

NOVUM

Redefining refrigeration

Ecology Technical Manual

410L | 401L | 501L | 610L | 601L



Table of Contents

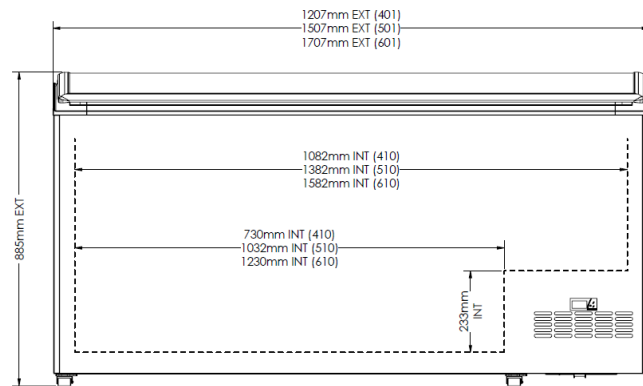
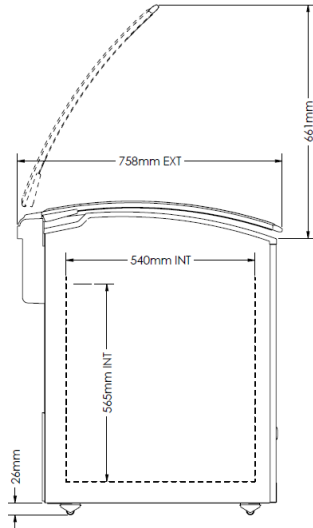
1. Technical data	2
1.1. Specifications.....	2
1.2. 401L/501L/601L dimensions	3
1.3. 410L/610L dimensions	3
2. Transport & Handling	4
3. Commissioning	4
3.1. Installation	4
3.2. Product loading.....	4
4. Care and maintenance	5
4.1. Monthly checks.....	5
4.2. Quarterly checks	5
4.3. Yearly checks.....	5
4.4. Defrosting	5
4.5. Condenser cleaning procedure.....	6
5. Controller information.....	7
6. Troubleshooting	8
7. Diagrams.....	9
7.1. Refrigeration circuit.....	9
7.2. Cabinet wiring diagram.....	10
7.3. LED wiring diagram.....	10
8. Spare Parts.....	11
8.1. 401L/501L/601L cabinet assembly	11
8.2. 410L/610L cabinet assembly.....	12
8.3. Compressor tray assembly	13
9. Safety instructions R290 refrigerant	14
9.1. R290 specification.....	14
9.2. Personal protective equipment.....	15
9.3. First aid when using R290, immediate measures	15
9.4. Eye injuries.....	15
9.5. Injuries from swallowing liquid refrigerant	15
10. Novum Warranty Terms and Conditions	16

1. Technical data

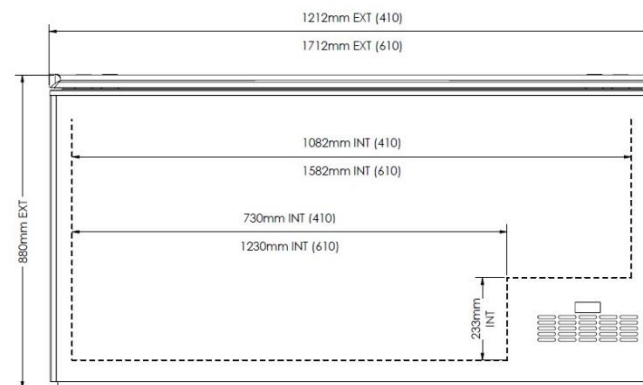
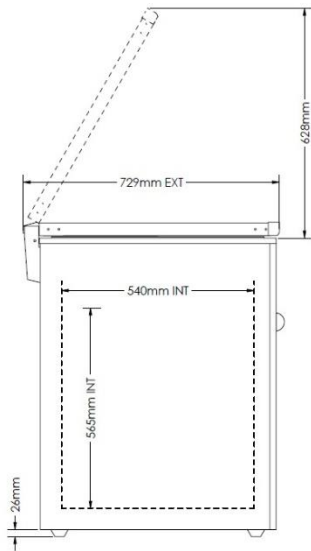
1.1. Specifications

	Model	401L/410L	501L	601L/610L
Technical Data				
Gross content	litre	400	500	600
Net content according to EN 23953	litre	320	404	484
Total display area (TDA) according to Eco-design Directive	m²	0.55	0.71	0.82
Classification according to EN 23953		3L1	3L1	3L1
Energy class according to Eco-design Directive		C	C	C
Ambient temperature range	°C	+16 to +25	+16 to +25	+16 to +25
Inner temperature range	°C	-18 to -25	-18 to -25	-18 to -25
Sound pressure at 1m distance	dB(A)	<43.3	<43.3	<43.3
Electrical Data				
Nominal voltage / frequency	V / Hz	220-240 / 50	220-240 / 50	220-240 / 50
Nominal power cabinet	W	280	290	290
Nominal power LED light	W	10	10	14
Nominal current	A	1.3	1.3	1.3
Fuse protection	A	16	16	16
Energy consumption at 25°C according to Eco-design Directive	kWh/24h	2.85	3.15	3.34
Length of Power Supply Cord	mm	2000	2000	2000
Refrigeration Data				
Refrigerant	Type	R290	R290	R290
Gas charge	g	80	90	90
Maximum operating pressure	Bar	30	30	30
Maximum heat output	W/h	386	386	386
Dimensions				
Length outside / inside	mm	1207 / 1080	1507 / 1380	1707 / 1580
Depth outside / inside	mm	720 / 540	720 / 540	720 / 540
Front access height	mm	790 / 840	790 / 840	790 / 840
Stacking height at the front / back	mm	565 / 565	565 / 565	565 / 565
Weight				
Net weight (excl. packaging, incl. internal accessories)	kg	79	94	103
Gross Weight (incl. packaging & internal accessories)	kg	90	105	120

1.2. 401L/501L/601L dimensions



1.3. 410L/610L dimensions



2. Transport & Handling

- Cabinets must be transported and stored in and upright position.
- During transport, cabinets must be protected from water and direct sunlight.
- Cabinets should only be lifted onto their pallet.
- 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 lid 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 door ways 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.

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.
- 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 above the red load limit sticker.



- **Do not leave lid open** for extended periods of more than 15 minutes during merchandising.
- Exercise due care when loading heavy product, do not damage internal liner.

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 cabinet 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 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 lid and front. 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.

4.3. Yearly checks

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

4.4. Defrosting

- Remove frozen food to a suitably refrigerated area.
- Unplug cabinet from mains supply and open lid.
- When frost has melted, remove the water inside the cabinet and clean.
- Use a clean, dry cloth to mop up excess condensate from the inside of the cabinet.
- Plug the cabinet to mains supply. When digital display on the electronic controller displays -18°C, it is then safe to re-merchandise the cabinet.
- Best practice demands that all cabinets should be thoroughly cleaned three or four times per year.

4.5. Condenser cleaning procedure

1. ⚠️ Disconnect cabinet from mains supply to ensure safety of operations.

2. Pull out the cabinet to access at the right back corner.

3. Remove any dust build up with a vacuum cleaner equipped with a non-metallic brush*.



4. After cleaning the outside area, in case there is dust inside the condenser, further clean with a specific brush*.

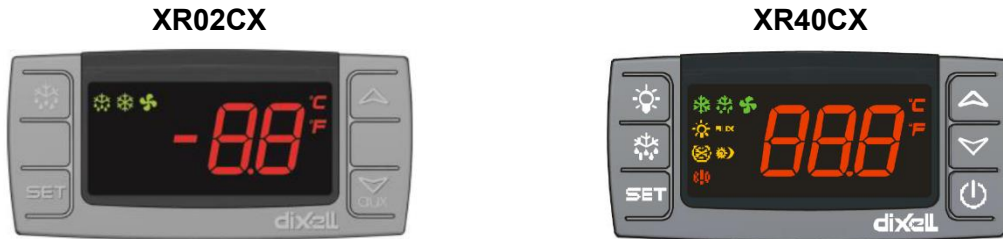


5. Reconnect mains supply and push the cabinet back.

* Tools for cleaning the condenser are available at Novum. Contact spareparts@novum.ie

5. Controller information

Dixell XR02CX or XR40CX depending on cabinet configuration.



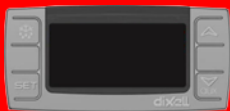
See the set point:

- 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:

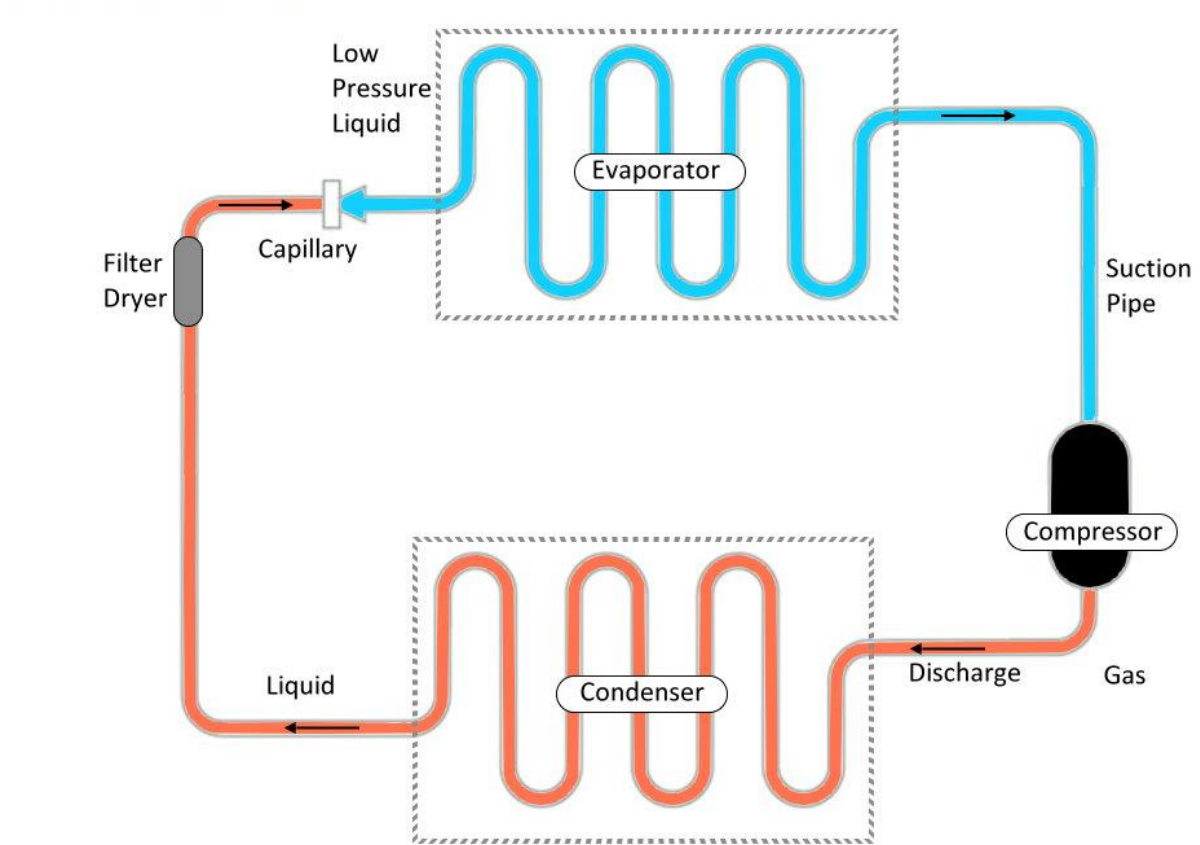
- Press the **SET** button for more than 2 seconds.
- The value of the set point will be displayed and the °C or °F LED will start blinking.
- To change the set point value, press the **UP** or **DOWN** arrows.
- To memorise the new set point temperature, press **SET** again or wait for about 10 seconds.

6. Troubleshooting

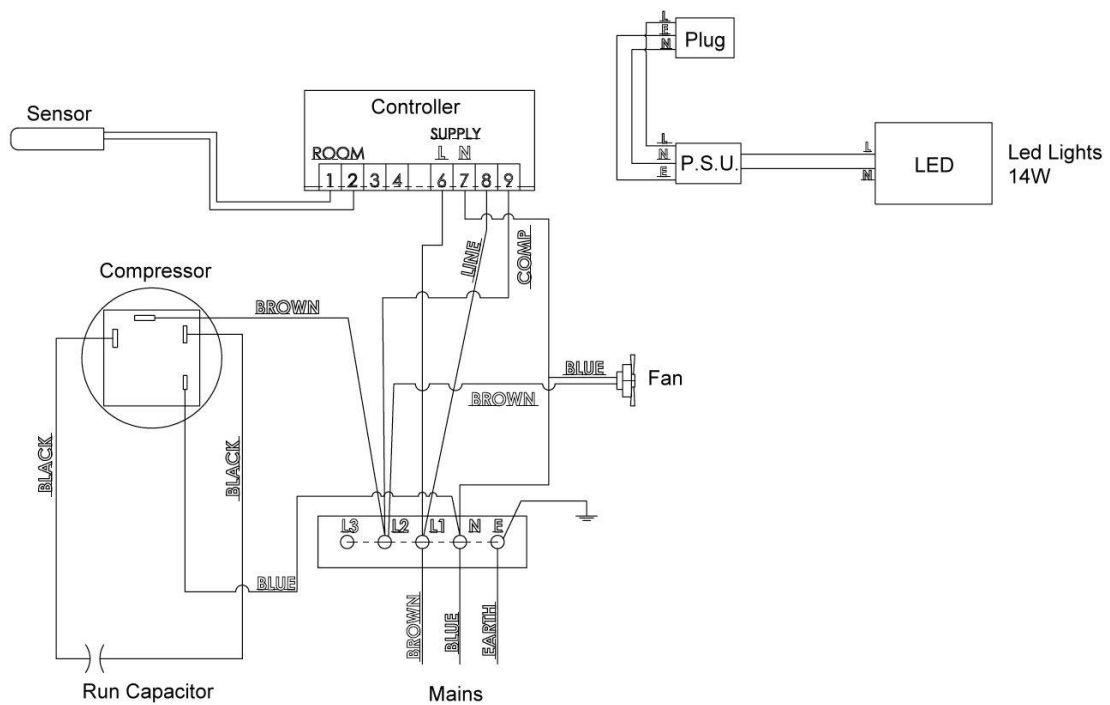
Symptom	Status	Cause	Action
 No display	Critical	No power	1. Check product temp, if above -12°C, move product. 2. Check plug connected to socket. 3. Check plug is connected to back of cabinet. 4. Check breaker is not tripped on distribution panel. 5. Check plug fuse. 6. Call service agent.
 HA alarm	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. 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 product not above load limit line. 3. Check frozen product has not been placed on glass. 4. Check lid is closed correctly 5. Call service agent.

7. Diagrams

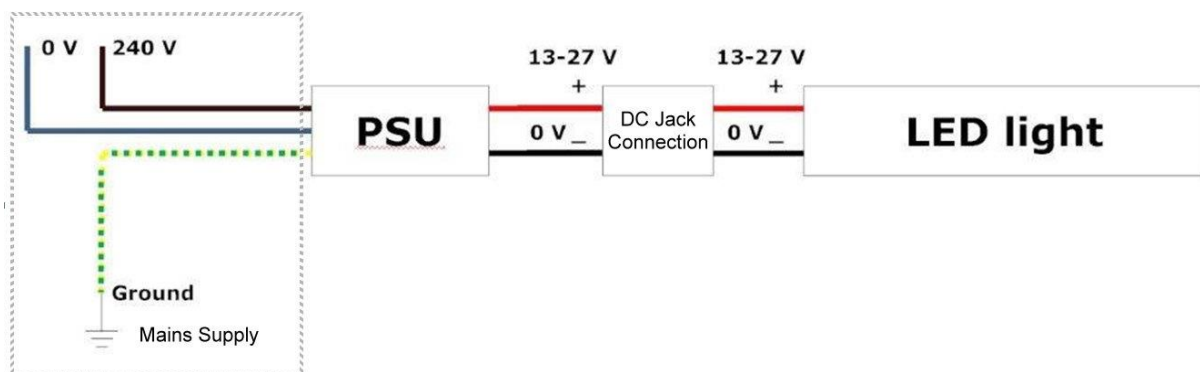
7.1. Refrigeration circuit



7.2. Cabinet wiring diagram

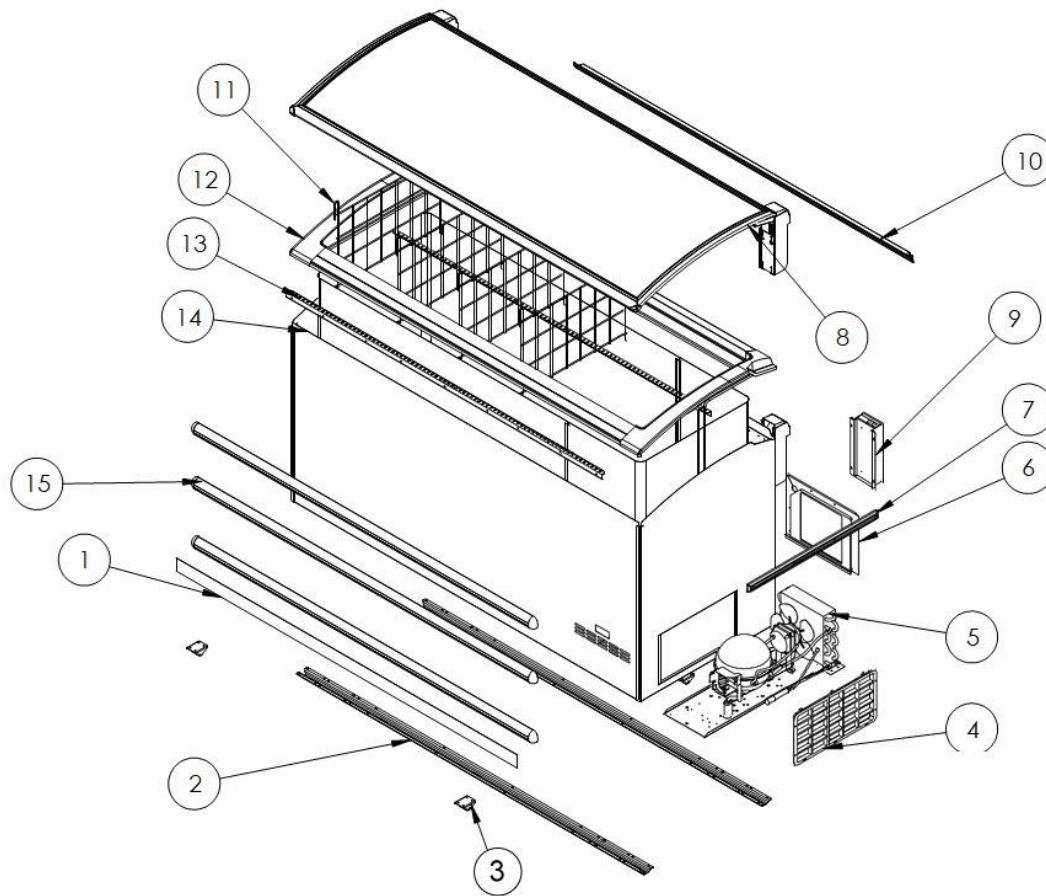


7.3. LED wiring diagram



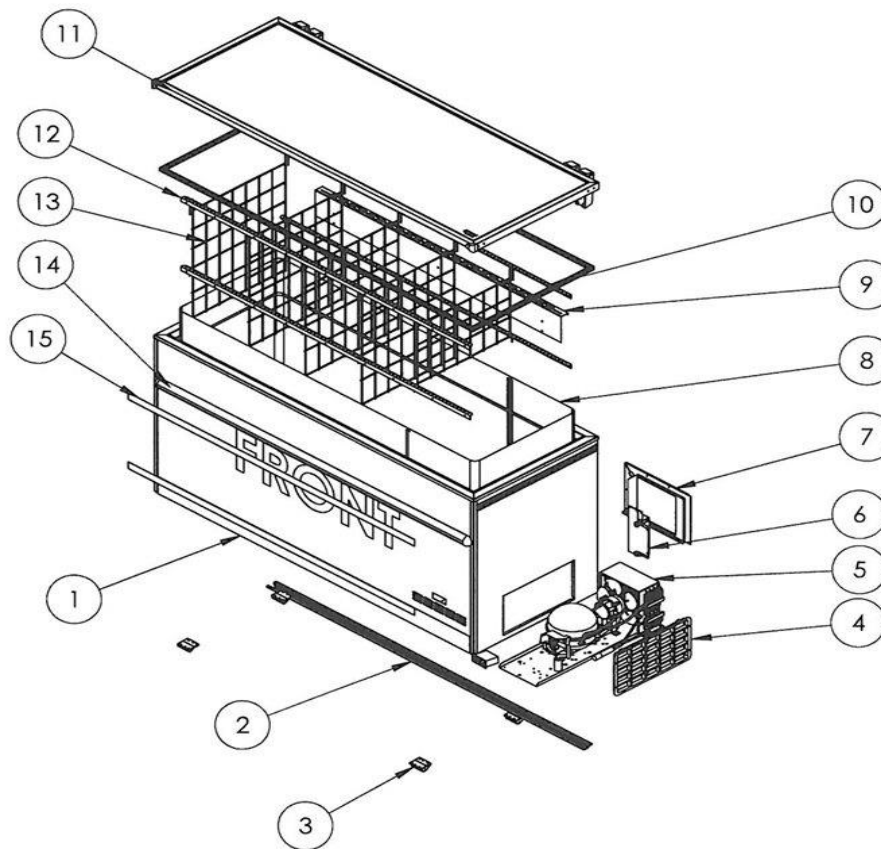
8. Spare Parts

8.1. 401L/501L/601L cabinet assembly



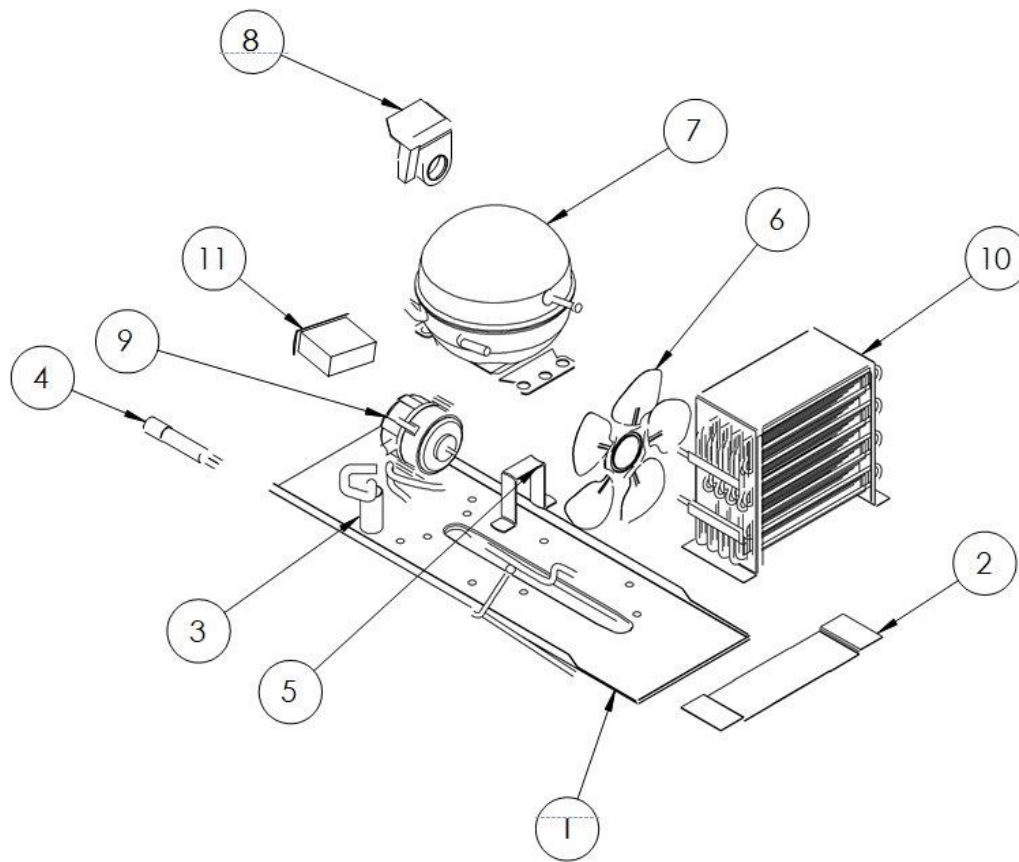
Item number	Description	401L part number	501L part number	601L part number
1	Kick strip	006.410.083	006.501.085	006.611.285
3	Caster		006.805.226	
4	Side grille (white)		006.111.411	
5	Compressor tray assembly			
6	Condenser cover		003.610.363	
7	Separator profile		006.610.259	
8	Lid	009.401.440	009.501.840A	009.601.840A
	Lid gasket	009.411.101	009.501.102	009.611.873
	Hinge LHS	006.410.091	006.410.091	006.601.201
	Hinge RHS	006.410.191	006.410.191	006.601.202
9	Driver		018.805.704	
10	LED light	018.306.703	018.501.041	018.601.041
11	Short divider		015.610.204	
15	Buffer (white)	006.410.146	006.501.347	006.610.347

8.2. 410L/610L cabinet assembly



Item number	Description	410L part number	610L part number
1	Kick strip	006.410.083	006.611.285
3	Caster	006.805.226	
4	Side grille (white)	006.111.411	
5	Compressor tray assembly		
6	Driver	018.805.704	
7	Condenser cover	003.610.363	
11	Lid	009.410.245	009.610.245
	Lid gasket	009.411.101	009.611.873
	Hinge	006.410.299	006.610.399
13	False floor	015.610.206	
13	Short divider	015.610.204	
13	Long divider	015.610.205	
14	LED light	018.401.141	018.601.141
15	Buffer (white)	006.410.146	006.610.347

8.3. Compressor tray assembly



Item number	Description	Part number
1	Compressor tray	030.610.027
2	Condenser plate	030.610.026
4	Filter dryer 13.5g	003.801.006
7	Compressor Danfoss NLE8.8CNX 230V	003.601.007
5, 6 & 9	Condenser fan	003.111.424
10	Condenser	003.111.001
11a	Controller Dixell XR02CX 230V	018.601.100
11b	Controller Dixell XR40CX 230V	018.806.100

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.

Contact

Novum (Overseas) Ltd
The Novum Building
Clonshaugh Technology & Business Park
Dublin 17
Ireland
+353 1 803 6400
www.novum.ie

Spare Parts: spareparts@novum.ie

Warranty and technical support: support@novum.ie