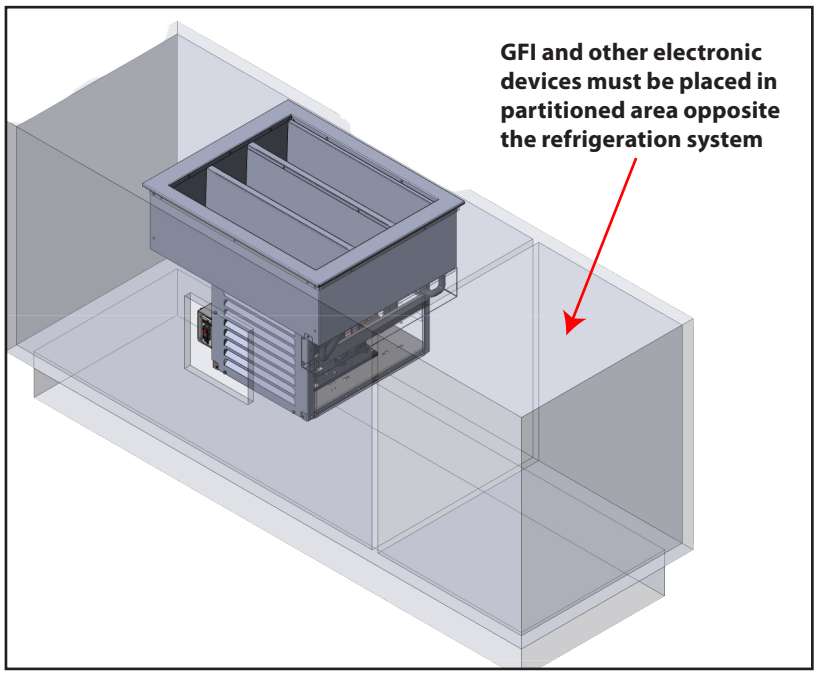


Figure A-1

INSTALLATION

WHEN MOUNTING BY THE OVERHANGING TOP RIM (IN A CUT-OUT IN THE COUNTER TOP):

The underside of the overhanging top rim should have applied to it a generous bead of food grade silicone sealant before the unit is set into the cut-out in the counter top. In order to relieve part of the load from the top rim, the unit should be supported from below with metal components in a manner compatible with the construction of the counter. Any excess sealant which squeezes out between the unit top rim and counter top should be wiped off before the sealant cures or stripped away with a sharp knife after curing.

⚠WARNING Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing this equipment.

⚠CAUTION When installing a drop-in refrigerated unit it is essential to insure proper air flow into and out of the cabinet surrounding the unit. Improper ventilation will cause your compressor to burn out and will void the warranty.

⚠CAUTION **This equipment is to be installed to comply with applicable Federal, State or Local Plumbing Code. Consult local codes as to the type of drain hook-up required in your area.**

DRAIN CONNECTION:

Drains are not available on Tri-Channel models.

⚠CAUTION Electricity and water do not mix. Unplug the unit before cleaning. If repairs are required, use a qualified service agent. While repairs are being made, be sure the unit is not plugged in. Do not store highly combustible substances on or near the unit. Be sure the compressor compartment has adequate ventilation.

⚠CAUTION

ELECTRICAL CONNECTIONS:

The unit is designed to be operated on one (1) 15 amp dedicated circuit. The unit must be grounded. The receptacle, wired circuit, and protection should meet the required local codes for proper operation. If the supply cord is damaged, it must be replaced by the manufacturer, it's service agent or an authorized service company in order to avoid a hazard.

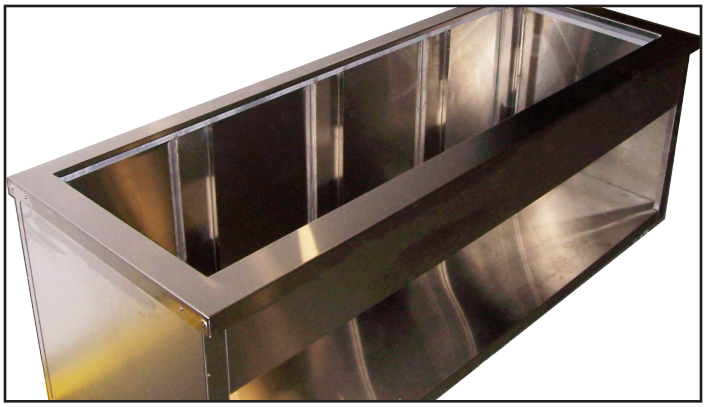
⚠CAUTION

The cold pan is designed to hold pre-chilled products at suitable serving temperature. It is **not** designed to chill products or store them for long periods of time. Due to the variety of food products served from the cold pan, they should be stirred periodically to maintain consistent temperature. Foods that are not stirred periodically can become too warm on the top surface and freeze at the bottom.

Prior to use, the unit should be turned on to lower the pan temperature before the chilled product is set in place. The unit should shut down daily for defrosting and cleaning.

INSTALLATION - DROP-IN UNIT

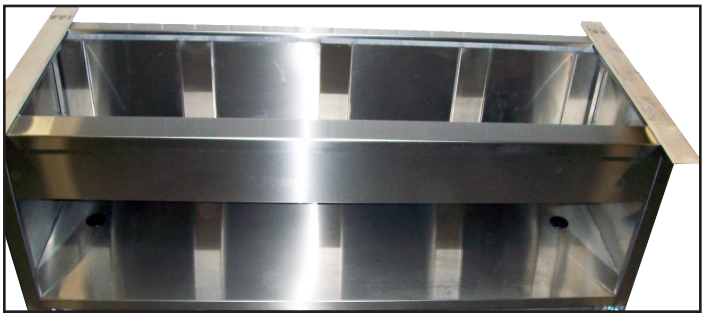
STEP 1
The Tri-Channel Cold Pan Unit is to be dropped into a cabinet with a top cut-out; See specification table Page 5. The top cut out size will depend on the size of the cold pan;



STEP 2
The cabinet that the unit is dropped into should provide 400 sq. in. of breathing area at the inlet and outlet ends of the condensing unit; A 20" x 20" opening is recommended to achieve the 400 sq. in. requirement. There should be no wall within 6" of the compressor housing. See diagram page 9.

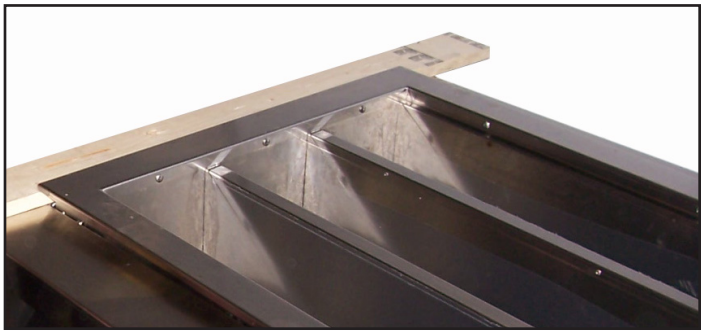
STEP 3
Remove crating from Tri-Channel Unit.

STEP 4
Place two of the crate boards on each side edge of the cut-out.

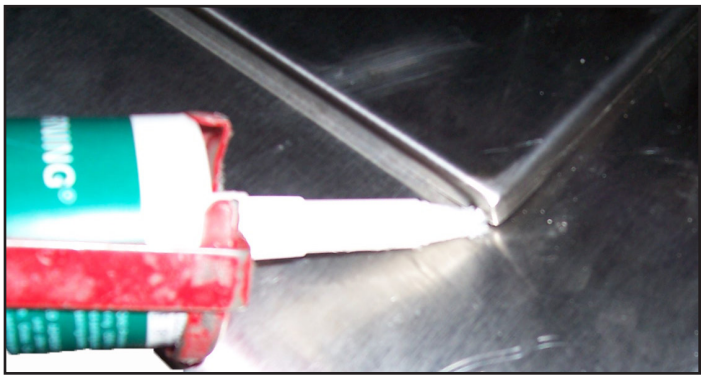


STEP 5
Using at least 2 individuals and proper lifting techniques, lift Tri-Channel Unit off of the skid and slowly maneuver it into the cut out and rest top rim on boards. The larger cold pans may need 4 people to lift and maneuver.

STEP 6
Carefully remove the board from under the top rim by pushing the body up from the bottom.



STEP 7
Apply a small bead of silicone rubber sealant around the top rim and smooth with finger. Wipe away any excess.



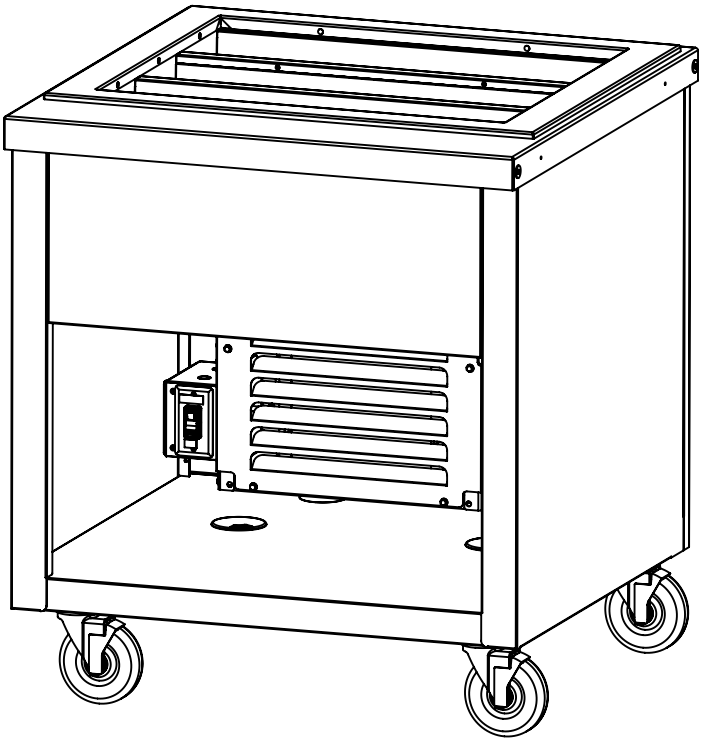
STEP 8
Remove all protective vinyl plastic from unit and clean unit according to the cleaning instructions.

STEP 9
Remove packing material from the control assembly. Plug cord into a properly grounded NEMA 5-15 outlet.

INSTALLATION - continued

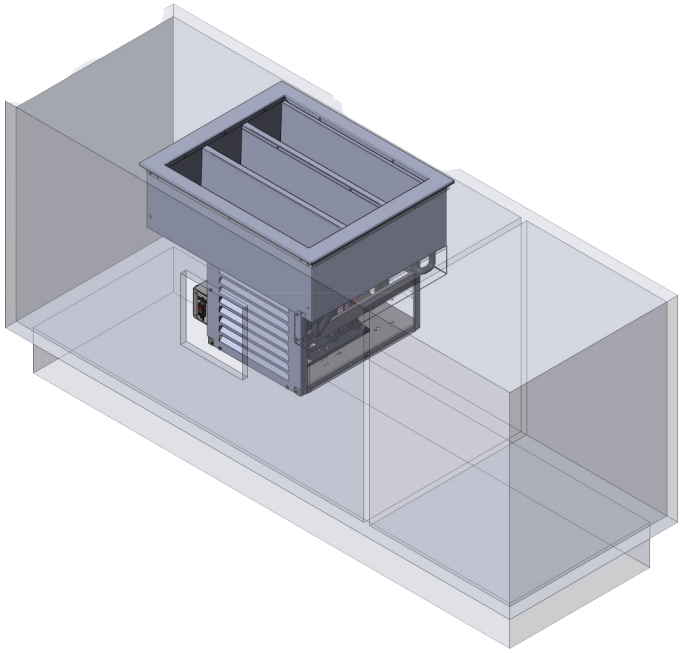
STANDARD NSF7 COLD PAN AIR FLOW OPEN BODY

Air intake louver mounts directly to cage support. No shroud or exhaust required for open body configuration.



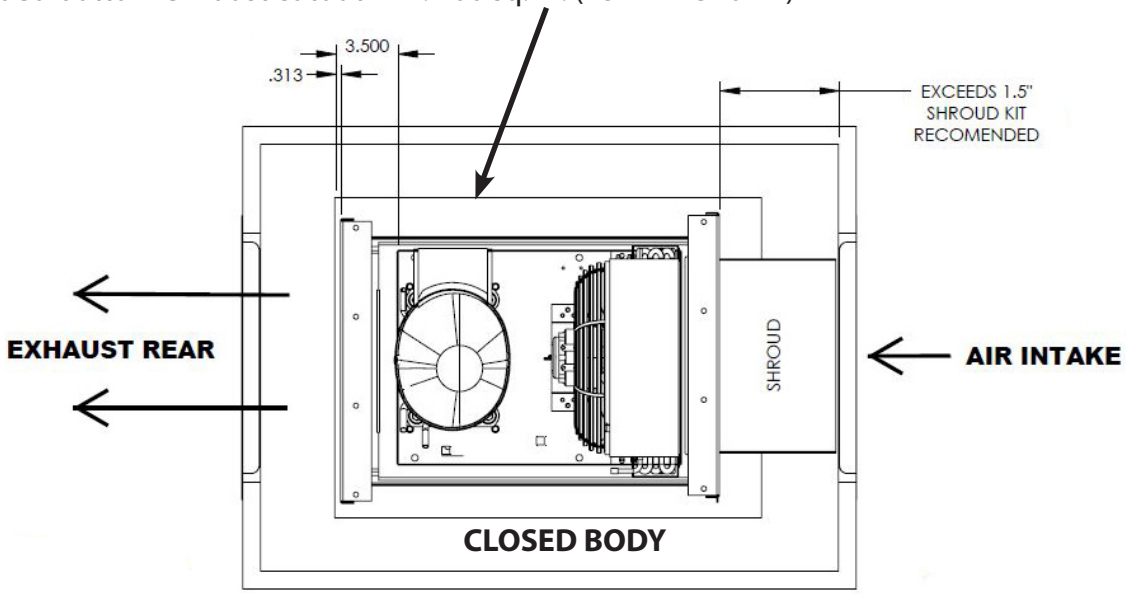
STANDARD NSF7 COLD PAN AIR FLOW CLOSED BODY

Exhaust options rear or bottom required for closed body configuration.



EXHAUST OPTION-1

Recommended bottom exhaust cutout min. 400 sq. in. (18"X24" Shown)



EXHAUST OPTION 2

Recommended rear exhaust min. 200 Sq. In. Free air cutout 18"X16" to fit standard louver.

Recommended air intake min. 120Sq.In. Free air cutout 14" X12" to fit standard louver

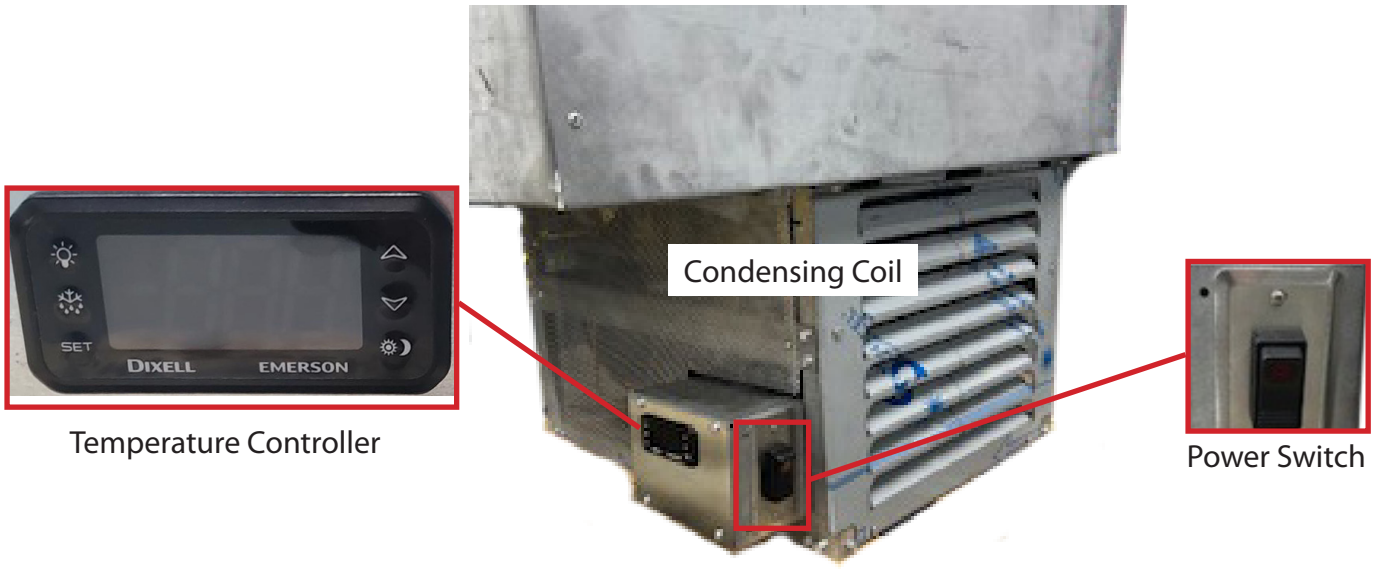
OPERATION

General Information

1. Always clean equipment thoroughly before first use. (See general cleaning instructions.)
2. Check rating label for your model designation & electrical rating.
3. The cold pan needs to be pre-chilled for 30 minutes before product is loaded.
4. The cold pan is design to hold pre-chilled (33°F to 40°F) product. Do not place warm product (above 40°F) in the cold pan as it is not designed to reduce the temperature of the product.
5. The condensing coil fins should be cleaned with a soft brush monthly, Figure 11.
6. The cold pan should not be placed under ventilation ducts or fans because it hinders performance and increases food temperatures.

General Operating Instructions:

Turn Tri-Channel Unit on by positioning power switch to the up position.



Adjusting Thermostatic Digital Control (Duke Part# 516901):

Your Tri-Channel cold pan has been preset in the factory to satisfy most applications. Due to conditions which may exist in your operation, you may need to adjust the thermostat on your unit for colder or warmer temperature. The thermostat is located under the unit and to the left of the condensing unit. Normally, the temperature setting would be about 38°F. The temperature of your unit may be adjusted by pressing the up or down arrow. The set point is shown in the display and starts blinking. Press up or down arrow to change set point. After 3 seconds the display stops blinking and returns to actual temperature.

CLEANING INSTRUCTIONS - COLD PAN

GENERAL CLEANING:

UNIT SHOULD BE TURNED OFF AND CLEANED DAILY

- Always clean equipment thoroughly before first use.
- Remove product from cold pan.
- Turn unit off and allow cold pan walls to defrost.
- Wipe cold pan dry with towel.
- Clean unit daily, using warm, soapy water or mild detergent.
- A plastic scouring pad and a mild detergent may be used to remove hardened food.
- Turn off unit at breaker before doing extensive refrigeration compartment cleaning or servicing.

⚠WARNING

Do not ever use steel wool, any highly caustic cleaners, acids or ammonia. These may cause corrosion and/or damage to the stainless steel.

PREVENTIVE MAINTENANCE

REFRIGERATED UNIT CONDENSER COILS:

- If any buildup is present on the coil take the following steps:
- If the buildup on the coil consists of only light dust and debris the condenser coil can be cleaned with a simple brush, heavier dust build up may require a vacuum or even compressed air to blow through the condenser coil.
- If heavy grease is present degreasing agents are available for refrigeration use and specifically for the condenser coils. The condenser coil may require a spray with the degreasing agent and then blown through from the inside out, with compressed air.
- Failure to maintain a clean condenser coil can initially cause high temperatures and excessive run times. Continuous operation with dirty or clogged condenser coils can result in compressor or fan failures. Neglecting the condenser coil cleaning procedures will void any warranties associated with the compressor or cost to replace the compressor and/or fan.

Duke Manufacturing Co.
2305 N. Broadway
St. Louis, MO 63102
Phone: 314-231-1130
Toll Free: 1-800-735-3853
Fax: 314-231-5074
www.dukemfg.com