



SINGLE-DECK MERCHANDISER

INSTALLATION & OPERATIONS MANUAL

OWIZV/OWEZV

OWIZVL/OWEZVL

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To ensure proper functionality and optimum performance, it is **STRONGLY** recommended that Hillphoenix specialty 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 website at www.hillphoenix.com.

Hillphoenix

A DOVER COMPANY



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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 personal injury, death, or property damage resulting from an electrical failure, fire, electric shock, or mold.

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R-744 (CO² NOTICE)

For Systems Utilizing R-744 (CO²) Refrigerant

For refrigeration units that utilize R-744(CO²), pressure relief and pressure-regulating relief valves may need to be installed based on the system capacity. The valves need to be located such that no stop valve is positioned between the relief valves and the parts or section of the system being protected.

When de-energizing refrigeration units containing R-744 (CO²), venting of the R-744 (CO²) refrigerant may occur through the pressure-regulating relief valves. These valves are located on the refrigeration system and not on the case model. If venting does occur, the valve must not be defeated, capped, or altered by any means.

WARNING: Under no circumstances should any component be replaced or added without consulting HILLPHOENIX Field Service Engineering. Utilizing improper components may result in serious injury to persons or damage to the system.

Important

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 include important warning messages in all Hillphoenix installation and operations handbooks, accompanied by an alert symbol paired with the word "DANGER", "CAUTION", or "ATTENTION".

All warning messages will inform you of the potential hazard, how to reduce the risk of case damage, personal injury or death, and what may happen if the instructions are not properly followed.



DANGER

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



CAUTION

Indicates that failure to properly follow instructions may result in case damage.



ATTENTION

Indicates important information that is critical to proper case performance.

Revision History

Rev.	Date	Change Description	Author
V1.07	03/14	Added logos and lighting section	T.A.G.
V1.08	04/23	Updated tech sheets, warranty, and parts list	T.A.G.
V1.09	10/25	New tech sheets and images	T.A.G.
V1.10	12/25	New tech sheets	T.A.G.

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 specialty 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 number listed below. Thank you for choosing Hillphoenix, and we wish you the very best in outstanding food merchandising.

CASE MODELS

This manual specifically covers the OWIZV, OWEZV, OWIZVL, and OWEZVL single-deck island merchandisers.

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 (NSF Type I Conditions). Please see the case technical data sheets for specific store conditions for optimum performance. Case operation will be adversely affected by exposure to excessively high ambient temperatures and/or humidity.

REFRIGERATION SYSTEM OPERATION

Air-cooled condensing units require adequate ventilation for efficient performance. Machine-room temperatures must be maintained at a minimum of 65°F in winter and a maximum of 95°F in summer. Minimum condensing temperatures should be no less than 70°F.

SHIPPING CASES

Transportation companies assume all liability from the time a shipment is received by them until the time it is delivered to the consumer. Our liability ceases at the time of shipment.

RECEIVING CASES

Examine fixtures carefully; in the event of shipping damage and/or shortages, please contact the Service Parts Department at the number listed below.

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. **Failure to follow this procedure will result in refusal by the carrier to honor any claims with a consequent loss to the consumer.**

If a UPS shipment has been damaged, retain the damaged material and carton, and notify us at once. We will file a claim.

LOST/MISSING ITEMS

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

When making a claim, please call the number listed in the Service/Technical Support section.

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 1-833-280-5714.



CAUTION

Under no circumstance should any component be replaced or added without consulting Hillphoenix Field Service Engineering. Utilizing improper components may result in serious injury to persons or damage to the refrigeration system.

PARTS ORDERING

If you need to contact Hillphoenix regarding a specific fixture, be certain that you have both the case model number and serial number (this information can be found on the data tag, located on the interior of the case). When you have this information, call the toll-free number below and ask for a Service Parts Representative.



See **Appendix I** for a detailed parts list and illustration.

Hillphoenix

**1925 Ruffin Mill Rd.
Colonial Heights, VA 23834**

Mon.-Fri. (8 a.m. to 5 p.m. EST)

Tel: 1-800-283-1109

Web site: www.hillphoenix.com

FLOOR PREP

1. Ask the general contractor if your current copy of the building dimensions are the most recently 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 case feet.
3. Leveling is necessary to ensure proper case alignment and to avoid potential case damage. Locate the highest point on the positioning lines 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 basehorse positions along the chalk lines. Spot properly leveled shim packs at each basehorse location.
5. Roll the first case into position. Raise the case from the end under cross support using a "J" bar. Remove cotter pins, casters, and outriggers, then level the case on shims.
6. Remove any shipping accessories from case and run a bead of sealant around the entire end of the case before moving the next case into position.
7. Bolt the cases together using the bolt holes provided and tighten, then add sealant to the top of the case joint.

LINE-UP & INSTALLATION

Single Case

1. Roll the case into position, leaving a minimum of 2" between the wall and back of case. Using a "J" bar, raise the end of the case (under cross support), remove the caster assembly (Fig. 1), and lower the basehorse on to the shim packs. Repeat on the other end of the case.



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.



CAUTION

Ensure 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.

2. Once the basehorse is properly placed on the shim packs, check the vertical plumb of the case by placing a bubble level on the shelf standard. Add/remove shim packs as needed. For the horizontal level, repeat this process after placing the bubble level on the front sill.

Multi-Case

1. Remove any shelves, if applicable, (discard the shelf clips) and/or loose items (e.g., shipping braces, etc.) from the cases that may interfere with case joining. Keep all loose items as they will be used later in the installation process.
2. Follow the single-case installation instructions for the first case, then position the next case in the line-up approximately 3' away. Remove the casters on the end that is closest to the first case.
3. Apply the foam tape gasket (supplied) and a bead of butyl or silicone sealant to the end of the first case (Fig. 2). From the opposite end, push the second case to a position that is approximately 6" from the first case, then remove the remaining casters and position case on the shim packs.
4. Push the cases tightly together, then lightly bolt them together through the holes that are provided (Fig. 4). Tighten all the joining bolts until all margins are equal. Be careful not to over tighten.
5. Repeat steps 3-6 of this sequence for all remaining cases. Be certain to properly level all cases.

TRIM OUT

1. If master bumpers are included, slide master bumper joint trim in between adjoining master bumpers.
2. Slide the master bumpers left or right (after loosening or removing screws) to close the seams as required, working outwards from the center of the line-up to the ends.
3. Close the seam where the bumper joins the case end. The bumper joint closes the seam that may develop if the master bumper is moved away from the end to close the case-to-case joint seam.
4. Install top sill covers over case-to-case joint seams. The top sill joint is shipped loose with the case. Secure with fasteners (supplied).
5. Seal the case-to-case joints with caulk (supplied), then apply acrylic tape (supplied) over the pipe-chase seam (Fig. 2). The tape acts as a watershed preventing water from settling in the case joint.

CASE INSTALLATION

6. Install the front panel joint trim (ships loose).
7. Attach the "J" rail with the supplied screws (Fig. 2).
8. Insert top of kickplate into the kickplate retainer. Slide the kickplate up into the retainer, then down onto the "J" rail (Fig. 3). Be certain that the bottom of the kick-plate is fitted over extruding "lip" of the "J" rail.
9. If the case is outfitted with a polymer bumper, insert the nose bumper into the open bumper channel, up to 96 feet. Hillphoenix recommends leaving an additional 6 inches of nose bumper at the ends to allow for shrinkage during the first 24-48 hours following case startup—after sufficient time has passed, cut away the excess bumper for final fit and finish. Be certain to use an appropriate cutting tool (tubing- or PVC-cutter) to ensure a smooth cut.

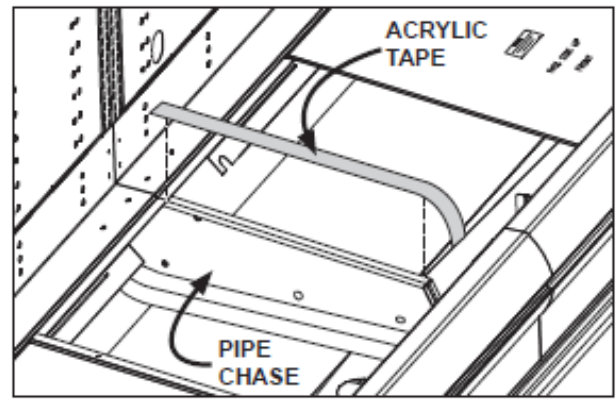


Fig. 2 Attaching the "J" Rail

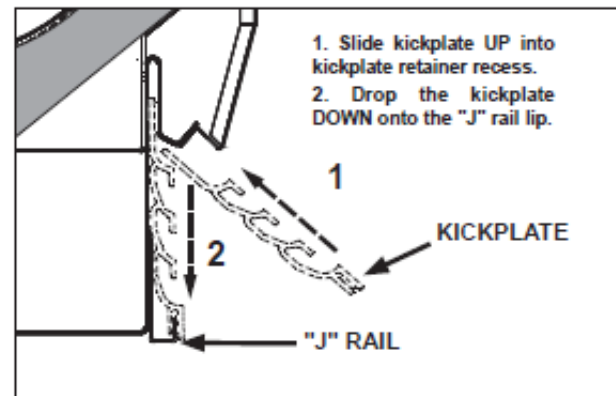


Fig. 3 Sliding kickplate into "J" Rail

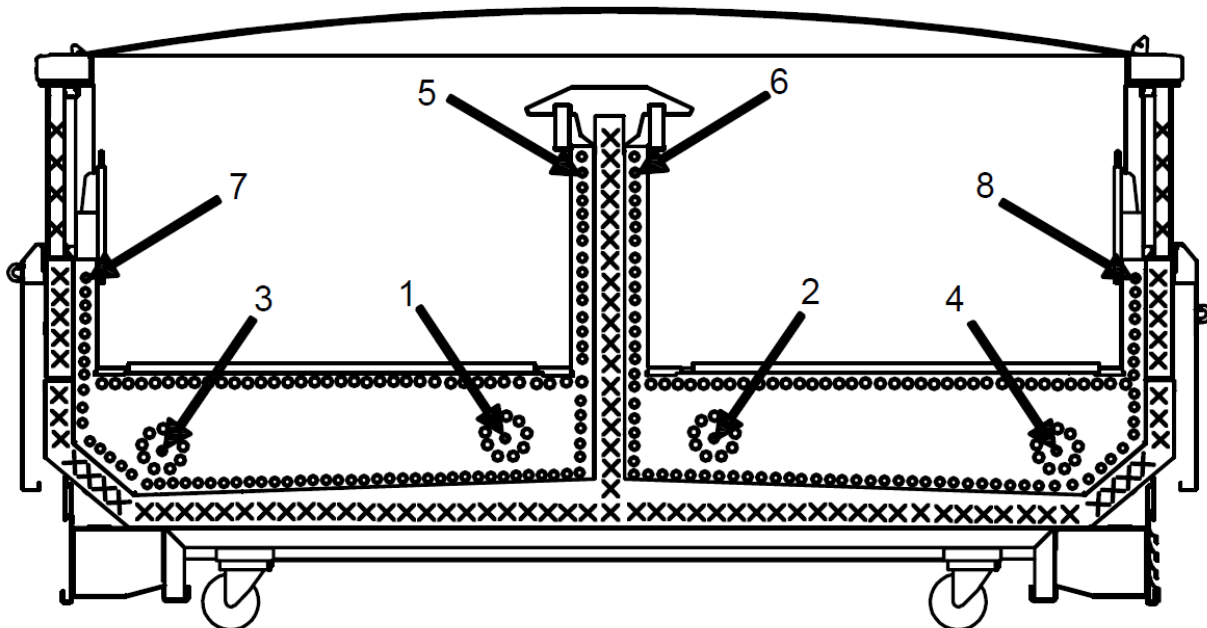


Fig. 4 Bolt Holes for Case



ATTENTION

Connections are illustrated in dimensional drawings found in Appendices A-D.

REFRIGERATION

The refrigeration piping penetration is located beneath the case in the front-right area, fully visible in front of the fan plenum. Center piping and wiring is available through the center sill of the case, but not if there are slider lids or night curtains.

If hot gas defrost is used, suction lines to each case in the circuit should be of equal distance from the main suction line. Expansion valves and other controls—located on the left-hand side of the cases (both sides for the OWIZV(L))—are accessed by lifting the two, left-hand deck pans (lifting the fan plenum is not required).

Before operating the case, be certain to remove the shipping blocks that protect the refrigeration lines during shipping (Fig. 5). If it becomes necessary to penetrate the case tank in any area, seal any open gaps afterwards with canned-foam sealant and white RTV. Use Figure 4 on the previous page for reference.



ATTENTION

If brazing is necessary, place wet rags around the area to avoid tank damage.



Fig. 5 Remove the shipping blocks

PLUMBING

The drain outlet is specially molded out of PVC material and is located in the front-center of the case for convenient access. The "P" trap, furnished with the case, is constructed of schedule 40 PVC pipe (Fig. 6). Ensure that all connections are water-tight and sealed with the appropriate PVC or ABS cement.

The drain lines can be run left or right of the tee, with the proper pitch to satisfy local drainage requirements. The unitized drain piping underneath the case connects the drain piping for Side A and Side B of the case, directing all drainage to a single location.

Since the kickplate is shipped loose with the case, you should have open access to the drain line area during installation. If the kickplate has been installed, you will find it easy to remove:

simply lift the kickplate up from the "J" rail and pull the bottom out, away from the case. See Trim Out instructions for details on trim out instructions.



Fig. 6 "P" trap; drain line

ELECTRICAL

Electrical connections are made in the continuous raceway (Fig. 7) that is located at the bottom-front of OWIZV(L) and OWEZV(L) cases and on all sides of the OWEZV(L) end caps. This continuous raceway helps to easily facilitate case-to-case wiring. Each case has an "A-side" and a "B-side", with the A-side containing the serial plate for the case. Typically, electrical connections are made in the continuous raceway unless there is an electrical Junction box. Junction boxes are used when case controllers or other customer specific electrical components are required.

The A-side wiring, found on the left-hand side of the raceway, and B-side wiring, found on the right-hand side of the raceway, are both typically found on the A-side of the case unless otherwise specified by the customer. The wiring is located along the raceway at the base of the case and can be found on either end of the case. Each wire will be labeled accordingly and will match the Hillphoenix wiring identification markings.



Fig. 7 Raceway electrical wiring

For case-to-case wiring, run conduit between the junction boxes or run wiring through the raceway. When connecting to the junction box on the bottom-left side of the case, field wiring should exit box from the right side (furthest away from case wiring) to allow more room inside for wiring connections. For more detailed electrical wiring information, see Appendix E.

PRE-POWER CHECKLIST

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 applied the foam tape gasket and sealant between adjoining cases? (see pg. 3)**
- ☐ **Have you sealed the case-to-case joints by applying caulk and acrylic tape to the pipe-chase seam? (see pg. 4)**
- ☐ **Have you removed the shipping blocks from the refrigeration lines? (see pg. 5)**
- ☐ **Have you sealed any tank penetrations? (see pg. 5)**



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.



ATTENTION

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



ATTENTION

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



DANGER

SHOCK HAZARD

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

LED lights are available for any glass front cases, as well as the shelving of superstructures, depending on case configuration. OWIZVL/OWEZVL cases cannot be equipped with a superstructure. The LED power supply for the lights is located just under the center sill cover of the case. The LED lighting system for the superstructure shelves have an optional ON/OFF switch that is located on one of the columns of the superstructure, while front sill lights do not have a designated ON/OFF switch.

CAUTION



When replacing power supplies, always confirm that the new power supplies are the correct replacement parts. Failure to do so may result in damage to the LED system or the luminaires, leading to poor performance and increased risk of safety issues.

Once cases have been properly positioned in the store and an electrician has connected the lighting circuit, the lights may be turned on to verify that they are connected and functioning properly. To ensure peak performance, run the lighting systems only when the store climate control is on and case refrigeration has started.

ACCESSING POWER SUPPLIES: SHELF LIGHTS

The power supplies for the superstructure shelving is located in the center sill of the case under a removable cover. To gain access to the power supplies, follow the instructions below.

1. Remove the tag molding over the cover over the center sill.
2. Remove the center sill cover via the access holes to the screws.

Removing Power Supplies:

1. Disconnect power to the case and power supplies.
2. Access power supplies using steps above.
3. Unplug the connectors and unscrew the power supply.

NOTE: For a more detailed diagram of the superstructure center sill, see Appendix C.



Fig. 8 Accessing power supplies for shelf lights

SUPERSTRUCTURE SHELF LIGHTING

Adding a superstructure (Fig. 9) is an option for certain case models, which can also come equipped with optional shelf lighting. The light switch for the superstructure lights (Fig. 10) can be found on the side of one of the superstructure columns.

NOTE: Light switches for superstructure lighting are optional and must be requested when placing an order for the case.



Fig. 9 Optional Superstructure added to case

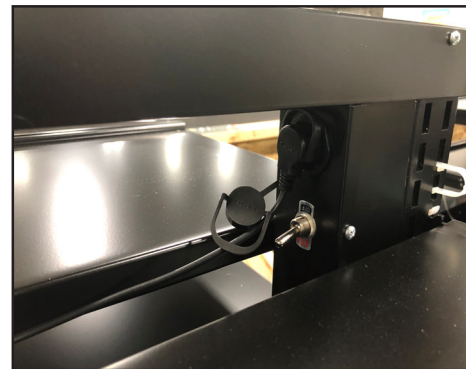


Fig. 10 Superstructure light switch

REPLACING SHELF LED LUMINAIRES

1. Unplug the LED luminaire from the side of the light.
2. Pinch the end of the spring bracket on the light to unhook it from the underside of the shelf.

NOTE: New lights will be shipped with a new cord.

3. Assemble the new shelf light in reverse order of the above steps.



View from under shelf to unplug light



View from under shelf to unhook light

Fig. 11 Removing superstructure shelf lights

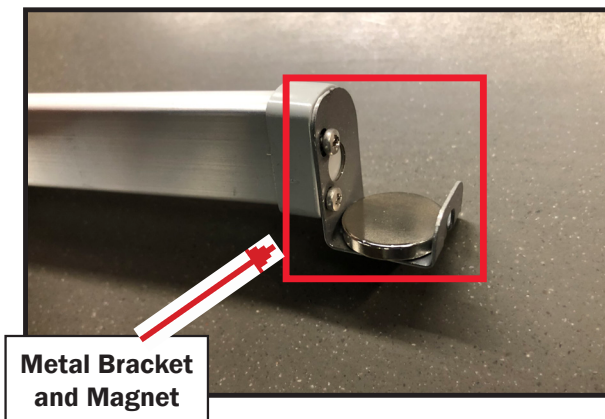
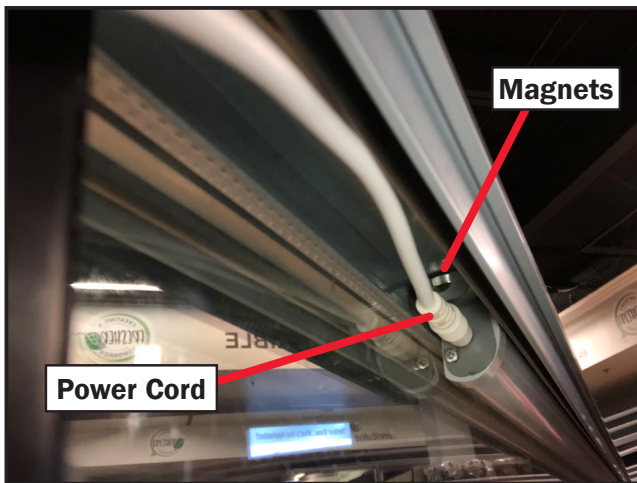
LIGHTING & POWER SUPPLIES

REPLACING GLASS FRONT SILL LED LUMINAIRES

1. Unplug the LED luminaire from the side of the light.
2. Pull on the metal bracket, where the magnet is at the end of the light, to remove it from glass front sill.

NOTE: Disengage the magnet from the sill as close to the metal bracket as possible to avoid bending or breaking the light.

3. Plug in the new light and attach it under the front glass sill using the magnet and brackets on the new light.



ACCESSING POWER SUPPLIES: SILL LIGHTS

To access the power supplies for front sill lights in glass front cases, the power supplies will be in a junction box or in a raceway behind the kickplate (Fig. 12). To remove the power supplies, follow these instructions.

1. Remove the lower front panel (if necessary for access to the raceway).
2. Unscrew the kickplate and lift up from the "J" rail. Pull the bottom edge of the kickplate out and away from the case to remove.
3. Pull out the slide-out electrical tray that is visible in the raceway. Power supplies will now be visible.



View of power supplies *inside* case

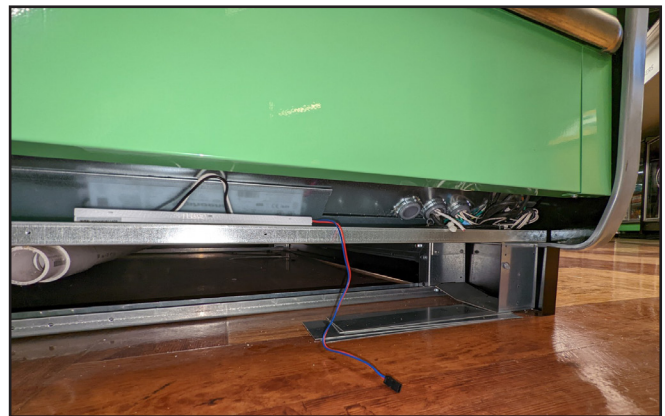


Fig. 12 Power supplies location for sill lights *outside* of case

CLEANING THE GLASS

The glass surface on top of the case (top side) can be easily cleaned using a micro-cloth along with Windex or an equivalent product.

The underside of the glass of the slider lids can be easily accessed from the front of the case by opening the slider lid to reach under the lid. If preferred, the glass can be removed, but is not necessary for cleaning.

The fixed glass on the OWIZVL may require an extendable pole (Fig. 13) to help reach further into the case to clean the glass. However, this is not required and may not be necessary.



Fig. 13 Example of glass cleaning tool

REMOVING THE GLASS

The glass on the OWIZVL case can be removed by using a small, card-size tool. It is best to insert the card into the glass sliding rail and push the glass toward the card. This will need to be done at all four corners (Fig. 14) of the glass where the locking feature is located. Use a card (similar to the size and durability of a credit card) in the four locations, in sequence, shown below to remove the glass.

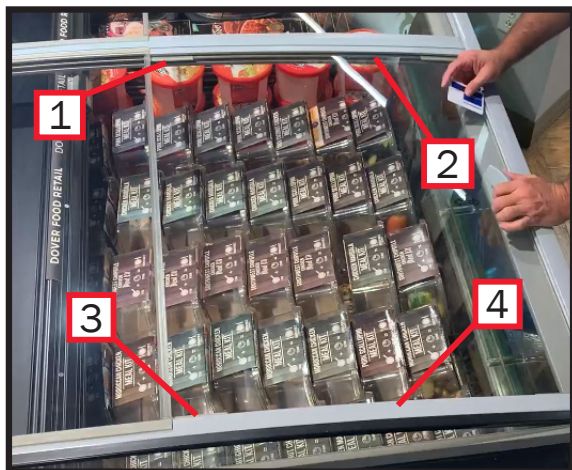


Fig. 14 Glass removal spots



Insert card into track.

Use the card sized tool to wedge in between the glass and its case lid.



Slide door/lid toward card.

With the card tool still wedged in between the glass and the lid, slide the lid towards the card.



Glass will pop out of the track.

As the lid is sliding, there will be a "click" and the glass will then pop out of the track.

REMOVING GLASS CASE LIDS

Glass case lids are called cassettes, which contain the three glass sections for slider glass lids for the OWIZVL/OWEZVL. The lids are installed by snapping into the receiver profile that is attached to the top of the case rails.

If a piece of glass on the case lid is damaged, the entire cassette will need to be replaced on the case.

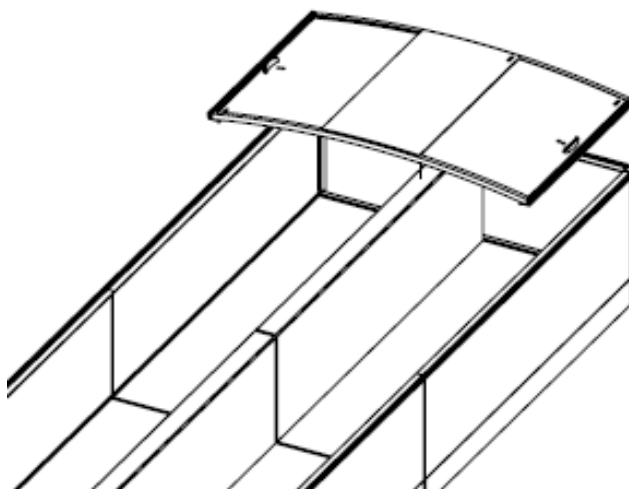
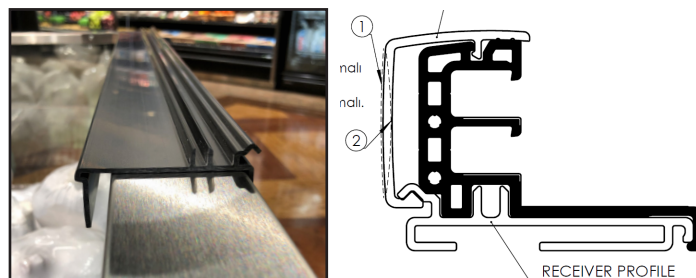


Figure 15: Glass lid cassette

AIR QUALITY, DEFROST, AND TEMPERATURE CONTROL

AIR FLOW & PRODUCT LOAD

Do not overload the food product display so that it impinges on the air flow pattern—doing so will result in diminished performance and loss of proper temperature levels, particularly when the discharge honeycomb and return air grille are covered. Please keep products within the load limit line shown on the diagram below (Fig. 15). Overloading the case with product outside of the load limits can also lead to condensation on the lid.

DEFROST & TEMPERATURE CONTROLS

Hillphoenix low temperature door cases utilize electric or hot gas defrost. All low-temperature reach-in cases have local defrost controls that terminate defrost cycles in individual cases, as well as rack-system controls for circuit termination. The primary components used for the defrost cycle are the various defrost termination sensors, which work to terminate the defrost cycle in the case. These controls may include 1) a Klixon® thermostat, 2) a sensor probe, or 3) a dial-type thermostat with sensor bulb (the thermostat will always be mounted with the electrical controls of the case - i.e., in the electrical junction box, in the electrical raceway, etc.).

If electric defrost is used, the defrost termination sensor will be located in a drop tube in the coil or mounted to the return bend on the coil. If hot gas defrost is used, the defrost termination sensor will be mounted to the dump line—the sensor should always be mounted on the coilside of the check valve or solenoid valve. For proper case operation, the defrost termination sensor must not be located in the discharge air.

For more detailed information on suggested defrost times and settings, see Appendices A–B. Further adjustments may be required depending on store conditions.



! ATTENTION

To insure optimal operation of the door and frame system, a constant 120V supply be used to power the electrical circuits. Cycling the input voltage will adversely impact case performance.

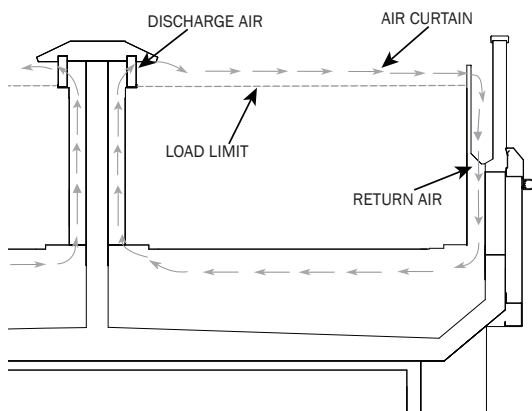


Fig. 15 Airflow diagram for case

DETERMINING SUPERHEAT

To identify the correct superheat settings, complete the following steps:

1. Obtain suction pressure from the access port. Obtain the suction line temperature from the area near the TXV bulb at the outlet of the evaporator coil (Fig. 16).
2. Using the suction pressure reading and the refrigerant manufacturers pressure-temperature chart, convert pressure to temperature.
3. Finally, subtract the converted temperature reading from the actual temperature reading. The resulting number is the superheat setting—once this has been determined, adjust the TXV as needed to obtain the proper setting.

NOTE: The dewpoint temperature should be used when setting superheat for high glide refrigerants.

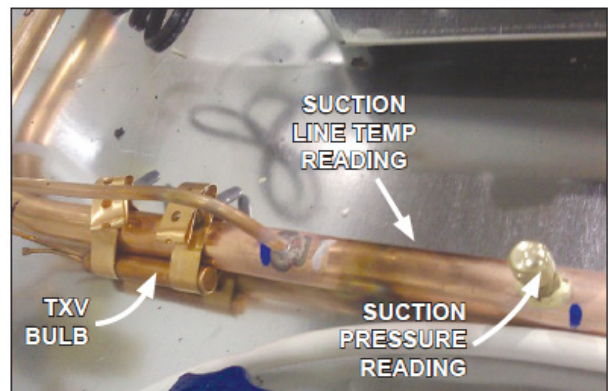


Fig. 16 Obtain pressure and temperature readings



DANGER

SHOCK HAZARD

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 cause severe cuts to the hands and arms.

FANS

Fan motors for the case have an integrated motor, basket, and blade assembly and are pre-programmed to the correct speed for the case application. Adjusting the speed of the fans is not recommended and could lead to performance issues.

Fan assemblies may be changed with an easy two-step process without lifting up the plenum, thereby avoiding the necessity to unload the entire product display to change the fan assembly:

1. Unplug the fan motor (Fig. 17), easily accessible outside the plenum. Be certain to push the power cord back through the plenum opening to avoid damage to the power cord.
2. Remove fasteners, then lift out the entire fan basket.

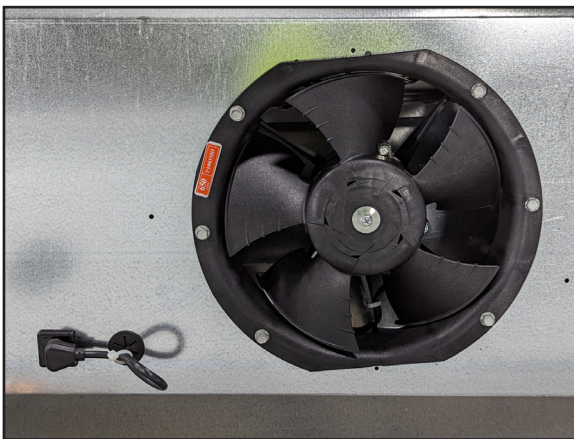


Fig. 17 Fan basket



CAUTION

The 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.

CLEANING PROCEDURES

A periodic cleaning schedule should be established to maintain proper sanitation, ensure 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.

- Be certain that all electricity to the case is turned off before servicing or cleaning to avoid electrical shock. In some cases, more than one switch may need to be turned off to completely de-energize the case.
- All surfaces pitch downward to a deep-drawn drain trough, funneling liquids and other debris to the waste outlet. Check waste outlet before starting the cleaning process to insure it is unclogged. Avoid introducing water faster than the case drain can carry it away.
- Lift the fan plenum to gain access to the coil for cleaning and maintenance (Fig. 18).



Fig. 18 Single-piece fan plenum and coil cover

- To clean the lights, shut off the lights in the case, then wipe them down with a soft, damp cloth. Avoid using harsh or abrasive cleaners as they may damage the lights. Be certain that the lights are completely dry before re-energizing.
- If any potentially harmful cleaners are used, be certain to provide a temporary separator (e.g., cardboard, plastic wrap, etc.) between those cases that are being cleaned and those that may still contain product.
- 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.
- Remove the kickplate and 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.

APPENDIX

A.....	TECHNICAL REFERENCE SHEETS
B.....	WIRING DIAGRAM
C.....	PRESSURE-TEMPERATURE CHART
D.....	SEISMIC BRACKETS
E.....	CENTER SILL SUPERSTRUCTURE DIAGRAM
F.....	PARTS LIST

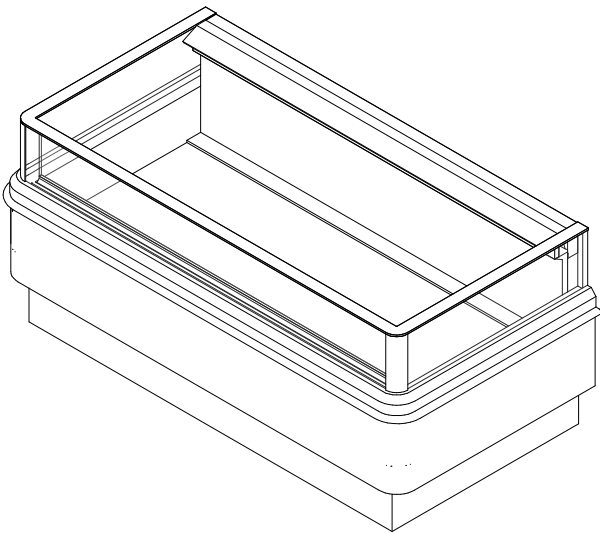
NOTE: Data on Technical Reference sheets is for reference only. The latest versions and information should always be checked on Hillphoenix's website at www.hillphoenix.com.

OWEZV

Endcap Low Temp Island Merchandiser
Frozen Food/Dual Temp

GENERAL NOTES

- " - - - " Indicates that the feature is not an option on this case model and/or available at this time.



SHIPPING WEIGHT	
Case	Weight
OWEZV	---



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

OWEZV

Rev. Date	Rev. #	Rev. Title
12-03-25	7	DATA UPDATE
10-16-25	6	ENDVIEW UPDATE



OWEZV

Endcap Low Temp Island Merchandiser
Frozen Food/Dual Temp**ELECTRICAL DATA**

Fans Per Case	High Efficiency Fans		Drain Heater		Defrost Heaters			
	120 Volt		120 Volts		208 Volts		240 Volts	
	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
2	0.14	13	0.13	15	8.65	1800	9.98	2394

LIGHTING DATA

Lights & Length Per Row	Clearvoyant v4 LED Lighting (Per Light Row)	
	Standard Power	
	120 Volts	
	Amps	Watts
1 - 5'	0.07	8.6

ANTI-CONDENSATE DATA

Solid		12" Glass		17" Glass	
120 Volts		120 Volts		120 Volts	
Amps	Watts	Amps	Watts	Amps	Watts
0.73	88	1.42	154	1.22	145.6

GUIDELINES AND CONTROL SETTINGS

GUIDELINES AND CONTROL SETTINGS						
Application	BTUH/case		Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge Air Velocity (FPM)
	Solid/Glass Front					
	Conventional	Parallel				
Dairy/Deli/Fresh Meat	2125	2095	6 - 8	17	23	200
Frozen Food	2890	2809	3 - 5	-19	-9	200

DEFROST CONTROLS

Application	Defrosts Per Day	Electrical Defrost			Hot Gas Defrost		
		Fail Safe (Min)	Termination Temp (°F)	Run-Off Time (Min)	Fail Safe (Min)	Termination Temp (°F)	Run-Off Time (Min)
Dairy/Deli/Fresh Meat	1	35	49	5	10	60	0
Frozen Food	1	60	49	5	20	60	13 - 15

NOTES

- "- - -" Indicates that the feature is not an option on this case model and/or available at this time.
- Listed discharge air velocity represents the average velocity 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. The minimum recommended evaporator temperature is 4°F below the listed evaporator temperature.
- Discharge air temperature values represent readings taken within the upper air channel immediately behind/upstream of the honeycomb.
- Fans must remain on during defrost.
- For best performance store conditions should meet 75°F & 55% Relative Humidity or below 57°F Dew Point.



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

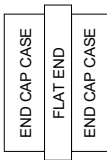
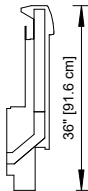
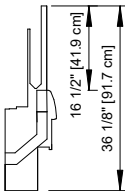
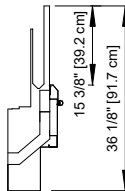
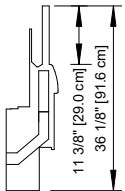
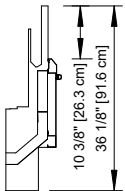
OWEZV

Rev. Date	Rev. #	Rev. Title
12-03-25	7	DATA UPDATE
10-16-25	6	ENDVIEW UPDATE



OWEZV

Endcap Low Temp Island Merchandiser
Frozen Food/Dual Temp

CASE CONFIGURATIONS				
<u>STAND ALONE ENDCAP CASE WITH FLAT END</u>		<u>SINGLE UNITIZED ENCAP CASE WITH CASE JOINT</u>	<u>BACK TO BACK END CAP CASES</u>	
				
SOLID FRONT		GLASS FRONT OPTIONS		
	<u>17" STREAMLYNE</u>	<u>17" FLAT</u>	<u>12" STREAMLYNE</u>	<u>12" FLAT</u>
				
	16 1/2" [41.9 cm]	15 3/8" [39.2 cm]	11 3/8" [29.0 cm]	10 3/8" [26.3 cm]
	36 1/8" [91.7 cm]	36 1/8" [91.7 cm]	36 1/8" [91.6 cm]	36 1/8" [91.6 cm]



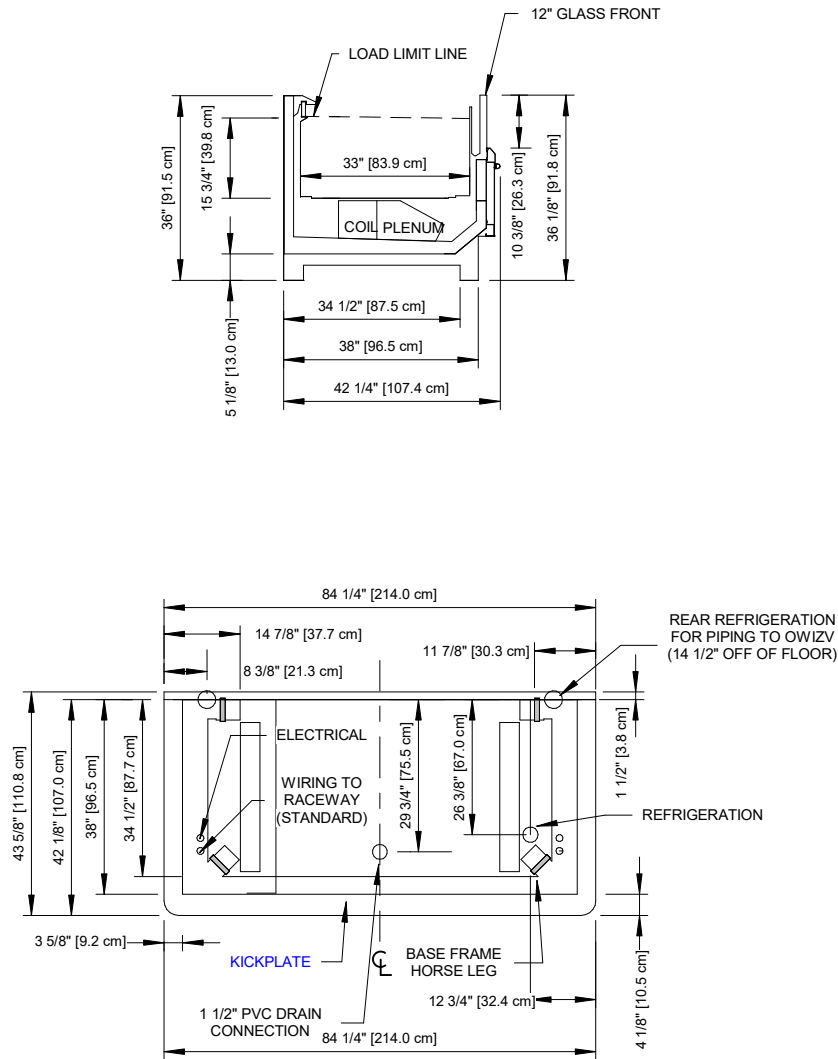
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12-03-25	7	DATA UPDATE
10-16-25	6	ENDVIEW UPDATE



OWEZV

Endcap Low Temp Island Merchandiser
Frozen Food/Dual Temp**NOTES**

* : STUB-UP AREA

** : RECOMMENDED SETUP-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- Flat end-panel required when case is standalone



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

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12-03-25	7	DATA UPDATE
10-16-25	6	ENDVIEW UPDATE

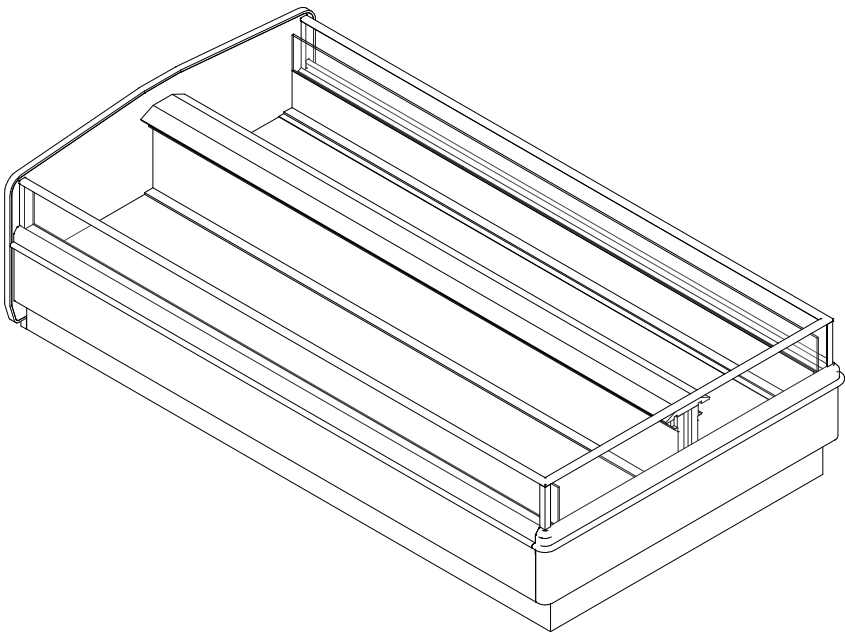


OWIZV

4', 6', 8', & 12' Low Temp Island Merchandiser
Frozen Food/Dual Temp

GENERAL NOTES

- "-" indicates that the feature is not an option on this case model and/or is not available at this time.



SHIPPING WEIGHT	
Case	Weight
OWIZV	---



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

OWIZV

Rev. Date	Rev. #	Rev. Title
12-03-25	6	DATA UPDATE
10-16-25	5	ENDVIEW UPDATE



OWIZV

4', 6', 8', & 12' Low Temp Island Merchandiser
Frozen Food/Dual Temp

ELECTRICAL DATA

Case Length	Fans Per Case	High Efficiency Fans		Drain Heater		Defrost Heaters			
		120 Volt		120 Volts		208 Volts		240 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
4'	2	0.10	7	0.25	30	7.7	1600	8.88	2130
6'	4	0.20	14	0.25	30	8.65	1800	10.00	2398
8'	4	0.20	14	0.25	30	11.54	2400	13.32	3195
12'	6	0.30	21	0.25	30	17.31	3600	19.98	4795

LIGHTING DATA - SILL

Case Length	Lights & Length Per Side	Clearvoyant v4 LED Lighting (Per Light Row)	
		Standard Power	
		120 Volts	
		Amps	Watts
4'	1 - 3'	0.05	5.1
6'	1 - 5'	0.07	8.2
8'	2 - 3'	0.09	10.2
12'	2 - 5'	0.14	16.4

LIGHTING DATA - SUPERSTRUCTURE

Case Length	Lights & Length Per Side	Clearvoyant v4 LED Lighting (Per Light Row)	
		Standard Power	
		120 Volts	
		Amps	Watts
4'	1 - 4'	0.08	9.4
6'	2 - 3'	0.12	15.0
8'	2 - 4'	0.16	18.8
12'	3 - 4'	0.24	30.0

ANTI-CONDENSATE DATA

Case Length	Solid Front		12" Glass Front		17" Glass Front		12" Glass Single Wrap		17" Glass Single Wrap	
	120 Volts		120 Volts		120 Volts		120 Volts		120 Volts	
	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
4'	1.00	122	1.34	161	1.56	188	1.91	229	1.99	239
6'	1.41	169	1.84	222	1.94	233	2.41	290	2.37	285
8'	1.88	225	2.46	294	2.50	298	3.03	363	2.93	350
12'	2.82	338	3.80	454	3.84	460	4.37	522	4.27	511



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Rev. Date	Rev. #	Rev. Title
12-03-25	6	DATA UPDATE
10-16-25	5	ENDVIEW UPDATE



OWIZV4', 6', 8', & 12' Low Temp Island Merchandiser
Frozen Food/Dual Temp**GUIDELINES AND CONTROL SETTINGS**

Application	BTUH/ft						Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge Air Velocity (FPM)
	Solid Front		12" Glass Front		17" Glass Front					
	Conventional	Parallel	Conventional	Parallel	Conventional	Parallel				
Beverage	527	520	505	501	405	402	6 - 8	28	33	190
Dairy	539	531	543	538	448	444	6 - 8	23	28	190
Meat	558	550	554	548	446	441	6 - 8	20	25	190
Frozen Food	707	688	761	743	701	685	3 - 5	-17	-12	190

DEFROST CONTROLS

Application	Defrosts Per Day	Electric Defrost			Hot Gas Defrost		
		Fail Safe (Min)	Termination Temp (°F)	Run Off Time (Min)	Fail Safe (Min)	Termination Temp (°F)	Run Off Time (Min)
Beverage/Dairy/Meat	1	35	49	5	10	60	8
Frozen Food	1	60	49	5	20	60	13 - 15

NOTES:

- "- - -" indicates that the feature is not an option on this case model and/or is not available at this time.
- Defrost data represent one side of the case only. These values must be doubled to account for both sides.
- Lighting data represent one side of the sill and superstructure. These values must be doubled to account for both sides.
- 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. The minimum recommended evaporator temperature is 4°F below the listed evaporator temperature.
- Discharge air temperature values represent readings taken within the upper air channel immediately behind/upstream of the honeycomb.
- Fans must remain on during defrost.
- For best performance store conditions should meet 75°F & 55% Relative Humidity or below 57°F Dew Point.



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

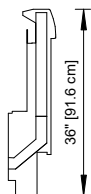
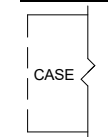
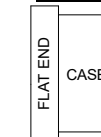
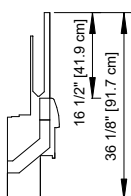
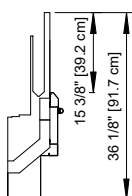
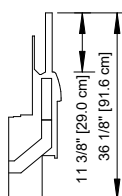
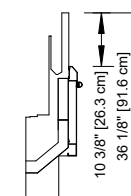
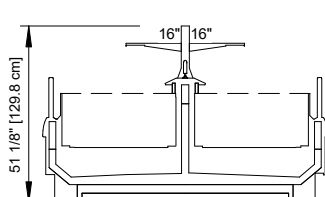
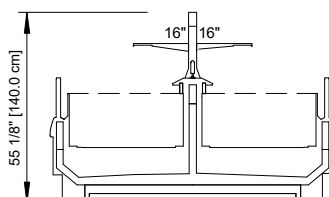
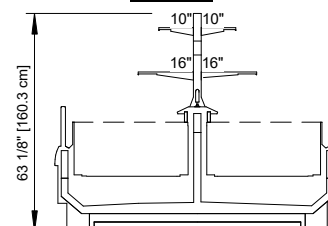
OWIZV

Rev. Date	Rev. #	Rev. Title
12-03-25	6	DATA UPDATE
10-16-25	5	ENDVIEW UPDATE



OWIZV4', 6', 8', & 12' Low Temp Island Merchandiser
Frozen Food/Dual Temp**CASE CONFIGURATIONS**

<u>DOUBLE FLAT END</u> 	<u>SINGLE FLAT END</u> 	<u>SINGLE WRAP END WITH FLAT END</u> 	<u>SINGLE UNITIZED END CAP CASE</u> 	<u>DOUBLE JOINT</u>
<u>SINGLE WRAP END</u> 	<u>SINGLE UNITIZED END CAP CASE WITH CASE JOINT</u> 	<u>DOUBLE WRAP</u> 	<u>SINGLE UNITIZED END CAP CASE WITH WRAP END</u> 	<u>DOUBLE UNITIZED END CAP CASE</u>

SOLID FRONT OPTION**END OPTIONS**END CAP CASEWRAP ENDCASE JOINTFLAT END**GLASS FRONT OPTIONS**17" STREAMLYNE17" FLAT12" STREAMLYNE12" FLAT**SUPERSTRUCTURE OPTIONS**48" OPTION52" OPTION60" OPTION**2017**
DOE
COMPLIANT

COMPONENT

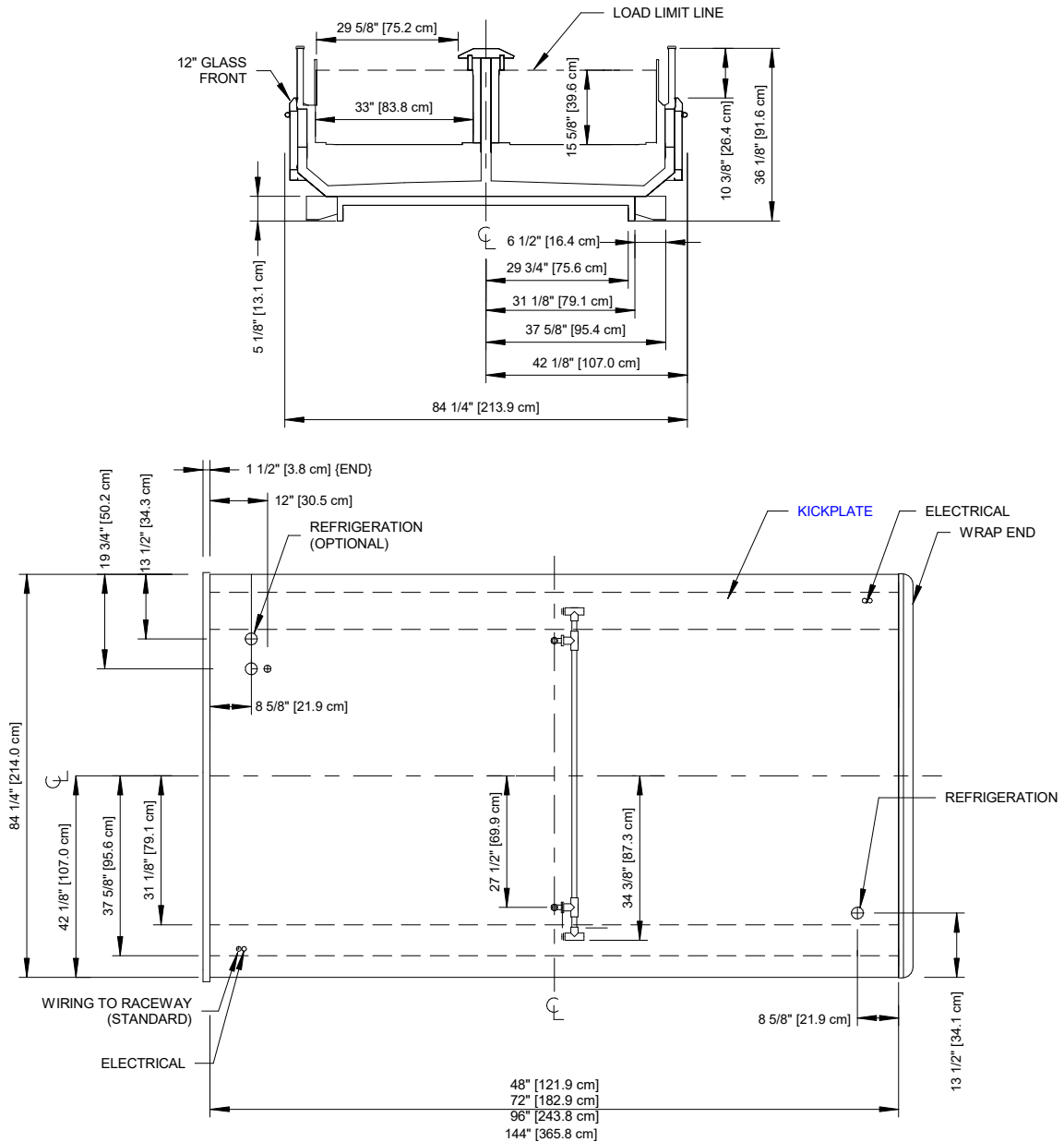
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12-03-25	6	DATA UPDATE
10-16-25	5	ENDVIEW UPDATE

Clearvoyant[™]
LED SYSTEM**Hillphoenix**
a DOVER company

OWIZV

4', 6', 8', & 12' Low Temp Island Merchandiser
Frozen Food/Dual Temp


NOTES

* : STUB-UP AREA

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

- Suction Line - 7/8", Liquid Line - 1/2"



COMPONENT

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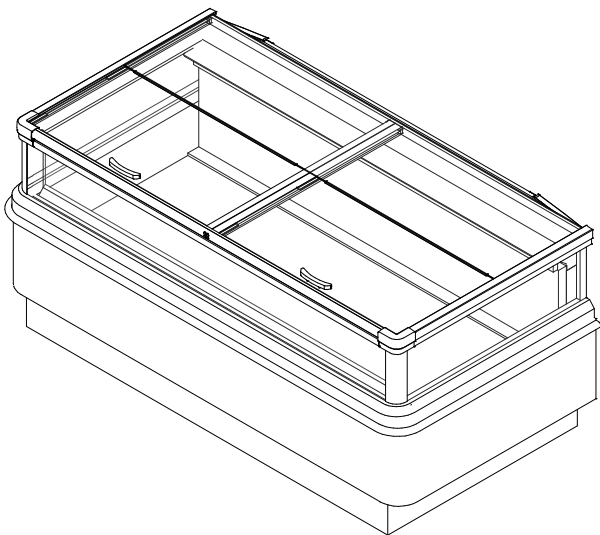


OWEZVL

Endcap Low Temp Island Merchandiser with Slider Lids
Frozen Food/Dual Temp

GENERAL NOTES

- " - - " Indicates that the feature is not an option on this case model and/or available at this time.



SHIPPING WEIGHT	
Case	Weight
OWEZVL	---



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

OWEZVL

Rev. Date	Rev. #	Rev. Title
12-03-25	3	DATA UPDATE
10-01-25	2	ENDVIEW UPDATE



OWEZVLEndcap Low Temp Island Merchandiser with Slider Lids
Frozen Food/Dual Temp**ELECTRICAL DATA**

Fans Per Case	High Efficiency Fans		Defrost Heaters			
	120 Volt		208 Volts		240 Volts	
	Amps	Watts	Amps	Watts	Amps	Watts
2	0.02	1.8	8.65	1800	9.98	2394

LIGHTING DATA

Lights & Length Per Row	Clearvoyant v4 LED Lighting (Per Light Row)	
	Standard Power	
	120 Volts	
	Amps	Watts
1 - 5'	0.07	8.6

ANTI-CONDENSATE DATA

12" Glass Front		17" Glass Front	
120 Volts		120 Volts	
Amps	Watts	Amps	Watts
0.83	100	1.22	146

GUIDELINES AND CONTROL SETTINGS

GUIDELINES AND CONTROL SETTINGS						
Application	BTUH/case		Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge Air Velocity (FPM)
	Glass Front					
	Conventional	Parallel				
Dairy/Deli	647	642	6 - 8	28	31	80
Fresh Meat	724	718	6 - 8	26	29	80
Frozen Food	1132	1116	3 - 5	- 10	- 6	80

DEFROST CONTROLS

Application	Defrosts Per Day	Electric Defrost			Hot Gas Defrost		
		Fail Safe (Min)	Termination Temp (°F)	Run Off Time (Min)	Fail Safe (Min)	Termination Temp (°F)	Run Off Time (Min)
Dairy/Deli/Fresh Meat	1	45	55	10	15	65	15
Frozen Food	1	60	55	10	20	65	15

NOTES

- "- - -" Indicates that the feature is not an option on this case model and/or available at this time.
- Listed discharge air velocity represents the average velocity 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. The minimum recommended evaporator temperature is 4°F below the listed evaporator temperature.
- Discharge air temperature values represent readings taken within the upper air channel immediately behind/upstream of the honeycomb.
- Fans must remain on during defrost.
- Anti-condensate heat is 0W for medium temperature applications.
- For best performance store conditions should meet 75°F & 46% Relative Humidity or below 53°F Dew Point.



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

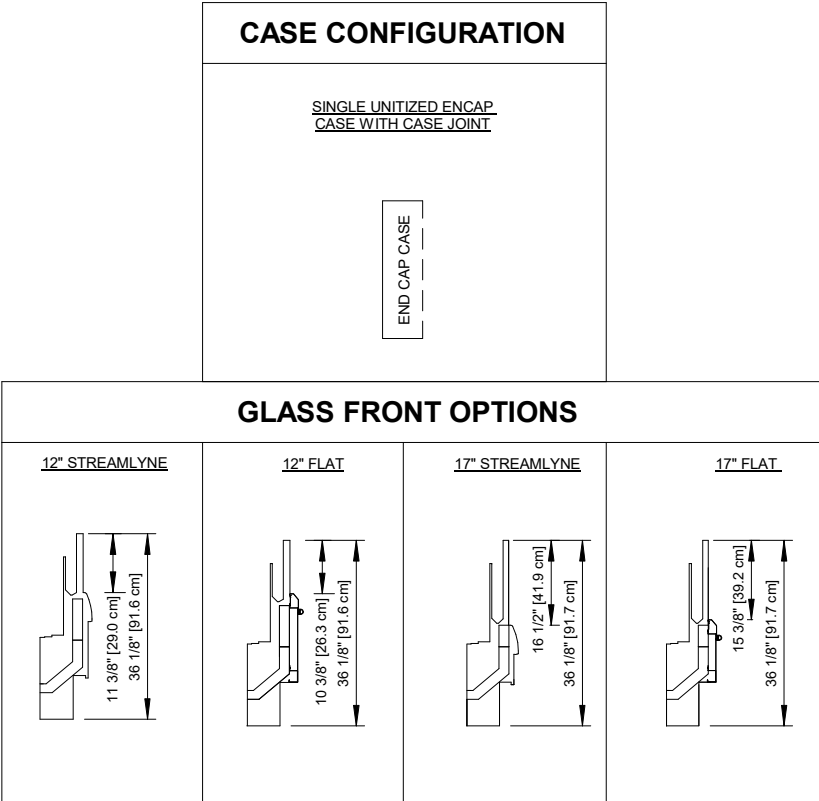
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Rev. Date	Rev. #	Rev. Title
12-03-25	3	DATA UPDATE
10-01-25	2	ENDVIEW UPDATE



OWEZVL

Endcap Low Temp Island Merchandiser with Slider Lids
Frozen Food/Dual Temp



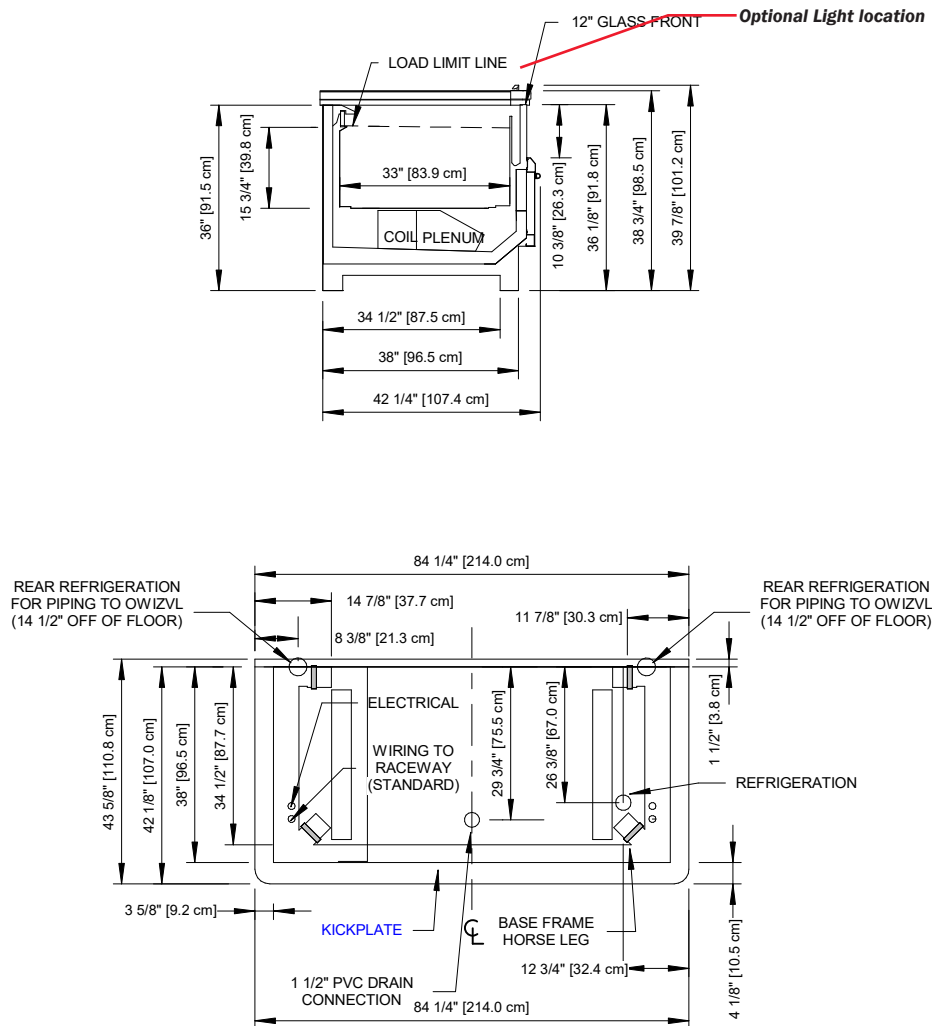
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12-03-25	3	DATA UPDATE
10-01-25	2	ENDVIEW UPDATE



OWEZVL

Endcap Low Temp Island Merchandiser with Slider Lids Frozen Food/Dual Temp



NOTES

* : STUB-UP AREA

** : RECOMMENDED SETUP-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- Standalone case is not available; must be bolted to the OWIZVL.



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

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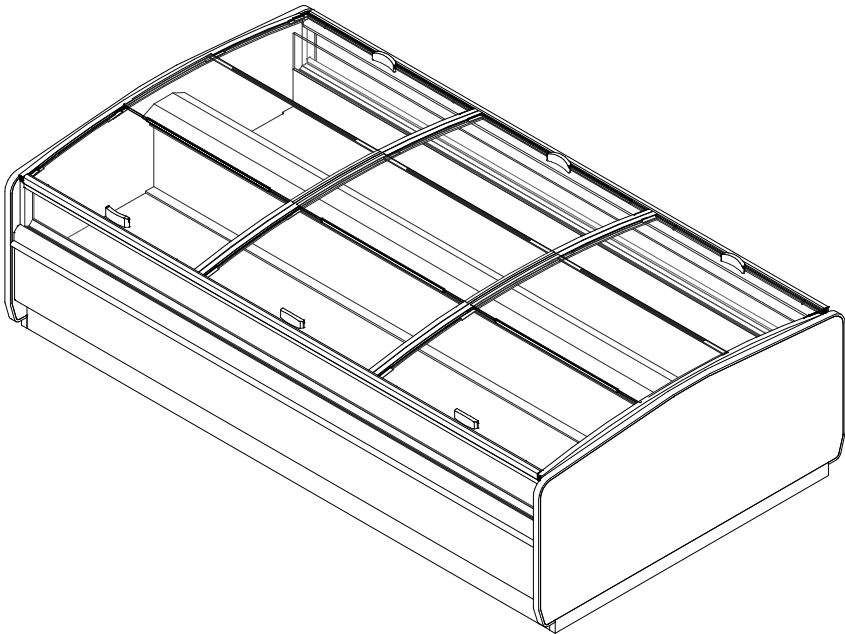


OWIZVL

6', 8' & 12' Low Temp Island Merchandiser with Slider Lids
Frozen Food/Dual Temp

GENERAL NOTES

- "-" indicates that the feature is not an option on this case model and/or is not available at this time.



SHIPPING WEIGHT	
Case	Weight
OWIZVL	---



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

OWIZVL

Rev. Date	Rev. #	Rev. Title
12-03-25	3	DATA UPDATE
10-01-25	2	ENDVIEW UPDATE



OWIZVL6', 8' & 12' Low Temp Island Merchandiser with Slider Lids
Frozen Food/Dual Temp**ELECTRICAL DATA**

Case Length	Fans Per Case	High Efficiency Fans		Defrost Heaters			
		120 Volt		208 Volts		240 Volts	
		Amps	Watts	Amps	Watts	Amps	Watts
6'	4	0.02	5.3	8.70	1800	10.00	2400
8'	4	0.04	5.3	11.54	2400	13.31	3195
12'	6	0.07	7.9	17.31	3600	19.98	4795

LIGHTING DATA

Case Length	Lights & Length Per Side	Clearvoyant v4 LED Lighting (Per Light Row)	
		Standard Power	
		120 Volts	
		Amps	Watts
6'	1 - 5'	0.07	8.2
8'	2 - 3'	0.09	10.2
12'	2 - 5'	0.14	16.4

ANTI-CONDENSATE DATA

Case Length	12" Glass Front		17" Glass Front	
	120 Volts		120 Volts	
	Amps	Watts	Amps	Watts
6'	1.54	186	1.94	233
8'	2.02	240	2.50	298
12'	3.06	367	3.84	460

GUIDELINES AND CONTROL SETTINGS

Application	BTUH/ft		Superheat Set Point @ Bulb (°F)	Evaporator (°F)	Discharge Air (°F)	Discharge Air Velocity (FPM)
	Conventional	Parallel				
Dairy/Deli	153	151	6 - 8	26	30	80
Fresh Meat	172	169	6 - 8	22	25	80
Frozen Food	348	342	3 - 5	- 10	- 4	80

DEFROST CONTROLS

Application	Defrosts Per Day	Electric Defrost			Hot Gas Defrost		
		Fail Safe (Min)	Termination Temp (°F)	Run Off Time (Min)	Fail Safe (Min)	Termination Temp (°F)	Run Off Time (Min)
Dairy/Deli/Fresh Meat	1	45	55	10	15	65	15
Frozen Food	1	60	55	10	20	65	15

NOTES

- "-" indicates that the feature is not an option on this case model and/or is not available at this time.
- Defrost data represent one side of the case only. These values must be doubled to account for both sides.
- Lighting data represent one side of the sill. These values must be doubled to account for both sides.
- Listed discharge air velocity represents the average velocity 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. The minimum recommended evaporator temperature is 4°F below the listed evaporator temperature.
- Fans must remain on during defrost.
- Anti-condensate heat is 0W for medium temperature applications.
- For best performance store conditions should meet 75°F & 46 % Relative Humidity or below 53°F Dew Point.



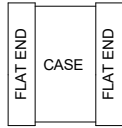
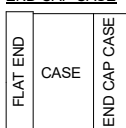
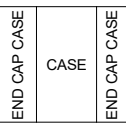
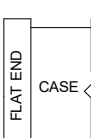
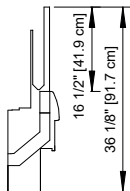
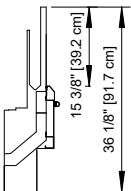
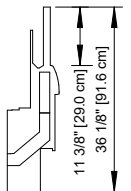
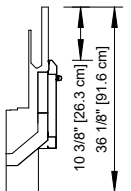
ALL MEASUREMENTS ARE TAKEN PER ASHRAE-72 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

OWIZVL

Rev. Date	Rev. #	Rev. Title
12-03-25	3	DATA UPDATE
10-01-25	2	ENDVIEW UPDATE



OWIZVL6', 8' & 12' Low Temp Island Merchandiser with Slider Lids
Frozen Food/Dual Temp

CASE CONFIGURATIONS			
<u>SINGLE FLAT END</u> 	<u>DOUBLE FLAT END</u> 	<u>SINGLE UNITIZED END CAP CASE</u> 	
<u>SINGLE UNITIZED END CAP CASE WITH CASE JOINT</u> 	<u>DOUBLE JOINT</u> 	<u>DOUBLE UNITIZED END CAP CASE</u> 	
END OPTIONS			
<u>END CAP CASE</u> 	<u>FLAT END</u> 	<u>CASE JOINT</u> 	
GLASS FRONT OPTIONS			
<u>17" STREAMLYNE</u> 	<u>17" FLAT</u> 	<u>12" STREAMLYNE</u> 	<u>12" FLAT</u> 

NOTES

- Options not available with slider lids:
 - Top Piping/ Wiring
 - Superstructures
 - Night Curtains

2017
DOE
COMPLIANT

COMPONENT

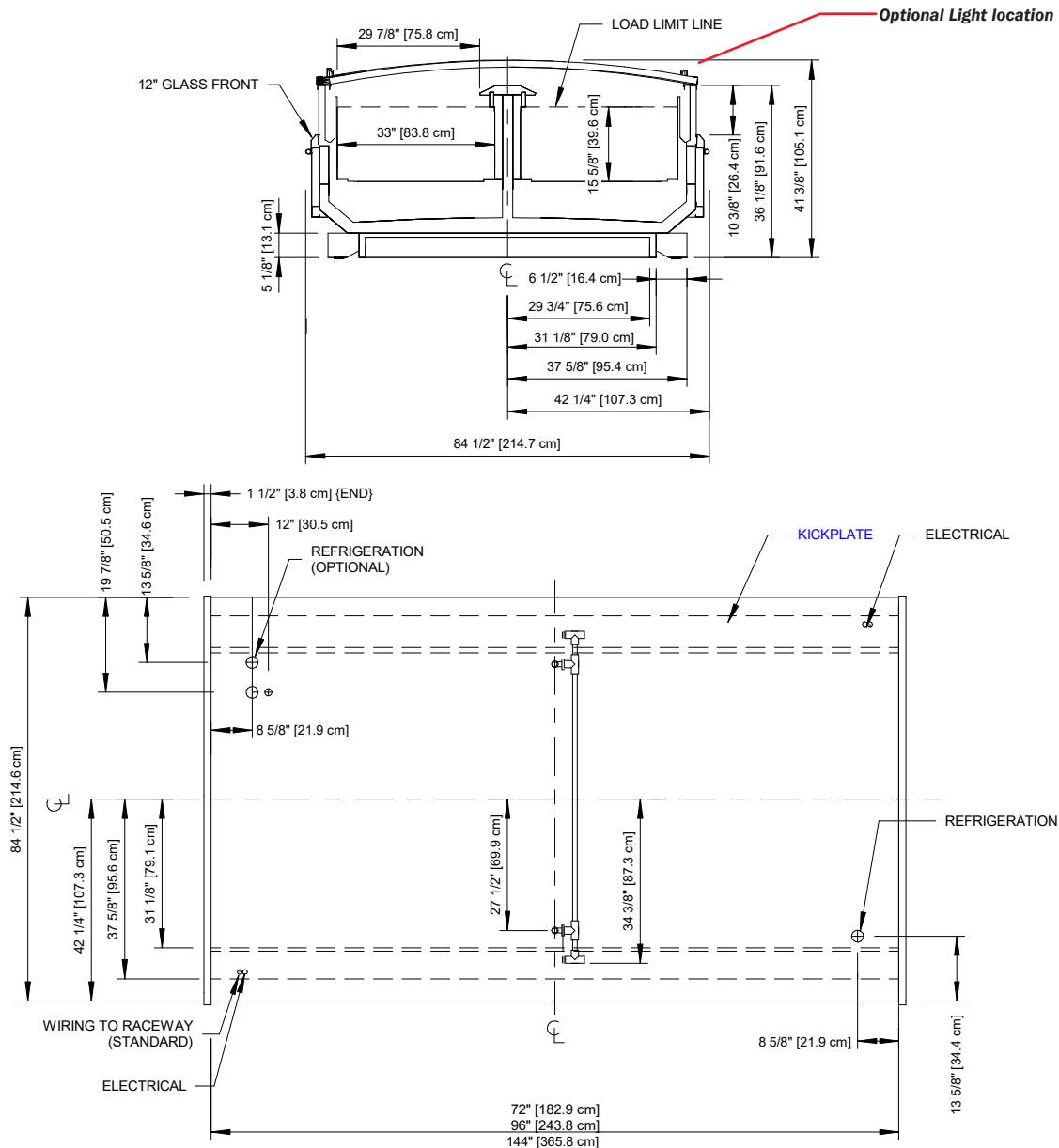
ALL MEASUREMENTS ARE TAKEN PER ASHRAE-72 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

OWIZVL

Rev. Date	Rev. #	Rev. Title
12-03-25	3	DATA UPDATE
10-01-25	2	ENDVIEW UPDATE

Clearvoyant[™]
LED SYSTEM**Hillphoenix**
a harsco company

OWIZVL

6', 8' & 12' Low Temp Island Merchandiser with Slider Lids
Frozen Food/Dual Temp


NOTES

- * : STUB-UP AREA
- ** : RECOMMENDED STUP-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS
- Ends add approximately 1" to case height and 1" to the front of the case (both sides).



COMPONENT

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

OWIZVL

Rev. Date	Rev. #	Rev. Title
12-03-25	3	DATA UPDATE
10-01-25	2	ENDVIEW UPDATE

Clearvoyant[™]

Hillphoenix[™]

a DUCON company

LETTERING 1/32" THICK
X 3/32" HIGH

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.

P901598E - R5

ITALIC LETTERING 1/32" THICK AND 1/8" HIGH

8 3/4

4 23/32

WIRE IDENTIFICATION	BLACK	WHITE	BLUE	RED	YELLOW	PURPLE	ORANGE	GREEN	RED/BLK
DEFROST HEATERS (1-PHASE)	12								
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							
12	11								
BELL	60,62								
TEMPERATURE CONTROL					19,20				
DEFROST TERMINATION CONTROL	22				21		23		
DEFROST SAFETY OUT-OUT CONTROL	28				27		29		
LIQUID LINE SOLENOID					30		31	98	
SUCTION LINE SOLENOID					38		39		
CASE/COMPRESSOR 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	26	45	46					77	
IG RECEPTACLE	56	55						79	
GFI RECEPTACLE	70	71				64			
HUMIDIFIER									99
REFRIGERATED PAN SOLENOID	65	220V	65						
REFRIGERATED PAN BYPASS SOLENOID	67	220V	67						
AIR HEATER DEFROST SOLENOID	69	220V	69				68		
MAIN SEVEN SOLENOID	73	220V	73						
AIR DEFROST FAN	74	59		72					
SECONDARY COOLANT PUMP	76	61							
TANK FLUSH SOLENOID	87	220V	87					86	
MISTING SOLENOID	89	220V	89		88				
DRIP DOWN TIMER					90				
BEAT STORAGE BOX FANS								81	
BEAT STORAGE BOX FANS	94	95						83	
GROUND TO INTERIOR LINER								85	
GROUND TO JUNCTION BOX								97	
GROUND TO LIGHTS									

ALL LETTERING CONTAINED
IS 1/64" THICK X 1/16" HIGH

NOTES

1) HEIGHT OF LETTERING ON LABEL: 1/8" (+1/32, -0) (UNLESS OTHERWISE NOTED)

2) LETTER HEIGHT FOR P# IN LOWER LEFT HAND CORNER IS TO BE 1/16"

3) LETTER FONT STYLE: ROMANS THICKNESS: 1/32" (UNLESS OTHERWISE NOTED)

4) COLOR OF LETTERING: BLACK

5) BACKGROUND COLOR OF LABEL: ORANGE FLUORESCENT

6) TYPICAL APPLICATION: GALVANIZED METAL

7) LABELS MUST CONTAIN PART NUMBER & REVISION IN THE LOWER LEFT HAND CORNER.

8) LABELS MUST HAVE AN ADHESIVE BACKING.

9) LABEL SHALL BE TESTED AND RECOGNIZED TO UL969-"MARKING & LABELING SYSTEM" (PGDQ2)

ALL BENDS 90° UNLESS SPECIFIED

⓪ = VARIANCE ACCEPTABLE

ALL FRACTIONAL DIM. ±1/32"

ALL ANGLES ±1°

2 P.L.C. DECIMALS ±.010"

2 P.L.C. DECIMALS ±.03"

2 P.L.C. DECIMALS ±.05"

HiPhoenix

100% HIGH QUALITY WELDING

PHI(800) 528-4455 FAX(800) 528-3723

PHI(800) 528-4455 FAX(800) 528-3723

DATE: 10/24/02

DRAWN BY: WMP

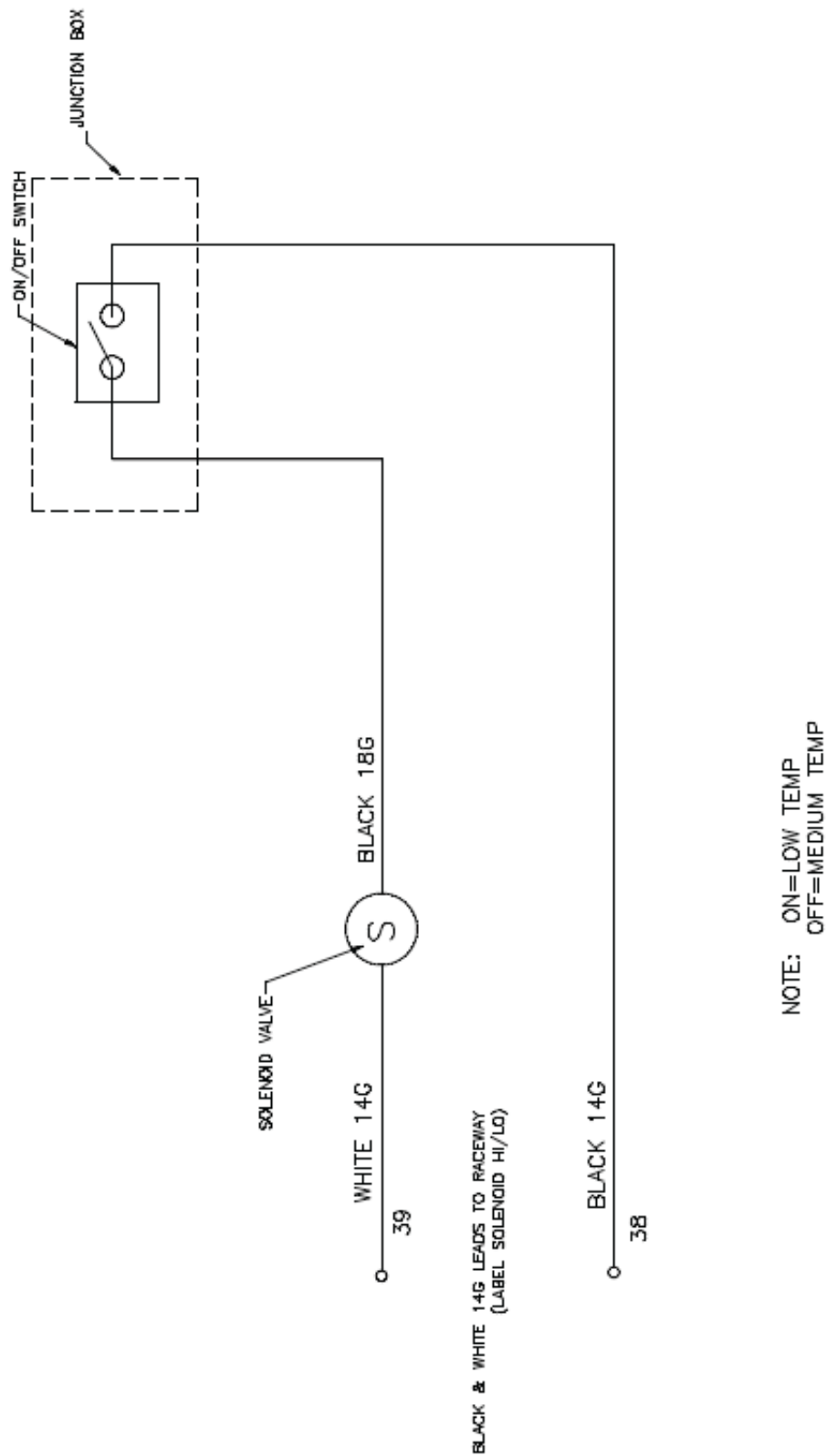
DATE: 10/24/02

LBL,WIRE,ID

P901598E

SHEET: 1 OF 1

DUAL TEMP WIRING



C1 PRESSURE-TEMPERATURE CHART

Hill PHOENIX Pressure-Temperature Chart for CO2

Temp °F	CO2 (R-744) Pressure		Temp °C
	psi(g)	bar(g)	
-39	134.2	9.3	-39.4
-38	137.2	9.5	-38.9
-37	140.3	9.7	-38.3
-36	143.5	9.9	-37.8
-35	146.7	10.1	-37.2
-34	149.9	10.3	-36.7
-33	153.2	10.6	-36.1
-32	156.5	10.8	-35.6
-31	159.9	11.0	-35.0
-30	163.3	11.3	-34.4
-29	166.8	11.5	-33.9
-28	170.3	11.7	-33.3
-27	173.9	12.0	-32.8
-26	177.5	12.2	-32.2
-25	181.2	12.5	-31.7
-24	185.0	12.8	-31.1
-23	188.7	13.0	-30.6
-22	192.6	13.3	-30.0
-21	196.5	13.5	-29.4
-20	200.4	13.8	-28.9
-19	204.4	14.1	-28.3
-18	208.5	14.4	-27.8
-17	212.6	14.7	-27.2
-16	216.7	14.9	-26.7
-15	221.0	15.2	-26.1
-14	225.2	15.5	-25.6
-13	229.6	15.8	-25.0
-12	234.0	16.1	-24.4
-11	238.4	16.4	-23.9
-10	242.9	16.7	-23.3
-9	247.5	17.1	-22.8
-8	252.1	17.4	-22.2
-7	256.8	17.7	-21.7
-6	261.5	18.0	-21.1
-5	266.3	18.4	-20.6
-4	271.2	18.7	-20.0
-3	276.1	19.0	-19.4
-2	281.1	19.4	-18.9
-1	286.1	19.7	-18.3
0	291.2	20.1	-17.8
1	296.4	20.4	-17.2
2	301.7	20.8	-16.7
3	307.0	21.2	-16.1
4	312.3	21.5	-15.6
5	317.8	21.9	-15.0
6	323.2	22.3	-14.4
7	328.8	22.7	-13.9
8	334.4	23.1	-13.3
9	340.1	23.5	-12.8
10	345.9	23.8	-12.2
11	351.7	24.3	-11.7
12	357.6	24.7	-11.1
13	363.6	25.1	-10.6
14	369.7	25.5	-10.0
15	375.8	25.9	-9.4
16	382.0	26.3	-8.9
17	388.2	26.8	-8.3
18	394.5	27.2	-7.8
19	400.9	27.6	-7.2
20	407.4	28.1	-6.7
21	414.0	28.5	-6.1
22	420.6	29.0	-5.6
23	427.3	29.5	-5.0
24	434.0	29.9	-4.4
25	440.9	30.4	-3.9
26	447.8	30.9	-3.3
27	454.8	31.4	-2.8
28	461.9	31.8	-2.2
29	469.0	32.3	-1.7
30	476.3	32.8	-1.1
31	483.6	33.3	-0.6
32	491.0	33.9	0.0
33	498.5	34.4	0.6
34	506.0	34.9	1.1
35	513.6	35.4	1.7
36	521.4	35.9	2.2
37	529.2	36.5	2.8
38	537.1	37.0	3.3
39	545.0	37.6	3.9
40	553.1	38.1	4.4
41	561.2	38.7	5.0
42	569.5	39.3	5.6
43	577.8	39.8	6.1
44	586.2	40.4	6.7
45	594.7	41.0	7.2
46	603.2	41.6	7.8

Low Temp Suction, Typical

Medium Temp Suction, Typical

Hill PHOENIX Pressure-Temperature Chart for CO2

Temp °F	CO2 (R-744) Pressure		Temp °C
	psi(g)	bar(g)	
47	611.9	42.2	8.3
48	620.7	42.8	8.9
49	629.5	43.4	9.4
50	638.5	44.0	10.0
51	647.5	44.6	10.6
52	656.7	45.3	11.1
53	665.9	45.9	11.7
54	675.2	46.6	12.2
55	684.6	47.2	12.8
56	694.2	47.9	13.3
57	703.8	48.5	13.9
58	713.5	49.2	14.4
59	723.3	49.9	15.0
60	733.3	50.6	15.6
61	743.3	51.2	16.1
62	753.4	51.9	16.7
63	763.6	52.7	17.2
64	774.0	53.4	17.8
65	784.4	54.1	18.3
66	795.0	54.8	18.9
67	805.7	55.5	19.4
68	816.4	56.3	20.0
69	827.3	57.0	20.6
70	838.3	57.8	21.1
71	849.4	58.6	21.7
72	860.7	59.3	22.2
73	872.0	60.1	22.8
74	883.5	60.9	23.3
75	895.1	61.7	23.9
76	906.9	62.5	24.4
77	918.7	63.3	25.0
78	930.7	64.2	25.6
79	942.8	65.0	26.1
80	955.1	65.9	26.7
81	967.5	66.7	27.2
82	980.0	67.6	27.8
83	992.7	68.4	28.3
84	1005.6	69.3	28.9
85	1018.6	70.2	29.4
86	1031.8	71.1	30.0
87	1045.1	72.1	30.6
87.8	1055.5	72.8	31

*All data from NIST Refprop 8.0 [Barometric Press=14.50377psi]

Transcritical Gas Cooler Pressure and Temperature correlations

Below are approximate gas cooler pressures
at
dropleg temperatures
that a system might be subject to

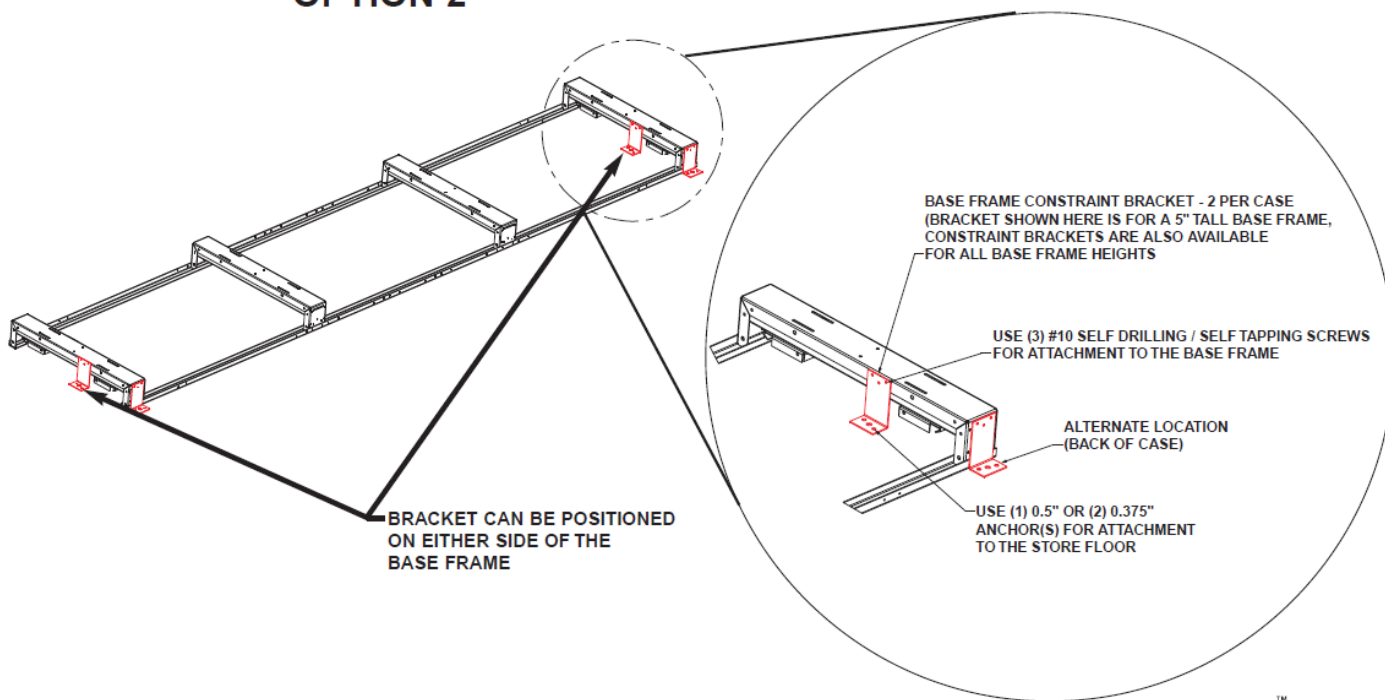
Dropleg Temp °F	Gas Cooler CO2		Dropleg Temp °C
	psi(g)	bar(g)	
81	1037	71.5	27.2
82	1055	72.8	27.8
83	1073	74.0	28.3
84	1091	75.2	28.9
85	1109	76.5	29.4
86	1127	77.7	30.0
87	1145	79.0	30.6
88	1163	80.2	31.1
89	1180	81.4	31.7
90	1198	82.6	32.2
91	1216	83.9	32.8
92	1234	85.1	33.3
93	1252	86.3	33.9
94	1270	87.6	34.4
95	1288	88.8	35.0
96	1306	90.1	35.6
97	1323	91.2	36.1
98	1341	92.5	36.7
99	1359	93.7	37.2
100	1377	95.0	37.8
101	1395	96.2	38.3
102	1413	97.4	38.9
103	1431	98.7	39.4
104	1449	99.9	40.0
104+	1450	100.0	40.0+

NOTE: Due to the multiple refrigerants utilized today, obtaining the PT chart from the manufacturer is recommended for all other refrigerants.

D1 SEISMIC BRACKETS

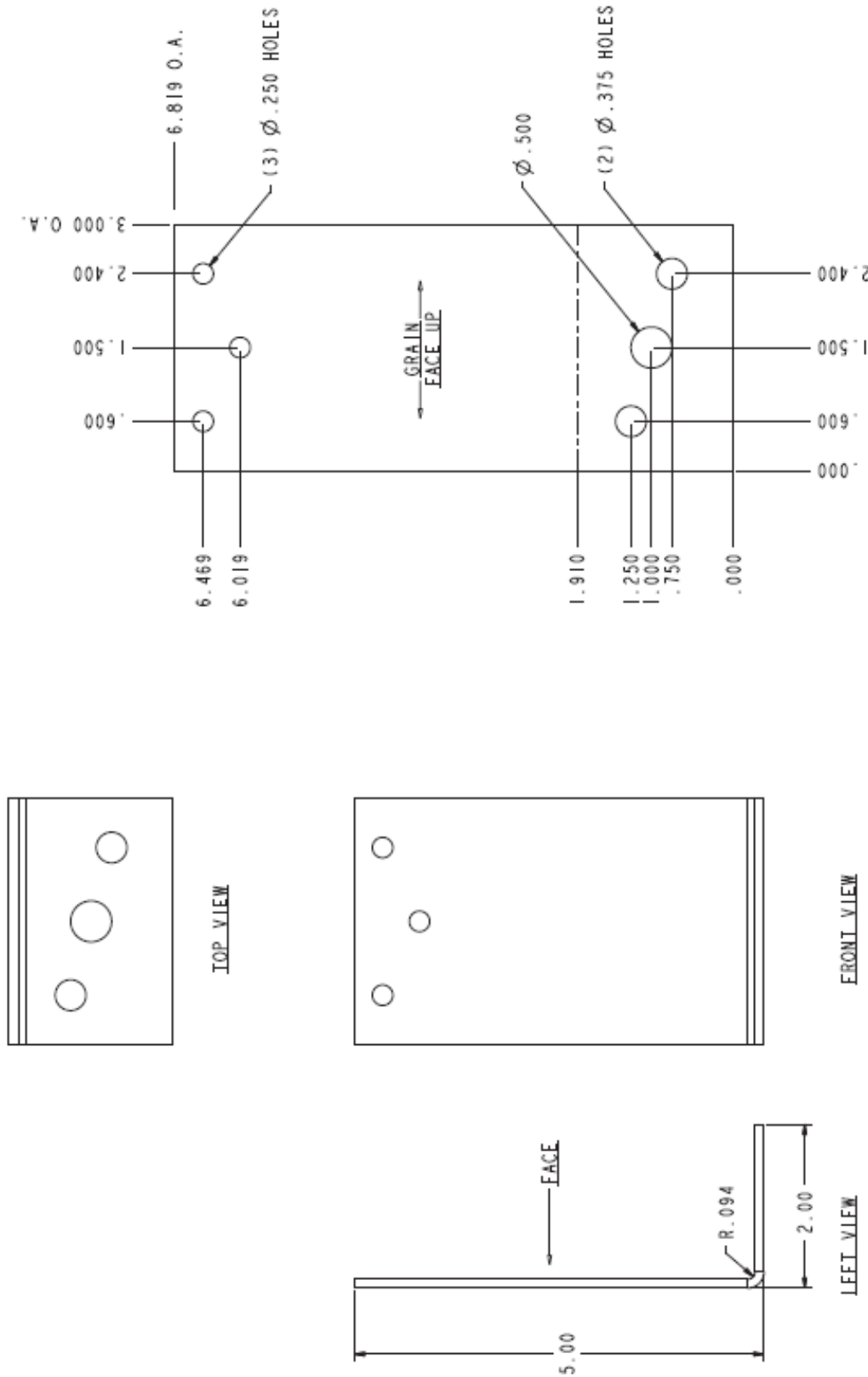
The case constraint brackets can be installed in 2 ways. Option 1 can be used on multi-deck cases and uses an "L" bracket to attach the case to a vertical wall, as shown below. Option 2 can be used on multi-deck cases or on cases that do not have a canopy. Attach the "L" brackets to the base frames in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

OPTION 2



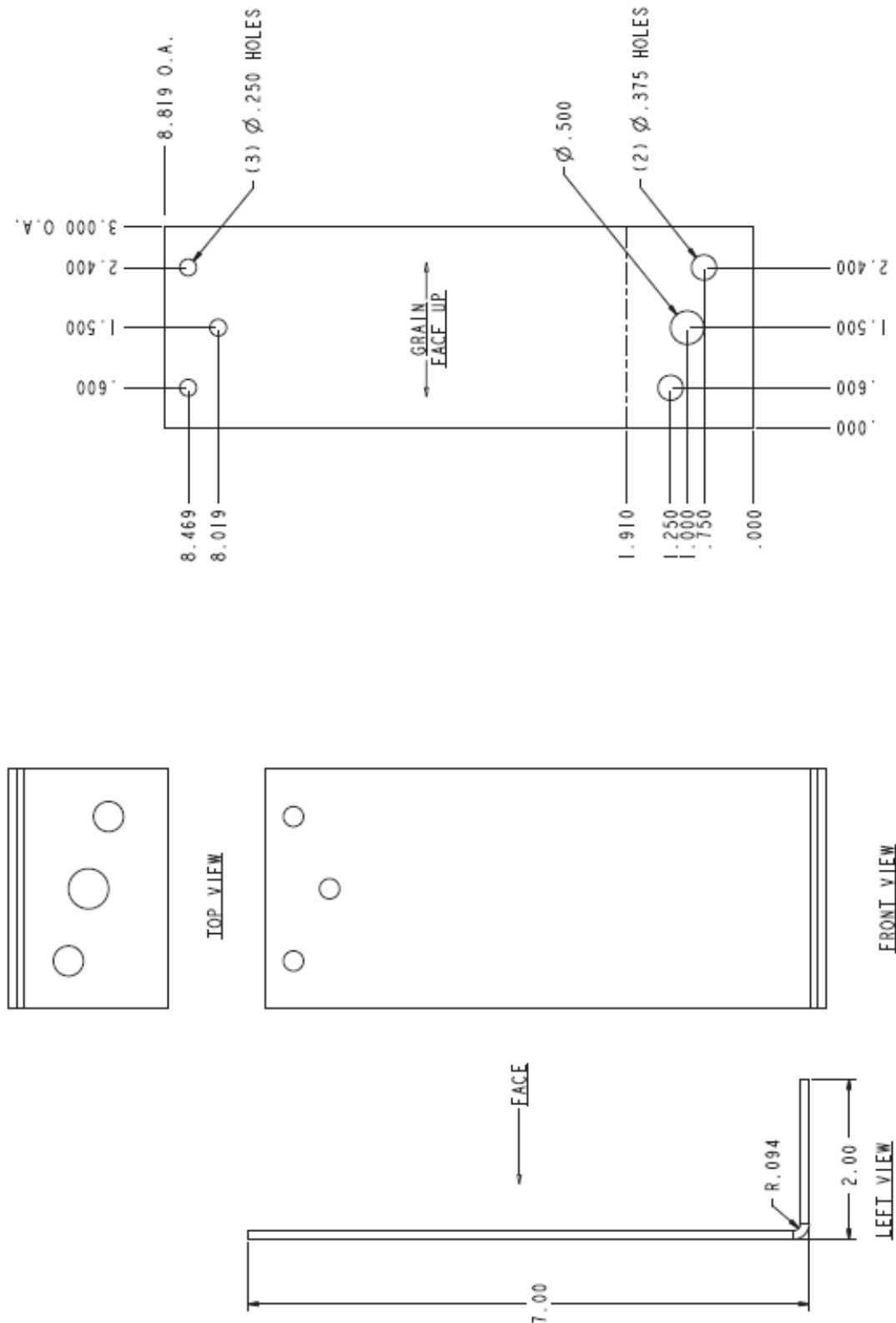
A **DOVER** COMPANY

5" BRACKETS

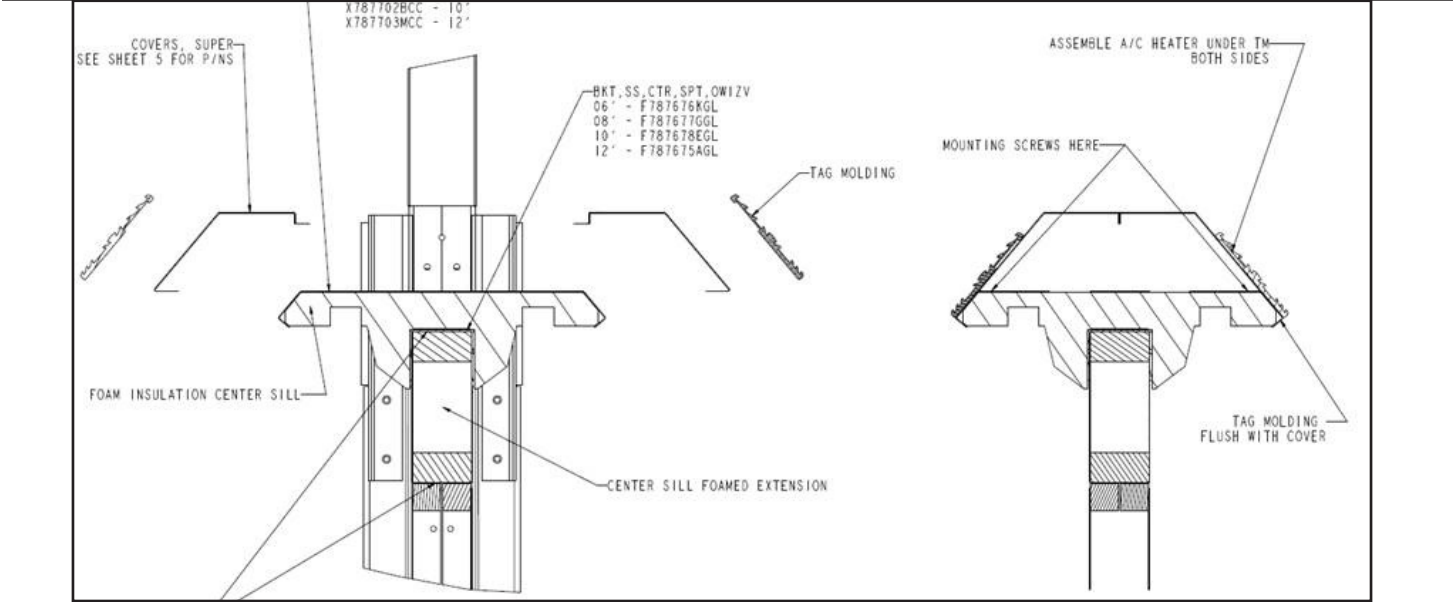
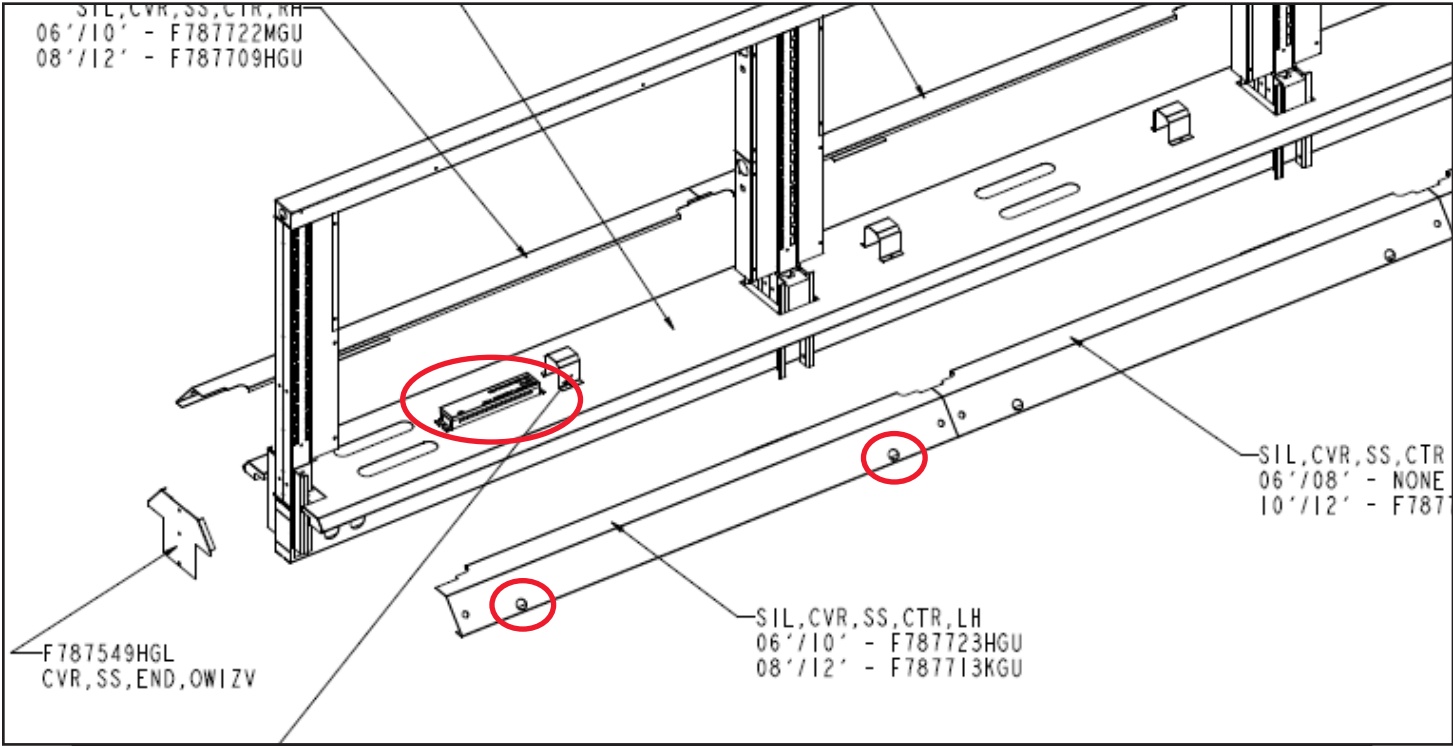
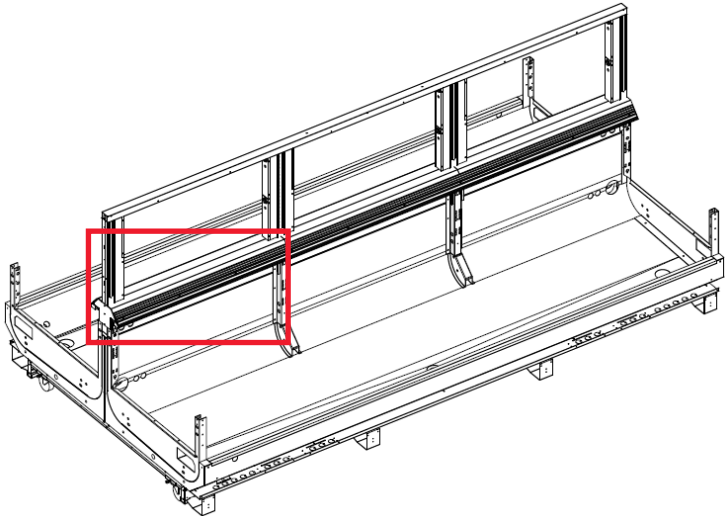
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D3 SEISMIC BRACKETS

7" BRACKETS

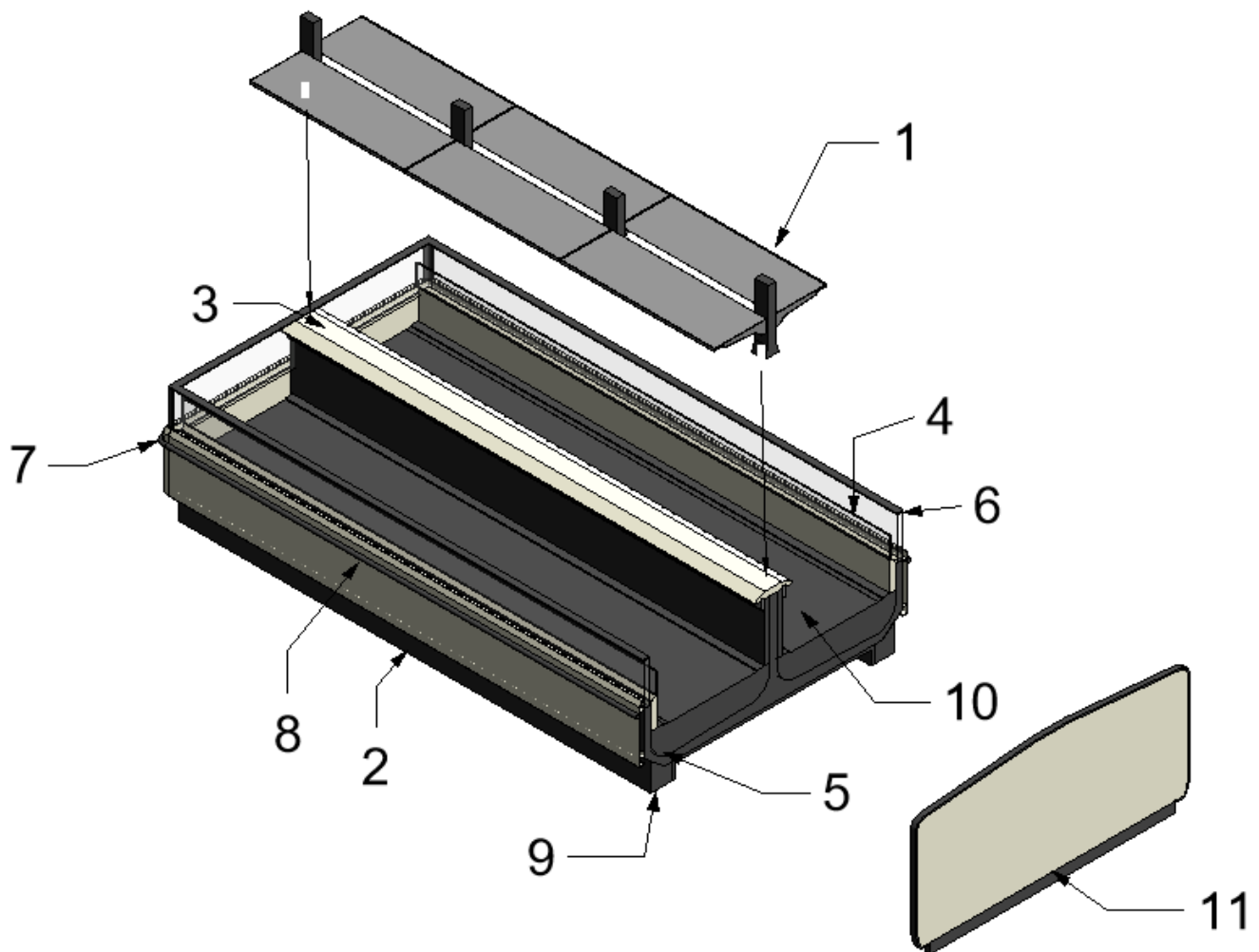
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E1 CENTER SILL SUPERSTRUCTURE DIAGRAM

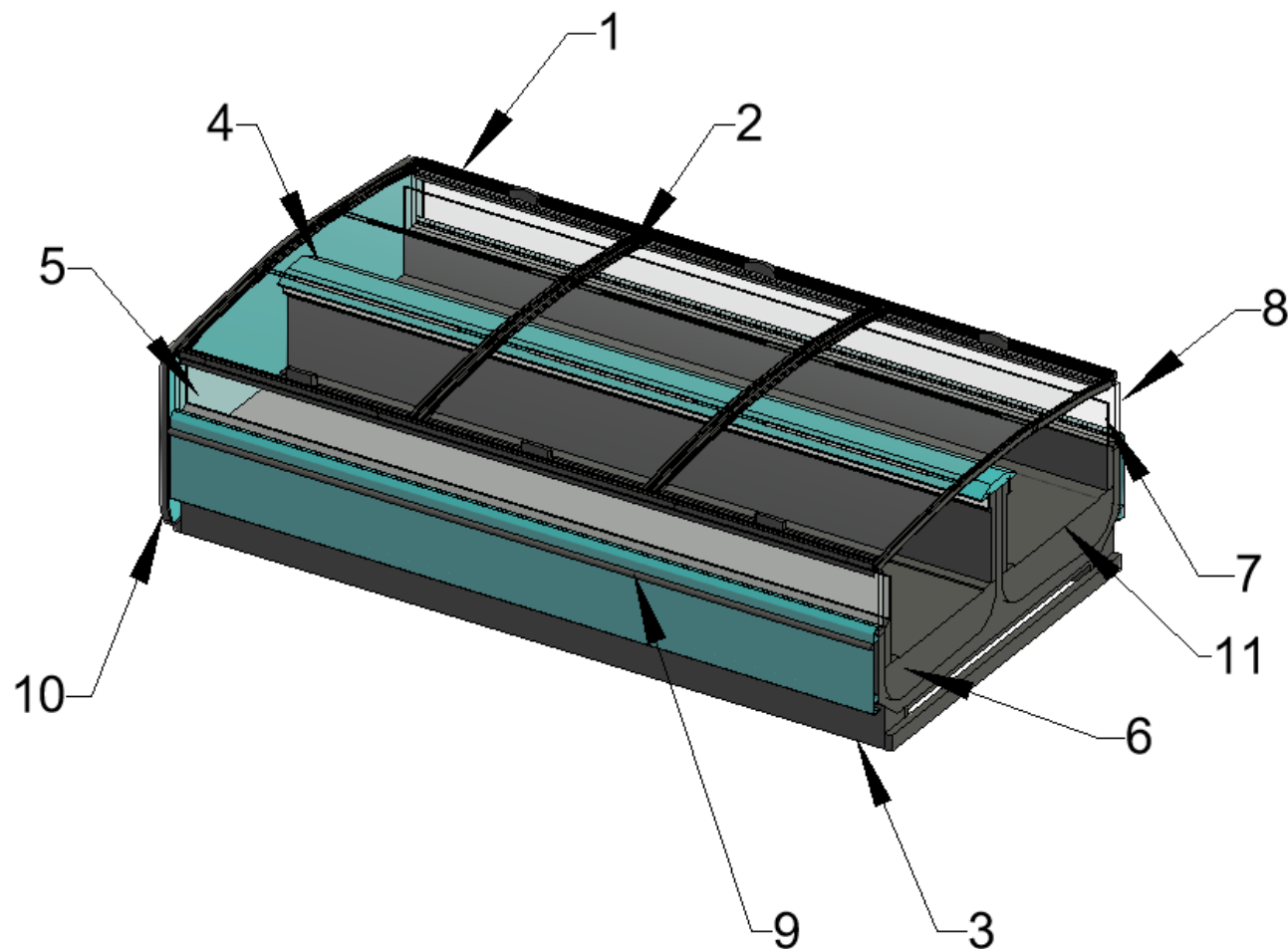


F1 PARTS LIST

OWIZV CASE MODEL (with optional Supersstructure)



1. Superstructure Shelf Assembly (optional)
2. Kickplate
3. Sill cap Center
4. Flu Glass
5. Electric Raceway
6. Glass Joint Trim
7. Corner Bumper
8. Bumper
9. Pedestal, Painted
10. Deck Pan, Painted, Unpainted
11. End Panel

OWIZVL CASE MODEL

- 1. Slider Lid**
- 2. Slider Lid Frame**
- 3. Kickplate, Storm Grey**
- 4. Sill cap Center**
- 5. Flu Glass**
- 6. Electric Junction Box**
- 7. Glass Joint Trim**
- 8. Corner Bumper**
- 9. Bumper**
- 10. Pedestal, Painted**
- 11. Deck Pan, Painted, Unpainted**



A DOVER COMPANY

LIMITED & GENERAL WARRANTY TERMS

Hill Phoenix, Inc.'s. (hereinafter "Hillphoenix") products are warranted to be free from defects in materials and workmanship under normal use and maintenance for a period of 14 months from date and place of shipment from Hillphoenix (the "Base Warranty Period"), provided that the installation and maintenance of such products have been performed strictly in accordance with Hillphoenix's designated specifications.

Anthony products supplied as original equipment on Hillphoenix products receive Hillphoenix warranty.

All warranty repairs must be approved in advance before services are started. In the event of a qualifying warranty claim, the extent of Hillphoenix's liability under the Warranty is limited to the repair or replacement, at Hillphoenix's option, of any non-conforming products without charge. If required, a new or rebuilt part to replace any defective part will be provided without charge and will be shipped via standard ground freight, with shipping charges being covered by Hillphoenix during the base warranty period. The replacement part is covered under this warranty for the remainder of the applicable Base Warranty Period. In order to be eligible for warranty coverage, customer must: (i) notify Hillphoenix in writing within twenty-four hours upon discovery of a warrant defect, and (ii) comply with the warranty claim procedures provided by Hillphoenix from time to time. These warranty terms are incorporated into and governed by the Hill Phoenix Terms and Conditions of Sale.

This equipment warranty does not include labor or other costs incurred for diagnosing, repairing, removing, installing, shipping, servicing, or handling of either defective parts or replacement parts. Unauthorized modifications to set-points, parameters, and controls may result in deteriorated performance and/or equipment failure. Any unauthorized modifications could result in the warranty being voided.

The warranty shall not apply:

1. To any unit or any part thereof which has been subject to an accident, alteration, negligence, misuse or abuse, or which has not been operated in accordance with the manufacturer's recommendations, or in conditions outside of Manufacturer's specifications, 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. To products that are impaired or damaged due to improper installation.
4. When installation and startup forms are not properly completed or returned within two weeks after startup.
5. If the defective part is not returned to the Manufacturer.
6. To service, maintenance or wear and tear parts (such as lights, starters and ballasts).
7. To cosmetic damage (e.g., scratches, dents, chips, and other damage to appliance finishes), unless such damage results from defects in materials and workmanship and is reported to Hillphoenix within 30 days from date of purchase.
8. To shipping damage.
9. To use in a non-commercial application.
10. Corrosion, discoloration, oxidation, or rust due to exposure to predisposed corrosive environments/atmospheres or contact with product damaging material/chemicals.
11. To service trips where no problem is diagnosed or found in the discretion of Hillphoenix.
12. To Removal/reinstallation of product for repair if installed in an inaccessible location.
13. To use of non-OEM parts for warrantable repair unless directed by Hillphoenix.
14. To repair/service tools/items.
15. To service trips to teach customer how to use product.
16. To product pick-up or delivery for repair purposes; repairs should take place on the customer's site unless directed by Hillphoenix.
17. To misdiagnosis or misrepair, including subsequent labor/component repair or replacement.
18. To stolen components.
19. To replacement service parts lost or misplaced on arrival by receiving personnel.
20. To service events on non-DFR products.
21. To excess repair time.
22. To excess required consumables charges, at the discretion of Hillphoenix.
23. If a service contractor takes longer than 120 days from the date of repair completion to submit a warranty invoice/claim.
24. To component/equipment failures, equipment shutdowns, operational performance degradation due to deviations and unauthorized changes to required and/or recommended set-points, parameters, and controls.

Examples of non-warrantable situations include, but are not limited to:

- Non-factory electrical connection or component issues
- Product is operated on low or improper voltages
- Use of extension cords to power the product

- Lack of basic preventative maintenance as outlined by product manuals
- Installation into a mobile application
- Failures or symptoms that result from site mechanical or electrical failures
- Loading of food or other content that prevents the product from operating properly
- 'Yellowing' of lighting products
- Any physical modifications or changes to product(s) will invalidate the warranty

MODIFICATIONS TO GENERAL WARRANTY

The following sets forth certain modifications to the General Warranty for specific products of Manufacturer:

DISPLAY CASE AND SPECIALTY PRODUCTS CLEARVOYANT® LED LIGHTING

The warranty period for Clearvoyant LED lighting components within the Clearvoyant lighting system is five years from date of shipment.

NO WARRANTY FOR NON-STANDARD PRODUCTS

A "Non-Standard Product" is any product that is different in any manner from any Hillphoenix product that has been previously designed and manufactured by Hillphoenix in accordance with its standard specifications. A Non-Standard Product also includes any standard Hillphoenix product that has been specially designed or modified to meet a particular Buyer specification, or that contains any additional or substituted product, part, accessory, equipment, fixture, component or material, or that has been assembled, manufactured, produced, or installed by any method or process, which is different from Hillphoenix's standard specifications for such product. Hillphoenix expressly disclaims and makes no warranties, express or implied, as to the condition, design, utility, quality, adequacy, or capacity with respect to any standard or Non-Standard Product, including, without limitation, any warranty of merchantability or fitness of such product for a particular purpose or intended use, whether or not such product has been designated by Hillphoenix as a Non-Standard Product. All Non-Standard Products, whether sold separately, or incorporated and/or attached to standard Hillphoenix products, and all services relating to such products, are sold to and accepted by Buyer "as is" and "with all faults". Without limiting any other provision of this purchase order, Hillphoenix shall have no liability to Buyer for any claim, loss, damage, consequential damages or expenses associated with any Non-Standard Product and/or its use or operation, or any other equipment or property of Buyer caused by or alleged by to be caused by any such product or its use or operation, whether directly, indirectly, incidentally or consequentially, or by any inadequacy thereof or deficiency or defect therein. The foregoing exclusion of warranty cannot be modified or waived except as expressly set forth in a writing signed by an officer of Hillphoenix authorized to make such modification or waiver.

REMEDY LIMITATION/DAMAGES EXCLUSION

THE REMEDY OF REPAIR OR PROVISION OF A REPLACEMENT PART WITHOUT CHARGE SHALL BE THE EXCLUSIVE REMEDY FOR ANY WARRANTY CLAIM HEREUNDER. WITHOUT LIMITING THE FOREGOING, HILLPHOENIX SHALL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR INCIDENTAL, INDIRECT, LIQUIDATED OR CONSEQUENTIAL DAMAGES, INCLUDING LOSS OF PROFIT, LABOR COST, LOSS OF REFRIGERANT OR FOOD PRODUCTS.

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THIS DOCUMENT DOES NOT GOVERN EXTENDED WARRANTIES AND ANY EXTENDED WARRANTIES PROVIDED BY HILLPHOENIX SHALL BE GOVERNED BY A SEPARATE DOCUMENT AGREED UPON BY HILLPHOENIX

Submit warranty claims to: hpx-warranty-wa-invoices@doverfoodretail.com

For warranty service, please contact Hill Phoenix at: Phone: 1-833-280-5714

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 receptacles 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.



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Due to our commitment to continuous improvement, all specifications are subject to change without notice.

Hillphoenix is a Sustaining Member of the American Society of Quality.

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