

NOVUM

Redefining refrigeration

Quantum Technical Manual



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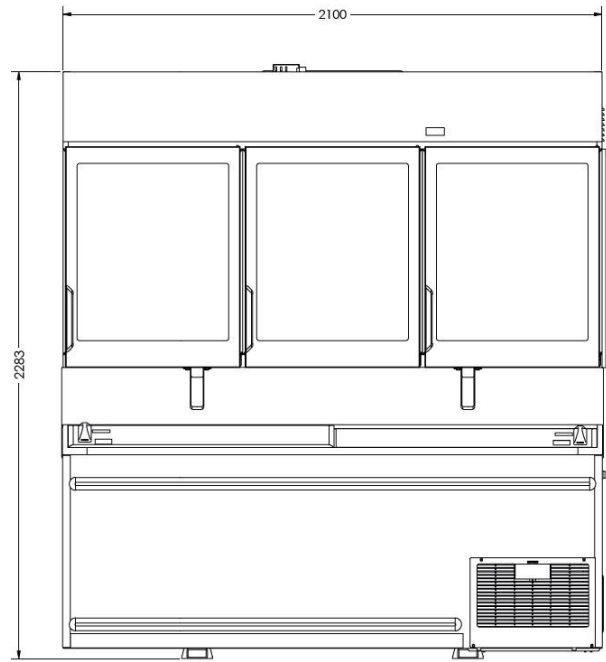
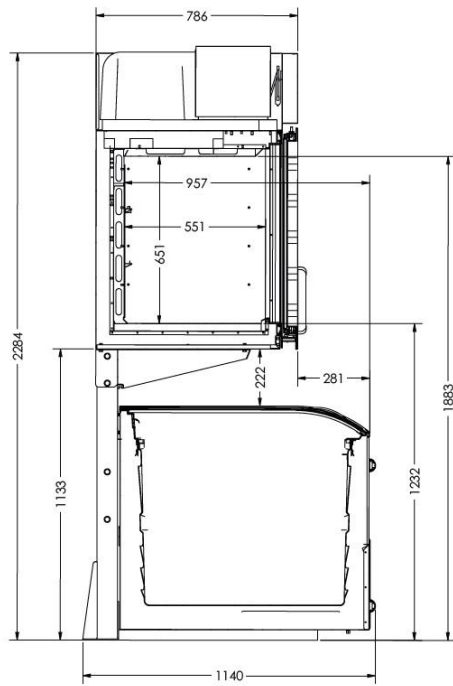
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1. Technical data

1.1. Specifications

	Model	Quantum 2.1	Quantum 2.5
Technical Data			
Gross content	litre	790	1013
Net Content according to EN 23953	litre	636	757
Total Display Area (TDA) according to Eco-design Directive	m ²	1.01	1.2
Classification according to EN 23953		3L1	3L1
Energy Class according to Eco-design Directive		C	C
Ambient Temperature Range	°C	+16 to +25	+16 to +25
Inner Temperature Range	°C	-18 to -25	-18 to -25
Sound Pressure at 1m Distance	dB(A)	46.5	46.5
Electrical Data			
Nominal Voltage / Frequency	V / Hz	220-240 / 50	220-240 / 50
Nominal Power Cabinet	W	460	460
Nominal Power LED Light	W	6 x 9W	8 x 9W
Nominal Current	A	2.5	2.5
Fuse Protection	A	10	10
Energy consumption at 25°C according to Eco-design Directive (without LED)	kWh/24h	8.2	10.5
Length of Power Supply Cord	mm	2000	2000
Refrigeration Data			
Refrigerant	Type	R290	R290
Gas Charge	g	90	90
Maximum Operating Pressure	Bar	30	30
Max Transient Heat Output	W/h	342	437
Dimensions			
Length Outside/ Inside	mm	2100 / 1950	2500 / 2321
Depth Outside/ Inside	mm	781 / 610	781 / 610
Front Access Height Outside / Inside	mm	1244	1244
Stacking Height at the Front / Back	mm	NA	NA
Weight			
Net Weight (excl. packaging & internal accessories)	kg	225	267
Gross Weight (incl. packaging & internal accessories)	kg	240	285

1.2. Dimensions



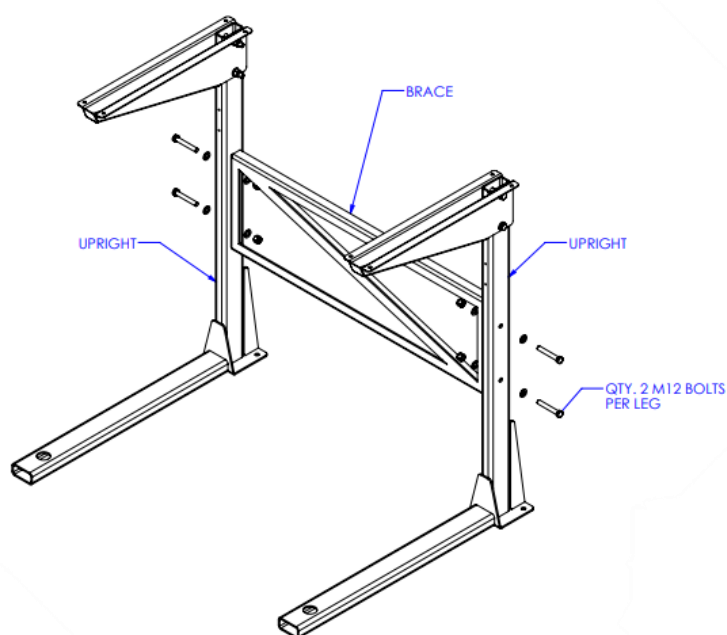
2. Transport & Handling

- Cabinets must be transported and stored in an upright position.
- During transport, cabinets must be protected from water and direct sunlight.
- Cabinets should only be lifted from the back and never from the front or sides.
- Novum cabinets are heavy, so take appropriate care when lifting or moving.
- Cabinets should only be lifted or moved when empty.
- Due care and attention must be observed when handling or moving so as to avoid damaging the refrigerant tubing or risk of a leak.
- If cabinet is powered off, the doors must be left open.

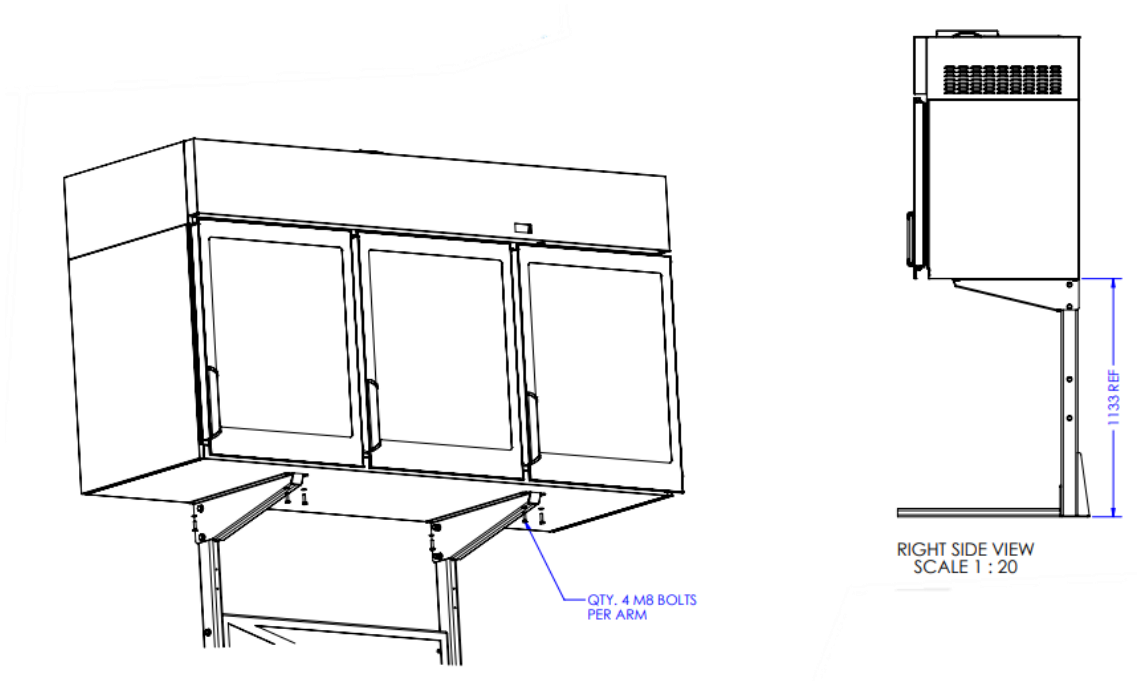
3. Commissioning

3.1. Installation

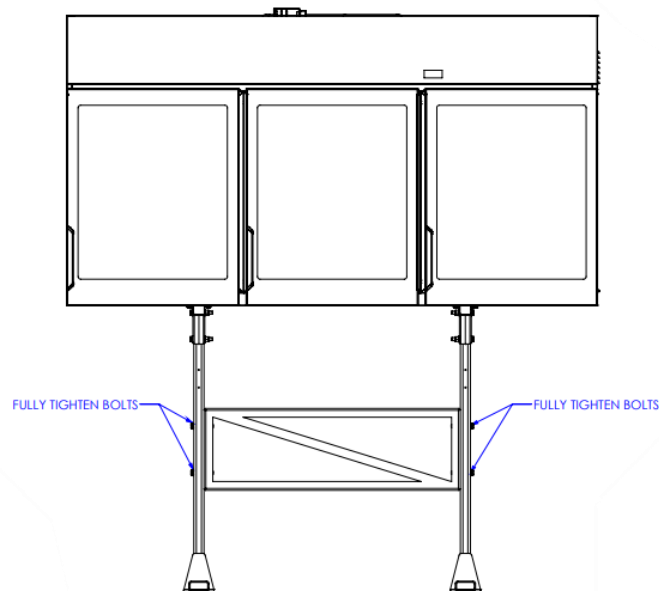
- Air flow: a minimum gap of 20 mm must be maintained around the unit to allow air flow and to prevent condensation. The spacer bar must never be removed from the cabinet as this ensures air flow to the vent grill.
 - Never install a cabinet beside a heating device nor on direct sunlight.
 - Ensure air flow of air conditioning unit is not directed towards cabinets.
 - Avoid positioning cabinets near external doorways or opened chiller cabinets.
 - Mains lead must be connected to mains power supply and LED power cable must be connected to specific power plug if any.
-
- **Step 1:** Bolt stand up right & brace together, for M12 bolts use 19mm spanner. Do not fully tighten bolts.



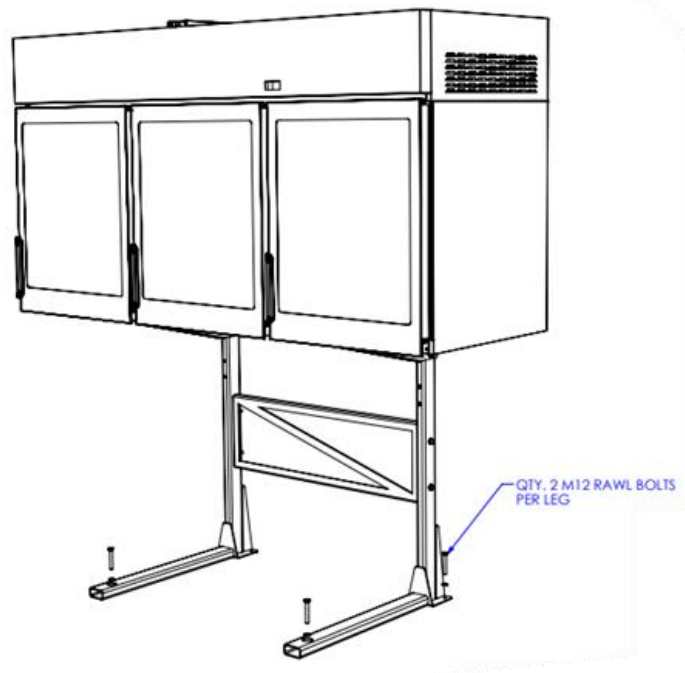
- **Step 2:** Attach cabinet to the cantilever arms, for M8 bolts, use 13mm spanner. Lift cabinet on top of cantilever arms. Align holes in arms with holes in base of cabinet. Bolt cabinet to arms with M8 bolts and washers.



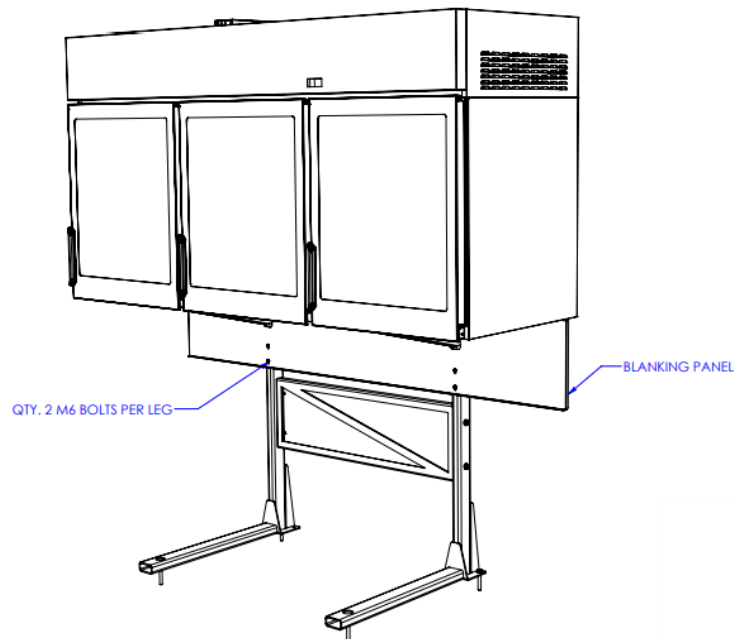
- **Step 3:** Fully tighten bolts holding uprights and brace together, for M12 bolts, use 19mm spanner.



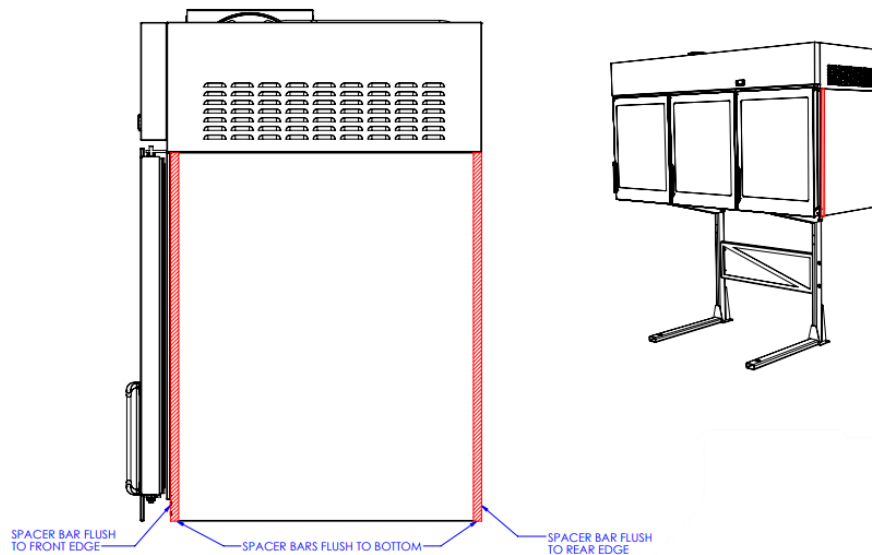
- **Step 4:** Move cabinet and stand to final location and bolt stand to floor, for M12 rawl bolts, use 19mm socket. Use stand as jig for drilling concrete floor. Insert quantity of 4 M12 rawl bolts into holes in concrete. Bolt stand to floor.



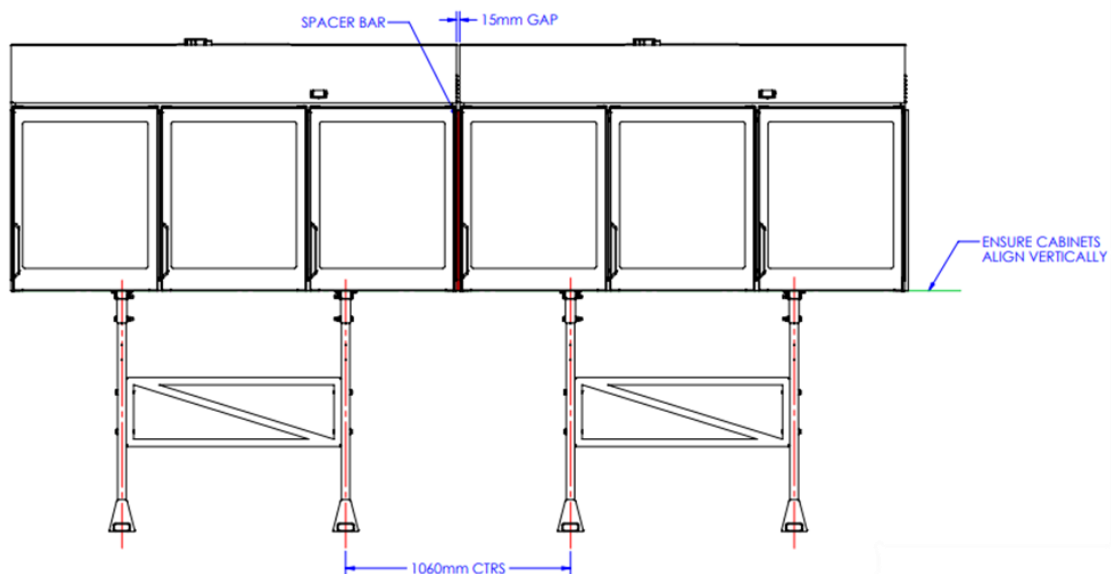
- **Step 5:** Bolt blanking panel to front of stand, for M6 bolts use 10mm spanner. Place blanking panel against stand and insert bolt. Push blanking panel upward against base of cabinet and fully tighten bolts.



- **Step 6:** Fit spacer bars. Peel film off double sided tape and fix spacer bars to right hand side of cabinet in position shown.



- **Step 7:** Position adjacent cabinet end to end tight against the spacer bars. See mounting frame leg centre dimension below. Minor height misalignment of adjacent cabinet can be corrected by readjusting jack screws on arms. Use lifting equipment to support cabinet while adjusting jack screws.



- **Lift Equipment required:** manual stacker. Place packer on the arms of the stacker that the doors don't make contact when lifted.

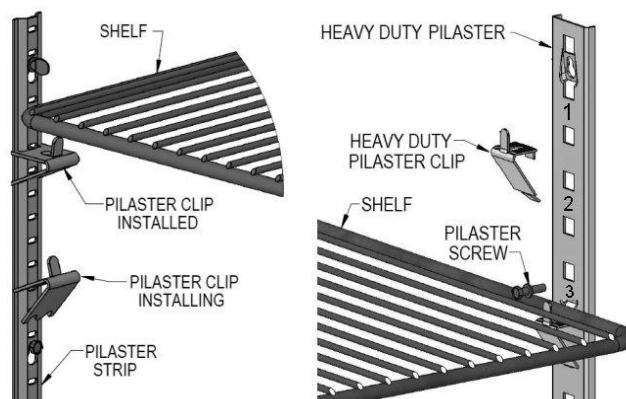


3.2. Product loading

- Novum cabinets are conservators in nature and can be used to store and display previously frozen food.
- Do not load the cabinet with non-frozen foods or try to freeze products in the cabinet. All products to be loaded should be at or below -18°C prior to loading into the cabinets.
- As soon as the cabinet has reached a storage temperature of below -18°C (as indicated by the controller display), it can be loaded with frozen foods up to the maximum of the load limit line. Novum recommend loading the cabinet in 3 stages allowing cabinet to recover -18°C between each.
- **Never** merchandise product beyond the red load limit sticker.



- **Do not leave door open** for extended periods of more than 15 minutes during merchandising.
- Exercise due care when loading heavy product, do not damage internal liner.
- Please ensure cabinets are 'OFF' while the shelving is arranged and positioned.
- Pilaster rails are numbered to facilitate level fitting of clips and shelves.



- Standard shelf rated for max of 70 kg.
- Use lock on cabinet when filling with stock to keep door open.



4. Care and maintenance

- All below recommendations are standard requirements and may need to be done more frequently depending of store conditions.
- The below are manufacturer recommendations and do not override local regulations.

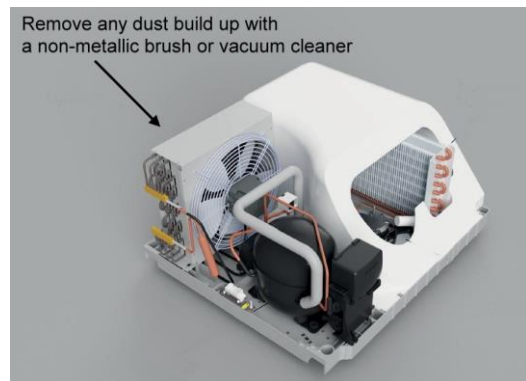
4.1. Monthly checks

- Inspect the area behind the pelmet and remove any debris.
- Clean the interior and exterior plastic components of your cabinet with a mild detergent. Never use bleach or abrasive material.
- Using only a damp cloth, clean the interior plastic components with a mild detergent, water/vinegar or 'Vim' liquid is also suitable. After cleaning wipe away excess residue.
- Use proprietary glass cleaner with soft cloth to clean glass door. Never use abrasive material to clean glass.

4.2. Quarterly checks

- Condenser should be checked every quarter and cleaned as required. This is a very important cleaning requirement to ensure the condenser gets a proper cooling air flow. Dust build up on the condenser will lead into higher energy usage for the cabinet and reduce components life time and may void warranty.

- To inspect the condenser for dust build up.
 - Disconnect freezer from mains supply.
 - Remove front pelmet if cassette not accessible.
 - Remove any dust build up with a non-metallic brush or vacuum cleaner.
 - Refit pelmet if required.

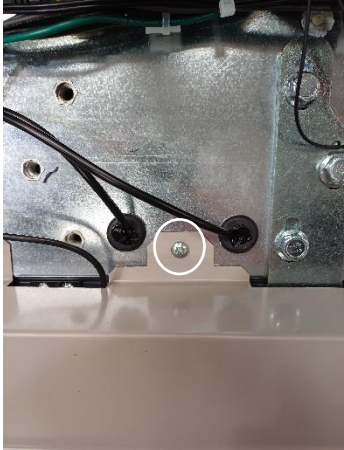
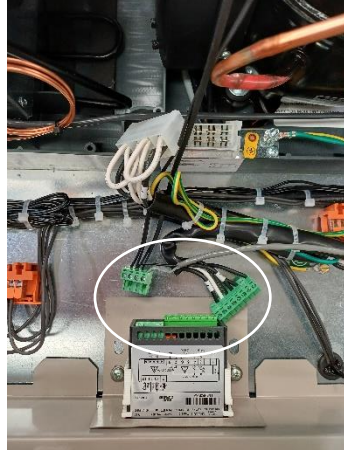


- Lubricate the doors.

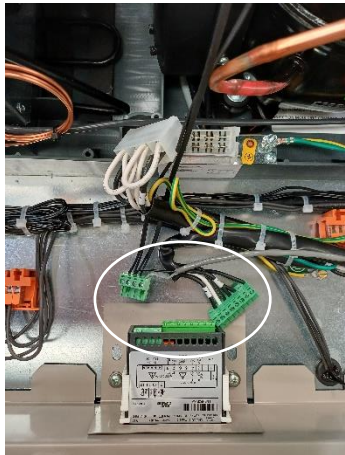
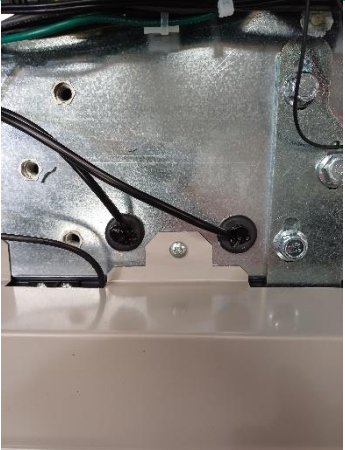
4.3. Yearly checks

- Best practice demands that cabinet should be thoroughly cleaned a minimum of once per year.

4.4. Monoblock removal procedure

1. ⚠️ Disconnect cabinet from mains supply to ensure safety of operations.	2. If necessary, dismount the top pelmet by removing the 4 screws.	3. Disconnect the earth cable.
		
4. Disconnect the white connector.	5. Disconnect the 2 green connectors and remove the temperature probes.	6. Remove the 6 screws of the monoblock.
		
7. Lift up the monoblock.		
		

4.5. Monoblock installation procedure

1. ⚠️ Disconnect cabinet from mains supply to ensure safety of operations.	2. Install the monoblock and make sure there is nothing preventing good sealing with the cabinet	3. Install the 6 screws of the monoblock.
		
4. Connect the 2 green connectors and install the temperature probes.	5. Connect the white connector.	6. Connect the earth cable.
		
7. Remount the top pelmet if it was removed and install the 4 screws.	8. Reconnect mains supply and check cabinet is cooling properly.	
		

5. Controller information

5.1. Dixell XR06CX



See the set point:

- Press and immediately release the **SET** button to see the set point temperature.
- Press and immediately release **SET** or wait for about 10 seconds to return to normal visualisation.

Change the set point:

- Press the **SET** button for more than 2 seconds.
- The value of the set point will be displayed and the °C or °F LED will start blinking.
- To change the set point value, press the **UP** or **DOWN** arrows.
- To memorise the new set point temperature, press **SET** again or wait for about 10 seconds.

Start manual defrost:

- Press the defrost button  for more than 2 seconds and a manual defrost will start.

5.2. Dixell XRB60CH



Display the set point:

- Press the **SET** button, then SET will appear on the screen.
- Press **SET** again to see the set point temperature.
- Press **SET** to exit.

Change the set point:

- Press the **SET** button for more than 3 seconds, then SET will appear on the display and the °C or °F LED will start blinking.
- Press **SET** again.
- To change the set point value, press the **UP** or **DOWN** arrows.
- To memorise the new set point value, press **SET** or wait for about 60 seconds.

Start manual defrost:

- Press the defrost button  for more than 2 seconds and a manual defrost will start.

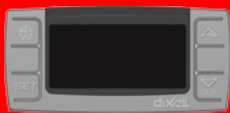
Adjust Real Time Clock (RTC):

- To enter in the setting menu, press at the same time both **SET** + **DOWN** arrow during 3 seconds.
- Press the **DOWN** arrow until finding the RTC parameters, then press **SET**.
- HUR will appear, then press **SET**, adjust the hour with the arrows and press **SET** again, the value flashes, press **SET** a last time to validate. Repeat this for all other parameters:
 - MIN – minute
 - DAY – day of the week:
 - SUN – Sunday
 - MON – Monday
 - TUE – Tuesday
 - WED – Wednesday
 - THU – Thursday
 - FRI – Friday
 - SAT – Saturday
 - DYM – Day of the date
 - MON – Month of the date
 - YAR – Year of the date
- Once all the parameters have been entered correctly, the date and the time are set.
- Press **SET** + **UP** arrow to exit.

Change from freezer to chiller (mapping)

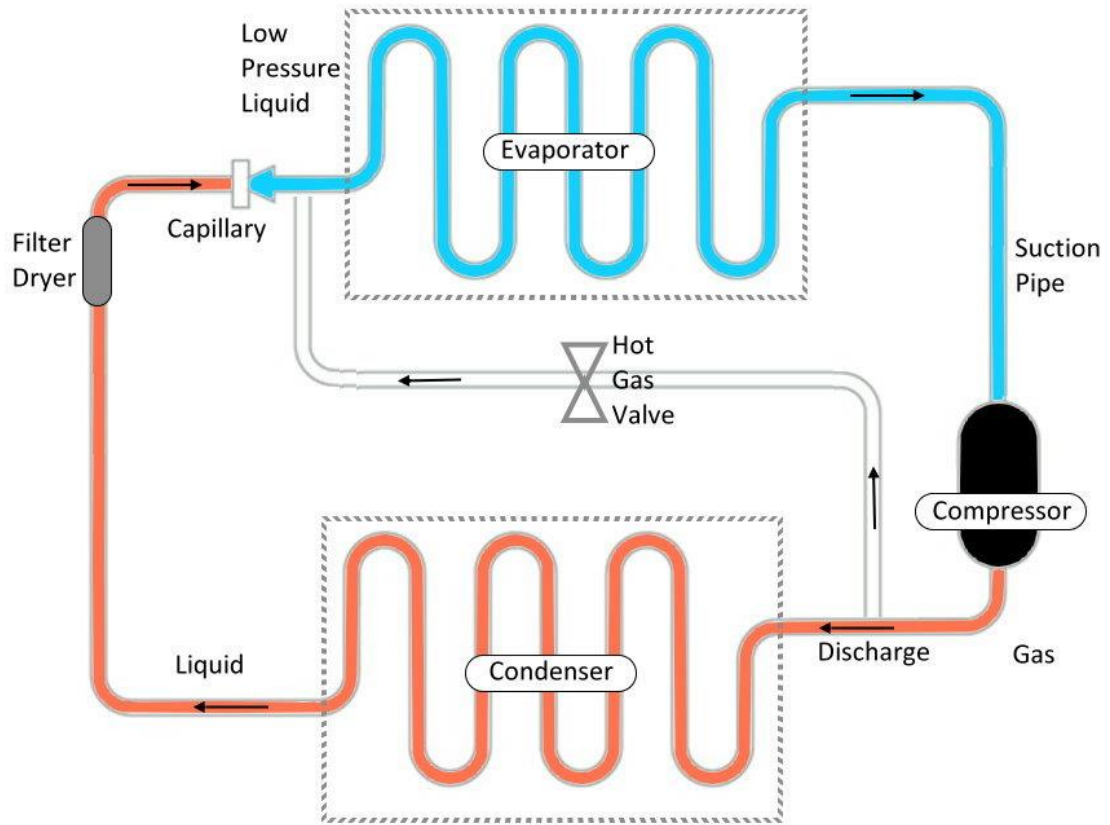
- Press the **DOWN** arrow for more than 3 seconds.
 - If NT appears: The cabinet is now into Normal Temperature mode = CHILLER.
 - If LT appears: The cabinet is now into Low Temperature mode = FREEZER.

6. Troubleshooting

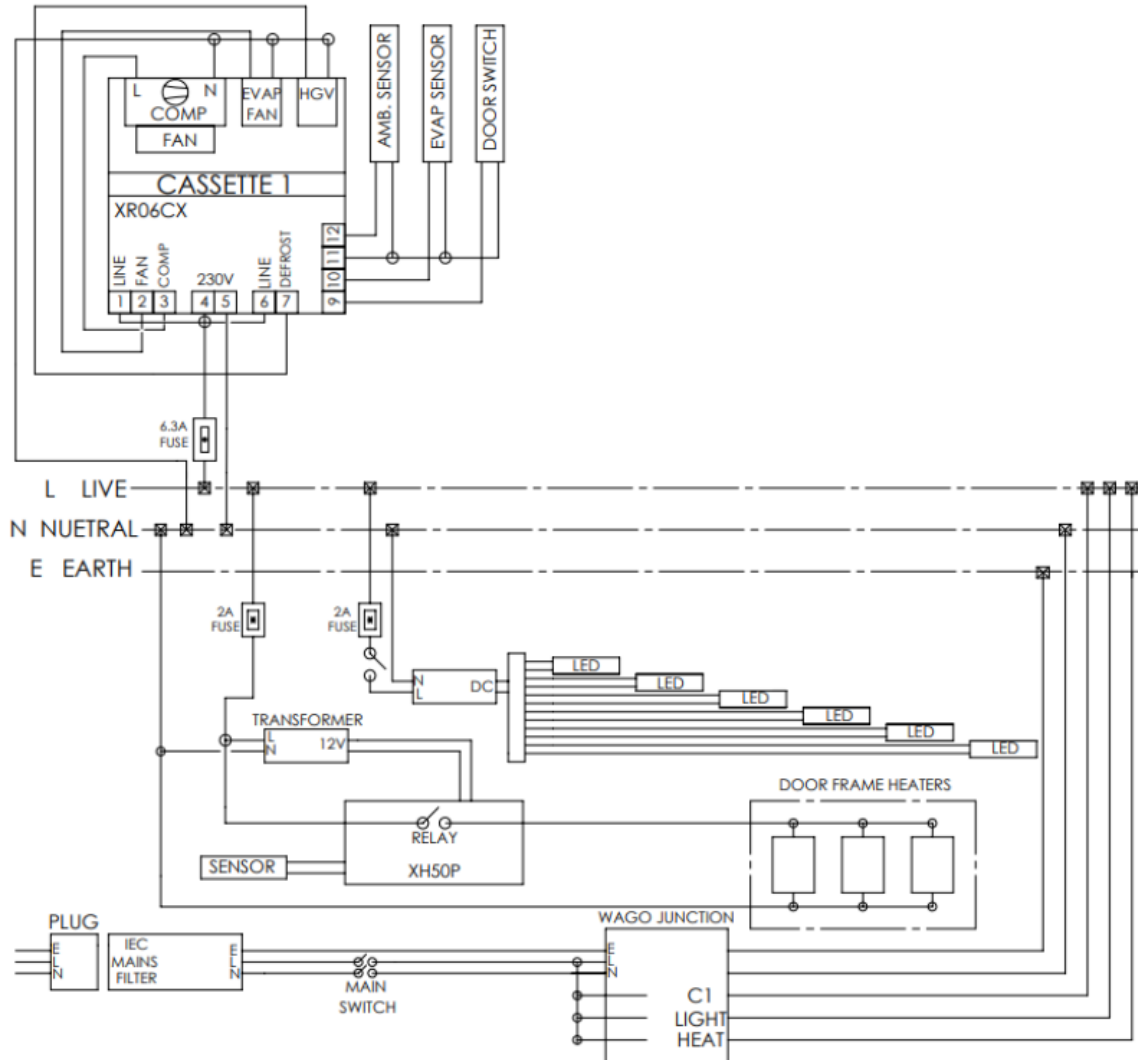
Symptom	Status	Cause	Action
 No display	Critical	No power	1. Check product temp, if above -12°C, move product. 2. Check plug connected to socket. 3. Check plug is connected to back of cabinet. 4. Check breaker is not tripped on distribution panel. 5. Check plug fuse. 6. Call service agent.
 HA alarm	Critical	High cabinet temperature	1. Check product temp, if above -12°C, move product. 2. Call service agent.
 P1 alarm	Not critical	Loose temperature probe	1. Call service agent.
 P2 alarm	Not critical	Loose temperature probe	1. Initiate defrost on controller. 2. If unsuccessful, call service agent.
 Temp variation	Not critical	Normal operation. Temp varies between -16°C to -24°C	1. No action required.
Condensation on glass	Not critical	Excess humidity	1. Check air conditioning is working. 2. Check door is closing correctly and seal has no gap. 3. Call service agent.

7. Diagrams

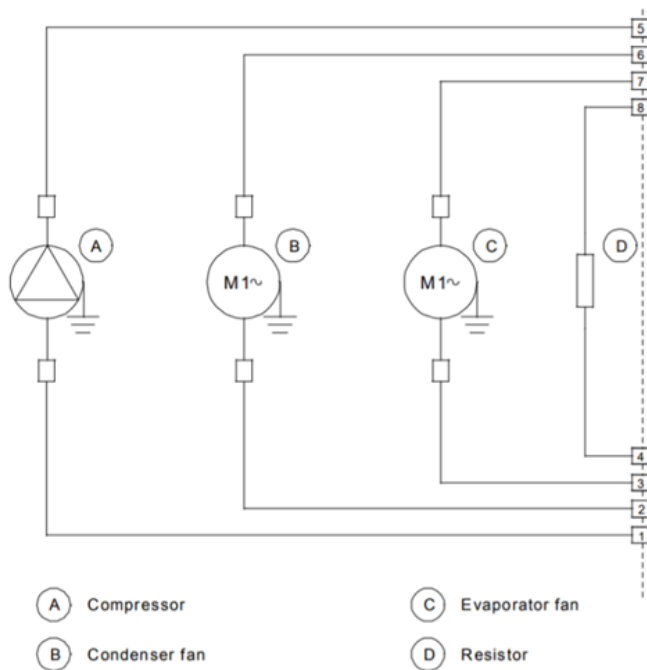
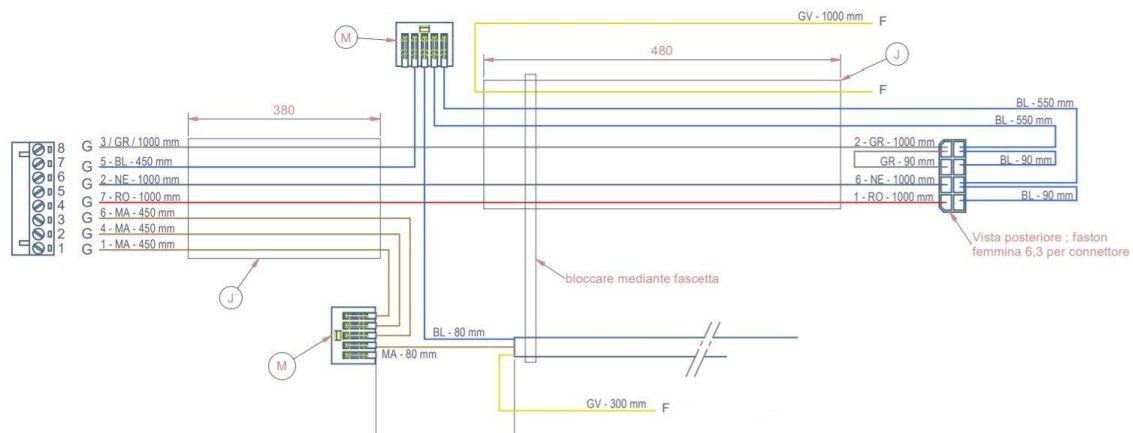
7.1. Refrigeration circuit



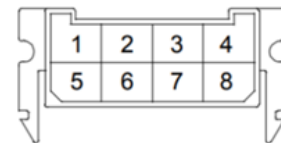
7.2. Cabinet wiring diagram



7.3. Cassette wiring diagram

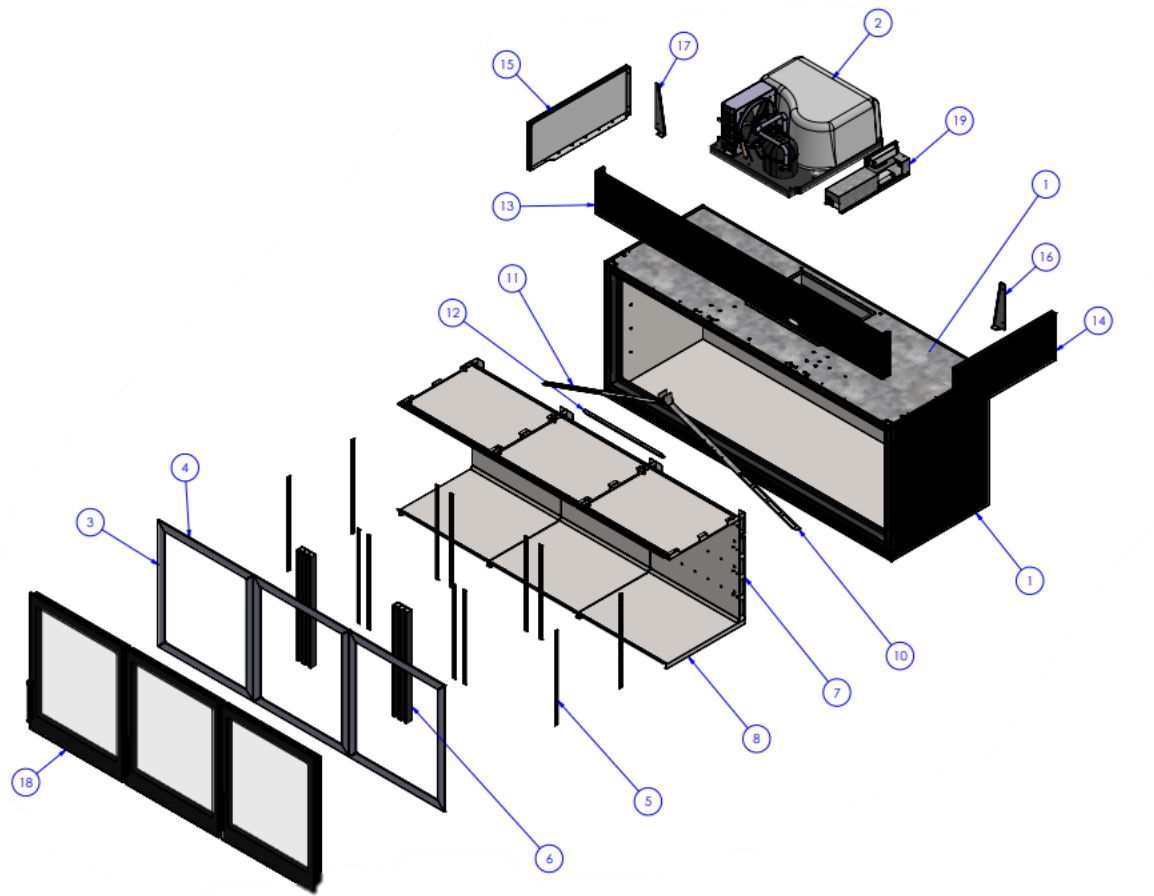


- 1 - Compressor neutral
- 2 - Condenser fan neutral
- 3 - Evaporator fan neutral
- 4 - Defrost neutral
- 5 - Compressor phase
- 6 - Condenser fan phase
- 7 - Evaporator fan phase
- 8 - Defrost phase



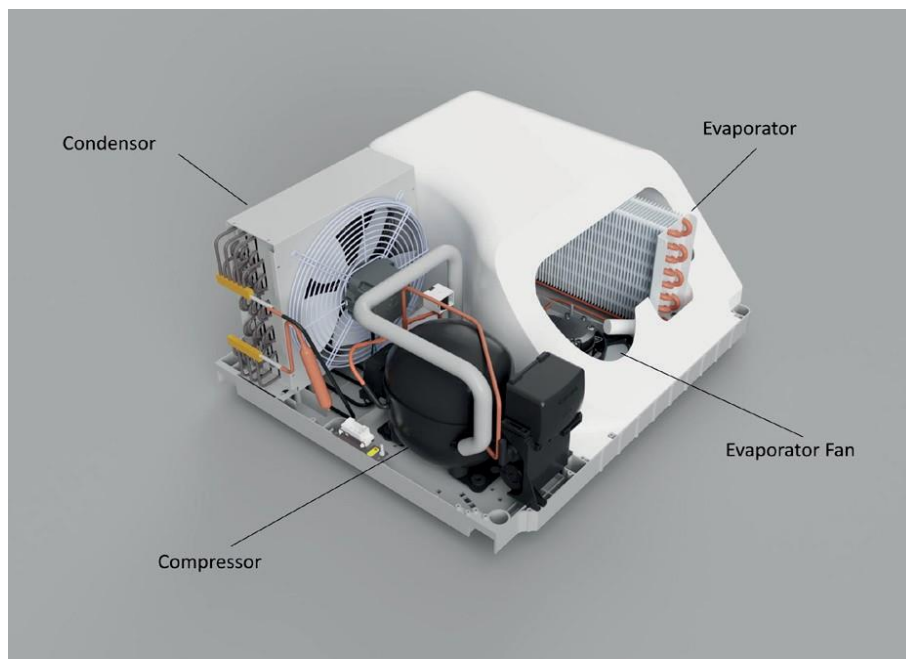
8. Spare Parts

8.1. Quantum assembly



Item number	Description	Part number
2	Monoblock 230V	003.2500.001
18	Black door	009.GCW.001
19	Electric tray assembly	006.PAN.018
20	Large shelf	015.GCW.001
21	Small shelf	015.GCW.002
22	Pilaster clip	006.2500.105L
23a	Controller Dixell XR06CX 230V	018.6FF.106
23b	Controller Dixell XRB60CH 230V	018.PAN.346

8.2. Monoblock assembly



Item number	Description	Part number
1	Condenser / Evaporator fan	003.111.933
2	Compressor Danfoss NLE12.6CNL 230V	003.805.010
3	Solenoid coil and valve	003.6FA.019

9. Safety instructions R290 refrigerant

9.1. R290 specification

Composition: Propane CH₃CH₂CH₃ (R290)

Molecular mass: 44.1 kg/kmol

Colour: colorless

Odour: faint

Decomposition temperature: unknown

Vapour density:

- approx. 1.9 kg/m³ at 25°C
- heavier than air
- collects at floor level

Handling

Ensure good room ventilation at floor level as well. Use only grounded apparatus. Take measures against electrostatic charge. Keep vessels away from electric devices, sparks, heat sources, and open light. Area of explosive danger.

Dangerous reactions

Explosion risk!

Explosion limit (in air): 1,7 – 10,9%

Do not smoke and avoid contact with heated surfaces!

Classification group

L3 (The refrigerants lower explosion limit in air is less than 3.5%.)

Safety group

A3 (no or only insignificant poisonous or caustic effect, high flammability)

Toxicological details

Significant poisonous is unknown.

Fast evaporation of the product may cause displacement of breathing air and therefore unconsciousness and asphyxiation. Skin contact may cause frostbite at skin and eyes. The product leads to narcotisation at high concentration. The effect disappears at fresh air.

General rules of protection

Ensure good room ventilation at floor level. Do not breath refrigerant. Avoid contact with liquid phase.

9.2. Personal protective equipment

Safety shoes, antistatic and non-combustible clothes, protective gloves and eye protection are to be provided for every person concerned with maintenance, repair and recovery and to be used by them. A self-contained breathing apparatus should always be used under unclear circumstances.

9.3. First aid when using R290, immediate measures

If the injured person is unconscious:

- Evacuate person at risk from hazard area. Pay attention to wind direction.
- Call a doctor and an ambulance equipped with a respirator immediately.
- The injured person should be brought into a well-ventilated room or outdoors until the arrival of the ambulance, as long as this is safe. The injured person should be placed on his or her side.
- Inform the doctor that the injured person was exposed to the refrigerant R290 (propane). Preferably, the injured person should be given an appropriate label.
- Loosen the clothing around the chest in order to facilitate breathing.
- Mouth-to-mouth resuscitation is to be applied if required.
- Persons who have breathed in a large amount of fumes are to be treated as quickly as possible with oxygen by a knowledgeable person. In addition they should be kept as quiet as possible.
- Water or other fluids should never be administered except as ordered by the doctor.

9.4. Eye injuries

- At burns use cold water immediately.
- At frostbite use warm water. Lift the eyelid careful and rinse for at least 20 min. with copious amounts of water.
- Do not rub the eyes.
- Remove contact lenses, if present.
- Loose fitting, amicrobic dressing.
- Then take the injured person immediately to an eye specialist or accident hospital.
- Do not open blisters from burns. Cover wounds aseptic.
- Take the injured person to a doctor or accident hospital as quickly as possible.

9.5. Injuries from swallowing liquid refrigerant

Give the injured person, as long as he or she is conscious, as much water or other warm drink as possible.

⚠ Warning! Further information see EN 378-1 and EN 378-3.

10. Novum Warranty Terms and Conditions

Your appliance has the benefit of our manufacturer's warranty, which covers the cost of breakdown repairs. This gives you the reassurance that if, within the warranty period, your appliance is proven to be defective because of either workmanship or materials; we will, at our discretion, either repair or replace the appliance at no cost to you.

THIS WARRANTY IS SUBJECT TO THE FOLLOWING CONDITIONS

- The appliance has been installed and operated correctly and in accordance with our installation, operating and maintenance instructions.
- The appliance is used only on the electricity supply printed on the rating plate.
- The appliance is used only within climate conditions as printed on the rating plate.
- The appliance has been used for normal commercial refrigeration display purposes only and not loaded above loading level.
- The appliance has not been altered, serviced, maintained, dismantled, or otherwise interfered with by any person not authorised by us.
- Any repair work must be undertaken by Novum or our appointed agents.
- Any parts removed during repair work or any appliance that is replaced becomes our property.

THE WARRANTY DOES NOT COVER (as deemed by Novum)

- Wilful damage resulting from transportation, improper use, neglect or interference or as a result of improper installation.
- Inaccurate or improper use and / or initial operation of the goods by the customer and / or third party.
- Improper work on our goods by the customer and / or by non-approved third parties.
- Non-compliance with normal operating conditions within Climate Class 3L1 (+16°C to +25°C ambient, max. 60% relative humidity).
- Non-compliance with the operating instructions or prescribed operating data or failure by the customer and / or by third parties to carry out maintenance as provided in the operating instructions.
- Use of unfit tools and equipment (as deemed by Novum) by the customer and / or by non-approved third parties.
- Replacement of any consumable item or accessory. These included but not limited to: plugs, cables, batteries, light bulbs, starters, covers, filters, dividers, baskets, shelves.
- Replacement of any removable parts made of glass, wire or plastic.
- Modifications of factory controller setting without written approval from Novum.
- Power failure, acts of God (flooding, earthquake etc.).

In addition, our disclaimer of liability includes, but is not limited to any loss of refrigerated / frozen goods.

COMMERCIAL USAGE POLICY

We will provide a full manufacturers' warranty, provided the appliance has not been:

- **Accidental damage:** damage that occurs suddenly as a result of an unexpected and non-deliberate external action.
- **Malicious damage:** the deliberate and intentional damage to the product.
- **Subjected to misuse:** incorrect or careless or improper use.
- **Subjected to overuse:** excessive usage versus that expected of a food retail application.

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