Hillphoenix®

A DOVER™ COMPANY

SELF-CONTAINED MERCHANDISER
INSTALLATION & OPERATIONS MANUAL

OHMA-NRG

OHMAK-NRG

Table of Contents

To ensure proper functionality and optimum performance, it is STRONGLY recommended that Hillphoenix display cases be installed/serviced by qualified technicians who have experience working with commercial refrigerated display merchandisers and storage cabinets. For a list of Hillphoenix-authorized installation/service contractors, please visit our Web site at www.Hillphoenix.com.

NSF COMPONENT c UL us

REVISION HISTORY

VERSION 1 (05/18)
- new manual format

VERSION 2 (09/18)
- Updated data

VERSION 3 (11/18)
- Updated to add OHMAK-NRG

PRECAUTIONARY NOTICES

At Hillphoenix®, the safety of our customers and employees, as well as the ongoing performance of our products, are top priorities. To that end, we call out important messages in all Hillphoenix installation and operations handbooks with an accompanying alert symbol paired with the words "DANGER!", "WARNING!", or "ATTENTION!". All of these important messages will inform you of potential haz-ards and dangers to personal safety and health - as well as risks of case damage - if the instructions are not carefully followed.

ATTENTION!

Indicates an important point of information that is key to ensuring that case equipment functions properly.

CAUTION!

Indicates the potential threat of death or serious injury if all instructions are not followed carefully.

DANGER!

Indicates an immediate threat of death or serious injury if all instructions are not followed carefully.

SERVICE NOTICE

To ensure proper functionality and optimum performance, it is **strongly** recommended that Hillphoenix display cases be installed/serviced by qualified technicians who have experience working with commercial refrigerated display merchandisers and storage cabinets. For a list of Hillphoenix-authorized installation/service contractors, please visit our Web site at www.hillphoenix.com.

LIABILITY NOTICE

For Cases with Shelf Lighting Systems

Hillphoenix does NOT design any of its shelf lighting systems or any of its display cases with shelf lighting systems for direct or indirect exposure to water or other liquids. The use of a misting system or water hose on a display case with a shelf lighting system, resulting in the direct or indirect exposure of the lighting system to water, can lead to a number of serious issues (including, without limitation, electrical failures, fire, electric shock, and mold) in turn resulting in personal injury, death, sickness, and/or serious property damage (including, without limitation, to the display itself, to the location where the display is situated [e.g., store] and to any surrounding property). DO NOT use misting systems, water hoses or other devices that spray liquids in Hillphoenix display cases with lighted shelves.

If a misting system or water hose is installed or used on a display case with a shelf lighting system, then Hillphoenix shall not be subject to any obligations or liabilities (whether arising out of breach of contract, warranty, tort [including negligence], strict liability or other theories of law) directly or indirectly resulting from, arising out of or related to such installation or use, including, without limitation, any per-sonal injury, death or property damage resulting from an electrical failure, fire, electric shock, or mold.

P079211M, REVO

WARNING: UNDER NO CIRCUMSTANCES should any component be replaced or added without consulting Hillphoenix Field Service Engineering. Utilizing im-proper components may result in serious injury to per-sons or damage to the system.

GENERAL INFORMATION

Thank you for choosing Hillphoenix for your food merchandising needs. This handbook contains important technical information and will assist you with the installation and operation of your new Hillphoenix display cases. By closely following the instructions, you can expect peak performance; attractive fit and finish; and long case life.

We are always interested in your suggestions for improvements (e.g. case design, technical documents, etc.). Please feel free to contact our Marketing Services group at the toll-free number listed below. Thank you for choosing Hillphoenix, and we wish you the very best in outstanding food merchandising.

CASE DESCRIPTION

This manual covers OHMA self-contained merchandiser (*for operational data and case dimensions, see **Appendix A***).

STORE CONDITIONS

Hillphoenix cases are designed to operate in an air-conditioned store that maintains a 75°F (24°C) store temperature and 55% (max) relative humidity (CRMA condi-tions). Case operation will be adversely affected by expo-sure to excessively high ambient temperatures and/or humidity.

REFRIGERATION SYSTEM OPERATION

Air-cooled condensing units require adequate ventilation for efficient performance.

RECEIVING CASES

Examine fixtures carefully and in the event of shipping damage and/or shortages, please contact the Service Parts Department at 1-800-283-1109.

CASE DAMAGE

Claims for obvious damage must be 1) noted on either the freight bill or the express receipt and 2) signed by the carrier's agent; otherwise, the carrier may refuse the claim. If damage becomes apparent after the equipment is unpacked, retain all packing materials and submit a written request to the carrier for inspection within 14 days of receipt of the equipment.

LOST/MISSING ITEMS

Equipment has been carefully inspected to insure the high-est level of quality. Any claim for lost/missing items must be made to Hillphoenix within 48 hours of receipt of the equipment.

SERVICE & TECHNICAL SUPPORT

For service or technical questions regarding display cases, please contact our Case Division Customer Service Department at the toll-free number listed below. For questions regarding our refrigeration systems or electrical distribution centers, please contact our Systems Division Customer Service Department at 1-770-388-0706.

PARTS ORDERING

If you need to contact Hillphoenix regarding specific fixtures/parts, call 1-800-283-1109 and ask for a Service Parts Representative. Provide the following information about the part you are ordering:

- Model number and serial number* of the case for which the part is intended.
- Length of the part (if applicable).
- Color of part (if painted) or color of polymer part.
- Whether part is for left- or right-hand application.
- Quantity

**Serial plate is located inside the case on the top-left side.*

If the parts are to be returned for credit, ask the Parts Department to furnish you with a Return Material Authorization Number.

Hillphoenix
1925 Ruffin Mill Rd.
Colonial Heights, VA 23834
Mon.-Fri. (8 a.m to 5 p.m EST
Tel: 1-800-283-1109
Fax: 804-526-7450
Web site:
www.Hillphoenix.com

ATTENTION!

Installation of 3rd-party materials may result in diminished case performance.

MOVING CASES

Hillphoenix display cases are generally shipped to stores with casters installed on the base frame. The casters make the job of moving cases easier for everyone involved in the shipping and installation process, as well as reducing the chance of damage from raising and lowering cases with ”J” bars to place them on dollies, skates or rollers. In most situations, one or two persons can easily move the case into position.

When the cases arrive at the store, simply roll them on to the store floor to the proper staging area. Occasionally, cases are shipped with skid boards attached to help with stabilization. In these instances, the casters should be attached after the case is removed from the truck.

Removing the casters is an easy process. Simply flatten and remove the cotter pins that are holding the casters in place (see Fig. 1). Then lift the case with a “J” bar and slide the caster assemblies out. The dismantled casters can now be discarded.

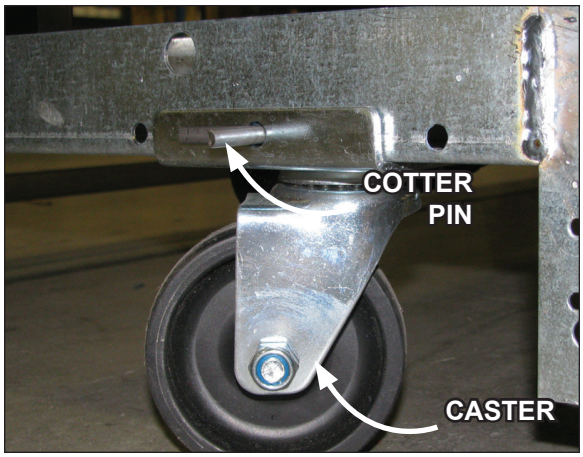

Fig. 1 Removing the casters is an easy process. Simply flatten and remove the cotter pins that are holding the casters in place. Then lift the case with a “J” bar and slide the caster assemblies out. The dismantled casters can now be discarded.

FLOOR PREP

1. Ask the general contractor if there have been changes in the building dimensions since the print you are using was issued. Also, ask for the points of reference from which you should take dimensions to locate the cases.
2. Using chalk lines or a laser transit, mark the floor where the cases are to be located for the entire lineup. The lines should coincide with the outside edges of the base frame.
3. Leveling is necessary to ensure proper case alignment and to avoid potential damage. Locate the highest point on the positioning line as a reference for determining the proper height of the shim-pack levelers. A laser transit is recommended for precision and requires just one person.
4. Locate the position of the base frame and spot properly leveled shim packs at the appropriate locations.

LINE-UP & INSTALLATION

1. Remove anything from the cases that may interfere with case joining (eg. shipping braces).
2. Roll the first case into position. Using a “J” bar , raise the end of the case (under cross support), remove the casters, and place the base frame on the shim packs. Repeat on the other end of the case.
3. Once the base frame is properly placed on the shim packs, check the vertical level by placing a bubble level plumb to the rear edge of the case; then add/remove shim levels as needed. To check the horizontal level, repeat this process after placing the bubble level on the rear sill.
4. *If seismic brackets were ordered, see **Appendix F** for detailed installation instructions.*

TRIM OUT

Attach the front panel to the baseframe using the screws provided.

CAUTION!

Be certain that your hands and feet are out of the way before lowering the case after the removal of the casters. Failure to do so may result in serious injury.

REFRIGERATION

Refrigeration components for OHMA are easily accessible in the tank and beneath the case.

The expansion valve and suction line 1/4" access valve are both located on the front-left side of the tank. These components may be reached removing the front panel and pulling out the sliding component tray that houses all of the internal case components. *For a detailed illustration of internal case components, see* ***Appendix H****.*

PLUMBING

The "P" trap assembly – attached to the case at the factory so no assembly is required – directs the case drainage to the evaporative drain pan (Fig. 2). The case drain is located front-and-center in the case for convenient access – simply remove the front panel and slide out the component tray. Should any future maintenance issues arise, it is important to note the outlet is specially molded with PVC material and the "P" trap is constructed of PVC. Care should be given to make certain that all connections are water tight and are sealed with appropriate PVC primer and PVC cement.

Be certain that the case is properly leveled to ensure proper drainage.

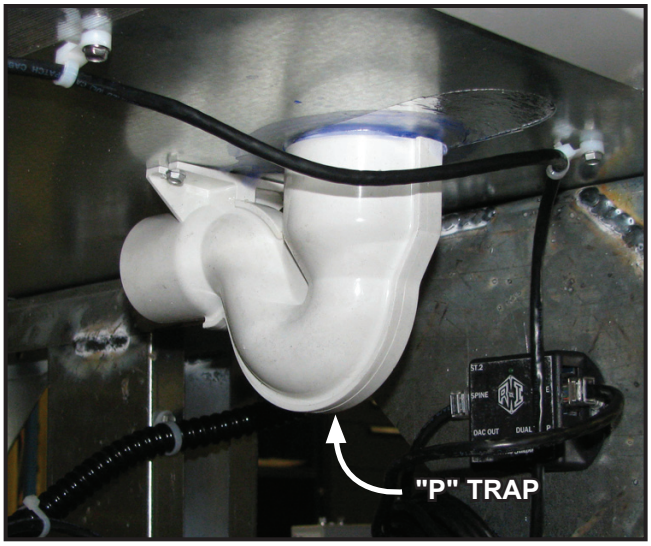

Fig. 2 Drain "P" trap

ATTENTION!

Be certain to clear the case of any loose packaging or case materials before energizing the case. Failure to do so may result in case damage or malfunction.

ELECTRICAL

OHMA cases come pre-wired with a NEMA L14-30P twist-lock plug (250 volt, 4-prong).

NEMA L14-30P PLUG (TWIST LOCK)

A Dixell XR04CX digital controller is provided for case operation and programming. The controllers are lo-cated inside the electrical junction box and are utilized ac-cording to your temperature preference. *For detailed in-structions for the Dixell controller, see* ***Appendix E****.*

ATTENTION!

Be certain that all piping and electrical connections comply with local codes.

Before powering-up the case, be certain that all of the steps listed below have been completed to ensure proper case functionality, safety and compliance with warranty terms.

- ☐ **Have you thoroughly examined the case for shipping damage? (see pg. 2)**
- ☐ **Have you removed and discarded the casters? (see pg. 3)**
- ☐ **Have you checked the vertical plumb of the case? The horizontal level? (see pg. 3)**
- ☐ **Have you removed any loose packaging or materials? (see pg. 4)**

AIR FLOW & PRODUCT LOAD

Cases have been designed to provide maximum product capacity within the refrigerated air envelope. Please keep products within the load limit line shown on the diagram below (Fig. 4).

It is important that you do not overload the food product display so that it impinges on the air flow pattern. Overloading will cause malfunction and the loss of proper temperature levels, particularly when discharge and return air sections are covered.

DEFROST & TEMPERATURE CONTROLS

OHMA cases are equipped with timed-off defrost. When timed-off defrost is used, the refrigeration cycle is turned off by the case controls for a specified amount of time; therefore, there are generally no active defrost components utilized.

The discharge air probe monitors the temperature of the discharge air and may be used as the defrost termination sensor. The probe can generally be found behind the rear baffle, in the upper baffle, or in front of the honeycomb.

*For more detailed information on suggested defrost times and settings, see **Appendix A**. Further adjustment may be required depending on store conditions.*

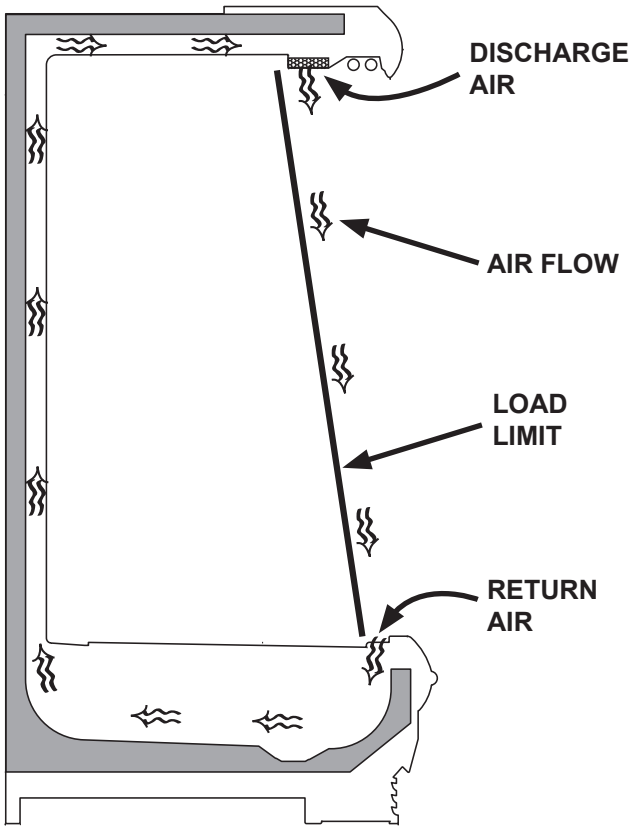

Fig. 4 Airflow

DETERMINING SUPERHEAT

To identify proper superheat settings, complete the following:

1. Obtain suction pressure from access port; obtain suction line temperature from area near TXV bulb at the outlet of evaporator coil (Fig. 5).
2. Using the suction pressure reading, convert pressure to temperature using temperature pressure chart (*see **Appendix D***).
3. Subtract the converted temperature reading from the actual temperature reading for superheat setting.

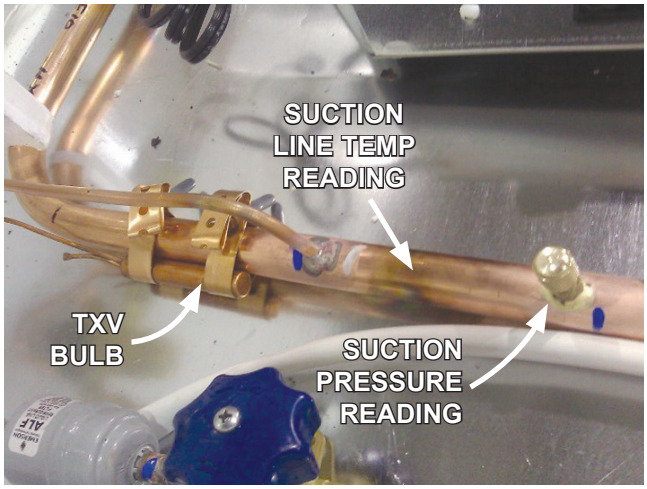

Fig. 5 Obtain pressure and temperature readings

CASE CLEANING

Cases are designed to facilitate cleaning. All surfaces pitch to a deep-drawn drain trough that angles toward the front-center of the case where the waste outlet is located for easy access.

The coil is covered to prevent waste fluids from entering, but it is easily accessible for cleaning: remove the front panel, slide out the case component tray, remove the coil-cover fasteners, then lift and remove the coil cover. With the coil cover removed, be certain to exercise extreme caution when working in the case - the coil has many sharp edges that can result in serious injuries. When cleaning is complete, be certain that both the plenum and coil cover are properly closed in order to avoid air leaks.

CLEANING PROCEDURES

A periodic cleaning schedule should be established to maintain proper sanitation, insure maximum operating efficiency, and avoid the corrosive action of food fluids on metal parts that are left on for long periods of time. We recommend cleaning once a week.

- To avoid shock hazard, be sure all electrical power is turned off before cleaning. In some installations, more than one disconnect switch may have to be turned off to completely de-energize the case.
- Check waste outlet to insure it is not clogged before starting the cleaning process and avoid introducing water faster than the case drain can carry it away.
- Avoid spraying cleaning solutions directly on electrical connections.
- Allow cases to be turned off long enough to clean any frost or ice from coil and pans.
- Use mild detergent and warm water. When necessary, water and baking soda solution will help remove case odors. Avoid abrasive scouring powders or pads.
- Clean underneath the case with a broom and a long handled mop.
- Use warm water and a disinfecting cleaning solution when cleaning underneath the cases.

DANGER!

Always disconnect power to case when servicing or cleaning. Failure to do so may result in serious injury or death.

CAUTION!

Exercise extreme caution when working in a case with the coil cover removed. The coil contains many sharp edges that can result in severe cuts to the hands and arms.

ATTENTION!

Power cord must be pushed back through the plenum opening before removing the fan basket. Failure to do so may result in damage to the power cord.

APPENDIX

REFERENCE NOTES FOR ENGINEERING DATA

- Listed discharge air velocity represents the average velocity at the peak of defrost.
- Temperature and defrost settings listed below are recommended start-up settings. Final operational settings may need to be adjusted for the store conditions in which the case operates.
- LED lights only.
- Maximum of 3 rows of Standard Output LED lighted shelves.
- 3rd row or nose lights are not available.
- 2 rows of standard or 1 row of cornice high output LED lights only.
- 6" thermopane front required.

REFERENCE NOTES FOR CROSS SECTIONS

* : STUB-UP AREA
** : RECOMMENDED STUP-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- Front sill height and overall case height varies with base frame height
- Ends add approximately 1" to case height, 1/2" to the back & 1" to the front
- Wiring to the top adds approximately 4" to case height
- A 2" minimum air gap is required between the rear of the case and a wall
- Back panels add approximately 1" to the rear of the case
- Available shelf sizes: 18", 20" & 22"
- Dashed line signify area inside base rail behind kick plate
- Casters add approximately 2 1/4" to case height

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ALL MEASUREMENTS ARE TAKEN PER ASHRAE-72-2005 SPECIFICATIONS. Hillphoenix REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

Rev Date:	Rev #	Revision Description:
10-27-17	1	DOE 2017

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LIGHTING DATA					
		Clearvoyant v4 LED Lighting (Per Lifght Row)			
		Standard Power (Cornice or Shelf)		High Power (Cornice Only)	
		120 Volts		120 Volts	
Lights Per Row	Light Length	Amps	Watts	Amps	Watts
2	3'	0.08	9.4	0.20	23.8

SYSTEM REQUIREMENTS				
Volts	Phase	Frequency (Hz)	Plug Style	Cord Length
208	1	60	NEMA L14-30P	120"

GUIDELINES AND CONTROL SETTINGS				
24 hour Energy Usage	Suction Pressure @ Case Outlet (psig).	Superheat Set Point @ Bulb	Discharge Air	Discharge Air Velocity
47.6 (kWh)	52-54	6-8 °F	30.0 °F	210 FPM

CONDENSING UNIT DATA							
Volts	Phase	Frequency (Hz)	Horsepower	Running Load Amps (RLA) (Amps)	Locked Rotor Amps (LRA) (Amps)	Refrigerant	Lbs. of Refrigerant
208	1	60	1 1/4	9.2	54.0	R404A	5.5

DEFROST CONTROLS		
	Timed-Off Defrost	
Defrosts Per Day	Fail-Safe (Min)	Termination Temp
6	30 (Min)	42 °F

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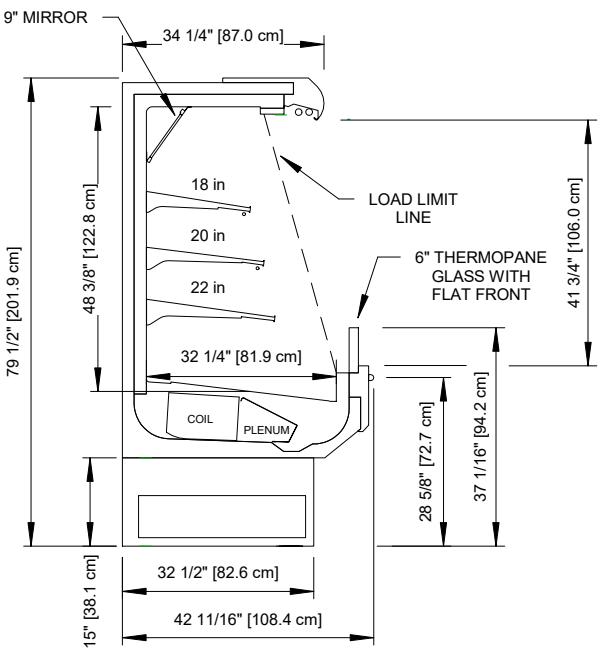
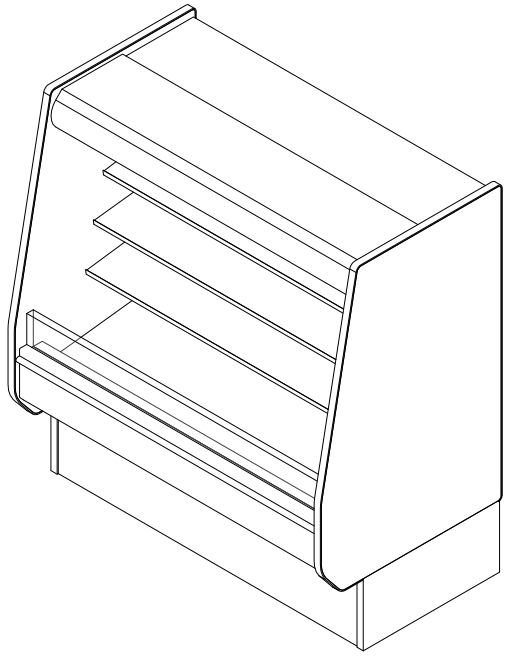
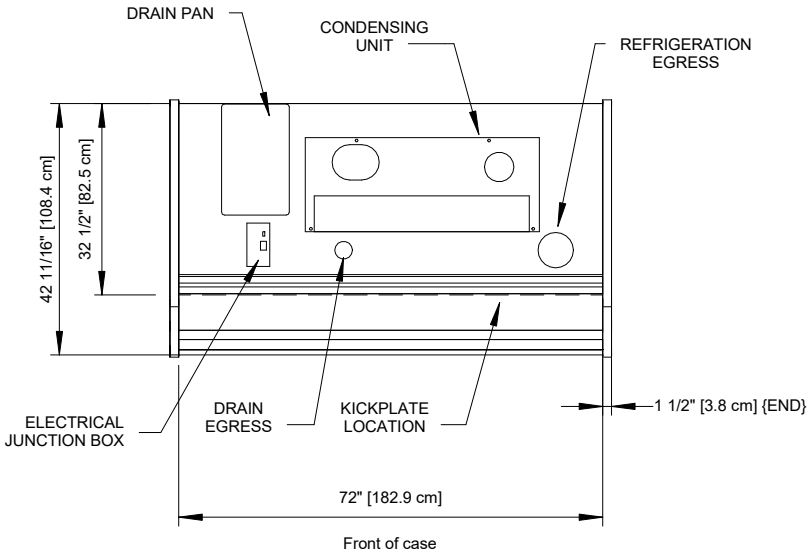
Rev Date:	Rev #	Revision Description:
10-27-17	1	DOE 2017

OHMA-NRG

High Multi-Deck Self-Contained Merchandiser
6' (Meat)







2017 DOE COMPLIANT

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OHMA 6'

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10-27-17	1	DOE 2017

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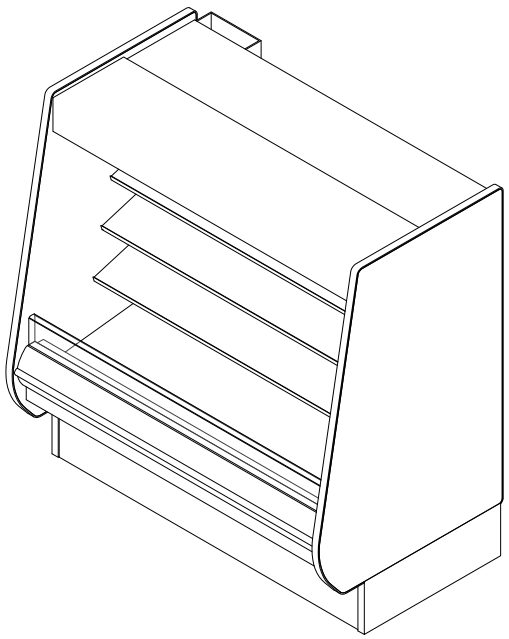
OHMAK-NRG

High Multi-Deck Self-Contained Merchandiser
6' (Meat)

GENERAL NOTES

- " - - -" indicates that the feature is not an option for this case model and/or the data is not yet available.
- LED lights only.
- Maximum of 3 rows of standard output LED lighted shelves.
- Nose lights are not available.



SHIPPING WEIGHT	
Case	Weight
OHMAK-NRG	---

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Rev Date:	Rev #	Revision Description:
9-19-18	3	DATA UPDATE
8-7-18	2	NEW STANDARDS

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OHMAK-NRG

High Multi-Deck Self-Contained Merchandiser
6' (Meat)

LIGHTING DATA				
Lights per row	Clearvoyant v4 LED Lighting (Per Light Row)			
	Standard Power (Cornice or Shelf)		High Power (Cornice Only)	
	120 Volts		120 Volts	
	Amps	Watts	Amps	Watts
2	0.08	9.4	0.20	23.8

SYSTEM REQUIREMENT				
Volts	Phase	Frequency	Plug Style	Cord Length
208	1	60	NEMA L14-20P	120"

GUIDELINES AND CONTROL SETTINGS				
24hr Energy Usage (kWh)	Suction Pressure @ Case Outlet (psig)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Discharge Air Velocity (FPM)
47.6	52-54	6 - 8	30.0	210

CONDENSING UNIT DATA							
Volts	Phase	Frequency	Horsepower	Running Load Amps (RLA) (Amps)	Locked Rotor Amps (LRA) (Amps)	Refrigerant	Lbs. of Refrigerant
208	1	60	1 1/4	9.2	54.0	R404A	5.5

DEFROST CONTROLS		
Defrosts Per Day	Timed-Off Defrost	
	Fail-Safe (Min)	Termination Temp (F)
6	30	47

NOTES

- "---" indicates that the feature is not an option for this case model and/or the data is not yet available.
- Listed discharge air velocity represents the average velocity immediately after defrost.
- Temperature and defrost settings listed below are recommended start-up settings. Final operational settings may need to be adjusted for the store conditions in which the case operates.

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9-19-18	3	DATA UPDATE
8-7-18	2	NEW STANDARDS

Hillphoenix
A DOVER COMPANY

OHMAK-NRG

High Multi-Deck Self-Contained Merchandiser
6' (Meat)

OHMAK-NRG (Meal Kit) Case Configuration		
Case Model	OHMAK-NRG (Meal Kit) Base Model	OHMAK-NRG (Meal Kit) Configured Options
Length	6'	n/a
Case Use	Meal Kits	n/a
Base Frame	15"	n/a
Exterior Color	CC	Stainless
LH End Type	Solid	Square
RH End Type	Solid	Square
End Skins	Interior: SA, Exterior: CC	Painted/Painted Stainless/Stainless
End Trim Type/Color	Black PVC	Stainless
Front Type	Flat Front	Origin 2
Front Panel Type	Contour	Flat
ColorBand Panel Finish	CC	Stainless
Sill Cap Finish	Stainless	Painted
Cornice Type	Flat	Curved
Cornice Finish	Painted	Stainless
Tank Finish	Painted	Aluminum Stainless
Interior Color	CC	White Stainless
Baffle Finish	CC	White Stainless
Frame Finish	CC	White
Flue Panel Finish	CC	White Stainless
Deck Pan Type	Plastic	Metal
Deck Pan Finish/Color	Black	White Galvanized Painted Stainless
Mirror Size	9.75"	
Wire Rack Type	Telescopic	Fixed Front Lip Height
Wire Rack Finish	Black	White Stainless
Shelf Depth	18", 20", 22"	
PTM Type	AL	PVC
LED Type	Standard	High
LED Color	30k	35k 40k
Cornice Lighting Type	2 Row	1 Row
Refrigerant	R404a	
Piping	Top	
Defrost	Off Cycle	
Fans (HE, STD)	ECM	
Refrigeration Accessories	None	Optional: Solenoid, Thermostat
Thermometer	Std	
Probe	None	Optional: Electronic Sensor
Special Instructions	Shiploose Condensing Unit + Drain Pump + Pan	Optional: Fully Installed Condensing Unit + Pump + Pan

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Rev Date:	Rev #	Revision Description:
8-7-18	2	NEW STANDARDS
12-1-17	1	DOE 2017

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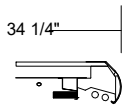
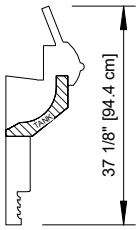
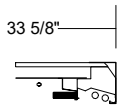
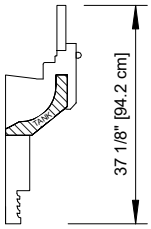
OHMAK-NRG

High Multi-Deck Self-Contained Merchandiser
6' (Meat)

CORNICE OPTIONS	FRONT OPTIONS
CURVED CORNICE 	ORIGIN 2 FRONT WITH 6" THERMOPANE 
FLAT FRONT 	FLAT FRONT WITH 6" THERMOPANE 

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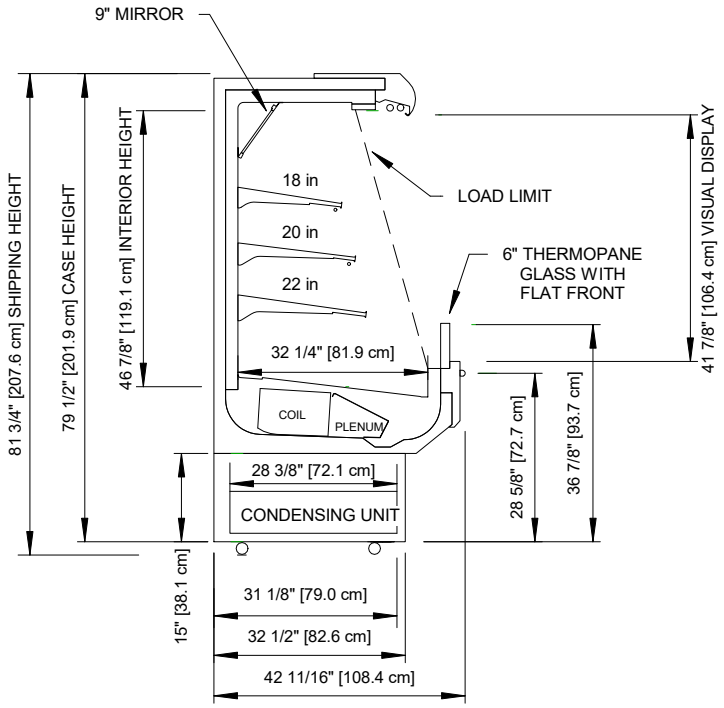
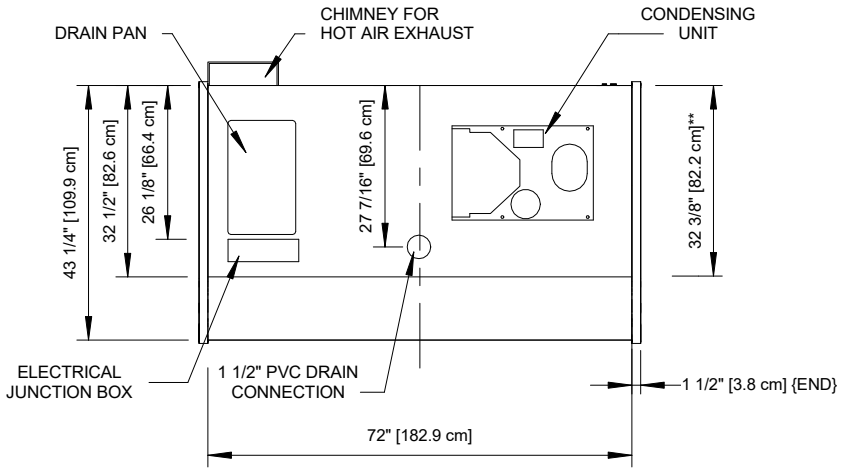
High Multi-Deck Self-Contained Merchandiser
6' (Meat)





2017 DOE COMPLIANT

NSF

c UL us COMPONENT

ALL MEASUREMENTS ARE TAKEN PER ASHRAE-72-2005 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

OHMAK-NRG

Rev Date:	Rev #	Revision Description:
9-19-18	3	DATA UPDATE
8-7-18	2	NEW STANDARDS

Hillphoenix
A DOVER COMPANY

ATTENTION ELECTRICIAN

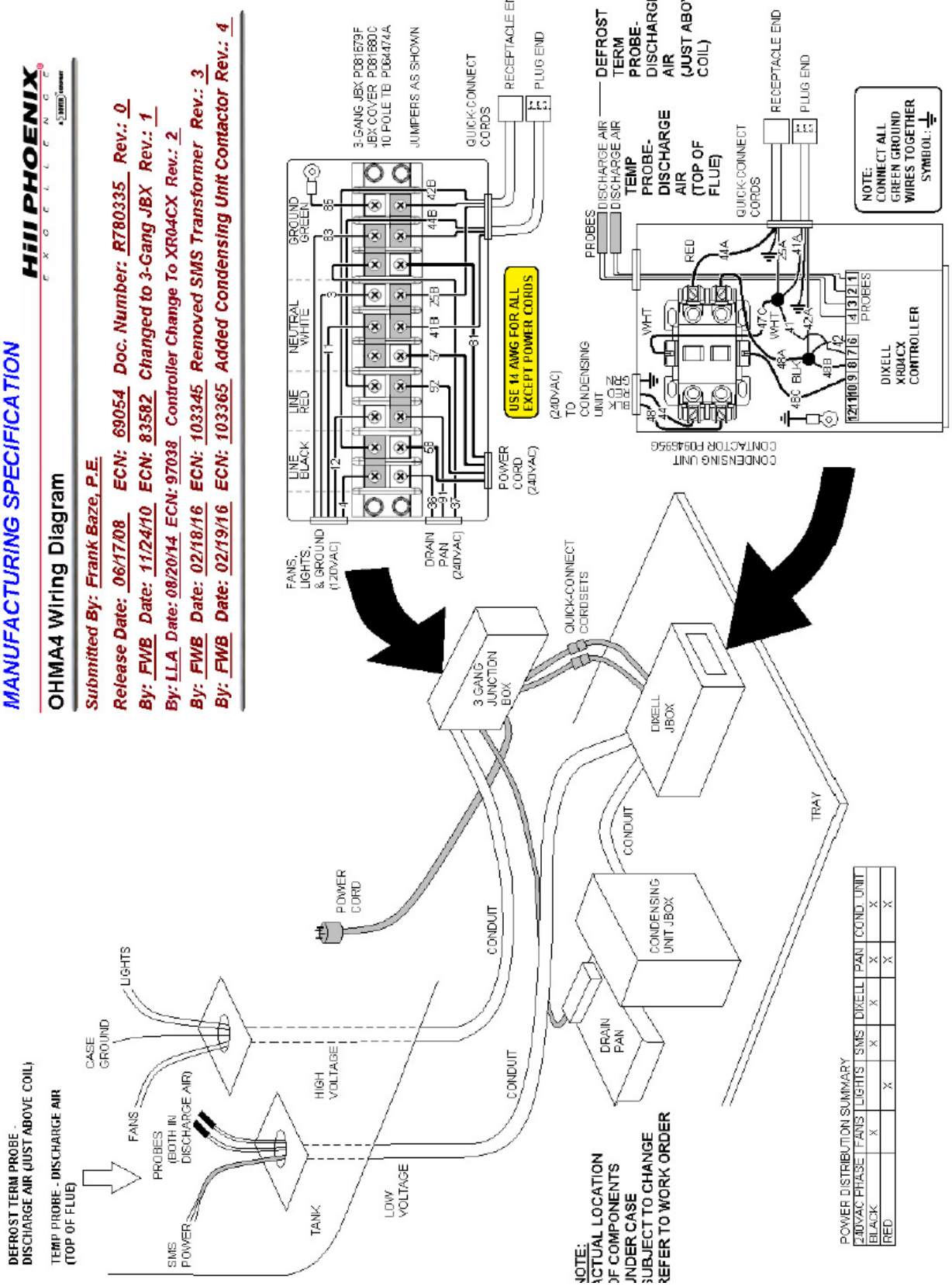
:FOR SAFETY AND CODE COMPLIANCE GROUND FIXTURE AT TIME OF INSTALLATION

:CAUTION

RISK OF ELECTRIC SHOCK. MORE THAN ONE POWER-SUPPLY. DISCONNECT ALL POWER-SUPPLIES BEFORE SERVICING.

WIRE IDENTIFICATION	BLACK	WHITE	BLUE	RED	YELLOW	PURPLE	ORANGE	GREEN	RED/BLK
DEFROST HEATERS (1-PHASE)	1,2								
DEFROST HEATERS (3-PHASE)	L1		L3	L2					
ANTI-CONDENSATE HEATERS	14	13							
	16	15							
	18	17							
AISLE WARMER	10	9							
DRAIN HEATER	36	37							
PRIMARY FANS	4	3	40						
SECONDARY FANS	6	5							
AMBIENT FANS	8	7							
LIGHTS	12	11							
BELL	60,62								
TEMPERATURE CONTROL					19,20				
DEFROST TERMINATION CONTROL	22					21	23		
DEFROST SAFETY CUT-OUT CONTROL	28					27	29		
LIQUID LINE SOLENOID					30	31	98		
SUCTION LINE SOLENOID					38	39			
CASE/CONTROLLER POWER	42	41							
TRANSFORMER	24	25							
CAPACITOR	34		35						
RECEPTACLE	32	33						75	
SYSTEM NEUTRAL (3-PHASE)		N							
POWER CORD (SELF-CONTAINED)	58	57							
SERVICE LIGHT (HI-PRESSURE)	53,54								
HIGH PRESSURE SWITCH			49,50						
DUAL PRESSURE SWITCH	51,52								
CONDENSING UNIT POWER	48	47		44 220V					
CONDENSING UNIT FAN		45	46						
IG RECEPTACLE	26	43						77	
GFI RECEPTACLE	56	55						79	
HUMIDIFIER	70	71							
REFRIGERATED PAN SOLENOID	65 220V	65				64			99
REFRIGERATED PAN BYPASS SOLENOID	67 220V	67	66						
AIR HEATER DEFROST SOLENOID	69 220V	69					68		
MAIN SECONDARY FLUID SOLENOID	73 220V	73		72					
AIR DEFROST FAN	74	59							
SECONDARY COOLANT PUMP	76	61							
TANK FLUSH SOLENOID	87 220V	87						86	
MISTING SOLENOID	89 220V	89			88				
DRIP DOWN TIMER					90				
REAR STORAGE BOX FANS	94	95							
GROUND TO EXTERIOR/FRAME								81	
GROUND TO INTERIOR LINER								83	
GROUND TO JUNCTION BOX								85	
GROUND TO LIGHTS								97	

P901598E - R5


MANUFACTURING SPECIFICATION
HILL PHOENIX
EXCELLENCE
OHMA4 Wiring Diagram
Submitted By: Frank Baze, P.E.
Release Date: 06/17/08 ECN: 69054 Doc. Number: R780335 Rev.: 0
By: FWB Date: 11/24/10 ECN: 83582 Changed to 3-Gang JBX Rev.: 1
By: LLA Date: 08/20/14 ECN: 97038 Controller Change To XR04CX Rev.: 2
By: FWB Date: 02/18/16 ECN: 103345 Removed SMS Transformer Rev.: 3
By: FWB Date: 02/19/16 ECN: 103365 Added Condensing Unit Contactor Rev.: 4
DEFROST TERM PROBE - DISCHARGE AIR (JUST ABOVE COIL)
TEMP PROBE - DISCHARGE AIR (TOP OF FLUE)
CASE GROUND
LIGHTS
FANS
PROBES (BOTH IN DISCHARGE AIR)
SMS POWER
HIGH VOLTAGE
LOW VOLTAGE
TANK
CONDUIT
POWER CORD
FANS, LIGHTS, & GROUND (120VAC)
DRAIN PAN (240VAC)
3 GANG JUNCTION BOX
QUICK-CONNECT CORDSETS
DIXELL JBOX
CONDENSING UNIT JBOX
DRAIN PAN
TRAY
LINE BLACK
LINE RED
NEUTRAL WHITE
GROUND GREEN
3-GANG JBX P081679F
JBX COVER P081680C
10 POLE TB P064744A
JUMPERS AS SHOWN
QUICK-CONNECT CORDS
RECEPTACLE END
PLUG END
POWER CORD (240VAC)
USE 14 AWG FOR ALL EXCEPT POWER CORDS
(240VAC) TO CONDENSING UNIT
CONDENSING UNIT CONTACTOR P094559G
PROBES
DISCHARGE AIR
DISCHARGE AIR TEMP PROBE-DISCHARGE AIR (TOP OF FLUE)
DEFROST TERM PROBE-DISCHARGE AIR (JUST ABOVE COIL)
RED
WHT
BLK
DIXELL XR04CX CONTROLLER
NOTE: CONNECT ALL GREEN GROUND WIRES TOGETHER SYMBOL:
NOTE:
ACTUAL LOCATION OF COMPONENTS UNDER CASE SUBJECT TO CHANGE REFER TO WORK ORDER
POWER DISTRIBUTION SUMMARY
240VAC PHASE | FANS | LIGHTS | SMS | DIXELL | PAN | COND_UNIT
BLACK | X | | X | X | X | X
RED | | X | | | X | X

MANUFACTURING SPECIFICATION

Hillphoenix

SETPOINTS, DIXELL XR04CX, OHMA6-NRG, MEAT, OFF-TIME DEFROST

Submitted By: *MARCY COMBS*

Release Date: *8/5/2017* ***ECN:*** *108950* ***Doc. Number:*** *R879323* ***Rev.:*** *0*

HILL PHOENIX™

EXCELLENCE

SETPOINTS FOR DIXELL XR04CX CONTROLLER W/OFF-TIME DEFROST

PARAMETER	DESCRIPTION	RANGE	DEFAULT	OHMA6-NRG
REGULATION				MEAT
St	SETPOINT	LS TO US	-	29
Hy	HYSTERESIS (DIFFERENTIAL)	0.1 to 25°C/1 TO 45°F	2.0°C/4°F	3
LS	LOWER SETPOINT STOP	-55°C to SET/-67°F to SET	-55°C/-55°F	20
US	UPPER SETPOINT STOP	SET to 99°C/SET to 210°F	99°C/99°F	85
ot	FIRST PROBE CALIBRATION	-9.9 to 9.9°C/-18 to 18°F	0.0	0
P2	SECOND PROBE PRESENCE	Y/N	Y	Y
oE	SECOND PROBE CALIBRATION	-9.9 to 9.9°C/-18 to 18°F	0.0	0
od	OUTPUTS ACTIVATION DEL @ START	0 to 99 min	0	0
AC	ANTI-SHORT CYCLE DELAY	1 to 9 °C/°F	1	1
Cy	COMP ON TIME BAD PROBE	0 to 99 min	15	10
Cn	COMP OFF TIME BAD PROBE	0 to 99 min	30	3
DISPLAY				
CF	MEASURE UNITS	°C - °F	°C/°F	F
rE	RESOLUTION (ONLY FOR °C)	dE/in	dE	in
Ld	DEFAULT DISPLAY	P1 - P2 - SP	P1	P1
dy	DISPLAY DELAY	0 to 15 min	0	0
DEFROST				
td	DEFROST TYPE	EL-in	EL	EL
dE	DEFROST TERMINATION TEMP	-50 to 50°C/-58 to 122°F	8.0°C/46°F	42
id	INTERVAL BETWEEN DEF CYCLES	0 to 99 hours	6	4
Md	MAX LENGTH FOR DEFROST	0 to 99 min	30	45
dd	START DEFROST DELAY	0 to 99 min	0	0
dF	DISPLAY DURING DEFROST	rt - it - St - dE	it	rt
dt	DRIP TIME	0 to 99 min	0	0
dP	DEFROST AT POWER ON	Y/N	N	Y
ALARMS				
AU	MAX TEMP ALARM (Upper)	AL o 99°C/AL to 210 °F	99°C/99°F	55
AL	MIN TEMP ALARM (Lower)	-55°C to AU/-67°F to AU	-55°C/-55°F	20
Ad	TEMPERATURE ALARM DELAY	0 to 99 min	15	60
dA	TEMP ALARM DELAY AT STARTUP	0 to 99 min	90	90

A DOVER COMPANY

SET — To display target set point, in programming mode it selects a parameter or confirm an operation

To start a manual defrost

In programming mode it browses the parameter codes or increases the displayed value

AUX — In programming mode it browses the parameter codes or decreases the displayed value

SEE ATTACHED XR04CX OPERATING INSTRUCTIONS

TEMPERATURE PRESSURE CHART - at sea level

Vacuum-Inches of Mercury
Bold Italic Figures

Pressure-Pounds Per Square Inch Gauge

TEMPERATURE		REFRIGERANT (SPORLAN CODE)					TEMPERATURE		REFRIGERANT (SPORLAN CODE)					TEMPERATURE		REFRIGERANT (SPORLAN CODE)				
(°F)	(°C)	134a (J)	404A (S)	507 (P)	717 (A)	744 - CO_2	(°F)	(°C)	134a (J)	404A (S)	507 (P)	717 (A)	744 - CO_2	(°F)	(°C)	134a (J)	404A (S)	507 (P)	717 (A)	744 - CO_2
-60	-51.1	21.8	7.3	5.8	18.6	79.9	12	-11.1	13.1	45.4	48.1	25.6	357.4	42	5.6	37.0	88.8	92.8	61.6	569.3
-55	-48.3	20.3	3.9	2.2	16.6	91.1	13	-10.6	13.8	46.6	49.3	26.5	363.4	43	6.1	38.0	90.6	94.6	63.1	577.6
-50	-45.6	18.7	0.1	0.9	14.3	103.4	14	-10.0	14.4	47.8	50.5	27.5	369.5	44	6.7	39.0	92.4	96.5	64.7	586.0
-45	-42.8	16.9	2.0	3.0	11.7	116.6	15	-9.4	15.0	49.0	51.8	28.4	375.6	45	7.2	40.1	94.2	98.3	66.3	594.5
-40	-40.0	14.8	4.3	5.4	8.8	131.0	16	-8.9	15.7	50.2	53.0	29.4	381.8	46	7.8	41.1	96.0	100.2	67.9	603.1
-35	-37.2	12.5	6.8	8.1	5.4	146.5	17	-8.3	16.4	51.5	54.3	30.4	388.0	47	8.3	42.2	97.9	102.1	69.5	611.7
-30	-34.4	9.8	9.6	11.0	1.6	163.1	18	-7.8	17.0	52.7	55.6	31.4	394.3	48	8.9	43.2	99.8	104.1	71.1	620.5
-25	-31.7	6.9	12.7	14.1	1.3	181.0	19	-7.2	17.7	54.0	56.9	32.4	400.7	49	9.4	44.3	101.7	106.0	72.8	629.3
-20	-28.9	3.7	16.0	17.6	3.6	200.2	20	-6.7	18.4	55.3	58.3	33.5	407.2	50	10.0	45.4	103.6	108.0	74.5	638.3
-18	-27.8	2.3	17.4	19.1	4.6	208.3	21	-6.1	19.1	56.6	59.6	34.6	413.8	55	12.8	51.2	115.3	118.3	83.4	684.4
-16	-26.7	0.8	18.9	20.6	5.6	216.5	22	-5.6	19.9	58.0	61.0	35.7	420.4	60	15.6	57.4	126.0	129.2	92.9	733.1
-14	-25.6	0.4	20.4	22.2	6.7	225.0	23	-5.0	20.6	59.3	62.4	36.8	427.1	65	18.3	64.0	137.3	140.7	103.2	784.2
-12	-24.4	1.1	22.0	23.8	7.8	233.8	24	-4.4	21.3	60.7	63.8	37.9	433.8	70	21.1	71.1	149.3	153.0	114.2	838.1
-10	-23.3	1.9	23.6	25.5	9.0	242.7	25	-3.9	22.1	62.1	65.3	39.0	440.7	75	23.9	78.7	162.0	165.9	125.9	894.9
-8	-22.2	2.8	25.3	27.3	10.3	251.9	26	-3.3	22.9	63.5	66.7	40.2	447.6	80	26.7	86.7	175.4	179.6	138.4	954.9
-6	-21.1	3.6	27.0	29.1	11.5	261.3	27	-2.8	23.7	64.9	68.2	41.4	454.6	85	29.4	95.2	189.5	194.1	151.8	1018
-4	-20.0	4.6	28.8	30.9	12.9	271.0	28	-2.2	24.5	66.4	69.7	42.6	461.7	90	32.2	104.3	204.5	209.3	166.1	**
-2	-18.9	5.5	30.7	32.8	14.3	280.9	29	-1.7	25.3	67.8	71.2	43.8	468.8	95	35.0	113.9	220.2	225.4	181.2	**
0	-17.8	6.5	32.6	34.8	15.7	291.0	30	-1.1	26.1	69.3	72.7	45.0	476.1	100	37.8	124.2	236.8	242.3	197.3	**
1	-17.2	7.0	33.6	35.8	16.4	296.2	31	-0.6	26.9	70.8	74.3	46.3	483.4	105	40.6	135.0	254.2	260.1	214.4	**
2	-16.7	7.5	34.6	36.9	17.2	301.5	32	0.0	27.8	72.4	75.9	47.6	490.8	110	43.3	146.4	272.5	278.8	232.5	**
3	-16.1	8.0	35.6	37.9	18.0	306.8	33	0.6	28.6	73.9	77.5	48.9	498.3	115	46.1	158.4	291.8	298.5	251.6	**
4	-15.6	8.5	36.6	39.0	18.8	312.1	34	1.1	29.5	75.5	79.1	50.2	505.8	120	48.9	171.2	312.1	319.2	271.9	**
5	-15.0	9.1	37.7	40.1	19.6	317.6	35	1.7	30.4	77.1	80.7	51.6	513.4	125	51.7	184.6	333.3	340.9	293.3	**
6	-14.4	9.6	38.7	41.1	20.4	323.1	36	2.2	31.3	78.7	82.4	52.9	521.2	130	54.4	198.7	355.6	363.8	315.8	**
7	-13.9	10.2	39.8	42.3	21.2	328.6	37	2.8	32.2	80.3	84.1	54.3	529.0	135	57.2	213.6	379.1	387.8	339.6	**
8	-13.3	10.8	40.9	43.4	22.1	334.2	38	3.3	33.1	82.0	85.8	55.7	536.9	140	60.0	229.2	403.7	413.0	364.7	**
9	-12.8	11.3	42.0	44.5	22.9	339.9	39	3.9	34.1	83.7	87.5	57.2	544.8	145	62.8	245.7	429.6	439.5	391.0	**
10	-12.2	11.9	43.1	45.7	23.8	345.7	40	4.4	35.0	85.4	89.2	58.6	552.9	150	65.6	262.9	456.8	467.4	418.7	**
11	-11.7	12.5	44.3	46.9	24.7	351.5	41	5.0	36.0	87.1	91.0	60.1	561.0	155	68.3	281.0	485.5	497.0	447.8	**

To determine subcooling for R-404A use BUBBLE POINT values (Temperatures above 50°F — Gray Background); to determine superheat for R-404A, use DEW POINT values (Temperatures 50°F and below).
** = exceeds critical temperature

P084117C

dixell **Operating Manual** WEISS INSTRUMENTS

DIGITAL CONTROLLER
XR03CX - XR04CX

1. CONTENTS

2. GENERAL WARNINGS

PLEASE READ BEFORE USING THIS MANUAL

1. This manual is part of the product and should be kept near the instrument for easy and quick reference.
2. The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.
3. Check the application limits before proceeding.

SAFETY PRECAUTIONS

- Check the supply voltage is correct before connecting the instrument.
- Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation
- Warning: disconnect all electrical connections before any kind of maintenance.
- Fit the probe where it is not accessible by the End User. The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor or to "Dixell S.p.A." (see address) with a detailed description of the fault.
- Consider the maximum current which can be applied to each relay (see Technical Data).
- Ensure that the wires for probes, loads and the power supply are separated and far enough from each other, without crossing or interfwining.
- In case of applications in industrial environments, the use of mains filters (our mod. FT1) in parallel with inductive loads could be useful.

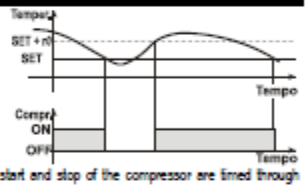
3. GENERAL DESCRIPTION

The **XR03CX**, in **32×74x60mm short format**, is microprocessor based controller suitable for applications on normal temperature refrigerating units. It provides two relay output: one for compressor and the other one for alarm signalling or as auxiliary output. It provides two NTC probe inputs, one for room temperature and other one to control defrost termination. The instrument is fully configurable through special parameters that can be easily programmed through the keyboard or the by HOTKEY

The **XR04CX**, in **32×74x60mm short format**, is microprocessor based controller suitable for applications on normal or low temperature refrigerating units. It provides two relay output: one for compressor and the other one for defrost. It provides two NTC probe inputs, one for room temperature and other one to control defrost termination. The instrument is fully configurable through special parameters that can be easily programmed through the keyboard or the by HOTKEY.

4. REGULATION

The regulation is performed according to the temperature measured by the thermostat probe with a positive differential from the set point: if the temperature increases and reaches set point plus differential the compressor is started and then turned off when the temperature reaches the set point value again.



In case of fault in the thermostat probe the start and stop of the compressor are timed through parameters "Cy" and "Cn".

5. DEFROST

XR03CX

Defrost is performed through a simple stop of the compressor. Parameter "id" controls the interval between defrost cycles, while its length is controlled by parameter "**Md**" and the end defrost temperature **dE**

XR04CX

Two defrost modes are available through the "**tdf**" parameter:

- **td=EL** → defrost through electrical heater (compressor OFF)
- **td=in** → hot gas defrost (compressor ON).

Other parameters are used to control the interval between defrost cycles (**id**)), its maximum length (**Md**) and two defrost modes: timed or controlled by the evaporator's probe. At the end of defrost dripping time is started, its length is set in the **dt** parameter. With **dt=0** the dripping time is disabled.

6. FRONT PANEL COMMANDS

SET To display target set point, in programming mode it selects a parameter or confirm an operation

To start a manual defrost

In programming mode it browses the parameter codes or increases the displayed value

In programming mode it browses the parameter codes or decreases the displayed value

AUX

KEYS COMBINATION

- ▽ + △ To lock or unlock the keyboard
- SET + ▽ To enter in programming mode
- SET + △ To return to room temperature display

LED	MODE	SIGNIFICANCE
❄	On	Compressore enabled
	Flashing	Anti short cycle delay enabled (AC parameter)
❄	On	Defrost in progress
	Flashing	Dripping in progress
°C	On	Measurement unit
	Flashing	Programming mode
°F	On	Measurement unit
	Flashing	Programming mode

HOW TO SEE THE SET POINT

1. Push and immediately release the SET key, the set point will be showed;
2. Push and immediately release the SET key or wait about 5s to return to normal visualisation.

HOW TO CHANGE THE SETPOINT

1. Push the SET key for more than 2 seconds to change the Set point value;
2. The value of the set point will be displayed and the "°C" or "°F" LED starts blinking;
3. To change the Set value push the △ or ▽ arrows within 10s.
4. To memorise the new set point value push the SET key again or wait 10s.

HOW TO START A MANUAL DEFROST

Push the DEF ❄ key for more than 2 seconds and a manual defrost will start

HOW TO CHANGE A PARAMETER VALUE

To change the parameter's value operate as follows:

1. Enter the Programming mode by pressing the SET+ ▽ keys for 3s ("°C" or "°F" LED starts blinking).
2. Select the required parameter. Press the "SET" key to display its value
3. Use △ or ▽ to change its value.
4. Press "SET" to store the new value and move to the following parameter.

To exit: Press SET+ △ or wait 15s without pressing a key.

NOTE: the set value is stored even when the procedure is exited by waiting the time-out to expire.

HIDDEN MENU

The hidden menu includes all the parameters of the instrument.

HOW TO ENTER THE HIDDEN MENU

1. Enter the Programming mode by pressing the SET+ ▽ keys for 3s ("°C" or "°F" LED starts blinking).
2. Released the keys, then push again the SET+ ▽ keys for more then 7s. The L2 label will be displayed immediately followed from the Hy parameter.
   NOW YOU ARE IN THE HIDDEN MENU.
3. Select the required parameter.
4. Press the "SET" key to display its value
5. Use △ or ▽ to change its value.
6. Press "SET" to store the new value and move to the following parameter.

To exit: Press SET+ △ or wait 15s without pressing a key.

NOTE1: if none parameter is present in L1, after 3s the "nP" message is displayed. Keep the keys pushed till the L2 message is displayed.

NOTE2: the set value is stored even when the procedure is exited by waiting the time-out to expire.

HOW TO MOVE A PARAMETER FROM THE HIDDEN MENU TO THE FIRST LEVEL AND VICEVERSA.

Each parameter present in the HIDDEN MENU can be removed or put into "THE FIRST LEVEL" (user level) by pressing SET+ ▽. In HIDDEN MENU when a parameter is present in First Level the decimal point is on.

TO LOCK THE KEYBOARD

Keep pressed for more than 3s the △ and ▽ keys.

The "OF" message will be displayed and the keyboard will be locked. If a key is pressed more than 3s the "OF" message will be displayed.

TO UNLOCK THE KEYBOARD

Keep pressed together for more than 3s the △ and ▽ keys till the "on" message will be displayed.

APPROVED
By Frank Baze, P.E. at 10:44 am, Mar 14, 2014

7. PARAMETERS

REGULATION

- Hy Differential: (0,1÷25°C / 1 ÷ 45°F) Intervention differential for set point. Compressor Cut IN is SET POINT + differential (Hy). Compressor Cut OUT is when the temperature reaches the set point.
- LS Minimum SET POINT: (-55°C÷SET/-67°F÷SET): Sets the minimum value for the set point..
- US Maximum SET POINT: (SET÷99°C/ SET÷99°F). Set the maximum value for set point.
- ot First probe calibration: (-9.9÷9.9°C / -99 ÷ 99°F) allows to adjust possible offset of the first probe.
- P2 Evaporator probe presence: n= not present; y= the defrost stops by temperature.
- oE Second probe calibration: (-9.9÷9.9°C / -99 ÷ 99°F) allows to adjust possible offset of the second probe.
- od Outputs activation delay at start up: (0÷99min) This function is enabled at the initial start up of the instrument and inhibits any output activation for the period of time set in the parameter.
- AC Anti-short cycle delay: (0÷50 min) minimum interval between the compressor stop and the following restart.
- Cy Compressor ON time with faulty probe: (0÷99 min) time during which the compressor is active in case of faulty thermostat probe. With Cy=0 compressor is always OFF.
- Cn Compressor OFF time with faulty probe: (0÷99 min) time during which the compressor is OFF in case of faulty thermostat probe. With Cn=0 compressor is always active.

DISPLAY

- CF Measurement unit: (°C÷°F) °C =Celsius; °F =Fahrenheit. WARNING: When the measurement unit is changed the SET point and the values of the parameters Hy, LS, US, oE, o1, AU, AL have to be checked and modified if necessary).
- rE Resolution (only for °C):(dE ÷ in) dE= decimal between -9.9 and 9.9°C; in= integer
- Ld Default display: (P1 ÷ P2) P1= thermostat probe; P2= evaporator probe. SP=Set point
- dy Display delay: (0÷15 min.) when the temperature increases, the display is updated of 1 °C/1°F after this time.

DEFROST

- td Defrost type: (EL – in) EL= electrical heater, compressor OFF; in= hot gas, compressor ON;
- dE Defrost termination temperature: (-55÷50°C / -67÷99°F) if P2=Y it sets the temperature measured by the evaporator probe, which causes the end of defrost.
- id Interval between defrost cycles: (0÷99 ore) Determines the time interval between the beginning of two defrost cycles.
- nd Maximum length for defrost: (0÷99 min. with 0 no defrost) when P2=n, (not evaporator probe: timed defrost) it sets the defrost duration, when P2 = y (defrost end based on temperature) it sets the maximum length for defrost.
- dd Start defrost delay: (0÷99min) This is useful when different defrost start times are necessary to avoid overloading the plant.
- dF Display during defrost: (rt / it / SP / dE) rt= real temperature; it= start defrost temperature; SP= SET-POINT; dE= label dE.
- dt Drip time: (0÷99 min) time interval between reaching defrost termination temperature and the restoring of the control's normal operation. This time allows the evaporator to eliminate water drops that might have formed due to defrost.
- dP Defrost at power –on: (y÷n) y= at power on defrost starts; n= defrost doesn't start at power-on

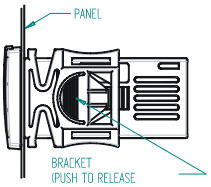
ALARM

- AU Maximum temperature alarm: (AL÷99°C/99°F) when this temperature is reached the alarm is enabled, after the "Ad" delay time.
- AL Minimum temperature alarm: (-55÷AU°C /-67÷AU°F) when this temperature is reached the alarm is enabled, after the "Ad" delay time.
- Ad Temperature alarm delay: (0÷99 min) time interval between the detection of an alarm condition and alarm signalling.
- dA Exclusion of temperature alarm at startup: (0÷99 min) time interval between the detection of the temperature alarm condition after instrument power on and alarm signalling.

OTHER

- d1 Thermostat probe display (read only)
- d2 Evaporator probe display (read only)
- Pt Parameter code table

8. INSTALLATION AND MOUNTING



Instrument XR03CX and XR04CX shall be mounted on vertical panel, in a 29x71 mm hole, and fixed using the special bracket supplied.

The temperature range allowed for correct operation is 0÷60 °C. Avoid places subject to strong vibrations, corrosive gases, excessive dirt or humidity. The same recommendations apply to probes. Let air circulate by the cooling holes.

9. ELECTRICAL CONNECTIONS

The instrument is provided with screw terminal block to connect cables with a cross section up to 2,5 mm². Before connecting cables make sure the power supply complies with the instrument's requirements. Separate the probe cables from the power supply cables, from the outputs and the power connections. Do not exceed the maximum current allowed on each relay, in case of heavier loads use a suitable external relay.

1.1 PROBES

The probes shall be mounted with the bulb upwards to prevent damages due to casual liquid infiltration. It is recommended to place the thermostat probe away from air streams to correctly measure the average room temperature. Place the defrost termination probe among the evaporator fins in the coldest place, where most ice is formed, far from heaters or from the warmest place during defrost, to prevent premature defrost termination.

10. HOW TO USE THE HOT KEY

1.2 HOW TO PROGRAM THE HOT KEY FROM THE INSTRUMENT (UPLOAD)

1. Program one controller with the front keypad.
2. When the controller is ON, insert the "Hot key" and push ∧ key; the "uP" message appears followed a by flashing "Ed"
3. Push "SET" key and the "Ed" will stop flashing.
4. Turn OFF the instrument remove the "Hot Key", then turn it ON again.

NOTE: the "Er" message is displayed for failed programming. In this case push again o key if you want to restart the upload again or remove the "Hot key" to abort the operation.

1.3 HOW TO PROGRAM AN INSTRUMENT USING HOT KEY (DOWNLOAD)

1. Turn OFF the instrument.
2. Insert a programmed "Hot Key" into the 5 PIN receptacle and then turn the Controller ON.
3. Automatically the parameter list of the "Hot Key" is downloaded into the Controller memory, the "do" message is blinking followed a by flashing "Ed".
4. After 10 seconds the instrument will restart working with the new parameters.
5. Remove the "Hot Key".

NOTE: the "Er" message is displayed for failed programming. In this case push again o key if you want to restart the upload again or remove the "Hot key" to abort the operation.

11. ALARM SIGNALLING

Mess.	Cause	Outputs
"P1"	Room probe failure	Compressor output according to "Cy" e "Cn"
"P2"	Evaporator probe failure	Defrost end is timed (Only XR04CX)
"HA"	Maximum temperature alarm	Outputs unchanged
"LA"	Minimum temperature alarm	Outputs unchanged

1.4 ALARM RECOVERY

Probe alarms P1" and "P2" start some seconds after the fault in the related probe; they automatically stop some seconds after the probe restarts normal operation. Check connections before replacing the probe. Temperature alarms "HA" and "LA" automatically stop as soon as the temperature returns to normal values.

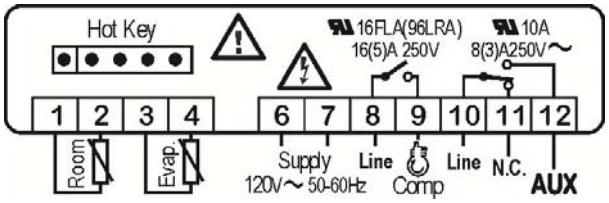
Alarms "EA" and "CA" (with iF=bA) recover as soon as the digital input is disabled.

12. TECHNICAL DATA

Housing: self extinguishing ABS.
Case: frontal 32x74 mm; depth 50mm;
Mounting: panel mounting in a 71x29mm panel cut-out
Protection: IP20; Frontal protection: IP65
Connections: Screw terminal block ≤ 2,5 mm² wiring.
Power supply: according to the model 110Vac ±10%, 50/60Hz --- 230Vac ±10%, 50/60Hz
Power absorption: 3.5 VA max
Display: 2 digits, red LED, 14,2 mm high; Inputs: Up to 2 NTC probes.
Relay outputs: compressor SPST 20(8)A 250Vac or 8(3) A 250Vac
defrost or Aux: SPDT 8(3) A 250Vac
Data storing: on the non-volatile memory (EEPROM).
Kind of action: 1B; Pollution grade: 2;Software class: A.;
Rated impulsive voltage: 2500V; Overvoltage Category: II
Operating temperature: 0÷60 °C; Storage temperature: -25÷60 °C.
Relative humidity: 20÷85% (no condensing).
Measuring and regulation range: NTC probe: -40÷110°C.
Resolution: 0,1 °C or 1°C or 1 °F (selectable); Accuracy (ambient temp. 25°C): ±0,1 °C ±1 digit

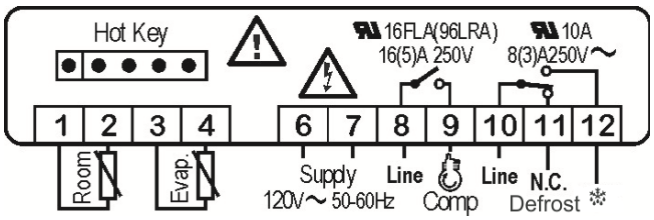
13. CONNECTIONS

XR03CX



NOTE: In model with 110Vac the power supply has to be connected to 6-7 terminal

XR04CX



NOTE: In model with 110Vac the power supply has to be connected to 6-7 terminals.

14. D ULT SETTING VALUES

LABEL	DESCRIPTION	RANGE	DEFAULT
REGULATION			
HY	Differential	0.1 ÷ 25°C/1 ÷ 45°F	2.0°C / 4 °F
LS	Minimum Set Point	-55°C÷SET/-67°F÷SET	-55 °C /-55°F
US	Maximum Set Point	SET÷99°C/ SET÷99°F	99 °C / 99°F
ot	First probe calibration	-9.9÷9.9°C/-99÷99°F	**0.0**
P2	Second probe presence	n – Y	y
oE	Second probe calibration	-9.9÷9.9°C/-99÷99°F	0.0
od	Outputs activation delay at start up	0 ÷ 99 min	0
AC	Anti-short cycle delay	0 ÷ 50 min	1
CY	Compressor ON time faulty probe	0 ÷ 99 min	15
CN	Compressor OFF time faulty probe	0 ÷ 99 min	30
DISPLAY			
CF	Measurement units	°C - °F	°C / °F
rE	Resolution (only for °C)	dE – in	dE
Ld	Default Display	P1-P2	P1
dY	Display delay	0 ÷ 15 min	0
DEFROST			
td	Defrost type	EL – in	EL
dE	Defrost termination temperature	-55÷50°C/-67÷99°F	8.0 °C / 46 °F
id	Interval between defrost cycles	0 ÷ 99 hours	6
Md	Maximum length for defrost	0 ÷ 99 min.	30
dd	Start defrost delay	0 ÷ 99 min.	0
dF	Display during defrost	rt – in – SP – dE	it
dt	Drip time	0 ÷ 99 min	0
dP	Defrost at power-on	y – n	n
ALARMS			
AU	Maximum temperature alarm	ALL÷99°C / ALL÷99°F	99 °C / 99 °F
AL	Minimum temperature alarm	-55°C÷ALU/-67°F÷ALU	-55 °C / -55 °F
Ad	Temperature alarm delay	0 ÷ 99 min	15
dA	Exclusion of temperature alarm at startup	0 ÷ 99 min	90
OTHER			
d1	Thermostat probe display	Read Only	- - -
d2	Evaporator probe display	Read Only	- - -
Pt	Parameter code table	Read Only	- - -
rL	Firmware release	Read Only	- - -

NSF MODEL RC

CE

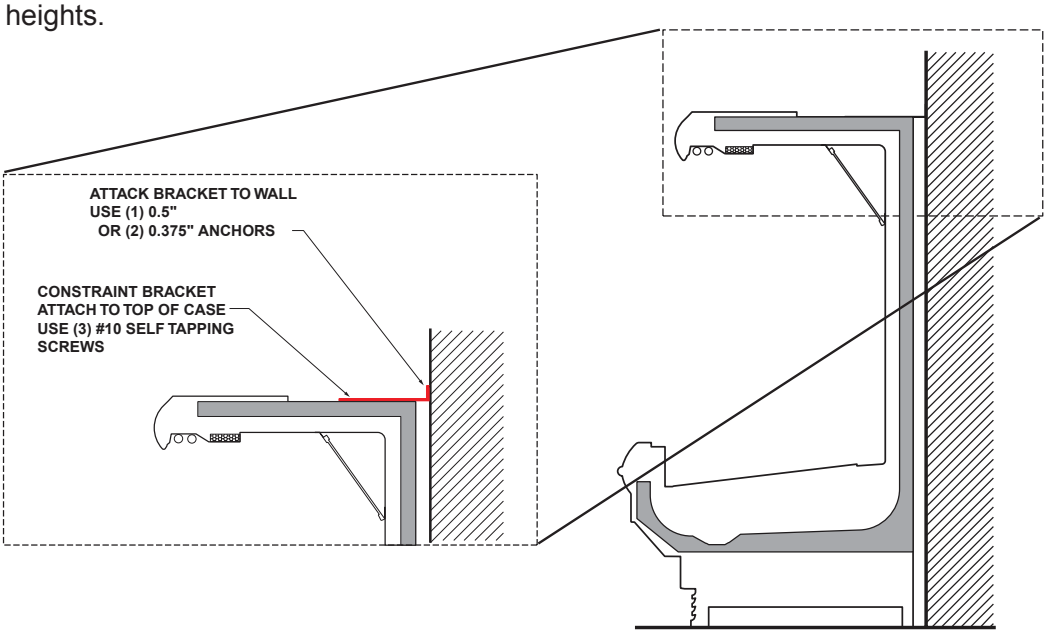
cULus

Weiss Instruments, Inc.
905 Waverly Ave.
Holtsville, NY 11742
(631)207-1200 f (631)297-0900
sales@weissinstruments.com www.weissinstruments.com

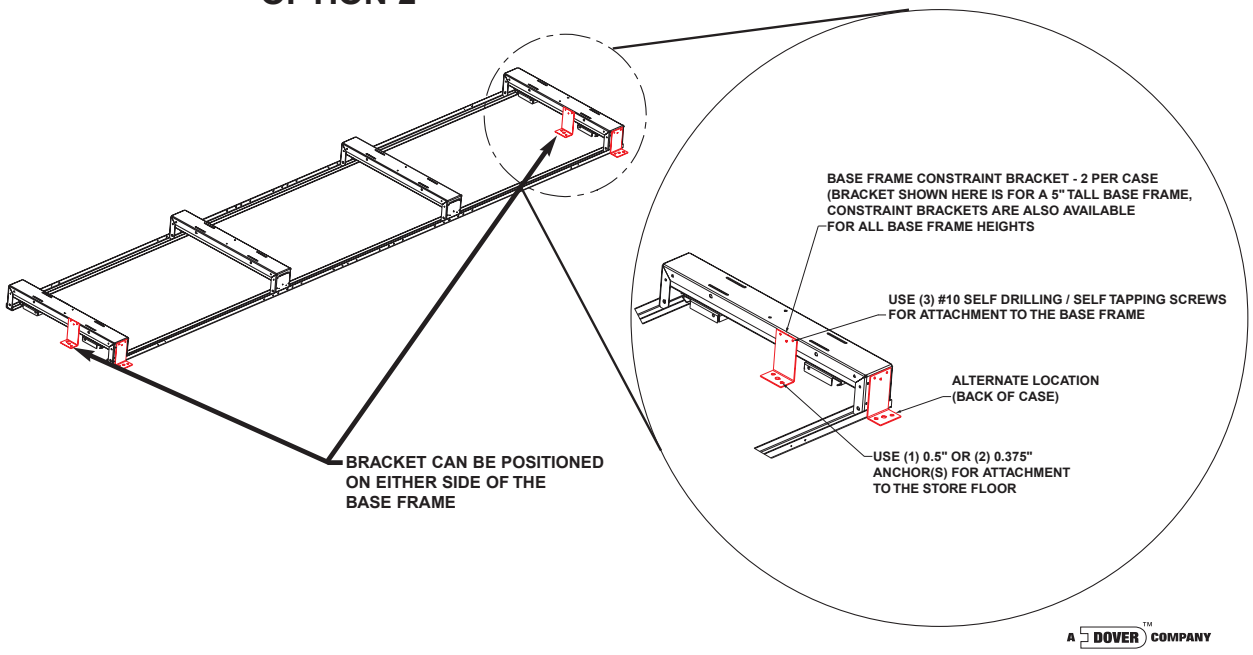
CONSTRAINT BRACKET INSTALLATION

The case constraint brackets can be installed in 2 ways. Option 1 can be used on multi-deck cases and uses an “L” bracket to attach the case to a vertical wall, as shown below. Option 2 can be used on multi-deck cases or on cases that do not have a canopy. Attach the “L” brackets to the base frames in either of the locations shown below. Brackets are available for all base frame heights.

OPTION 1



OPTION 2



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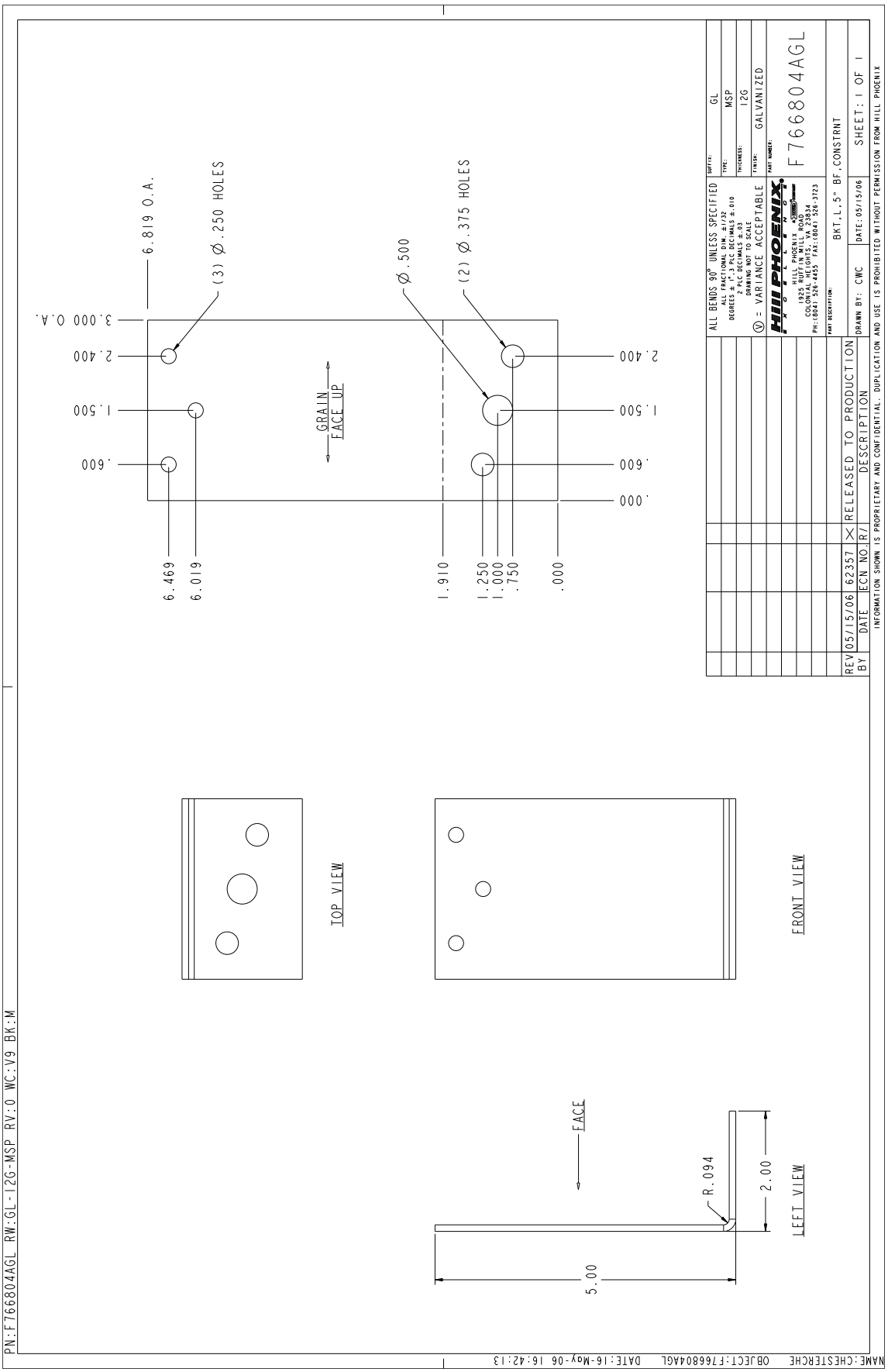
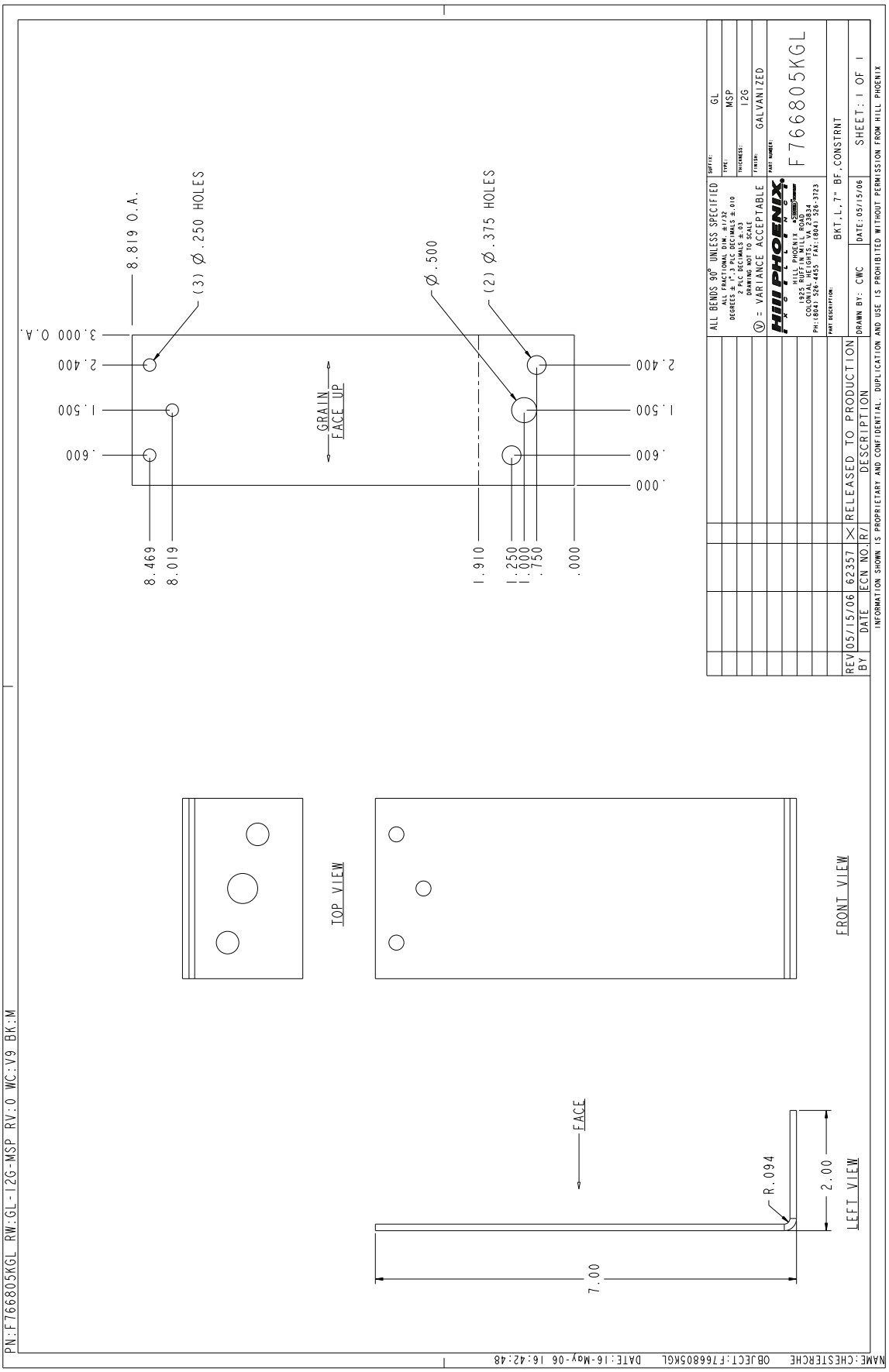
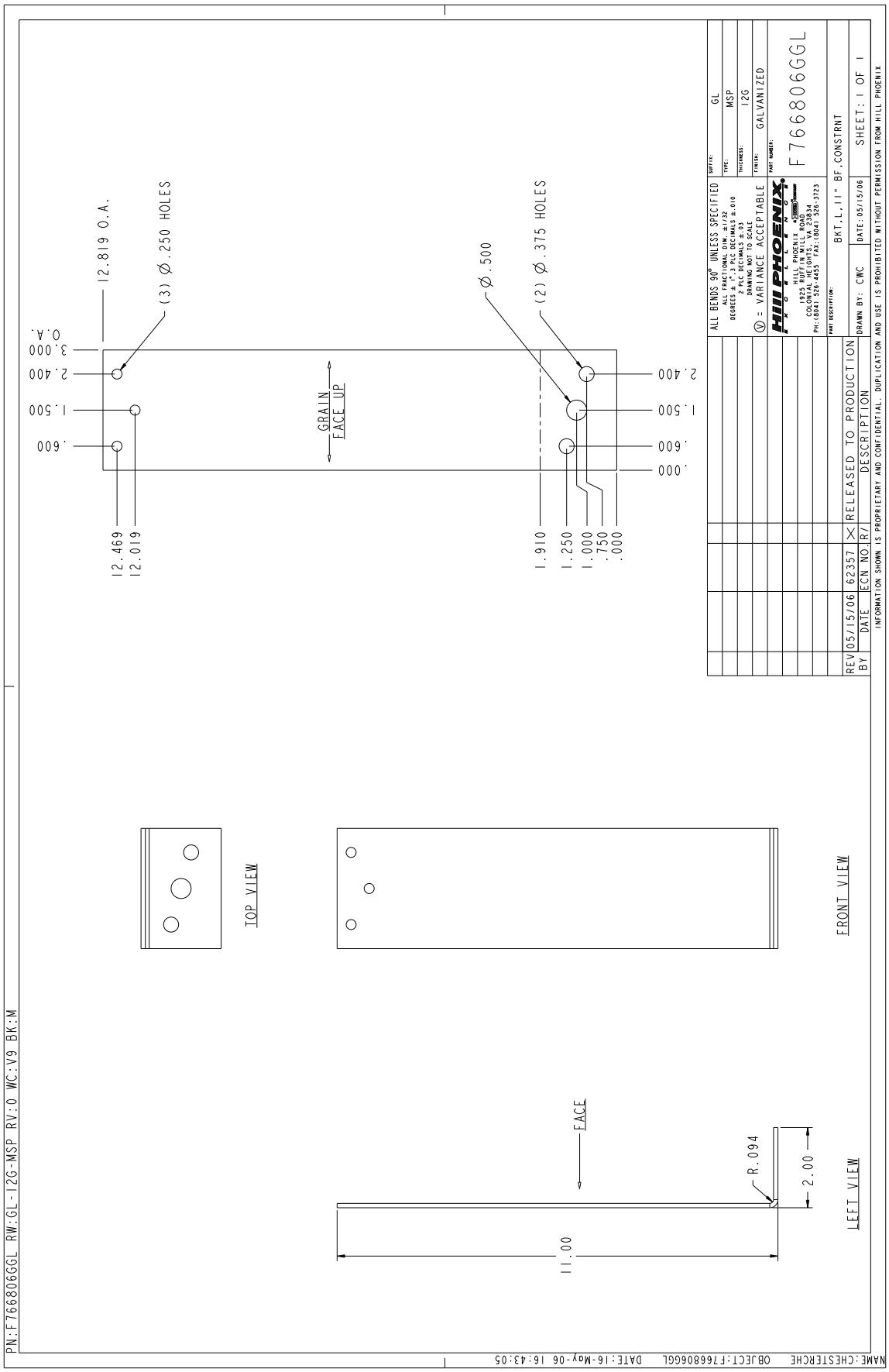
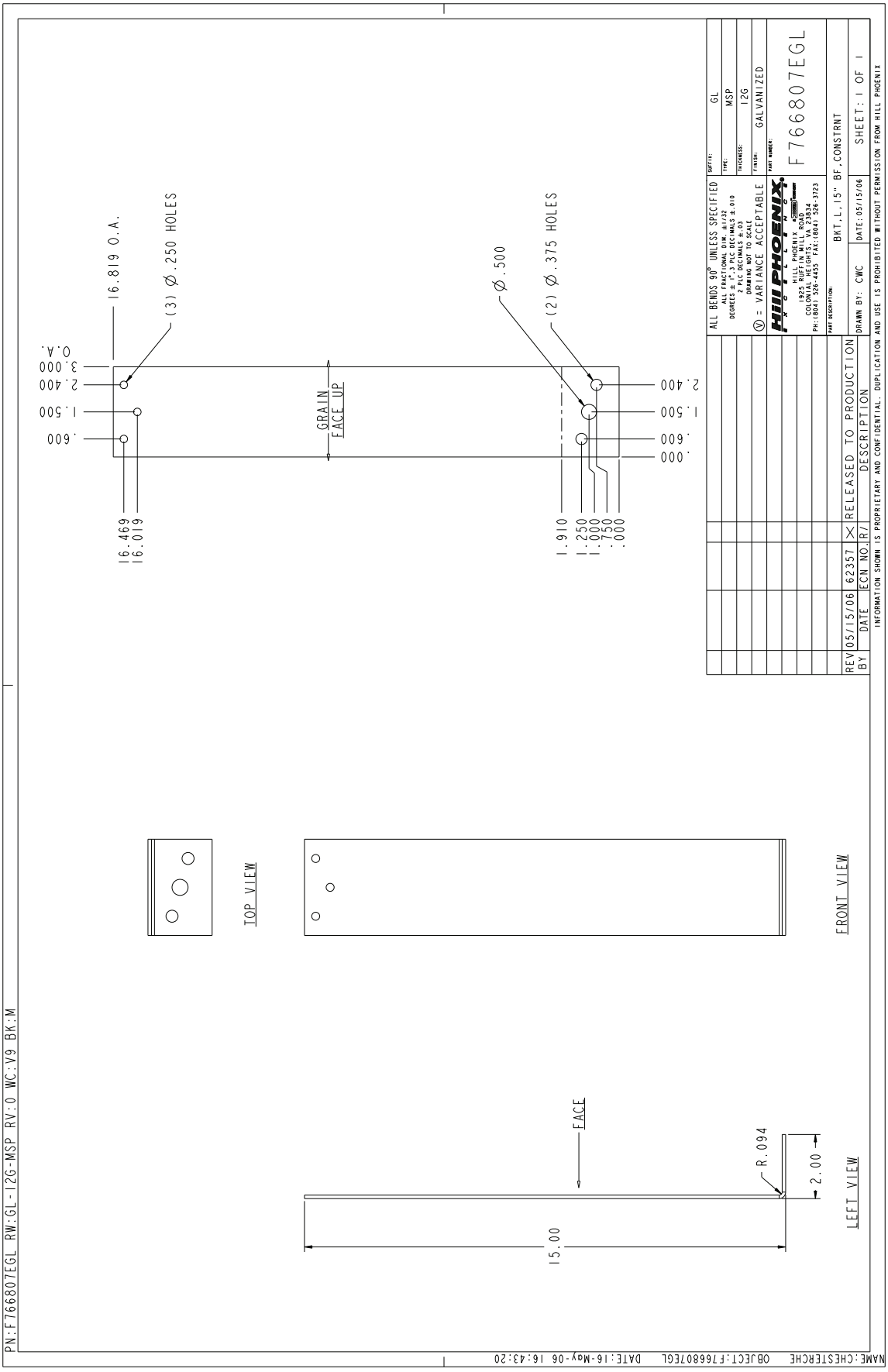

PN:F766804AGL RW:GL-12G-MSP RV:0 WC:V9 BK:M
NAME:CHESTERCHE OBJECT:F766804AGL DATE:16-May-06 16:42:13
6.819 O.A.
(3) Ø.250 HOLES
Ø.500
(2) Ø.375 HOLES
3.000 O.A.
2.400
1.500
.600
.000
GRAIN
FACE UP
6.469
6.019
1.910
1.250
1.000
.750
.000
TOP VIEW
FRONT VIEW
FACE
R.094
2.00
5.00
LEFT VIEW
ALL BENDS 90° UNLESS SPECIFIED
ALL DIMENSIONAL TOLERANCES ± .32
DEGREES ± 1°, 3 PLC DECIMALS ± .010
2 PLC DECIMALS ± .03
DRAWING NOT TO SCALE
Ⓥ = VARIANCE ACCEPTABLE
HILL PHOENIX
HILL PHOENIX
1825 RUFFIN MILL ROAD
COLUMBIA, SOUTH CAROLINA 29234
PH:(804) 526-4455 FAX:(804) 526-3723
SUFFIX: GL
TYPE: MSP
THICKNESS: 12G
FINISH: GALVANIZED
PART NUMBER: F766804AGL
PART DESCRIPTION: BKT,L.5" BF,CONSTRNT
DRAWN BY: CWC
DATE: 05/15/06
SHEET: 1 OF 1
REV BY
DATE 05/15/06
ECN NO. 62357
R/ X
RELEASED TO PRODUCTION
DESCRIPTION
INFORMATION SHOWN IS PROPRIETARY AND CONFIDENTIAL. DUPLICATION AND USE IS PROHIBITED WITHOUT PERMISSION FROM HILL PHOENIX

SEISMIC BRACKET (7”)

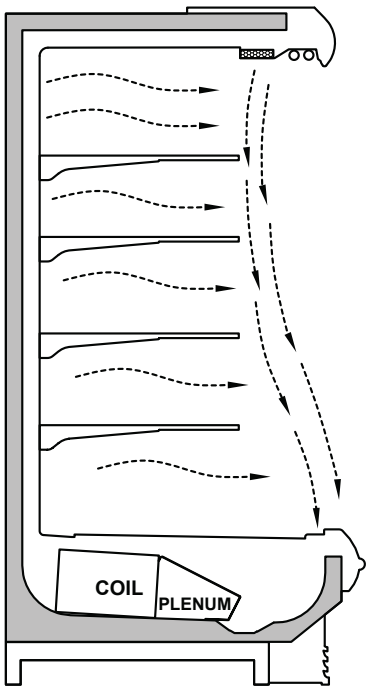



PN:F766806GGL RW:GL-12G-MSP RV:0 WC:V9 BK:M
NAME:CHESTERCHE OBJECT:F766806GL DATE:16-May-06 16:43:05
12.819 O.A.
(3) Ø.250 HOLES
3.000 O.A.
2.400
1.500
.600
12.469
12.019
GRAIN FACE UP
Ø.500
(2) Ø.375 HOLES
2.400
1.500
.600
.000
1.910
1.250
1.000
.750
.000
TOP VIEW
FRONT VIEW
LEFT VIEW
FACE
R.094
2.00
11.00
ALL BENDS 90° UNLESS SPECIFIED
ALL ANGULAR DIM. ± .5°
DEGREES ± .13 PLC DECIMALS ± .010
2 PLC DECIMALS ± .03
DRAWING NOT TO SCALE
Ⓥ = VARIANCE ACCEPTABLE
HILL PHOENIX
HILL PHOENIX
1925 RUFFIN MILL ROAD
COLUMBIA, SOUTH CAROLINA 29234
PH:(8041 526-4455 FAX:(8041 526-3723
PART DESCRIPTION: BKT,L,11" BF,CONSTRNT
DRAWN BY: CWC
DATE: 05/15/06
SHEET: 1 OF 1
SHIFT: GL
TYPE: MSP
THICKNESS: 12G
FINISH: GALVANIZED
PART NUMBER: F766806GGL
REV 05/15/06 62357 X RELEASED TO PRODUCTION
BY DATE ECN NO. R/ DESCRIPTION
INFORMATION SHOWN IS PROPRIETARY AND CONFIDENTIAL. DUPLICATION AND USE IS PROHIBITED WITHOUT PERMISSION FROM HILL PHOENIX

SEISMIC BRACKET (15”)



1



2

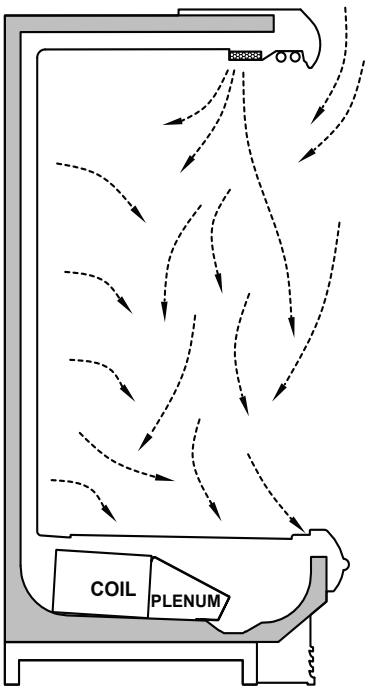
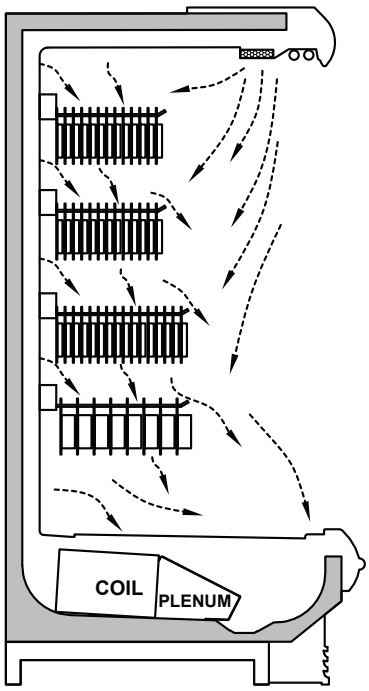


FIG. 1 illustrates the air flow in a multi-deck display merchandiser with shelves. Air flows from the top and back, forming a protective barrier against the ambient store air. FIG. 2 illustrates the air flow in the same case when the shelves are removed. Air drifts back to the rear duct and swirls around, thus breaking the protective air envelope and allowing case air to mix with ambient store air.

3



4

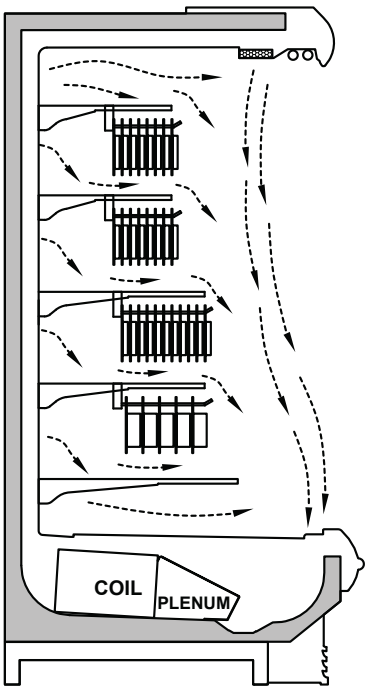
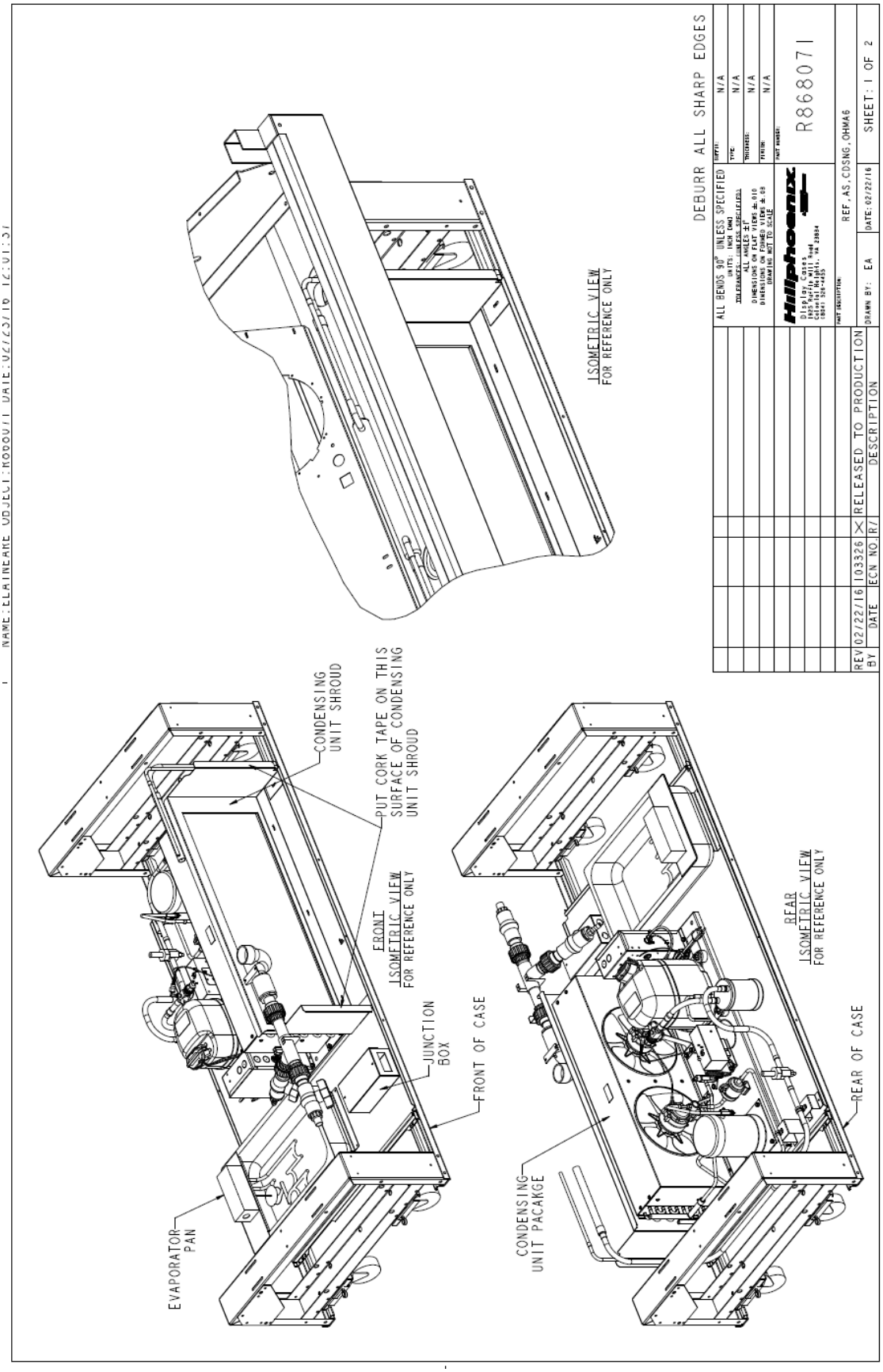


FIG. 3 illustrates the air flow in a display merchandiser with peg bars. The air falls through openings between packages and fails to maintain a protective barrier. When the bars are fully stocked, the effect is minimized; however, product temperatures will not be optimal. Sweating may be noticed on the top duct panel above the bars and frost will build up on the coil faster, requiring more frequent defrost cycles. FIG. 4 illustrates the proper set-up for a display merchandiser with peg bars. The addition of a solid baffle above each row of peg bars - except for the bottom shelf - maintains proper air flow and temperatures in the case. Non load-bearing solid air baffles should run the same width as the peg bars.

INTERNAL CASE COMPONENTS LAYOUT



NOTES

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WARRANTY

HEREINAFTER REFERRED TO AS MANUFACTURER

FOURTEEN MONTH WARRANTY. MANUFACTURER'S PRODUCT IS WARRANTED TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP UNDER NORMAL USE AND MAINTENANCE FOR A PERIOD OF FOURTEEN MONTHS FROM THE DATE OF ORIGINAL SHIPMENT. A NEW OR REBUILT PART TO REPLACE ANY DEFECTIVE PART WILL BE PROVIDED WITHOUT CHARGE, PROVIDED THE DEFECTIVE PART IS RETURNED TO MANUFACTURER. THE REPLACEMENT PART ASSUMES THE UNUSED PORTION OF THE WARRANTY.

This warranty does not include labor or other costs incurred for repairing, removing, installing, shipping, servicing, or handling of either defective parts or replacement parts.

The fourteen month warranty shall not apply:

1. To any unit or any part thereof which has been subject to accident, alteration, negligence, misuse or abuse, operation on improper voltage, or which has not been operated in accordance with the manufacturer's recommendation, or if the serial number of the unit has been altered, defaced, or removed.

2. When the unit, or any part thereof, is damaged by fire, flood, or other act of God.

3. Outside the continental United States.

4. To labor cost for replacement of parts, or for freight, shipping expenses, sales tax or upgrading.

5. When the operation is impaired due to improper installation.

6. When installation and startup forms are not properly complete or returned within two weeks after startup.

THIS PLAN DOES NOT COVER CONSEQUENTIAL DAMAGES. Manufacturer shall not be liable under any circumstances for any consequential damages, including loss of profit, additional labor cost, loss of refrigerant or food products, or injury to personnel or property caused by defective material or parts or for any delay in its performance hereunder due to causes beyond its control. The foregoing shall constitute the sole and exclusive remedy of any purchases and the sole and exclusive liability of Manufacturer in connection with this product.

The Warranties are Expressly in Lieu of All Other Warranties, Express or Implied and All Other Obligations or Liabilities on Our Part. The Obligation to Repair or Replace Parts or Components Judged to be Defective in Material or Workmanship States Our Entire Liability Whether Based on Tort, Contract or Warranty. We Neither Assume Nor Authorize Any Other Person to Assume for Us Any Other Liability in Connection with Our Product.

MAIL CLAIM TO:

Hillphoenix
Display Merchandisers
1925 Ruffin Mill Road
Colonial Heights, VA 23834
1-800-283-1109

Hillphoenix
Refrigeration Systems &
Electrical Distribution Products
709 Sigman Road
Conyers, GA 30013
770-285-3200

Warning
Maintenance & Case Care

When cleaning cases the following must be performed PRIOR to cleaning:

To avoid electrical shock, be sure all electric power is turned off before cleaning. In some installations, more than one switch may have to be turned off to completely de-energize the case.

Do not spray cleaning solution or water directly on fan motors or any electrical connections.

All lighting components must be dried off prior to insertion and re-energizing the lighting circuit.

Please refer to the Use and Maintenance section of this installation manual.

Hillphoenix
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Tel: 1-800-283-1109

1925 Ruffin Mill Road, Colonial Heights, VA 23834