

MEDIUM TEMPERATURE REMOTE CABINET

SMED

SEMI VERTICAL DISPLAY DOOR CABINET



INSTALLATION MANUAL

SMED153/163

JUN 2021 - AJHH9A20002A

HUSSmann®
A Panasonic Company

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GENERAL INFORMATION

1.1 SYMBOLS:



NOTE: Not related to personal injury – Indicate[s] situations, which if not avoided, could result in damage to equipment



CAUTION: Indicate(s) hazardous situation which, if not avoided, will result in moderate injury.



CAUTION: Indicate(s) hazardous situation which, if not avoided, will result in moderate or serious injury.



CAUTION: Indicate(s) hazardous situation which, if not avoided, will result in serious injury or death.



USE MANUAL: Be sure to follow the instruction thoroughly whilst doing the installation. If not performed correctly, leakage, electric shock or fire may occur. Always keep manual in safe place.



NO WALK: Do not walk on top or on any parts of the case. Case damages or personal injuries may occur.



NO SIT: Do not sit on top or on any parts of the case. Case damages or personal injuries may occur.



NO CLIMB: Do not climb on top or on any parts of the case. This may cause damage to the case or personal injury.



NO CHEMICALS: Do not use chemical substances to clean the case. This may cause discoloration or could damage the case.



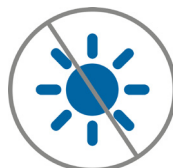
USE SOAPY WATER: Use soapy water in a spray bottle to clean the case.



NO WET AREA: Do not install case in a wet place or near water. Risk of Electricity leakage or electrical shock may occur.



NO DIRECT WATER: Do not pour excessive water onto the case. DO NOT use pressurised hose, eg fire hose. This can result in electric shock.



NO OUTDOORS: Do not use or store the case outdoor. If the case is exposed to direct sunlight or rain, leakage of electricity, electric shock or performance failure may occur.



PPE GEAR : Remember to wear Personal Protective Equipment whilst installing the case.

GENERAL INFORMATION

1.1 SYMBOLS:



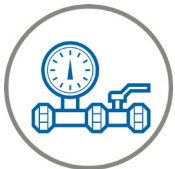
TURN OFF: Ensure that power source is disconnected when conducting any servicing or inspection. Injuries such as electric shock or burns could occur.



NO FLAMMABLE: Do not expose the case to any flammable objects. This may cause ignition and explosion due to spark.



WEIGHT: Do not exceed the weight limit of each shelf. Each standard shelf has a total maximum weight limit of 180kg/m².



PRESSURE & VACCUM TEST : Ensure a pressure and Vaccum test is conducted. The leakage of refrigerant may result in poor performance or



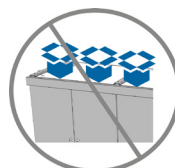
NO GAS: Do not install the case where flammable gas could be released. If gas leaks out and flows around the case there can be risk for fire.



EARTHING : Ensure case earthed when proceeding with electical components. Electric shock or fire may occur if not correctly processed.



TECHNICIANS ONLY: Installation should only be performed by qualified technicians.



NO OBJECTS ON CASE: Do not place objects, stack or use the top of the case as storage. Object may fall and cause injury to personnel and /or damage to the case.



NO A/C: Do not install case where air blows directly at the case. This will disrupt the case airflow and affect performance.



NO WET HANDS: Ensure not to touch switches or any component with wet hands. This may cause electrical shock.



NO FLAMMABLE : Do not keep any volatile or flammable materials inside the case. It may risk explosion or fire.



NO CONNECTING SOCKETS: Do not use any connecting socket or extension cords. Be sure to use private line or socket as the main power source. Failure to do so could result in electric shock or fire.

GENERAL INFORMATION

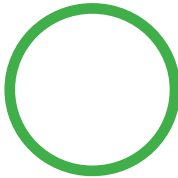
1.2 STOP THINK ACT



STOP: Take the time to think about the installation process. Consider the outcomes of the actions needed to be taken, worst thing that could happen?



THINK: How are you going to do it, is it the safest way? if not, how can you do it better? Do I have the right PPE, tools and equipment.



ACT: Go about it in the safest way possible. Follow this installation manual here and don't rush. STOP if it can't be done safely.



NOTE: These cabinets are heavy, can have high centres-of-gravity (thus 'tippy'), use appropriate PPE and tools and manpower levels.

1.3 STAFF TRAINING

This manual is to be used to understand and safely execute the installation & maintenance of the appliance. It is the installer & users responsibility to carry out the instructions illustrated within the manual correctly. The installer & user is responsible for setting out the the training and requirements needed for their maintenance technician staff to be educated to use the case correctly. The case should always be kept in good working order to ensure installer and user safety.

Injury to personnel and damage to the case and its components may occur if instructions in the manual are not correctly followed. If information would like to be added to this manual, or if suggestions would like to be made, contact Hussmann directly at any time.

1.4 ELECTRICAL CONNECTION

Check that the power supply voltage matches that displayed on the rating plate of the case, and that the power is adequate. Voltage provided should be $\pm 10\%$ of rating plate. Electrical should be hard wired by an authorised electrician to comply with all local electrical regulations. Failure to do so could result in electric shock or fire.



1.5 REFRIGERANTS



Installation & Maintenance must be performed by qualified technical personnel with appropriate training and authorisation to work with flammable refrigerants.

R134a :

The refrigerant R134a is not flammable. Pay close attention during transport, installation and dismantling not to damage the refrigerant pipelines.

EVENT OF DAMAGE:

Keep flames or sources of ignition away from the appliance. Properly ventilate the premises for a few minutes. Turn the unit off and notify the customer service department. Although not flammable this material will become combustible when mixed with air under pressure and exposed to strong ignition sources.

GENERAL INFORMATION

1.5 REFRIGERANTS

TCO2/CO2:

The refrigerant TCO2 & CO2 is a high pressure gas that is compatible with the environment, but is not flammable. Pay close attention during transport, installation and dismantling not to damage the refrigerant pipelines.



CAUTION: Gas is under high pressure.

EVENT OF DAMAGE:

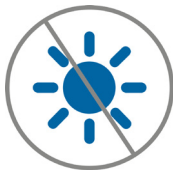
Keep surrounding flames or sources of ignition away from the appliance and gas. Properly ventilate the premises and use a breathing apparatus. Turn the unit off and notify the customer service department. Fire and heat may cause gas receptacles to rupture. Use water spray/not jet or fog to extinguish.

R449a:

R449a (Solstice® N40) is a non-flammable HFO blend used in low and medium temperature refrigeration applications. It provides a combination of lower Global Warming Potential (GWP) and higher energy efficiency. R449a has a GWP of 1273. It is non-ozone-depleting which can be used in existing installations or for new installations.

EVENT OF DAMAGE:

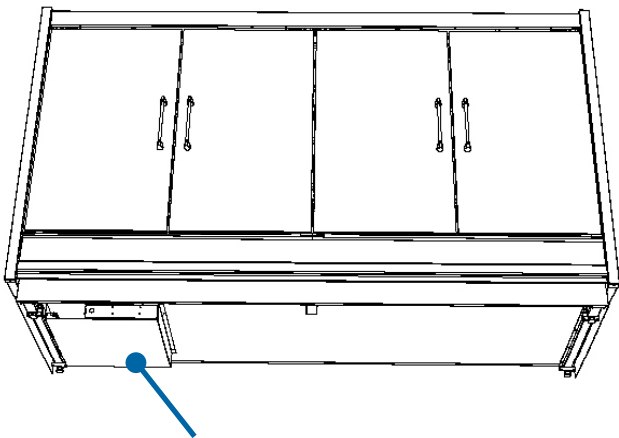
Vapours of this refrigerant are heavier than air and can cause rapid suffocation by reducing oxygen available for breathing. Contact with liquid can cause frostbite and severe damage to the eyes. The system including the refrigerant is under pressure, it should be protected from sunlight and other heat sources.



GENERAL INFORMATION



NOTE: Check underside of case before lifting to ensure no damage to electrical, drain box or other extrusions occurs.



Check underside of case

FIGURE 1A

1.6 CASE VENTILATION:

AIR FLOW:

Sources of heat or air flow external to the cabinet should be avoided. i.e ventilation ducts, open doors and direct sunlight. This will deter external air from disrupting the air flow from the cabinet thus will help to maintain its performance.

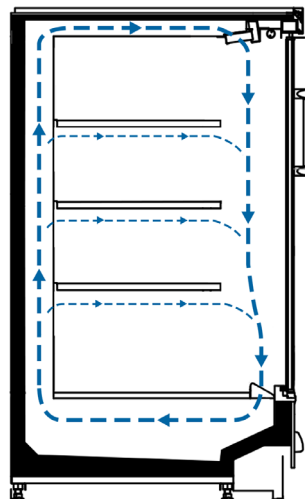
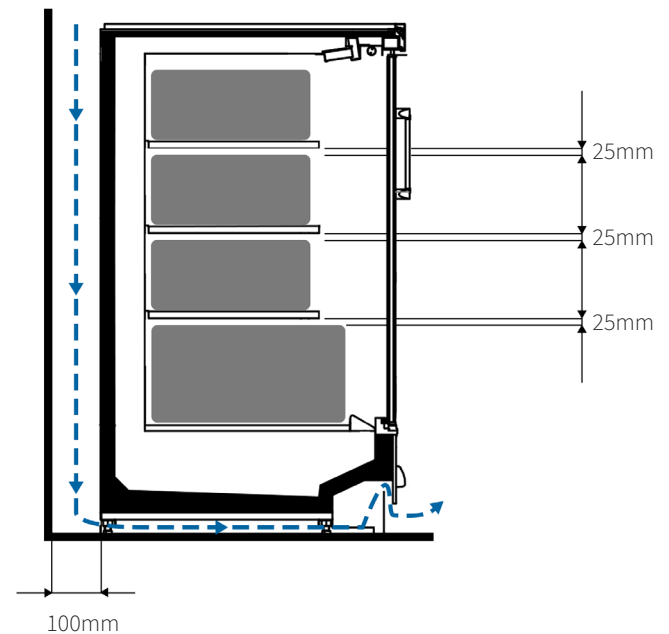
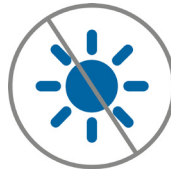


FIGURE 1B

LOCATION:

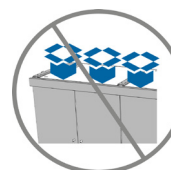
The refrigeration case should be positioned in a manner that optimal air flow can flow through the underside and rear. This will minimise the risk of condensation on the back and/or underside. Leave **100mm** gap between the rear of the case and the back wall.



STOCKING SHELVES:

FIGURE 1C

When stocking the shelves, be sure to leave a **25mm** gap in between the stock and shelf to ensure even and consistent airflow. Not doing this correctly may result in a blockage of airflow which could freeze the stock at the rear, and not enough refrigeration being produced toward the front of the case.



NO OBJECTS ON CASE: Do not place objects, stack or use the top of the case as storage. Object may fall and cause injury to personnel and /or damage to the case.

PRE INSTALLATION

2.1 CASE DIMENSIONS & SERVICES

EXAMPLE SMED153

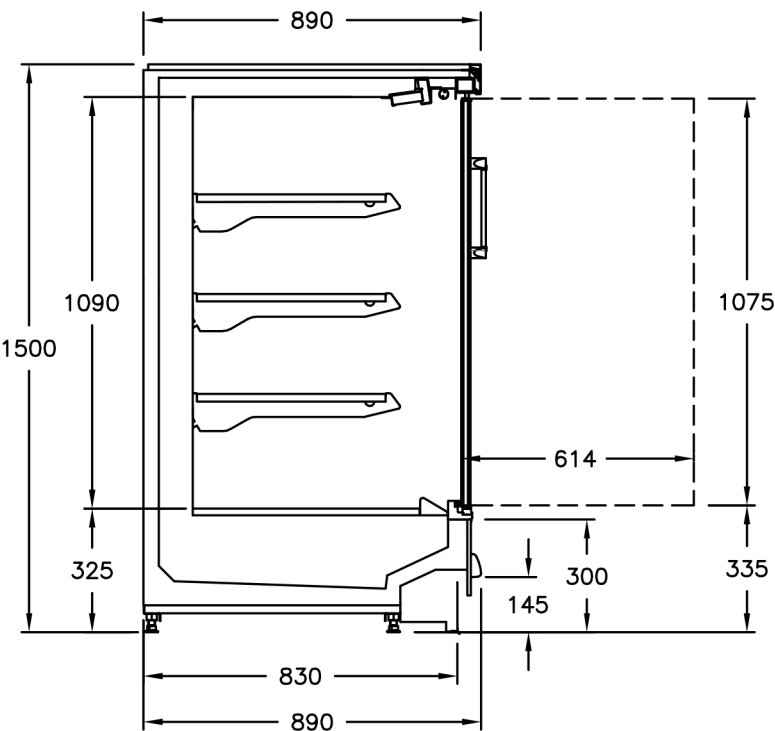
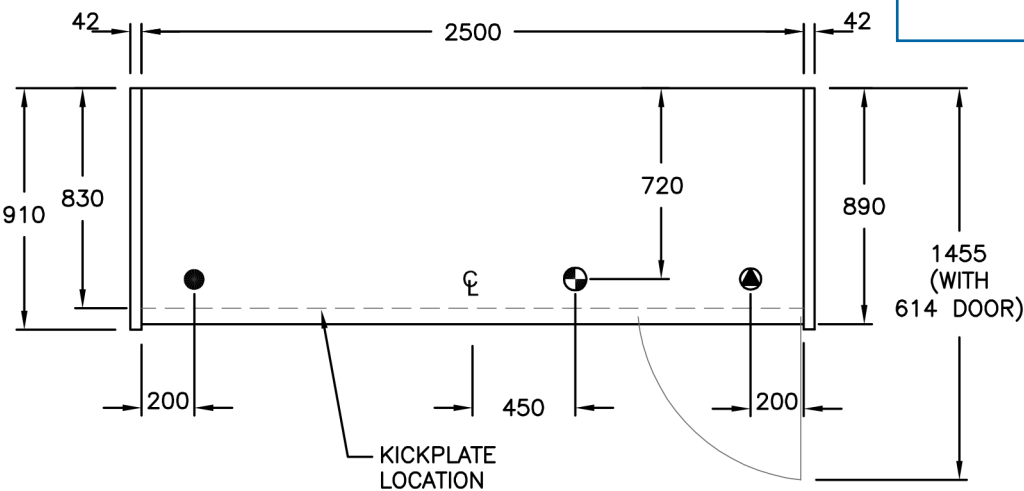


FIGURE 2A - EXAMPLE ONLY



NOTE: This information is a reference only. Always refer to the latest Product Engineering Data sheet (PED).

*** SMED153/163 Case Dimensions found at back of the manual.**



- ⊕ DRAIN
- E ● ELECTRICAL
- R ● REFRIGERATION

PRE INSTALLATION

2.2 OPERATING ENVIRONMENT

Cases have been factory tested to AS1731, +25°C at 60% RH, and cross draft of maximum 0.2m/s. For best performance, we recommend maintaining store temperature below +24°C at 50% RH.

To avoid condensation build-up, cases should be positioned to allow air to freely circulate around the underside and rear of the case (refer page 7). Cases must be level.

Open refrigerated cases are sensitive to excessive air disturbances. Air currents passing around cases will seriously impair their operation. Do NOT allow air conditioning, electric fans, open doors or windows, etc to create air currents around the cases.

Place the case away from any heat sources as the heat radiation and heat currents will impair the performance.

The exterior of these cases provide space for air circulation. However, If the store conditions are outside the recommended limits, a fan ventilation kit can be requested.

2.3 HANDLING AND TRANSPORTING CASES

Case dimensions and case weight can be found on the rating plate. Also refer to the latest Product Engineering Data (PED) available from Hussmann Customer Service.

Always ensure that the moving device is of a suitable type, and has sufficient lifting capacity for the case weight and dimension. Always lift cases from the underside.



NOTE: These cabinets are heavy, can have high centres-of-gravity (thus 'tippy'), use appropriate PPE and tools and manpower levels.

It is the responsibility of the transport company to insure adequate loading strategies are implemented to insure the safe transportation of the Hussmann cases. Cases should be strapped using the indicated strapping points highlighted on the case packaging with the "strap here" stickers. Cases should be strapped in position ready for transport with the appropriate rated strapping and strap corner protector. Cases need to be secured correctly during road transport to insure damage free delivery. In Australia, cases should not be transported without the strap corner protectors to insure that the tie down web straps used from cutting into packaging and or causing damage to case panels in transport.

The strap corner protector is a case transport requirement in Australia, and disregarding using the protector may cause transport damage. Without the necessary implementation of correct strapping protection Warehouse Managers may refuse loading. Transportation requirements are to ensure case integrity and prevent unnecessary damage and avoid delays in the case installation schedule.



NOTE: For demonstration watch: <https://www.youtube.com/watch?v=C5wPzfSc8Q>

Strap Piece



FIGURE 2B

PRE INSTALLATION

2.3 HANDLING AND TRANSPORTING CASES

The cabinets must be stored indoors, with a temperature ranging between 0°C and +40°C and a humidity between 30% RH and 90% RH.

Before storing the cabinets, ensure packaging is unbroken and does not display defect that may compromise preservation of the cabinets.



Avoid UV rays:

Permanent deformation of plastic materials or damage of cabinet parts. **DO NOT** store the cabinets in uncovered areas exposed to atmospheric agents and to direct sunlight.

2.4 SHIPPING DAMAGES AND SHORTAGES

Packaging needs to be disposed of responsibly (refer to page 33) by the installer and/or user.



Where possible please recycle as many items as possible.

After removing packaging, inspect the case for any shipping damage and ensure that all case inclusions, such as trims etc are accounted for. Immediately report any shipping damage to the carrier and inform Hussmann Customer Service of any short supplies.

Where possible all packaging and shipping braces should be removed before cases are put into their approx final position.

- Apparent loss or damage. If there is an obvious loss or damage it must be noted on the freight documentation receipt supplied by the Transport Company and notification to Hussmann or representative within seven (7) days of delivery.

- Concealed loss or damage After removing all packing etc confirm with the parts list, attached to case for any short supplied and or damaged trims, product fences etc. If required notify Hussmann or representative within seven (7) days of delivery.



NOTE: Refer to product MSDS for all hazardous substances used during installation in relation to their application, PPE, first aid, disposal and emergency management. Refer page 20 (Risk Analysis) For MSDS sheet contact your Hussmann



CAUTION: Care must be taken to avoid damage to drainage outlets and electrical equipment mounted under or at the rear of cases

INSPECT UNDERSIDE BEFORE LIFTING WITH FORKLIFT.



CAUTION: When moving cases confirm that the equipment used is approved for such works.

Do not lift or drag the case by the Patch End as this may damage both the case and/or on ends.



Refer to your companies' safe working procedure (SWP) when handling cases such as forklifts, trolleys etc.

PRE INSTALLATION

2.5 RATING PLATES:


Each case has a 2 unique & 1 optional label that includes an identification number.

As well as on the packaging, the case identification number appears as a serial number on the rating plate (most commonly located on the ceiling panel left hand end of the case and left side rear panel) and is printed on a decal on the rear of the case. The case sequence number is also written on a ticket on the front panel.

PACKAGING TAG:

MODEL NO :	SMED153
SERIAL NO :	SZ0000
ASSET CODE :	
PROJECT :	
SO NO :	
PO NO :	
DEPARTMENT TYPE :	

RATING PLATE:

HUSSMANN®	
MODEL : SMED153	DIMENSIONS: X x X x X mm
CLIMATE CLASS: X	TYPE: X
NET VOLUME: X	NET WEIGHT: X kg
REFRIGERANT: X	DATE OF MANUFACTURE: X/X/XX
VOLATAGE (V): X	FREQUENCY: X
FANS CURRENT (A): X	LIGHTS CURRENT (A): X
ANTI SWEAT CURRENT (A): X	
DEFROST AND DRAIN CURRENT (A): X	
CONFIG ID : SMED153 - XX - XXXX	SERIAL NO: SZ0000
	
Hussmann Refrigeration (Suzhou) Co. Ltd	

ASSET TAG (Where Applicable):

ASSET CODE

12345678

LOCATIONS:

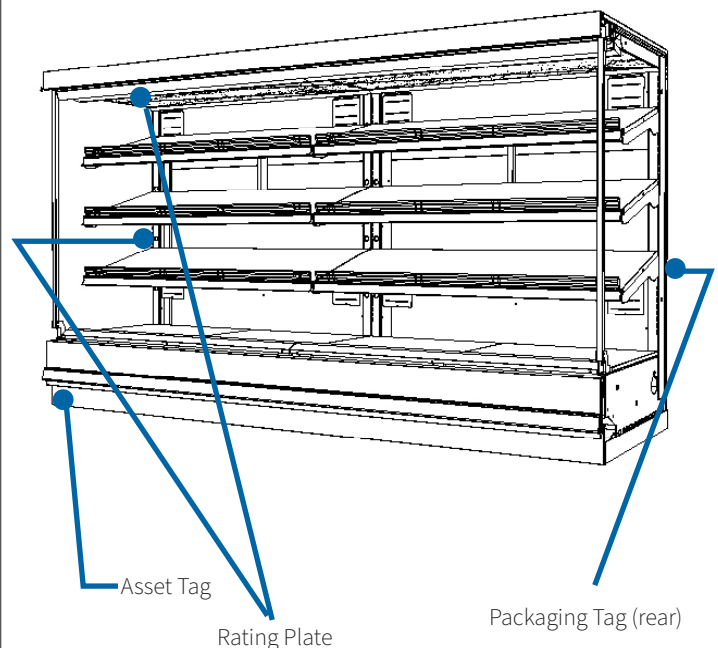


FIGURE 2C



NOTE: Refer to rating plate to identify the exact case model. The serial number and build date are key for acquiring information regarding spare parts, warranty, short parts etc.

PRE INSTALLATION

PACKAGING TAG:

- **Model No:** Identifies the model type (letters on left) as well as the model size (numbers on right)
- **Serial Number:** The unique number given to each case.
- **Asset Code:** Optional identification number for supermarket stores.
- **Project:** Used to identify location site for the case
- **SO Number:** Sales Order number
- **PO Number:** Purchasing Order Invoice number
- **Department Type:** The type given for merchandising location, eg bakery, dairy, deli etc.

ASSET CODE:

- **Asset Code:** Optional identification number for supermarket stores.

RATING PLATE:

- **Model :** Identifies the model type (letters on left) as well as the model size (numbers on right)
- **Climate Class:** The climate class relates to the atmospheric, or ambient conditions outside the fridge or freezer. These conditions determine how much energy the unit will utilise in specific environments.
- **Net Volume:** The net volume is the total space inside the case.
- **Refrigerant:** Identifies the refrigerant used in the case.
- **Voltage:** Voltage is the amount of potential energy between two points on a circuit. This is measured in volts (V).
- **Fans Current:** The fans flow of electricity which results from the ordered directional movement of electrically charged particles, measured in Amps (A).

RATING PLATE (Continued):

- **Anti-Sweat Current:** The heater that's installed in the frames and doors of refrigerated cases to reduce condensation and prevent fogging, this is measured in Amps (A).
- **Defrost and Drain Current:** The current from heaters that are installed in freezer cases to stop the case from icing up, measured in Amps (A).
- **Dimensions:** The sizing of the case measured in millimeters (mm) L x W x H.
- **Type:** The type given for merchandising location, eg bakery, dairy, deli etc.
- **Net Weight:** The net weight is the total weight including shelving and all parts supplied with the case.
- **Date of Manufacture:** The date of build.
- **Frequency:** Frequency is the rate at which current changes direction per second. It is measured in Hertz (Hz), an international unit of measure where 1 Hertz is equal to 1 cycle per second.
- **Lights Current:** The total current of the lighting modules in a case, measured in Amps (A).
- **Configuration ID:** Identifies the model type, model size, the lineup number and the case sequence number.
- **Serial Number:** The unique number given to each

INSTALLATION

3.1 POSITIONING AND LEVELLING

Unwrap the cabinet and remove the shipping braces. Lift up cabinet and remove shipping base.

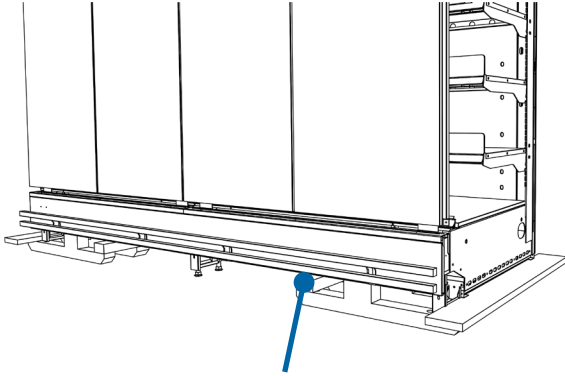


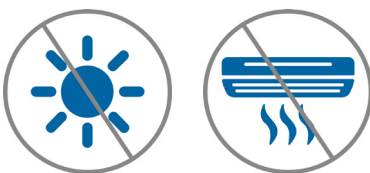
FIGURE 3A - Remove Shipping Base

To position the cases:

1. If the plinth surface is not level, determine where the highest point of the plinth is, and position the case allocated to this position first.
2. Snap a chalk line on the floor to use as a guide for positioning the front of the cases in the line-up. Determine the position of the case and choose a part of the case that will relate to the chalk line.
3. Adjust the case height using the adjustable feet to ensure the case is level to within +/- 1.5mm from front to back and side to side and chassis of case is NOT twisted. Maximum 30mm adjustment.

Refer to and follow the manual handling policies of your Company when moving cases

Cases must not be positioned in areas that may be subject to heat or air currents such as ventilation ducts, open doors or windows, direct sunlight, electric fans or ovens, etc.



NOTE: Information in this manual is to be followed in conjunction with specifications, work practices and regulations of the customer, installing company and relevant industry.



CAUTION: Ensure the lifting capacity of the trolley, etc is sufficient for the case. Refer to the product engineering data tables at the front of this manual for case weights and Risk Analysis (page 36). The rating plates will also detail weight/size.

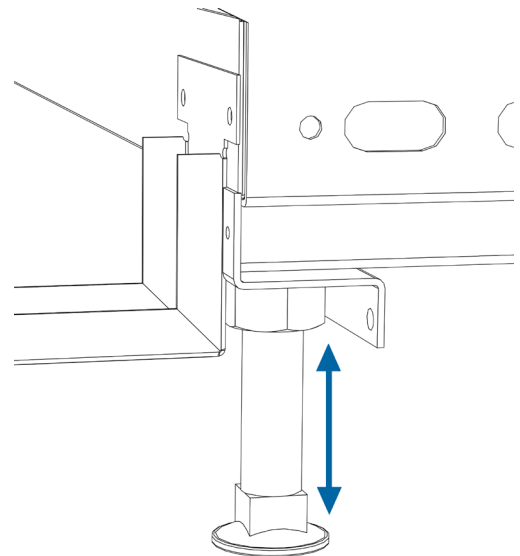


FIGURE 3B - Levelling Feet



INSTALLATION

3.1 POSITIONING AND LEVELLING

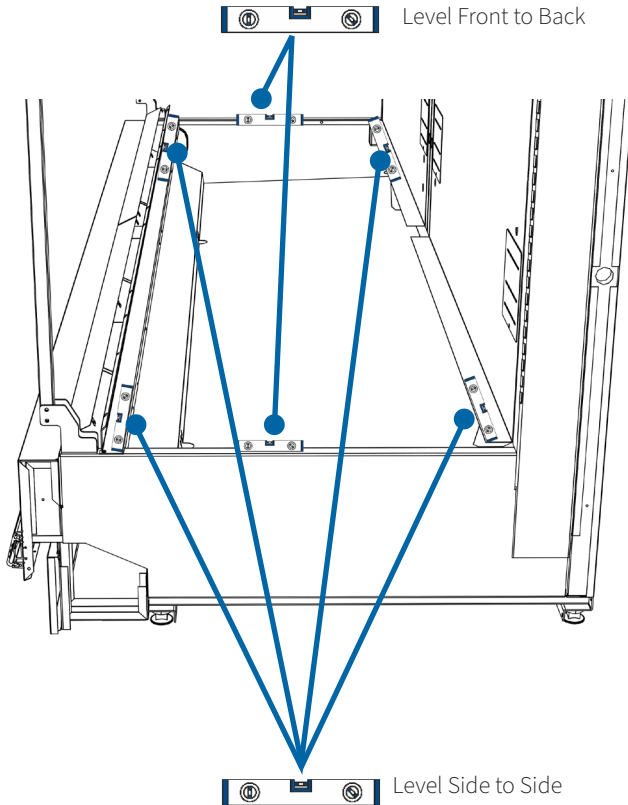


FIGURE 3C - Levelling Case

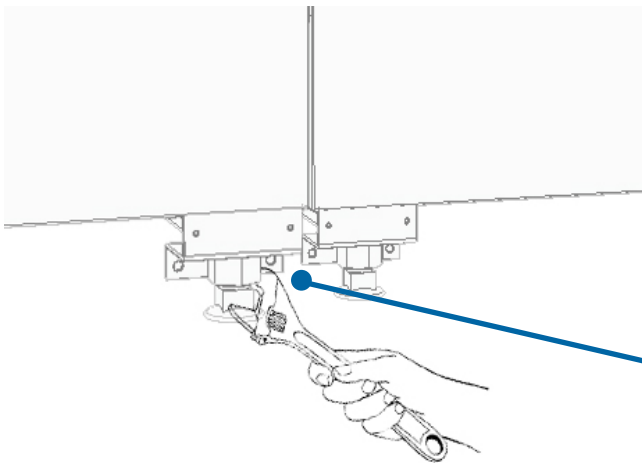


FIGURE 3D - Lining Up Case



NOTE: It is important that all cases are level for correct case joining and operation and door alignment. DO NOT SET CASE LEVELS OFF THE PATCH END fitted to a case

Make sure case is level:
Front to Back: +/- 1.5mm
Side to Side: +/- 1.5mm (Figure 3C)



NOTE: It is important that all cases are lined up.

USE THE CHASSIS AS MAIN POINT OF REFERENCE WHEN LEVELLING.



NOTE: Use string line to align with datum point when lining up multiple cases.

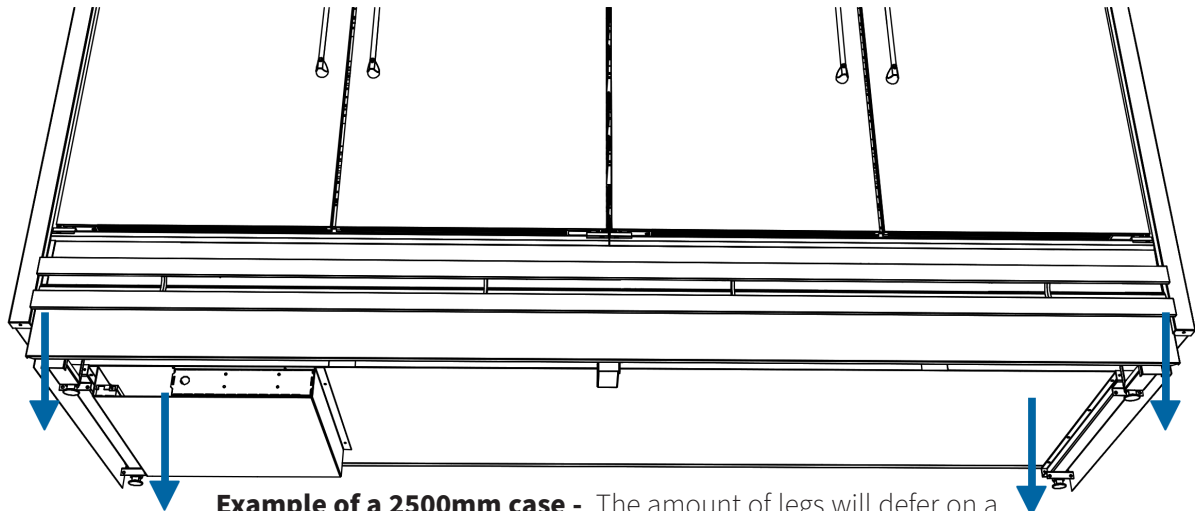
The bumper support and front ticket strip must be removed before lining up the cases.

Laser Lines or Spirit Levels are also good instruments to use while lining a case up.



NOTE: All feet need to be loaded evenly on the ground. If this is not undertaken this could cause the chassis to twist.

INSTALLATION



Example of a 2500mm case - The amount of legs will defer on a each size case.

Make sure case is level:
Front to Back: +/- 1.5mm
Side to Side: +/- 1.5mm

Make sure all feet are adjusted, NOT just the ones at the end of the case, ensuring case load is fully supported.

FIGURE 3E

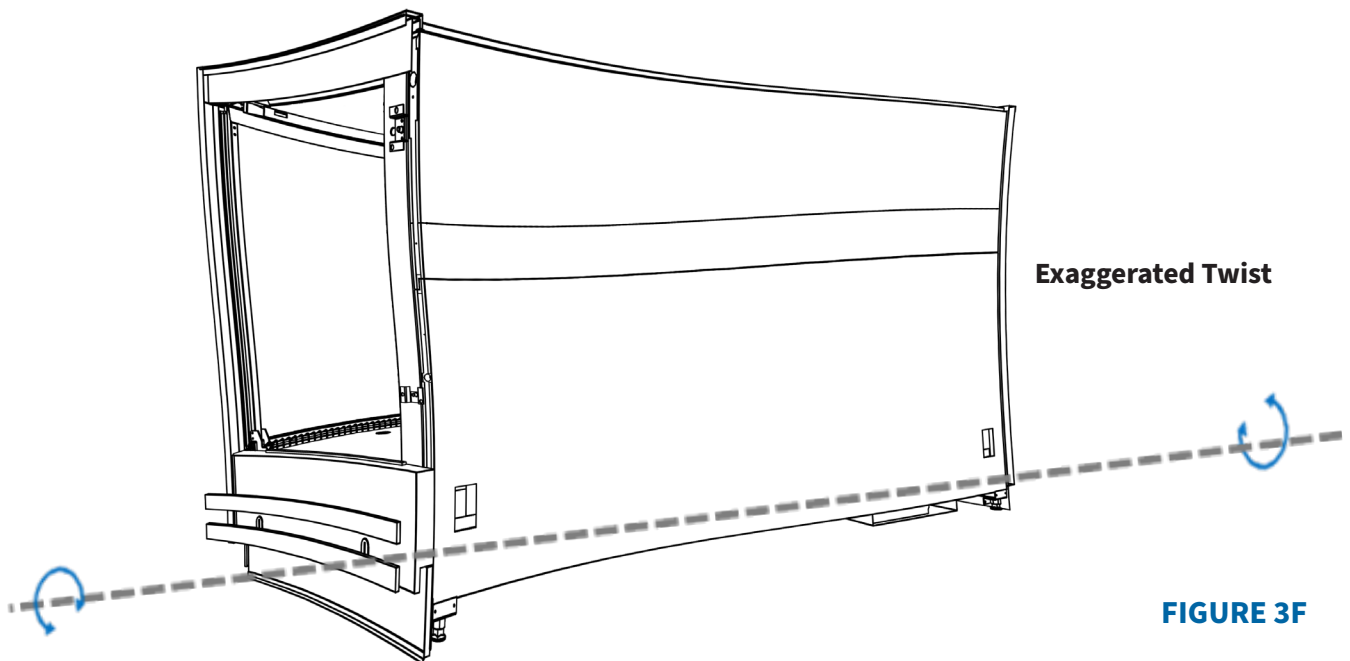


FIGURE 3F



NOTE: If feet are not adjusted and levelled correctly. The case chassis could twist causing saw tothing of the doors and other misalignments. Front support feet help with the added weight of the door assembly, ensure these are adjusted correctly.

INSTALLATION

3.2 DOOR SAW TOOTHING

SCHOTT DOOR :

The doors in the images below show the misalignment (saw tothing) . This should be completely horizontal and flush with each other. The door system on this case only has a minor adjustment. If doors cannot be aligned as per the following examples then the case chassis has not been leveled to tolerance and needs to be readjusted.

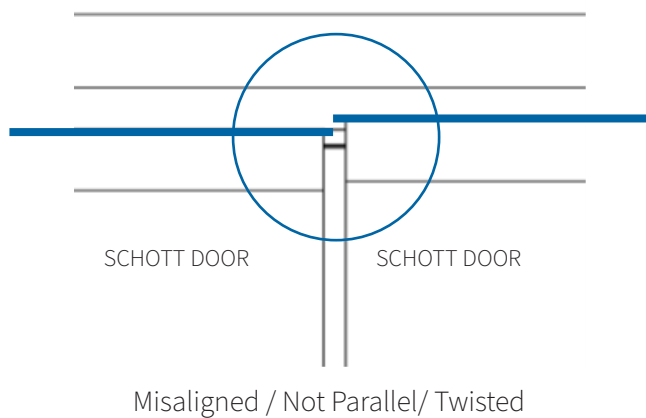


FIGURE 3G

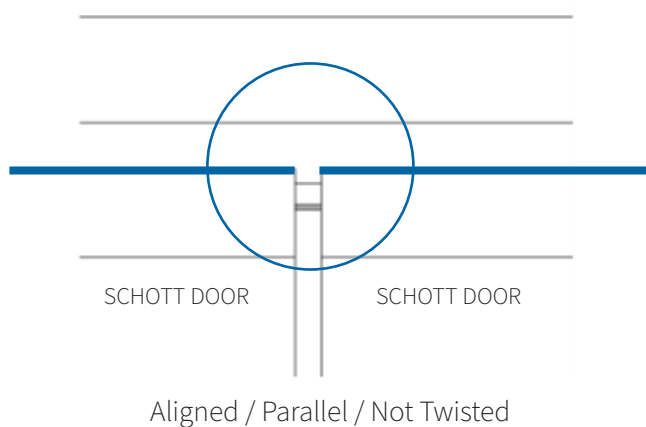


FIGURE 3H

BENTCAM DOOR:



NOTE: IF SAW TOOTHING OF DOORS IS EVIDENT THEN IT IS HIGHLY LIKELY FURTHER ADJUSTMENT IS REQUIRED.

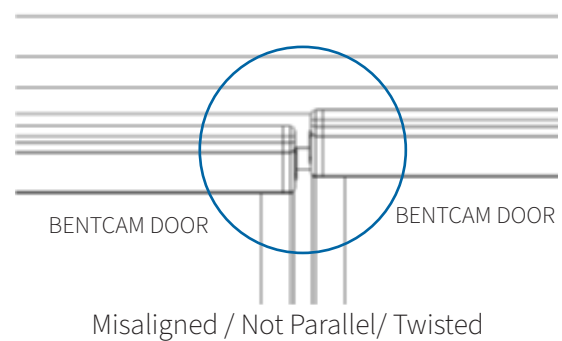


FIGURE 3I

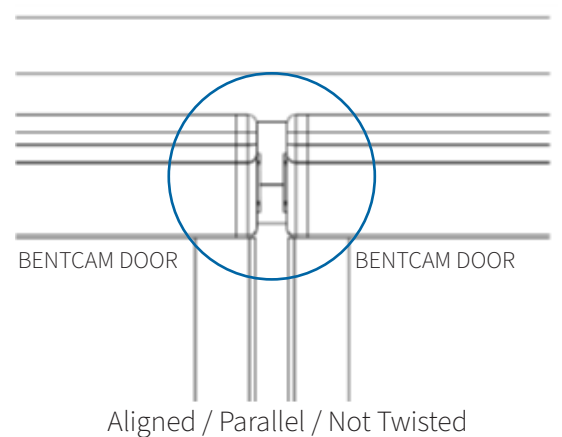


FIGURE 3J

Case needs to be re-checked for level once fully stocked. If door saw tothing is apparent and doors cannot be re-adjusted, then case needs to be re-levelled correctly.

INSTALLATION

3.3 DOOR ADJUSTMENT:

If the doors do not align horizontally, they can be adjusted using the adjustment mechanism in the sill rail.

Check the vertical gap between the doors, to be adjusted and the adjacent sets of doors, to see which door is the one to be adjusted. Make small adjustments each time. Both doors may need to be adjusted to achieve the most even result.

SCHOTT DOOR :

To resolve the doors misalignment as shown in below image adjustment should be done through the hinge mechanism at the top of door assembly.

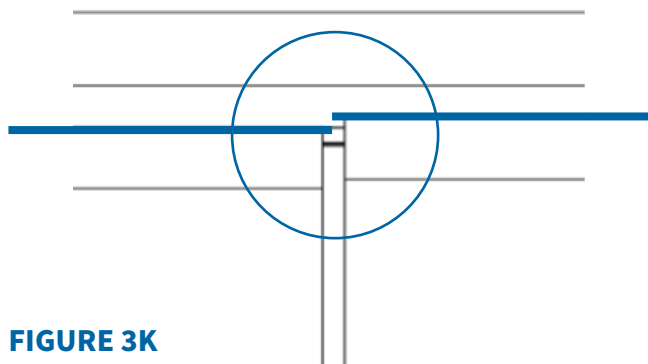


FIGURE 3K

The hinge mechanism by default is set in the middle of the rebate. Shifting the hinge left or right can be done by untightening of two screws as shown in (Figure 3N).

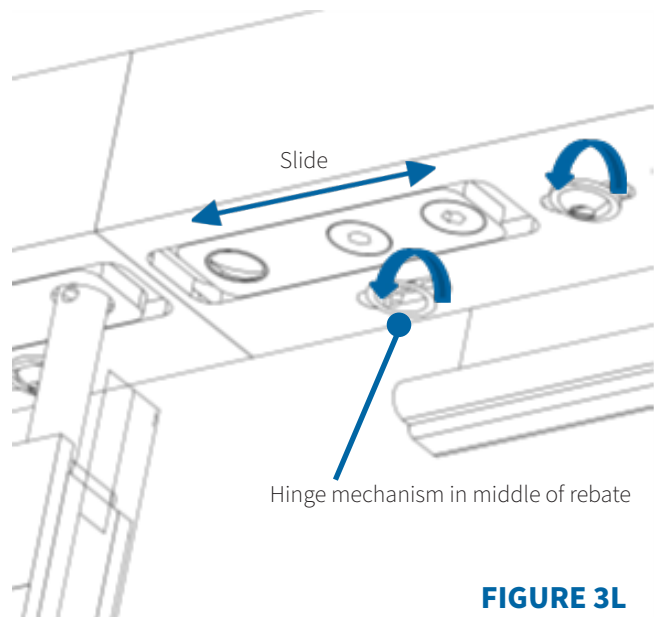


FIGURE 3L

If the doors cant be adjusted through the hinge mechanism, then the case needs to be levelled correctly.

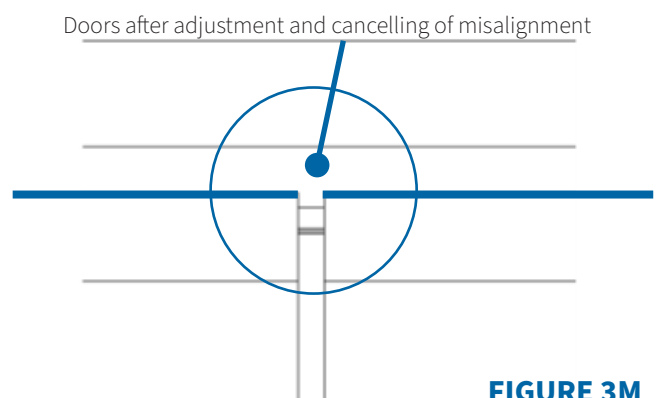


FIGURE 3M

INSTALLATION

3.3 DOOR ADJUSTMENT:

BENTCAM DOOR :

Cancelling Bentcam door misalignment is basically similar to the Schott door with this difference that hinge mechanism is at the bottom of the door assembly.

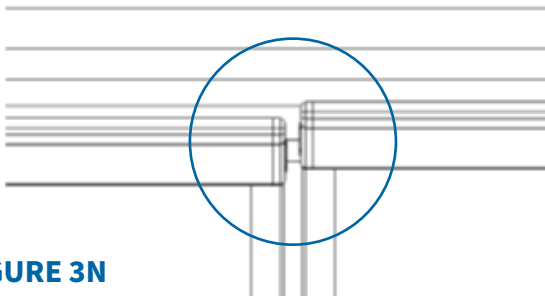


FIGURE 3N

Adjust the door by using of the two screws of door hinge plate at the bottom of door assembly. By moving the hinge to the right and left the two door legs will be levelled. Only minor misalignment that can be rectified by this mechanism.

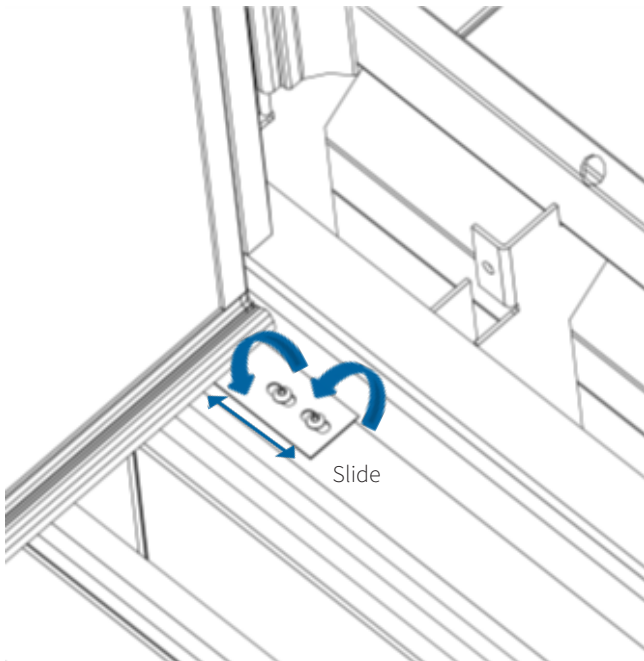


FIGURE 3O

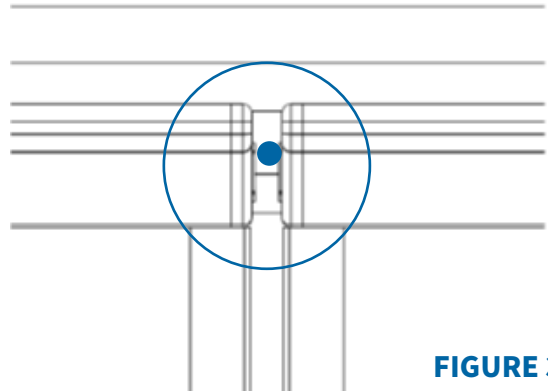


FIGURE 3P

Doors after adjustment and cancelling of misalignment

INSTALLATION

3.4 LIGHTING

Single Row Canopy LED lighting is standard.

Various optional shelf LED lighting is available and where fitted is located under each of the shelves.



NOTE: Vertical mullion lighting is standard with Bentcam doors.

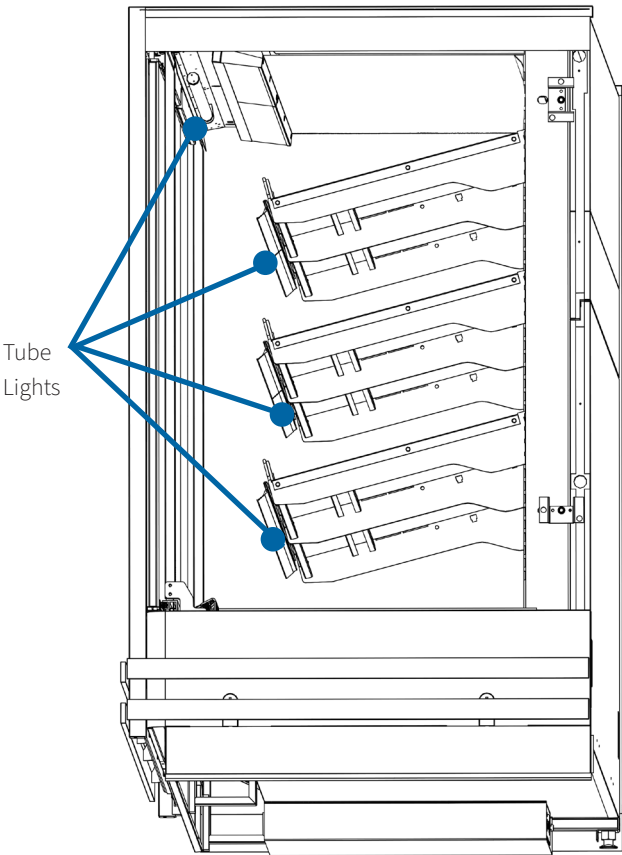
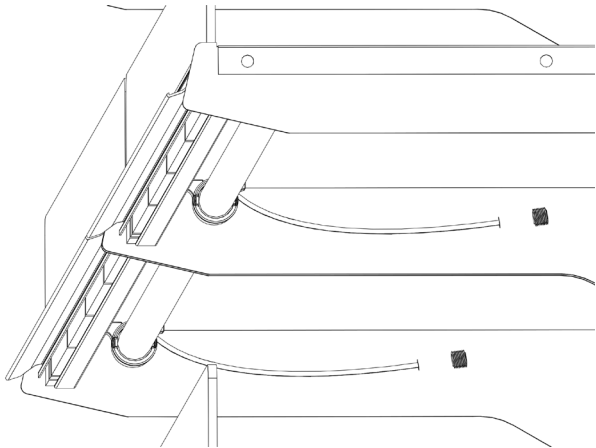
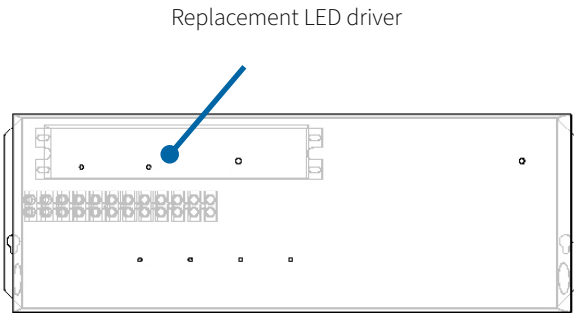


FIGURE 3Q



It is important that proper cable management is followed and cables are clipped in correctly. There is a plastic clip that clips into the bracket that holds the cable. Ensure all cables are retained into the back panel.



The LED drivers can be found on the top left of the case in the electric box. If lights appear faulty or not functioning, contact your nearest service provider for replacement.

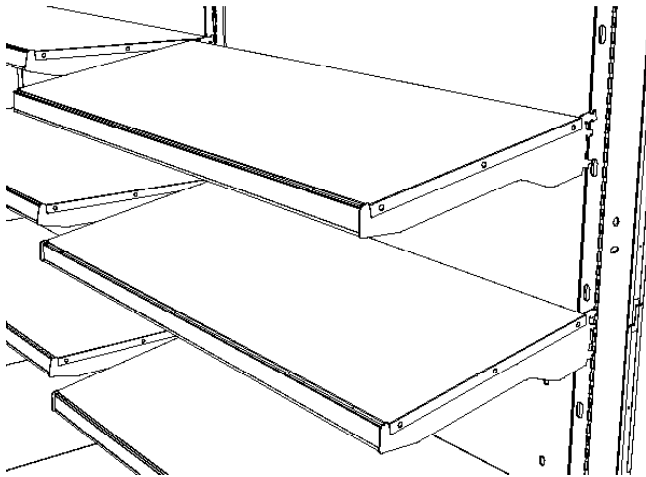


NOTE: For any information regarding customer specific lights, reach out to Hussmann.

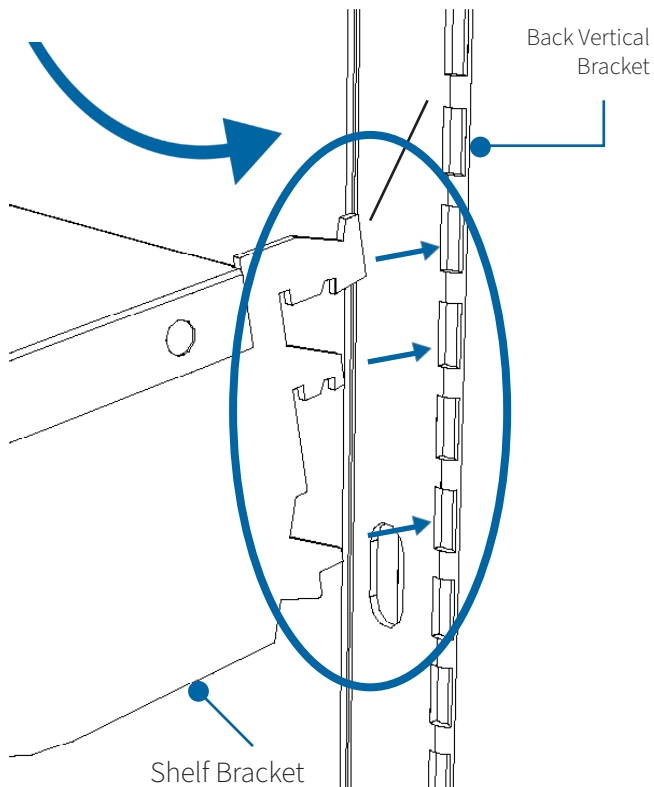
INSTALLATION

3.5 FITTING SHELVES

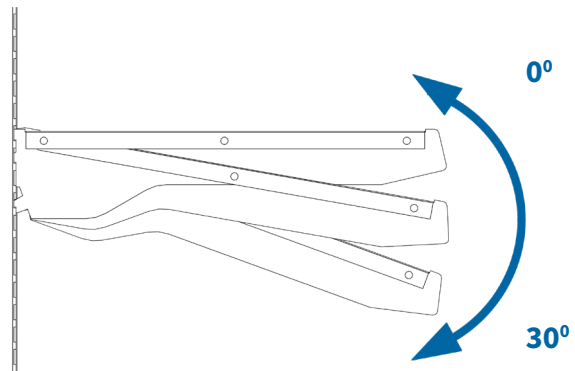
Although the shelf sizes may vary, the installation and fitting will remain the same.



Using the hook bracket shown down below. Lift the shelf up to the back vertical bracket. The height is independently adjustable by which holes you put the bracket on. Make sure you level the shelf by inserted the bracket in its corresponding hole on the other side.



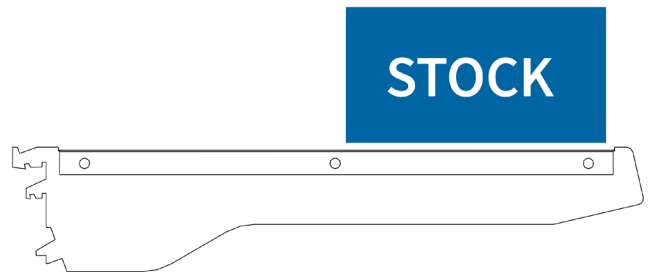
TILTING SHELVES



The shelves can be tilted downward in between 0° and 30°. This is done by the placement of hinges on the shelf brackets.



NOTE: The shelves are not able to be tilted upward.



CAUTION: Do not exceed the weight limit of each shelf. Each shelf has a total maximum weight limit of 180kg/m2.



NOTE: If the case shelf arrangement has been deviated significantly from original specified setup, then product temperature may be affected. The quantity and location of shelving may affect cabinet performance. Refer to PED sheet and/or your refrigeration service provider.

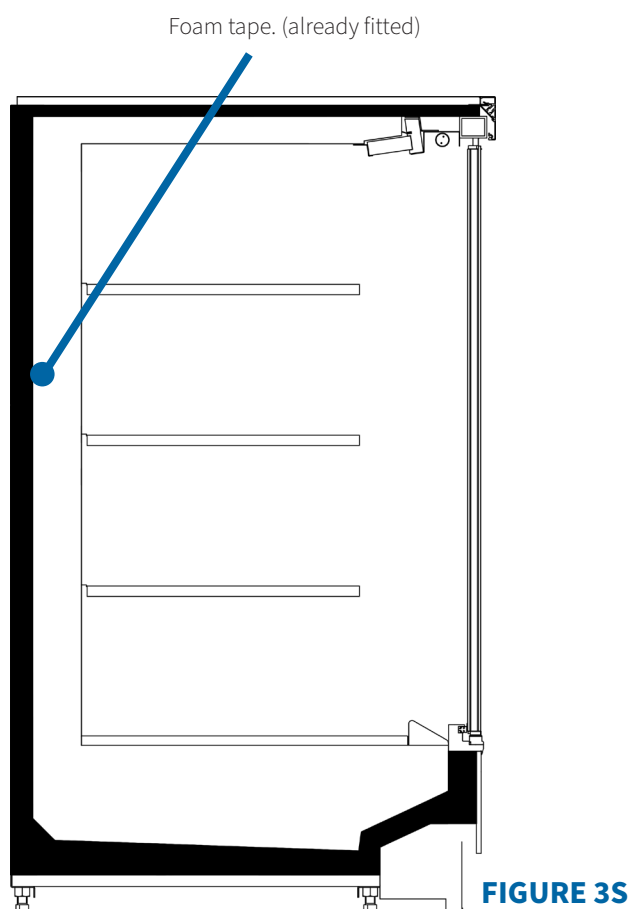
INSTALLATION

3.6 SEALING CASE JOINS

All cases must be sealed against water and air leakage before joining.

To seal the joins:

1. Remove the shelving, racks, mirrors etc, from the end bays, where necessary. Cases must not be positioned in areas that may be subject to heat or air currents such as ventilation ducts, open doors or windows, direct sunlight, electric fans or ovens, etc.
2. Cases joints must be air tight to prevent formation of ice or condensation. Foam tape has already been fitted to the end of the case. Check to ensure sealing integrity can be achieved, remedy if foam tape has been damaged, before final joining of both cases together.



CAUTION: Take care if removing Shelves when joining the cases Shelf light leads may need to be disconnected

3.7 JOINING THE CASES

To join the cases

1. Align the canopy by inserting the “multiplexing rods” into the aluminium canopy decoration panel
2. Draw up the required case tightly against the case already in position.
3. Ensure that the case is level, from front to back and side to side, with the existing case.



CAUTION: Case joining bolts should only be tightened when the cases have been positioned as close together as possible.

4. Insert the joining bolts, found in the blister pack, into the end holes and tighten

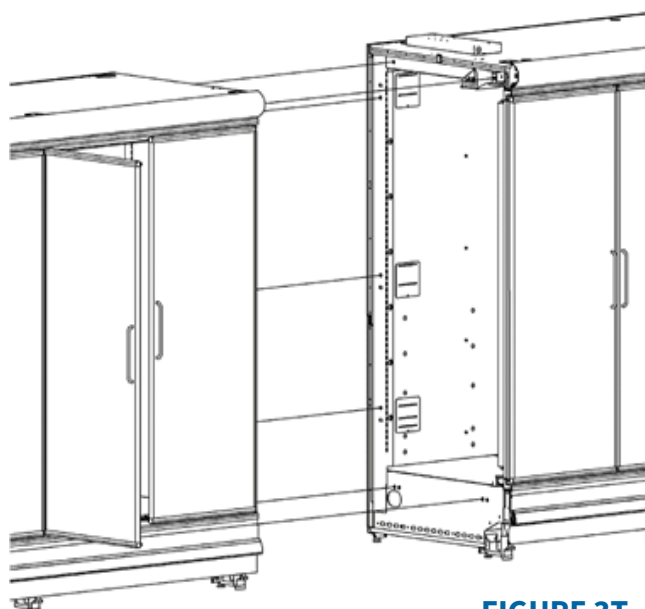


FIGURE 3T

INSTALLATION

3.7 JOINING THE CASES

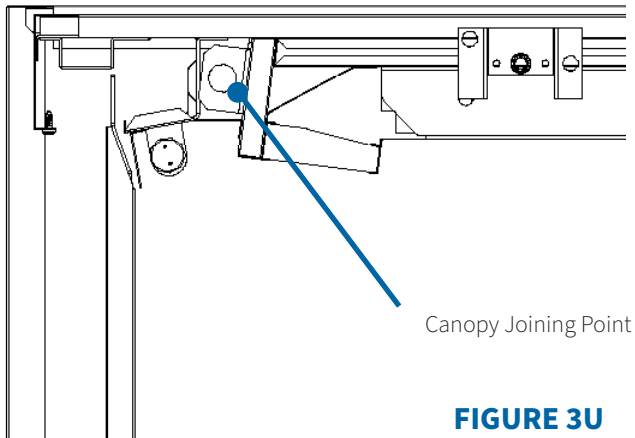


FIGURE 3U



5. Apply either black or white silicon (depending on the interior colour of the case) all the way along the top of the join, between the endframes of the cases, only.
6. Finish the silicon neatly.

Seal along this edge only when cases are joined together

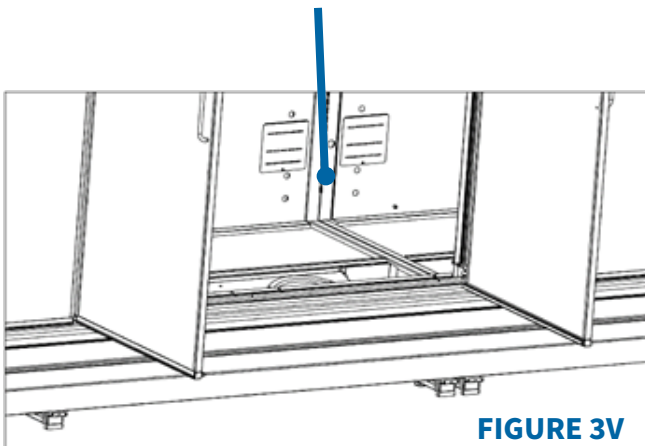


FIGURE 3V

DOOR HANDLES

Depending on door type, door handles will be factory fitted, but some may become loose during transportation of the case.

Check handles and tighten if necessary.

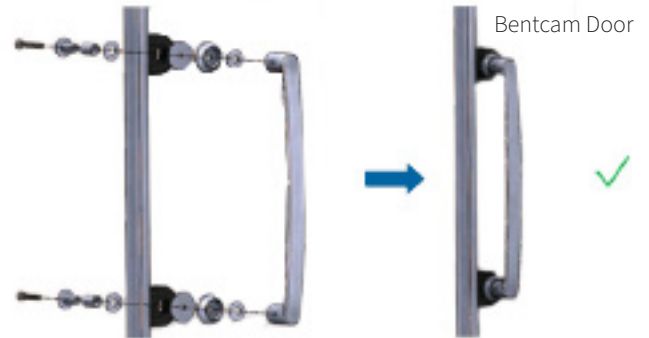


FIGURE 3W - Door Handles Are Secure

3.8 ATTACHING KICK PLATES

(This should be done after final Installation of Refrigeration and Drainage connections)

- Use hex screws 6.3 x 19mm to fix the kickplate support to the base. (These parts are in the accessories box).
- Do NOT fix the kickplate support to the base too tightly. It should be able to slip up and down through the oblong hole. This will enable the kickplate to be moveable and it will naturally sit correctly in relation to the floor.



INSTALLATION

3.8 ATTACHING KICK PLATES

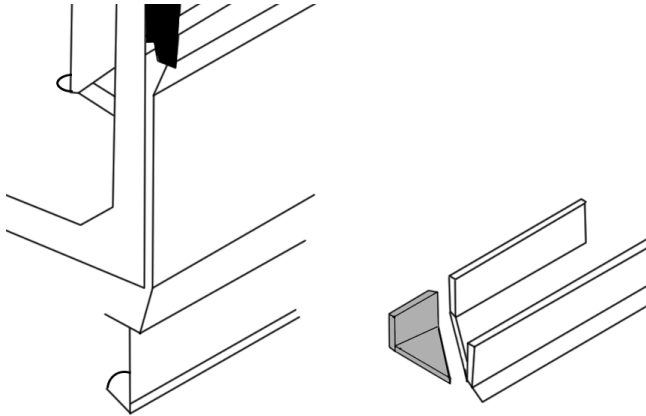


FIGURE 3W

On patch or crown end kickplates, cut the profile seal in a 45° angle in order to attach it to the bottom of the front kickplate panel.

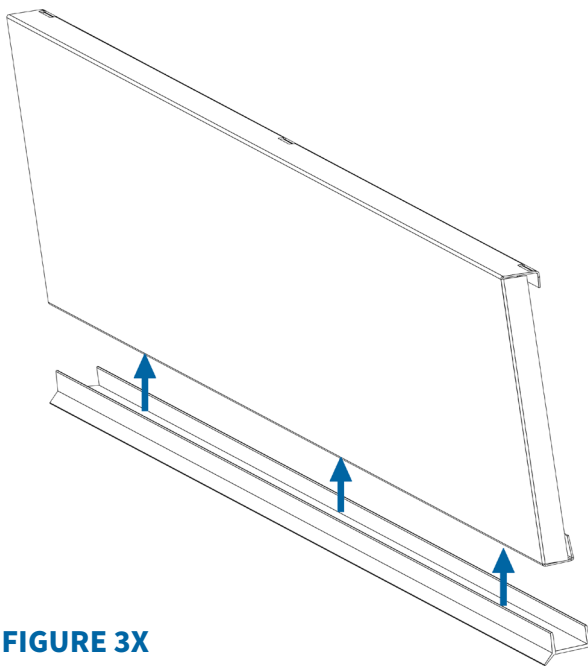


FIGURE 3X

Attach the profile seal to the bottom of the front kickplate panel.

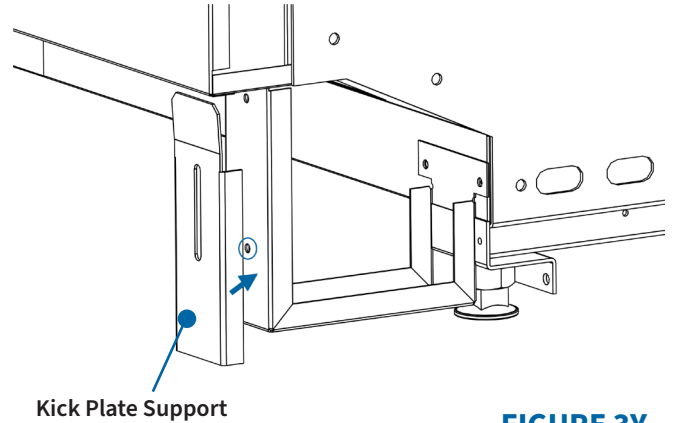


FIGURE 3Y

This front kickplate adjustment bracket will be screwed onto the support assembly.

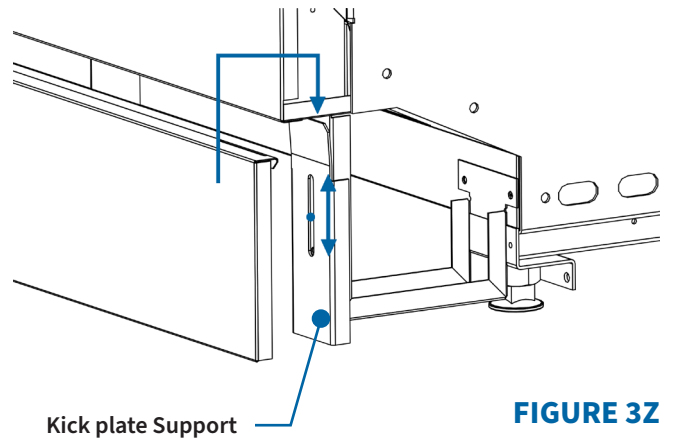


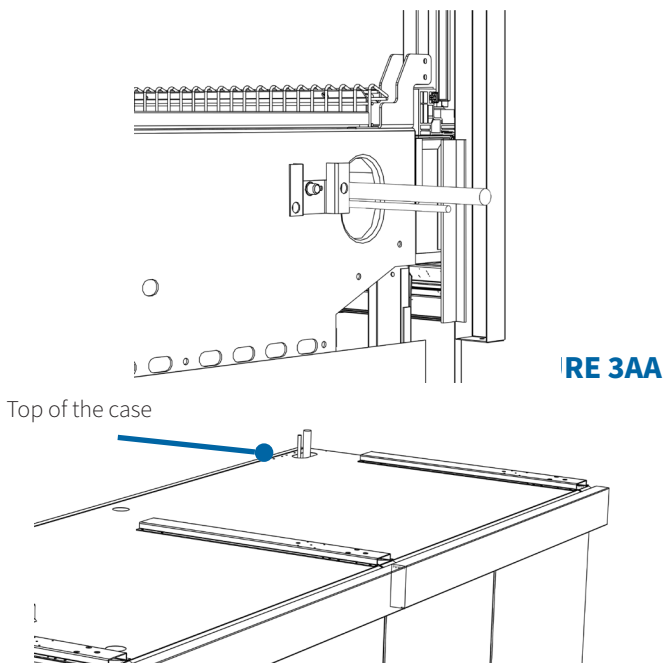
FIGURE 3Z

Attach the front kickplate panel to the kickplate support bracket by hooking the slot onto top of the bracket. This will allow the kickplate to slide vertically to allow for a slight variation in height.

INSTALLATION

3.9 CONNECTING REFRIGERANT LINES

- Connection of refrigeration lines is to be undertaken by qualified persons only.
- Refrigeration pipes are located under the pan decks and can be run from case to case through designated access holes. These are in;
 - * The end frames
 - * Base of the case
 - * Run through to the top of the case. See figure 3AA: service layout for location of the refrigerant supply line.
- Up to four cases can share one refrigeration supply line, however, to ensure best performance, it is recommended that no more than three cases share an up-stand. Liquid lines must be sized to supply full head of liquid at all times, and suction line sizes must consider refrigerant velocities for proper oil return during both high and low loads whilst meeting customer specifications for maximum allowable pressure drop.
- The evaporator coils have been charged with dry nitrogen in the factory. The holding charge of dry nitrogen will be stated on a tag on each evaporator coil. Please check and verify pressure is within +/- 20 kPa (3 psi) of tag stated pressure before installation
- For all pipe sizes refer to latest Product Engineering Data Sheet (PED)



To connect refrigeration lines:

1. Use free-flowing dry nitrogen when brazing piping to ensure internal cleanliness of piping and eliminate copper oxide debris.
2. Insulate all external pipe work to Standard practice and Customer specifications. Insulation should be adequately sized/rated to prevent condensation forming under any circumstances.
3. Permanent sealing of all penetrations made in the cabinet panels inside-to-outside is the responsibility of the Installer.
4. Connect to condensing unit or compressor.
5. Pressure test all welded and fastened connections to ensure they are free of leaks.
6. Dehydrate the refrigeration system using the triple evacuation method. Use a vacuum pump to minimum 1000 microns for the first two evacuations and minimum 500 microns on the third, or to the customer's specific requirements. Break evacuations 1 and 2 with dry nitrogen, allowing the pressure to rise above atmospheric pressure each time.
7. Charge with refrigerant after final (3rd) evacuation. once the last vacuum has passed holding 500 microns or lower with no rise for 1 hour with the vacuum pump off and measure at the furthest feasible point in the system away from the vacuum pump



NOTE: All installation works must be completed by a qualified person to best trade practices, customer specifications, relevant AS or ISO Standards / and any Territorial Authority requirements or Regulations.



CAUTION: Remove or protect the expansion (TX) valve feeler bulbs (or power lead if electronic valve) from heat. Ensure the power lead is clear of heat and flame.

INSTALLATION

3.10 INSTALLING WASTE DRAIN

1. Install PVC drain parts using recommended PVC cleaner, primer and cement per manufacturer's recommendation.
2. Installed drain piping may require additional support depending on the number and location of the hub floor drains. The installer should always provide adequate support to all drain piping arrangements to prevent excess stress on all drain piping components. 3AC
3. Ensure the drain trap is assembled correctly as per figure 3AB below.
4. Test for leakage and fall by pour water down the drain.
5. Ensure trap is primed before starting refrigeration.

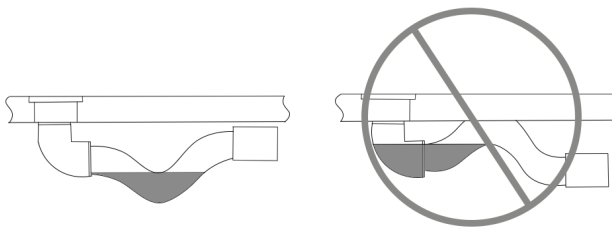


FIGURE 3AB- Drain Tap Orientation

Drain waste diameter should be nominal 40mm standard AS/NZS pipe.



NOTE: Drains must be connected to local council requirements.

Each case must be connected to its own waste drain See figure 3AC:



CAUTION: Incorrectly installed drain traps could result in adverse air leaking into the case or the drain becoming blocked.

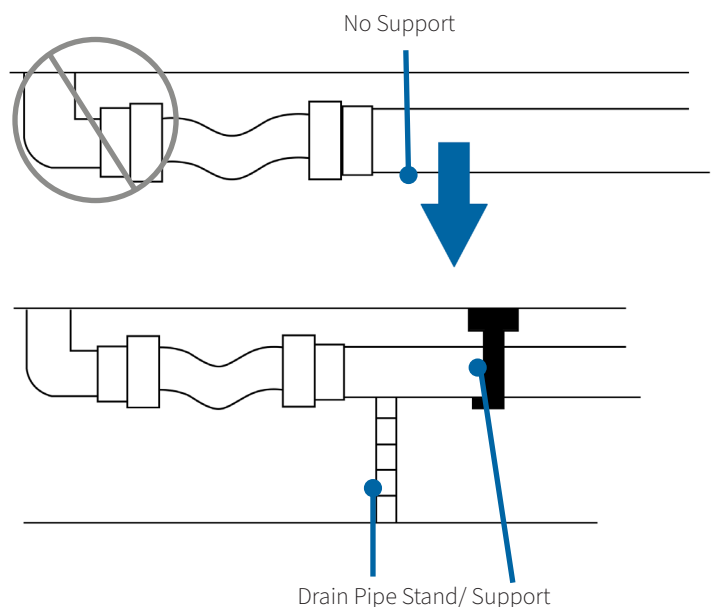


FIGURE 3AC- Drain Tap Orientation

INSTALLATION

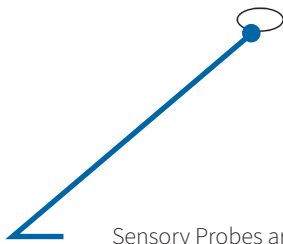
3.11 INSTALLING SENSOR PROBES

To install the probe:

1. Unscrew the plate from the ceiling panel to get access to the conduit for the probe wire. A coloured piece of wire acting as a draw string is located behind the plate in the conduit



FIGURE 3AD



Sensory Probes are located under this labelled panel.



Ensure case earthed when proceeding with electrical components. Electric shock or fire may occur if not correctly processed.



NOTE: The sensor orientation should be as per the control system's recommendations. Some control system's sensors require air to be in same direction as sensor, others at 90°

The discharge air control sensor should be located in the air stream only and should not make contact with any metal parts. .



CAUTION: Refer to relevant State or Territory legislation relating to safe working heights

2. Secure the end of the sensor wire to the draw string wire.
3. On the roof of the case, pull draw wire and sensor wire all the way through the conduit.
4. Seal end of the conduit with putty or silicon
5. Repeat for each case



CAUTION: Personnel access atop the cabinet is limited to 100kg personnel and only when the cabinet is empty of product/merchandise. Do not walk atop cabinets, sedentary work/access only is permitted. Always have suitable PPE and working from heights SWMS in place. Work as far from edges as feasible. If unsafe, do not access the top of the cabinet



3.12 MOUNTING FIXTURES



NOTE: Replace racks and shelves etc, as necessary to store requirements.

Incorrect pan and display tag configurations may compromise case performance.

CLEANING & MAINTENANCE

4.1 COMMISSIONING

CLEANING

For all case cleaning activities cabinet should be turned off. (Electrical power safely disconnected and refrigeration switched off). Once all cleaning is completed, remember to turn it back on safely.

- Remove the PVC protective coating on stainless steel, where applicable
- Remove any residue, silicon or tape marks with a cloth moistened with rubbing alcohol
- Remove all debris from in and around the case
- Wipe case with a clean, damp cloth, if necessary

Doors:

- » At temperatures above 0°C hand wash with warm water and using a mild detergent is recommended.
- » A glass cleaner can be used (Windex) using a towel. (paper towel not suggested).
- » Take care with cleaning, and avoid any materials that may mark the door (Including fingerprints).
- » Do not use tape, glue, stickers, attachments, magic markers, or the like on the glass.
- » Do not use razor blades or any other mechanical device to remove foreign residue or objects directly from the glass.
- » Do not use abrasive cleaners or materials on the glass like, Ajax, Scotch Brite or Steel Wool.
- » Do not use cleaners or materials on the glass that hinder the anti-fog performance (if applicable), by leaving a residue or damaging the surface. Examples of these cleaners include : Armor All, Tilex, Bleach, Windex No-Drip, Windex Wipes, Pledge or any product containing silicone oils or waxes.
- » Recommended cleaners include: Greased Lightning, Formula 409 Grease & Grim, Formula 409 Grease & Surface, Fantastic, Windex Vinegar, Windex original, Now, Mean Green or Mr. Clean (degreasing cleaners).

START UP & CHECKS

- Check supply power is ready and correct voltage. (by Licensed Person)
- Confirm correct operation of RCD (if fitted) (by Licensed Person)
- Ensure that the drain trap is installed the right way up (refer to figure 3AC: drain trap orientation in the section installing the waste drain)



NOTE: Verify all electrical termination during commissioning. It is a requirement to check all electrical connections for tightness, where appropriate all electrical connections must be re-tensioned prior to powering up the cabinet.

TURN POWER ON

- Check that all fans and lights (and light RCDs, if installed) are working correctly.
- Check the anti sweat circuit is working correctly.
- Set expansion valves and EPRs as per Product Engineering Data – Available from Hussmann.
- Approximately 24 hours after start-up, check that the case is at correct operating temperature (refer the Product Engineering Data).

CLEANING & MAINTENANCE

4.2 CARE AND CLEANING

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

FAN PLENUM

To facilitate cleaning, the fan plenum is hinged and also fastened with screws at each end. After cleaning be sure the plenum is properly returned into position and that screws are reinstalled or performance loss will result due to improper refrigeration.



CAUTION: Power to the case needs to be turned off when cleaning, ensure the fans are off during this process. REMINDER: when cleaning completed, check all items are ready to go, then safely reconnect power.

INTERIOR SURFACES

The interior surfaces may be cleaned with mild domestic detergents.

EXTERIOR SURFACES

The exterior surfaces should be cleaned with a mild detergent and warm water to protect and maintain their attractive finish. Never use abrasive or solvent based cleaners and scouring pads.



CAUTION: Do NOT use HOT(+35°C or lower) water on COLD glass surfaces. This can cause the glass to shatter and could result in personal injury. Allow glass fronts, ends and service doors to warm before applying hot water. Do NOT use hot water inside the case.

DO NOT USE:

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



DO USE:

Remove the product and all loose debris to avoid clogging the waste outlet.

- When deep cleaning cabinets that may require the removal of the refrigerated product, ensure this is stored in a suitable refrigerated area to maintain the cold chain.
- Then turn off refrigeration, then safely disconnect electrical power.
- Thoroughly clean all surfaces with appropriate cleaners noted previously. Do not use steam or high pressure water to wash the interior. These may damage the merchandisers' sealing causing leaks and poor performance.
- Remove screws and lift hinged fan plenum for cleaning. Be sure to reposition the fan plenum after cleaning merchandiser.
- Avoid water contact on all electrical components including fan motors and lights.

CLEANING & MAINTENANCE

DO USE:

- Rinse with warm water, but do NOT flood. Never introduce water faster than the waste outlet can remove it.
- Allow merchandisers to dry before resuming operation.
- After cleaning is completed, turn on power and refrigerant to the merchandiser.
- Verify that merchandiser is working properly (ie. achieves control temperature).
- Restock cabinet with refrigerated product.



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

CLEANING STAINLESS STEEL SURFACES

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

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

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



WEAR APPROPRIATE PPE GEAR WHILST CLEANING.

CLEANING COILS

Wear appropriate PPE.

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

Do not puncture coils!

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

Do NOT use chlorine or ammonia-based cleaners.

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



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

CLEANING UNDER MERCHANDISERS

Remove splashguards not sealed to floor. Use a vacuum with a long wand attachment to remove accumulated dust and debris from under the merchandiser. Ensure this is undertaken by qualified personnel. Caution needs to be taken below case around power cables, drainage, ensuring nothing is dislodged during the cleaning process.

CLEANING & MAINTENANCE

4.3 DAILY CHECKS

- If an alarm system is not part of the refrigeration installation, the temperature of each case should be checked on a daily basis via the thermometer that may be located in the left hand side of the ceiling panel, or via another reliable method.
- The case temperature should be in the range of -2°C to +4°C (except during defrost).
- Up to three separate readings may have to be taken to ensure the case temperature isn't being taken during a defrost cycle (which would give a higher than desired reading).
- If it is consistently outside this range, contact your refrigeration service provider.
- Visually check the case for damage or spills and take appropriate remedial action.
- Visually inspect drain strainer and drain for any debris which could result in the drains becoming blocked with the possibility of spilling on the floor creating a slip hazard
- If the cabinet is turned off during non trading hours ensure the cabinet is cleaned thoroughly to avoid bacterial growth during off time.



CAUTION: If any damaged electrical components are identified during inspection isolate case power and contact service contractor.

CLEANING

A thorough cleaning and service of the case should be carried out by qualified refrigeration and electrical engineers on a six monthly basis. Please contact Hussmann Pty Ltd or your service provider. Cases should also be cleaned by store staff on at least a weekly basis; some cases may, however, require more frequent cleaning.

IMPORTANT NOTES

- DO NOT use hot water on cold glass surfaces as the glass may shatter and cause serious injury.
- DO NOT use abrasive, solvent, ammonia or oil-based cleaners.
- DO NOT use steam or a high-pressure system to clean the case.
- When flushing the waste drain, do not use high pressure water hoses and be careful not to introduce water faster than the waste outlet/drain can drain it.
- DO NOT apply the detergents directly onto the surfaces to be cleaned.
- DO NOT use steam cleaning equipment.
- DO NOT use excessive force.
- DO NOT use high pressure cleaning equipment. This may cause injury to the installer or user and may damage cabinet.



CLEANING & MAINTENANCE

4.4 SIX MONTHLY MAINTENANCE

A thorough cleaning and maintenance check should be carried out on a six monthly basis by qualified and approved refrigeration and electrical engineers. The following procedures should be undertaken as a minimum.



CAUTION: If any damaged electrical components are identified during inspection isolate case power and contact service contractor.

Validate all electrical termination has been tightened once more.

Check all electrical connections for tightness and re-tensioned where needed prior to powering up the cabinet.

1. Isolate power.
2. Remove of all product stock and store appropriately.
3. Check that all case panels, glass and trims are secure and undamaged.
4. Check for rust or paint damage.
5. Clean the air grilles on the cases.
6. Clean glass or mirrored surfaces with a clean soft cloth and mild glass cleaner.
7. Wipe LED lights with a dry cloth.
8. Wipe down the exterior and interior of the case, paying particular attention to the perforations in the rear panels and the air return grill with a clean soft cloth and mild soapy water.
9. Remove the base trays and fan panel, wash with mild soapy water and rinse.
10. Remove all foreign materials from the bottom of the case. Wipe over with clean dry cloth.
11. Carefully clean the evaporator using a soft bristle brush and mild soapy water, clean any residue with a bucket of warm water and drain out. Ensure the drain is free flowing and check it for damage.

12. Carefully flush the waste drain with a bucket of water and allow the base to drain. Ensure the drain is free flowing. You may need to clean out the drain trap. Refrain from adding excessive water that will not be able to be drained as rapidly as poured.
13. Ensure all cable connections, including screw terminals, earth leads and straps, are secure.
14. Ensure insulation to all electrical components, including solenoid valves, fans, controls, earth terminals and lights, are sound.
15. Carry out electrical safety tests, including earth continuity and insulation resistance.
16. Ensure that the correct fuse rating and type is fitted for all circuits.
17. Ensure that there are no refrigerant leaks.
18. Replace fan panel and base trays,
19. Safely switch power to the case back on.

With case power turned on:

20. Check that all fans, valves, lights and controls are working correctly.
21. Ensure light RCDs (if fitted) are working.
22. Allow the case to attain correct working temperature (approximately 30 minutes) and restock the shelves.

CLEANING & MAINTENANCE

4.5 REPLACING FAN MOTORS AND BLADES

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

1. Isolate power.
2. Remove of all product stock and store appropriately.
3. Remove bottom display pans.
4. Remove fan guard and fan blade.
5. Remove screws holding fan motor/bracket assembly to plenum and remove assembly.
6. Disconnect and remove the fan assembly.
7. In reverse order replace fan motor/bracket and harness assembly, ensuring it is retained in original location.
8. Safely switch power to the case back on.

With case power turned on:

9. Verify that motor is working and blade is turning in the correct direction.
10. Check fan plenum is seated correctly with no air recirculation.
11. Replace display pans.
12. Allow the case to attain correct working temperature (approximately 30 minutes) and restock the shelves.



WARNING: Always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as fans, heaters, thermostats and lights.

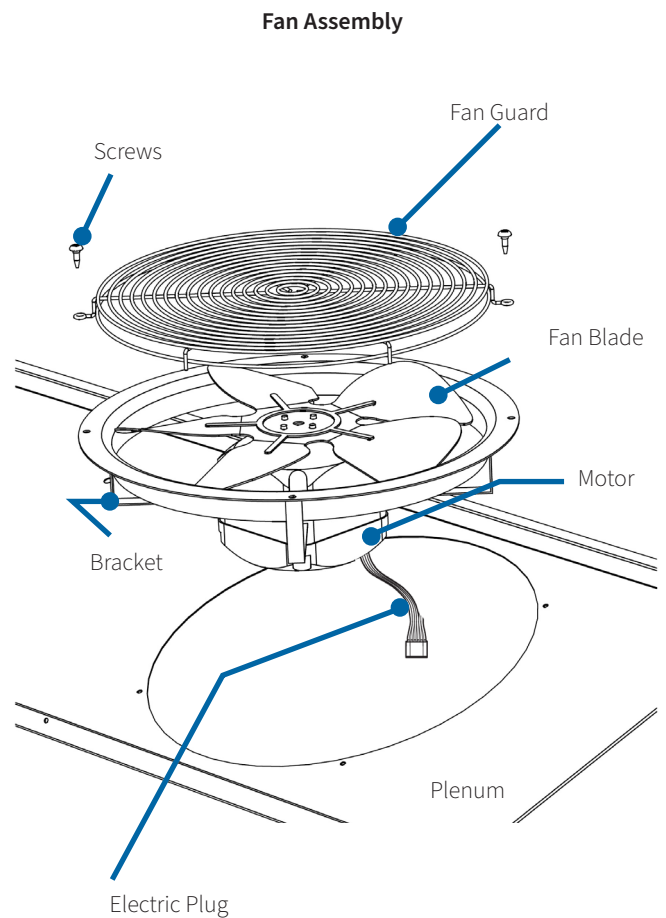


FIGURE 3N

DECOMMISSIONING & DISPOSAL

5.1 DECOMMISSIONING

Plan and risk assess the decommissioning process to include the following:

- Disconnect all case services. Disconnection is to be undertaken by qualified persons only.
- Removal of the case is to be in the reverse order of installation listed previously.
- Dismantle the cabinet in accordance with the local laws on waste disposal and in respect of the environment in which we live.



5.2 DISPOSAL

The case must be disposed of in accordance with local authority guidelines.

75% of the materials in this case are able to be recycled; the materials in this case are as follows;

- **Sheet Metal** and other various metals.
- **Copper / Aluminum**
- **Tempered Glass**
- **Wood**
- **PVC**
- **Polystyrene**
- **Polycarbonate**

Remaining by commercial waste management



TROUBLESHOOTING

6.1 TROUBLESHOOT TABLE

ISSUE	POSSIBLE REASON	REMEDIAL ACTION
Product temperature is higher than requirement	Store condition is warmer or more humid than climate class 3 (25°C/60%RH)	Check store climate control is operating correctly.
	Refrigeration plant is not running or operating at inappropriate settings or conditions	Check for refrigeration plant operation. If refrigeration is running and other possible reasons are eliminated then call refrigeration mechanic to check plant operation.
	Evaporator pressure is not set correctly	Check suction pressure settings at the case and if required adjust as per case specification
	Insufficient or no air flow appears at the case air curtain.	Check if evaporator coil is iced. If ice is present then check defrost settings as per the manufacturers guideline or set to suite the store operating condition. A colder store may require longer defrost duration. A humid store may need more frequent defrost.
		Check if case fans are turned on or operating correctly. If any doubt of fan operation contact technician.
	Case shelf arrangement has been deviated significantly from original specified setup	Re-do the shelf arrangement as per the original specification
	Air Return is blocked by merchandise	Move merchandise to be within the load limit.
	None of above	Contact your refrigeration service provider.

TROUBLESHOOTING

6.1 TROUBLESHOOT TABLE

ISSUE	POSSIBLE REASON	REMEDIAL ACTION
Products are freezing up	Store condition is too cold compared to design climate class 3	Check store climate control is operating correctly. If store condition cannot be lifted, then adjust cabinet evaporator pressure and defrost strategy to suit.
	Case evaporator pressure is lower than specification.	Adjust cabinet evaporator pressure to suit.
	Ambient moisture leakage	Check any sealing issue
Cabinet exterior is sweating	Store humidity is high	Check store climate control is operating correctly.
	Insufficient ventilation	Check case ventilation under and at rear of the case. A fan kit may be needed, please see your refrigeration service provider for details.
	Icon Controller settings (if fitted)	Check settings
	Case SST	SST set too low
Door Alignment is out	Case is not Level	Refer to page 14 for levelling information.
Lights are not working	No power supply	Check supply is “on” and light switch is working.
	Light Components maybe faulty or operating in fail safe	Call your refrigeration service provider to check and replace is necessary
	Lamp failed	Replace lamp

APPENDIX

7.1 APPENDIX 1 - Wiring diagrams – Supplied with each case

7.2 APPENDIX 2 - Risk Analysis

HAZARD	CONTROL MEASURES
Electrical - Replacement of electrical components	Request a service call. Electrically isolate cases before works
Ergonomic - Moving/ positioning/ adjusting cases	Staff must be trained in the correct procedures for setting up cases and ergonomic practices. PPE must be worn
Falling - Connecting sensor probe wiring during installation	Use of barriers & fall arrest systems as appropriate & in accordance with State & Territory Legislation. Safe working at heights
Entanglement - Contact with fans when cleaning	Electrically isolate cases before work is carried out. Staff training,
Electrical - Potential for electric shock when cleaning electrical fittings and components	Electrically isolate cases before work is carried out. Staff training, RCD. Keep electrical connections dry at all times.
Falling - Climbing on shelves	Staff must be trained in OH&S procedures. MUST not climb on shelves or cases.
Crushing - Hands or fingers may become pinched or crushed during the positioning of base trays, shelves & stock	Staff must be trained in the correct procedures for setting up cases and ergonomic practices
Slipping - Drain may leak or become blocked causing water spillage	Visual Inspection and regular maintenance. Request service call when necessary.
Cuts and stabbing - Potential for cuts caused by damaged or missing parts	Visual Inspection and regular maintenance. Request service call when necessary. PPE must be worn when handling broken or damaged parts.

APPENDIX

7.2 APPENDIX 2 - Risk Analysis

HAZARD	CONTROL MEASURES
Ergonomic - Stretching during the cleaning of the case and positioning of stock and shelves leading to strains and sprains	Request a service call. Electrically isolate cases before works
Slipping - Surfaces may become slippery due to spillage from the case during operation or cleaning	Staff must be trained in the correct procedures for setting up cases and ergonomic practices. PPE must be worn
Cuts and stabbing - Potential for cuts caused by sharp edges & evaporator coil during cleaning	Use of barriers & fall arrest systems as appropriate & in accordance with State & Territory Legislation. Safe working at heights
Cuts and stabbing - Cleaning cold glass surfaces with hot water	Electrically isolate cases before work is carried out. Staff training,
Crushing - fingers, hands or body between doors	Electrically isolate cases before work is carried out. Staff training, RCD. Keep electrical connections dry at all times.
Electrical -electrical connections in cases	Staff must be trained in OH&S procedures. MUST not climb on shelves or cases.
Cuts and stabbing - Potential for cuts caused by damaged or missing parts	Visual Inspection and regular maintenance. Request service call when necessary. PPE must be worn when handling broken or damaged parts.

APPENDIX

7.3 APPENDIX 3 - WARRANTY

The information in this manual is for “**Qualified Persons Only**”. It is **NOT** an Installation Guide for “**NON Qualified Persons**”.

To obtain additional warranty information or other support, contact your nearest Hussmann representative.

Please include the following:

Customer site location.
Cabinet model & serial number of product.
Reason for warranty.



NOTE: Failure to comply with the instructions in this manual shall void the warranty.

7.4 APPENDIX 4 - DISCLAIMER

Hussmann reserves the right to modify the components within the case, as well as alter the descriptions and instructions provided in the manual.

In order to obtain the latest manual, please contact your nearest Hussmann representative.

7.5 APPENDIX 5 - LIABILITIES

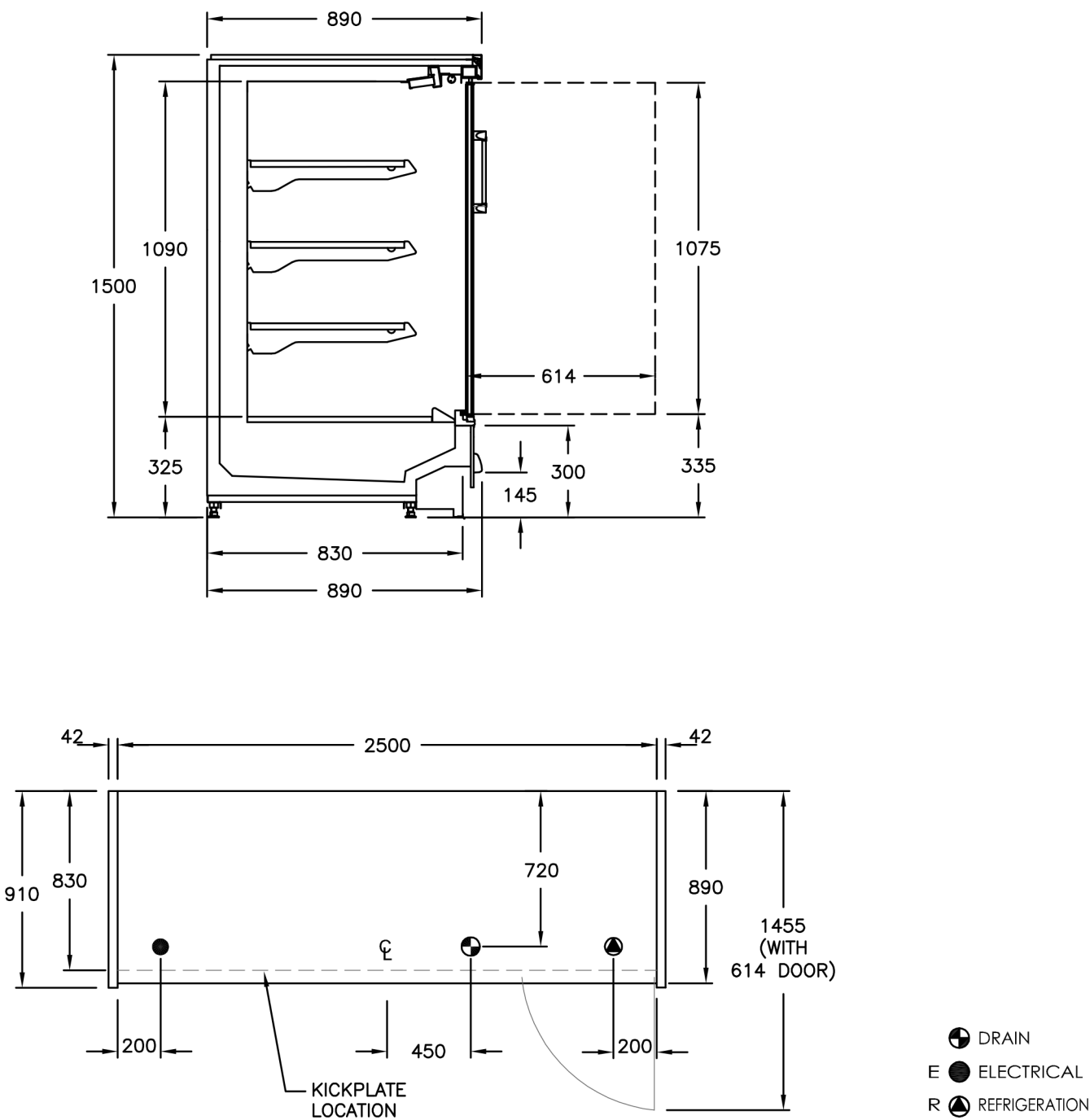
The manufacturer is not liable for:

- Defects in the electrical power supply
- Failure to comply with instructions
- Interventions carried out by unqualified/untrained personnel
- Improper, incorrect and unreasonable use of the cabinet
- Non-compliance of maintenance and cleaning schedules as recommended by Hussmann.
- Use of accessories that are not provided nor authorized by Hussmann.
- Unauthorized modifications and interventions
- Incorrect installation not performed in accordance with the norms indicated
- Use of non-original spare parts

APPENDIX

7.6 APPENDIX 6 - CASE SERVICES & DIMENSIONS

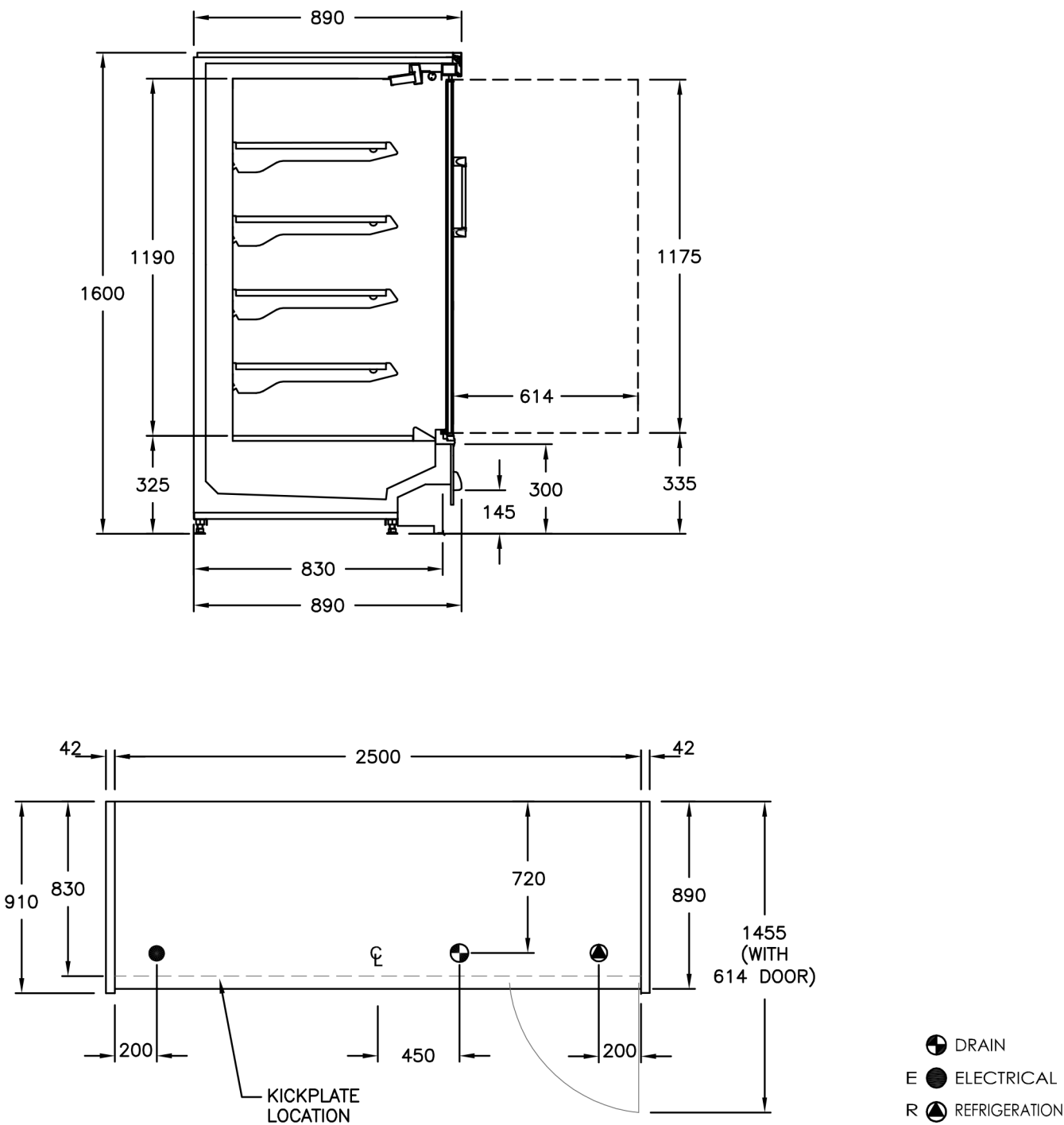
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APPENDIX

7.6 APPENDIX 6 - CASE SERVICES & DIMENSIONS

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