

9124523

SERVICE MANUAL

MODULAR CONVENIENCE COUNTER

MCC HOT AND MCC COLD



- NOTICE -

This service manual is prepared to be used by trained Service Technicians and should not be used by those not properly qualified. If you have attended a training for this product, you may be qualified to Perform all repair procedures, replacements and adjustments described in this service manual.

The information presented in this document is only valid for standard hot and cold modular convenience counters, (MCC) configurations and is not intended to be all encompassing. The individual specifications may differ.

Procedures for which you do not have the necessary tools, instruments or skills should not be performed by you.

Technical data and specifications mentioned in this manual are subject to amendment without prior notice.

**Reproduction of this service manual,
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Is prohibited.**

Version	Issue date	Remarks
	dd/mm/yy	
Rev 1	01-06-2020	First release based on Self Serve
Rev 2	03-05-2021	Adding Full Serve
Rev 3	01-06-2021	Adjusting controller hot/cold

KEEP THIS USER MANUAL FOR FUTURE USE

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We refer to our General Terms and Conditions for Sales and Delivery that are available upon request.

The manufacturer does not accept any liability for damage or injury caused by failing to adhere to these regulations or by not observing the usual caution or care in actions, operation, maintenance or repair activities, even if not explicitly described in this manual.

As a result of constant commitment to improvement, it may happen that your unit deviates in detail from what is described in this manual. For this reason, the given instructions are only a guideline for the installation, use, maintenance and repair of the unit referred to in this manual.

This manual has been composed with the utmost care. The manufacturer shall, however, not be held responsible for any mistakes in this manual nor for any consequences thereof. All rights are reserved and nothing in this manual may be reproduced and/or made public in any way.

Modifications:

In case of unauthorized modifications in or on the unit, every liability on the part of the manufacturer becomes null and void.

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1.0 Introduction

1.1 General

This manual is intended for trained technicians, performing repairs on the MDD
The features and controls are being described, along with directions for the safest and most efficient way to service these counters.
All pictograms, symbols and drawings in this manual apply to all available MDD models.

1.2 Identification of the unit

The identification plate can be found on the outside of the machine, and contains the following data:

- Name of the supplier or the manufacturer
- Serial number
- Voltage
- Power consumption
- Model
- Year of construction
- Frequency

1.3 Pictograms and symbols

In this manual, the following pictograms and symbols are used:

WARNING symbols:



WARNING

Possible physical injury or serious damage to the unit,



WARNING

Risk of Fire.



WARNING

Hazardous electrical voltage.



WARNING

Danger of getting injured by hot surfaces.

SAFETY symbols:



SAFETY

Wear safety gloves for installation and dismantling.



SAFETY

Wear eye protection.



SAFETY

ALWAYS Remove power plug from main outlet before working on the unit.



Disposal

According local regulations



SAFETY

Clean Hands and/or Tools

Suggestions and recommendations.



Notification

Take care off:



Cleaning

On regularly interval

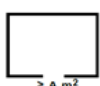


Recycling symbol.



Reading

Instructions referred to



Minimum room floor area.



Part of manual under construction

Pictures or photos to be added



1.4.1 General regulations

The technician, working on the unit will be fully responsible for abiding the locally prevailing safety rules and regulations.

Technical activities must be performed by qualified and authorized persons only.



Before working on any electrical part, or dismantling the unit by means of using a screwdriver, **ALWAYS REMOVE** the power plug from the main outlet.

Anyone performing technical repairs, replacements or adjustments on or with this unit must be familiar with the contents of this service manual and carefully follow all guidelines and instructions.

Never change the order of the steps to be performed.

The pictograms, labels, instructions and warning signs attached to the unit, are part of the safety measures. They may never be covered or removed, and have to be clearly visible during the entire lifetime of the unit.

Immediately repair or replace damaged or illegible pictograms, warnings and instructions.



Notes:



- To avoid short-circuiting, never clean the unit using a water hose.
For detailed cleaning instructions, please refer to MCC user manual.



- The shelves, glass and back of the hot unit can get hot.



- All units must be cleaned regularly to ensure proper functioning.



- Do not store explosive substances;
such as aerosol cans with flammable propellant in this appliance.

1.4.2 Cold units with R290 (propane) refrigerant



Propane refrigerant is environmentally friendly but also highly flammable. It is non-toxic with zero Ozone Depletion Potential(ODP) and very low Global Warming Potential (GWP).
Read this manual carefully and follow all precautions described herein.



R290

WARNING

The propane refrigerant is highly flammable. All safety precautions must be followed. Keep all ventilation openings in the housing of the appliance or in the installation free from Obstructions.
Do not use mechanical devices or other means to accelerate the defrosting process.
Do not damage the refrigerating circuit.
Do not use electrical appliances inside the food/ice storage compartments.
Propane refrigerant does not contain odor.



SAFETY

Wear eye protection when working on the refrigeration system.

- Install the unit in a well ventilated area with sufficient floor space: refer to the data sheet for minimum space requirement.
- Do not install the unit in basements, in area's with open flames or high surface temperatures.
- Do not tamper with the system.
- The system must be installed and maintained by trained and qualified persons only.
- The ventilation openings of the cladding of the unit (including accessories) must not be Blocked or covered. Ensure that the air circulation remain unobstructed.
- Electrical devices used within this unit must be certified by the applicable ATEX directive.



Residual risks:

- Sparks from electrical devices or hot surfaces may unintentionally ignite possible leaked refrigerant gas.

1.4.3 Moving

- Before moving the unit, first switch off the mains switch and disconnect power by pulling the plug from the wall socket.
- Remove pans containing a liquid product from the unit.
- Always keep the unit in upright position.

1.4.4 Outdoor use restrictions



WARNING

To avoid short-circuiting, the units may not be used outdoors nor in a rainy or very moist Environment.

1.5 Hygiene



WARNING

Immediately remove products in damaged packaging from the equipment and destroy the products.

Clean all components that have come in contact with products from damaged Packaging.

The quality of a fresh product always depends on hygiene.
It is essential that products are packaged immediately after preparation.

Prevent fresh raw vegetables or already prepared, cooled products from coming into contact with raw meat products to avoid transmitting salmonella.



First thoroughly clean hands and/or tools that have touched raw meat and/or meat juices.

For detailed cleaning instructions, please refer to MCC user manual section 5.

1.6

Service and technical support

The electrical schematics of the unit are included at the end of this manual.
In case of malfunctions which are not fixable by you, you can contact Fri-Jado.
Make sure you have the following data available:

- Model.
- Serial number.

This data can be found on the identification plate.

1.7

Storage

If the unit will not be used temporarily, and will be stored, follow these instructions:

- Clean the unit thoroughly.
- Wrap the unit from getting dusty.
- Store the unit in a dry, non-condensing environment.
- Do not expose units with R290 refrigerant during storage and transport to Temperatures higher than 70 °C (158 °F).
- Ensure good ventilation.

1.8 Disposal



Dispose of the machine, any components or lubricants removed from it safely in accordance with all local and national safety and environment requirements.



WARNING

Cold units: Propane refrigerant is highly flammable.



At all times all safety precautions must be followed, see chapter 9.4.

2.0 Detailed description

2.1 Technical description Self Serve

Panels are made of galvanized steel plating, stainless steel and/or aluminum.
Some of the visible internal and external parts have been provided with a powder coating.
Glass used is tempered.
Unit can be moved by means of a pallet truck.

Product contact parts are made of stainless steel AISI 304 or AISI 430 and tempered glass.

2.2 Cold units Self Serve: (OmiCold Air flow technology)

Cooling is achieved by means of a thermostatic temperature-controlled cold airflow.
Cold air is passed via the back and shelves over the products.



Between price rail and child glass an opening exists which is vital for the airflow inside the unit.

Price rail must always be kept in place .

For MCC Cold SS:

Price rail is integrated part of air guidance inside the unit.

Removing the price rail will result in a bad functioning MCC

Self-serve models have an additional set of fans mounted in the top to create a stable air curtain on the open side of the cabinet to minimize the infiltration of warm ambient air. The air on the front side passes through the suction grid in the bottom of the unit.

Temperature of the airflow is controlled electronically.

The electronically controlled thermostat is factory pre-programmed.

Set temperature can be changed from -6 °C to +0 °C (21.2 °F to 32 °F).

The units can be connected to a fixed drainage system or an optional evaporation tray to evacuate Condensation water.

One LED-module per level provides lighting of the products.

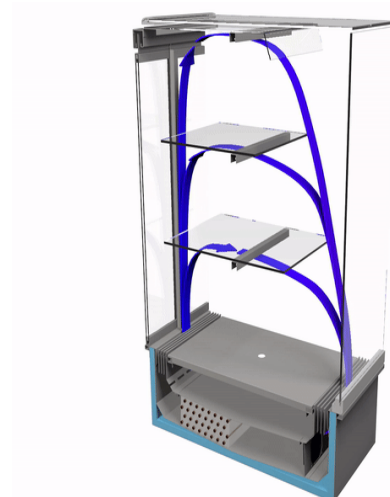
Lighting and cooling are switched on simultaneously

Self-serve models can be fitted with an optional night curtain.

Air flow Self Serve



Air flow Full Serve



2.3 Hot units Self Serve: (Patented Hot Blanket Holding technology)

Heating in hot self-serve units is achieved by means of heated shelves in combination with an hot-air curtain per shelf. This air curtain isolates the hot air inside the unit from the ambient air.

Hot serve over units have a single heat source in the base of each shelf and use fans to distribute the heat throughout the cabinet.

An electronic thermostat controls the temperature.
The electronic thermostat has been pre-set at the factory.

This value can be changed for self-serve models between 40 °C and 70 °C (104 °F and 158 °F) and for serve over models between 40 °C and 85 °C (104 °F and 185 °F).

One LED-module per level provides lighting of the products.
The LED-lighting and the heating are switched on and off separately, In the future Lightning and heating are switched on simultaneously.

Hot Air flow Self Serve



2.4 Intended use

Self-serve models have been designed solely to keep packaged products cold or warm and to display them.

Serve over models can be used for unpacked foodstuff as well.



Any other use will not be regarded as intended use.

The manufacturer accepts no liability whatsoever for loss or injury caused by failing to strictly adhere to the safety guidelines and instructions in this manual or due to carelessness during installation, use, maintenance and repair of the unit referred to in this manual and any of its Accessories.

Use the unit in perfect technical condition only.

2.6 Technical description Full Serve Hot Humidified

The MCC Hot FS is a multilevel serve over heated display cabinet intended for hot presentation of food products.

A heating element and an array of fans are located in the base of the unit and circulate hot air throughout the cabinet, creating uniform holding conditions.

Any air in- and outlet openings should be kept clear. A digital controller is installed to regulate the temperature inside the cabinet.

A water tray is present underneath the base deck which can be used to increase the humidity levels inside the cabinet, hereby increasing the shelf life of delicate products.

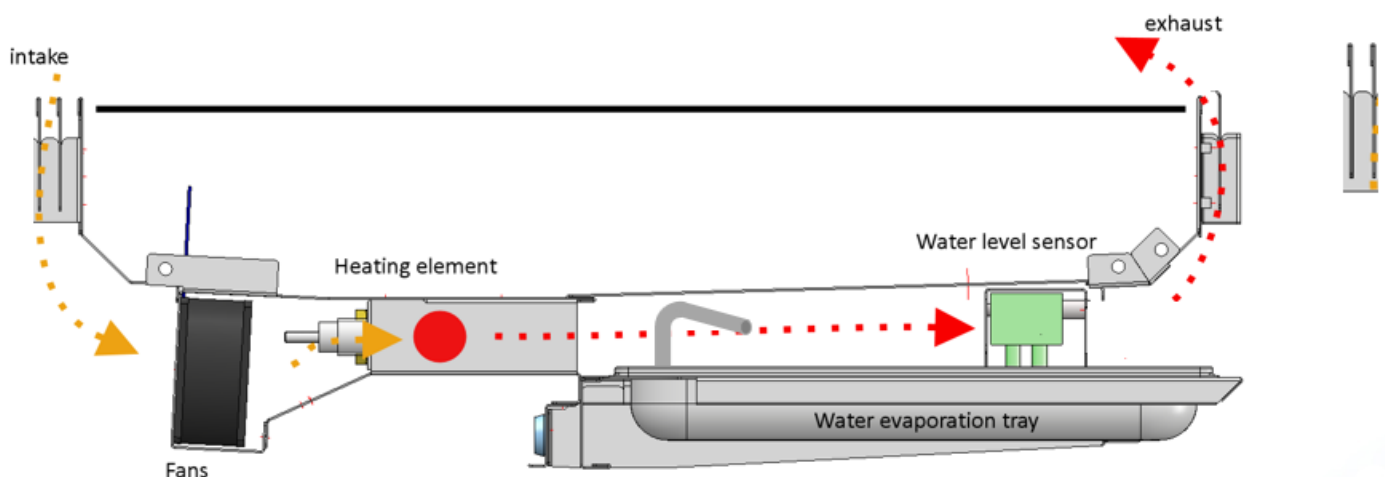
To make sure the cabinet is installed, operated and serviced in a safe manner, the instructions provided by the manufacturer should be adhered to at all times.

The cabinets can also be supplied with or without under frame to be installed into an existing counter top.

Heating in hot full-serve units is achieved by means of a finned heating element in combination with hot-air blowers. The blower fans suck air on the intake side, blowing this air along the heating element causes the air to heat up.

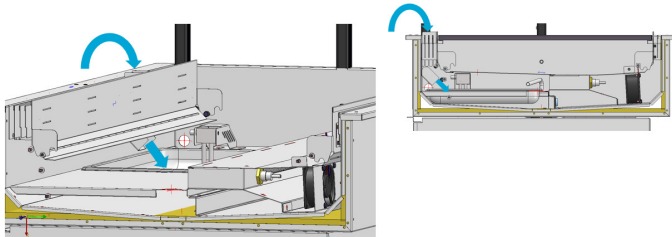
To prevent products from drying, humidification is applied by means of a water tray underneath the hot air flow. Hot air holds more moisture. The moist hot air is blown into the unit, creating a higher humidity inside the “closed” unit.

Serve over models can be fitted with an optional humidification system in the form of a passive water tray or an independently controlled boiler type system (which requires a permanent water supply and drain).

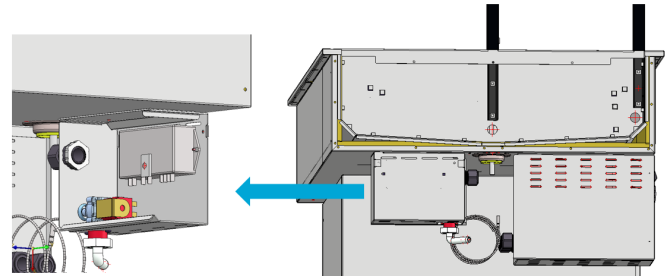


Filling of the water tray can be done either by hand, or automatically. For the automatic filling system, an additional electrical box is implemented which controls the filling process.

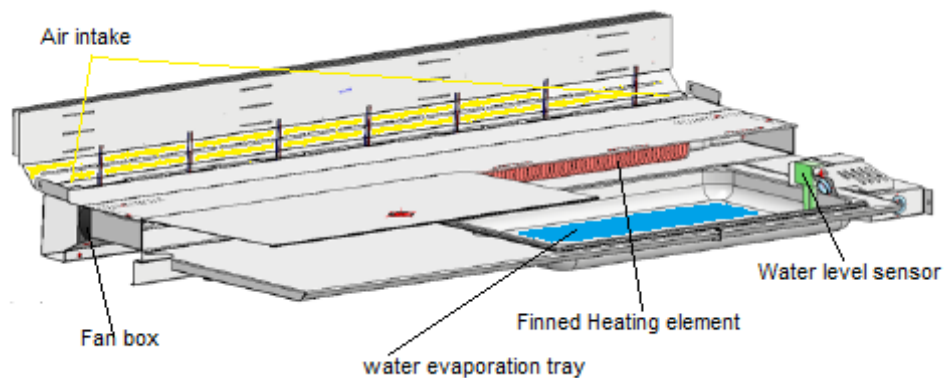
Hand filling system



Automatic filling system



Complete build up structure of the MCC hot Full serve



Hot air flow Full Serve



3.0 Unpacking

3.0 Start to unpack



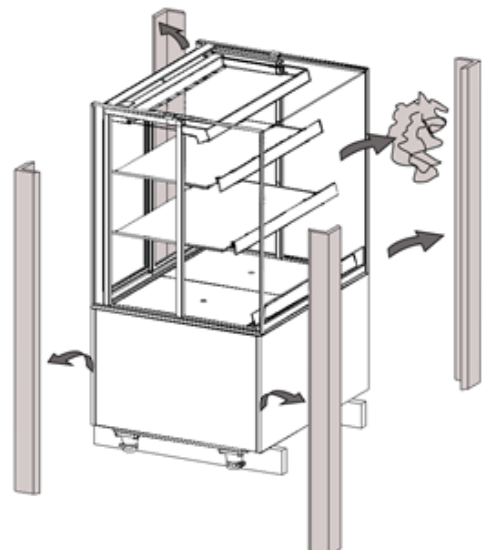
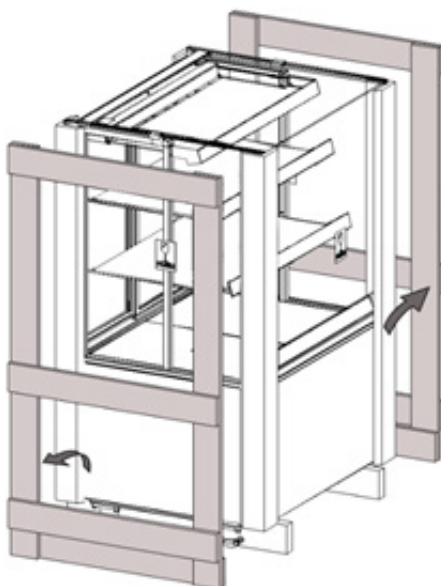
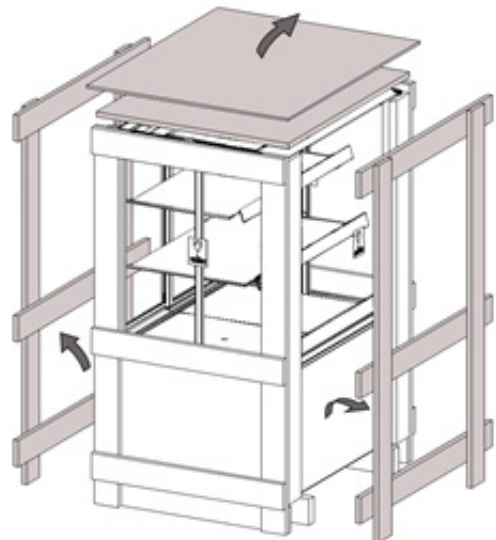
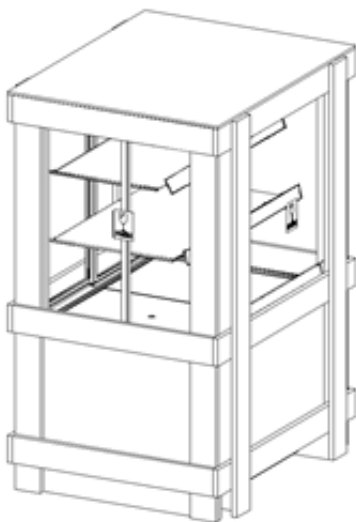
All packing materials used for this unit are suited for recycling.

Before and during unpacking, check the state of the unit. In case of damage, photograph the damage, store the packing material, and contact the transporter as soon as possible but at the latest within fifteen working days after receiving the goods.

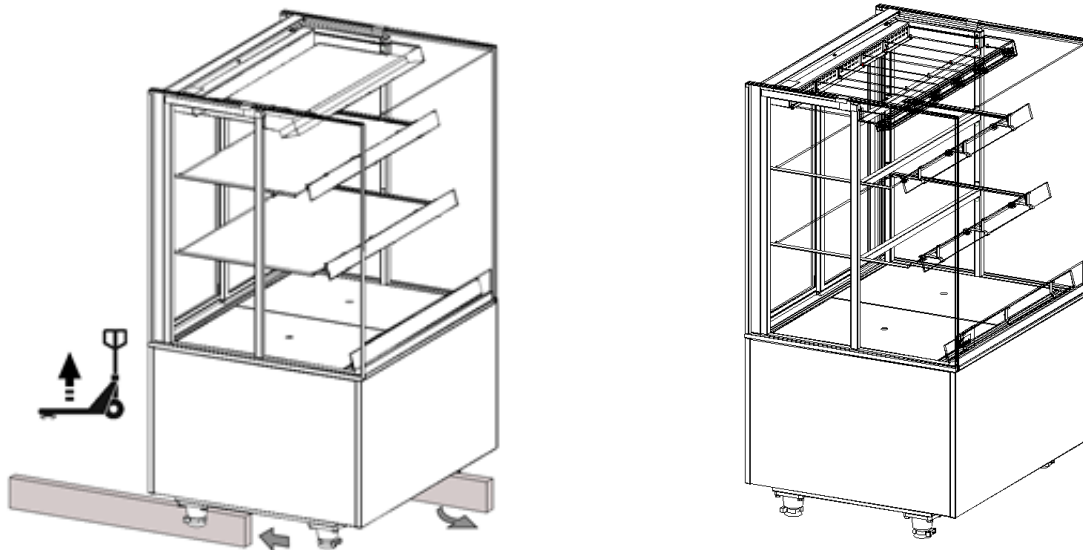
3.1 Unpacking the unit

The MCC is placed inside a crate during transport, take the following steps to unpack.

1. Remove the top crate pane and foam.
2. Remove the front and rear boards.
3. Remove both side boards.
4. Lift the unit from the support beams using a pallet truck or forklift.
5. Remove the supporting beams.
6. Observe the safety and warning signs.

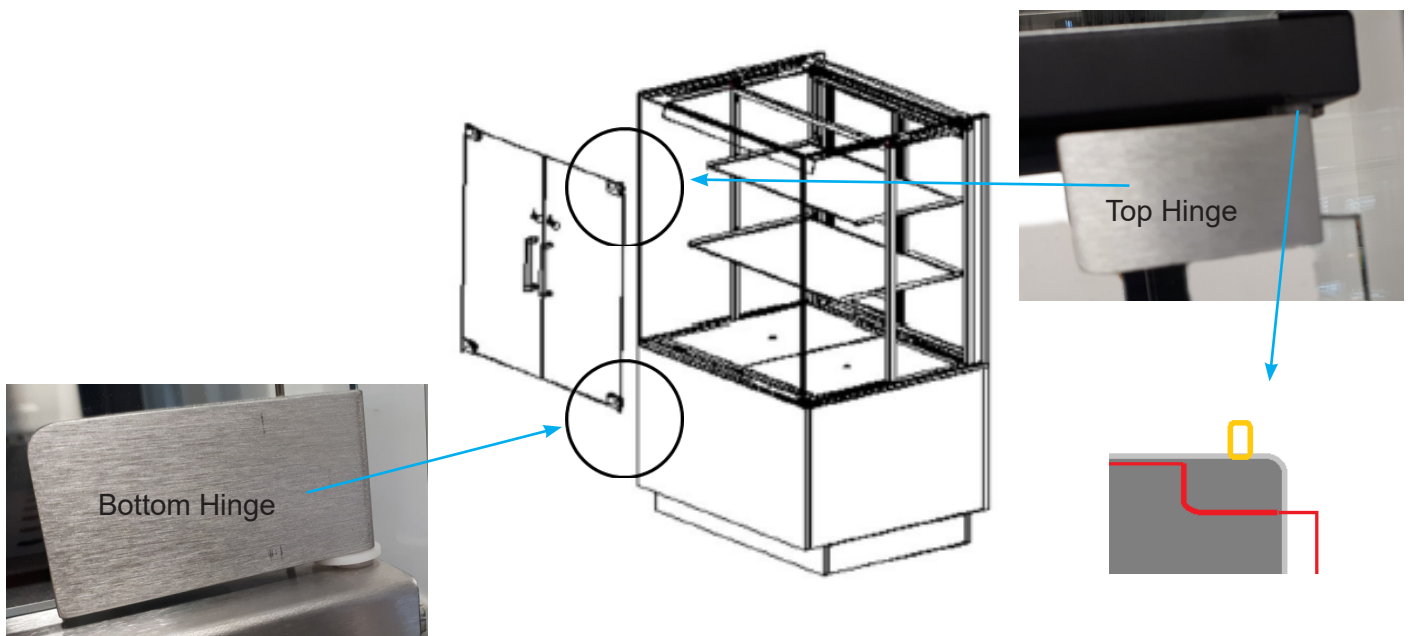


Refer to User manual for installation procedure



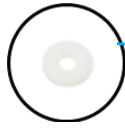
3.2 Mounting of optional front doors.

There are 2 different heights of plastic washers to align the height of the front doors.
Position the doors with the handles to the outside and with the warning sticker above the handle.

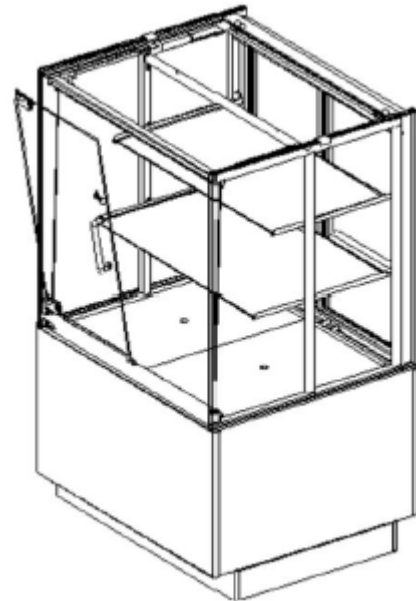
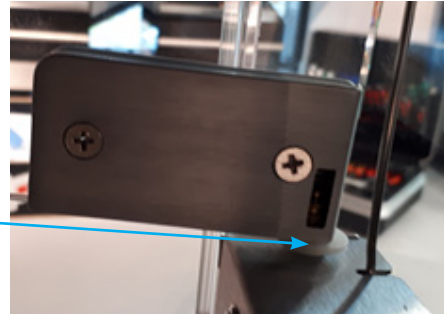
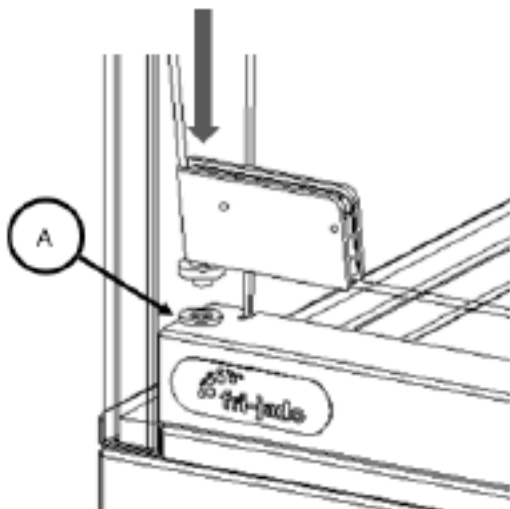


Assy front door MCC 90 SS = 9380104 Complete set to order = 9389832

Put the thick or thin plastic washer (depending on leveling) on the bottom hinge pin of the door. Do this at all doors.

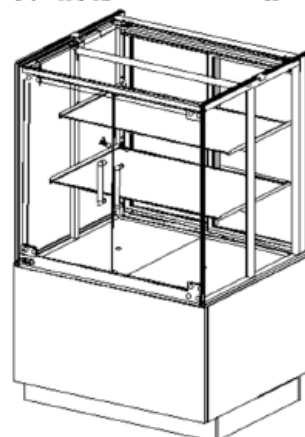
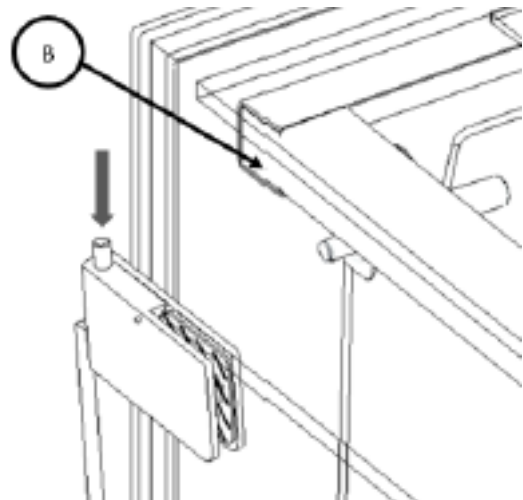
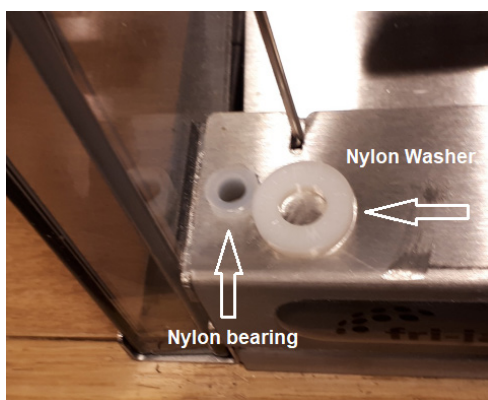


Place the hinge pin with the nylon washer on in the bottom hole (A). Keep the door in a tilted position during this action.



Press the hinge pin at the upper side downwards. Turn the door in a 'vertical' position so the upper hinge pin will align with the upper hole. Release the hinge pin into the upper hole (B).

Be sure inside the hole a nylon bearing is placed, in the bottom holes as well as in the top holes.



If both hinge pins are correctly clicked into the bottom and upper hole, the door is mounted correctly.

Adjusting the height of the doors

To adjust the doors in height after placement,
Loose the mounting screws of the hinge a little.

If loose, the glass can be moved slightly inside
the hinge assembly



4.0 Installation

4.10 Installation and positioning



WARNING

Cold units: The propane refrigerant is highly flammable.
All safety precautions must be followed.



WARNING

Position the unit on a flat and horizontal surface.
temporarily inclined plane of maximum 5° is allowed.

- Place the unit level on a sufficiently sturdy floor.
- Keep the weight of the unit in mind.
- Use a level-ling instrument to level the unit by adjusting the unit's legs.
(Refer to next page)
- MCC cold: Please take notice of label with minimum space required
- Be sure that the personnel have sufficient room to work with the unit.
- Keep a distance of at least 150 mm (6 inch) between the back wall and the unit.
- Do not position a unit near a doorway, a ventilation device or a refrigerator in order
to avoid any negative effects on the unit's operation by a cold airflow.

The unit is designed for a maximum draft of 0.2 m/s (0.65 ft./sec).

- Do not place the unit into direct sunlight.
- Be sure that the ambient temperature for cold models remains between
10 °C - 25 °C (50 °F - 77 °F) and that the relative air humidity remains below 60%.
Cold units have been designed to operate at climate class 3 (according ISO 23953).
- Hot units should not be used below 20 °C (68 °F) ambient temperatures.
- Keep the plinth free from any obstacles to ensure ventilation.



Warning Electrical shock Hazard

- Grounding instructions:
Only connect the appliance to an alternating current, to a grounded wall socket, with a mains voltage in accordance with the information indicated on the type plate of the appliance.
- It is the consumer's responsibility to make sure the electrical installation conforms with current national and local codes and wiring regulations.
- It is not allowed to use a multi plug or extension cord. Such can result in fire, electrical shock, or personal injury.



Failure to follow these instructions can result in death or serious injury.

4.1 Applying price rail

Optional price rails for Hot self-serve models can be mounted using the front screws underneath each of the Hot SS shelves. Do not loosen this screws entirely!

Price rails for serve over models can be mounted on the air inlet grill and on the glass shelves.



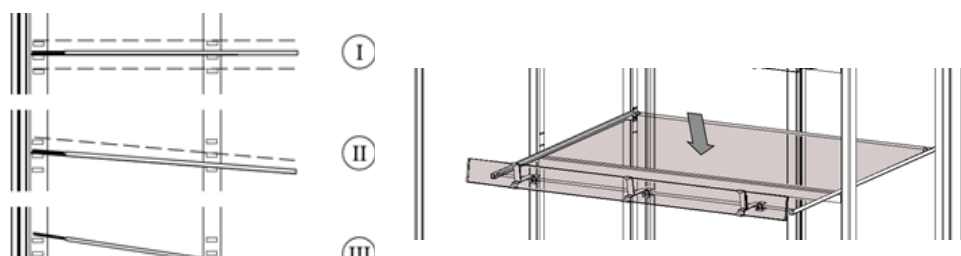
Cold self-serve models are supplied with price rails as standard.
Price rail is integrated part of air guidance inside the unit.
Removing the price rail will result in a bad functioning MCC

4.2 Repositioning the glass shelves on Cold FS/SS models & Hot FS models



The glass shelves can be positioned at three horizontal levels (I), or one of three angled positions (II and III) by changing the positions of the LED-armature with respect to the rear.

Examples:



For repositioning details refer to User manual

4.3 Hot SS models



The glass shelves can be positioned at two angled positions (0° and 3°).
Refer to user manual.



Hot FS models

Water connection for automatic fill, Refer to user manual 3.6.1

Water Manually fill, Refer to user manual 3.6.2

Unit	GN tray size	Max. reservoir water level	Reservoir water level when alarm activates	Max. water volume to add (only when alarm is on!)
MCC-60 H FS	GN 1/2 40mm	2,5L (0.66 gallon)	0,75L (0.19 gallon)	1,75L (0.46 gallon)
MCC-90 H FS	GN 1/1 40mm	5L (1.32 gallon)	1,5L (0.39 gallon)	3,5L (0.92 gallon)
MCC-120 H FS	GN 1/1 40mm	5L (1.32 gallon)	1,5L (0.39 gallon)	3,5L (0.92 gallon)

4.4 Plateau Options

On all MCC models, except the MCC Hot SS, the bottom presentation deck can be set at a variety of horizontal levels.



Refer to user manual

4.5 Solid back option

On request the unit can be ordered having a solid back in stead of sliding doors

4.6 First use

Before starting to use the unit, clean the inside thoroughly with mild detergent and water. After cleaning it wipe it with a cloth moistened with clean water to remove residual detergent, then dry the entire unit.

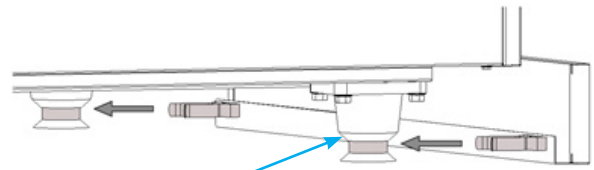
4.7 Level the unit

Place the unit on a sturdy, flat surface and level the unit by adjusting the unit's legs (max. +15mm).

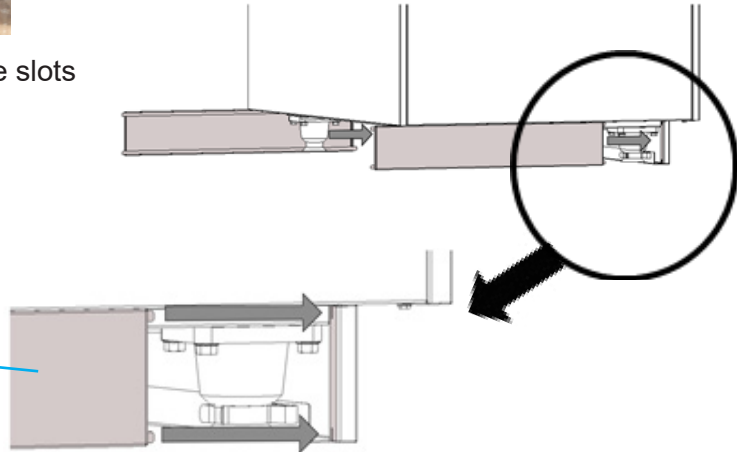
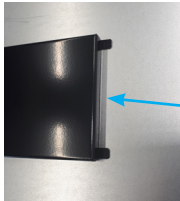


4.8 Mounting the plinths

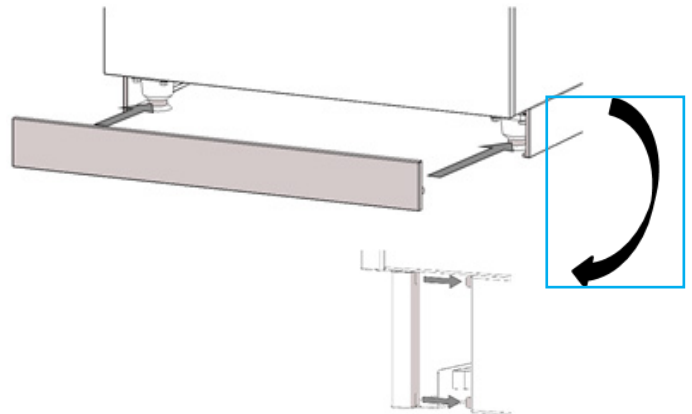
Place the rear plinth by attaching it to both rear Adjustable legs using its two clamps.



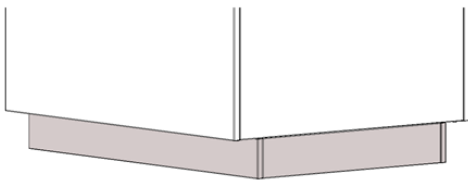
Insert the pegs of both side plinths into the slots of the rear plinth.



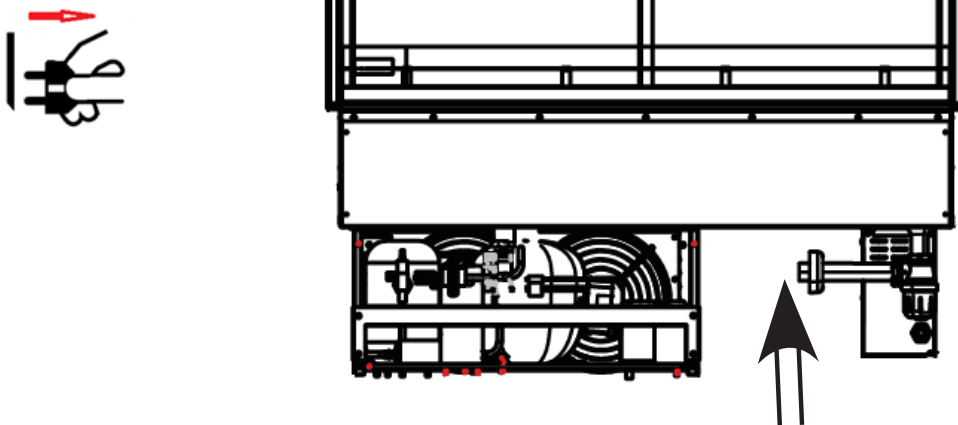
Secure the side plinths by inserting the pegs into the slots of the front plinth, while clamping the front plinth to the front adjustable legs.



Result



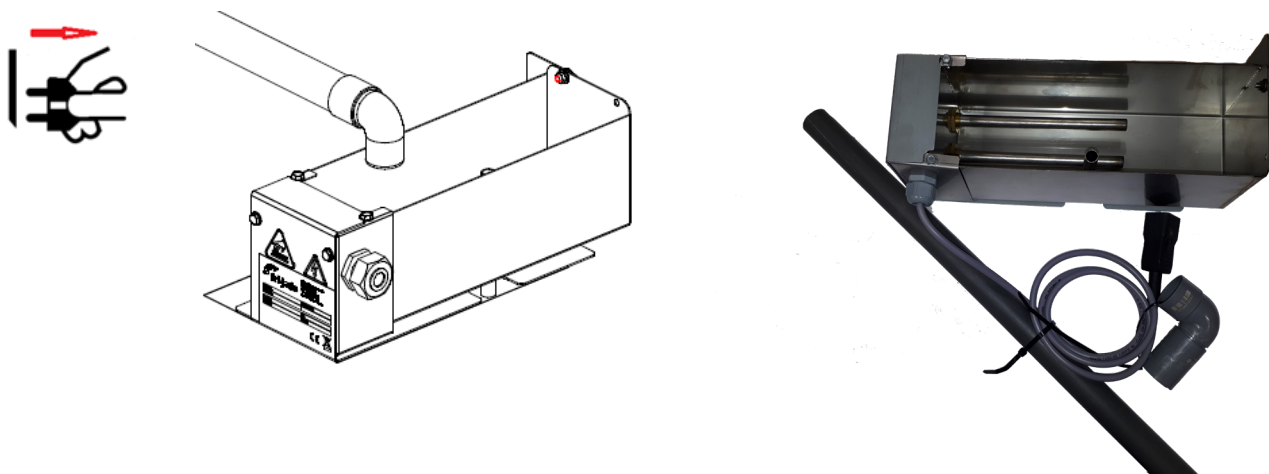
4.9 Connecting drain (Cold unit only)



During the installation process of the MCC Cold, a drain connection must be made. Connect the drain of the unit, onto the main drain of the building using PVC piping (not included).

If no drain connection can be made, an evaporation tray must be placed.

4.10 Installation of the evaporation tray (including specification)



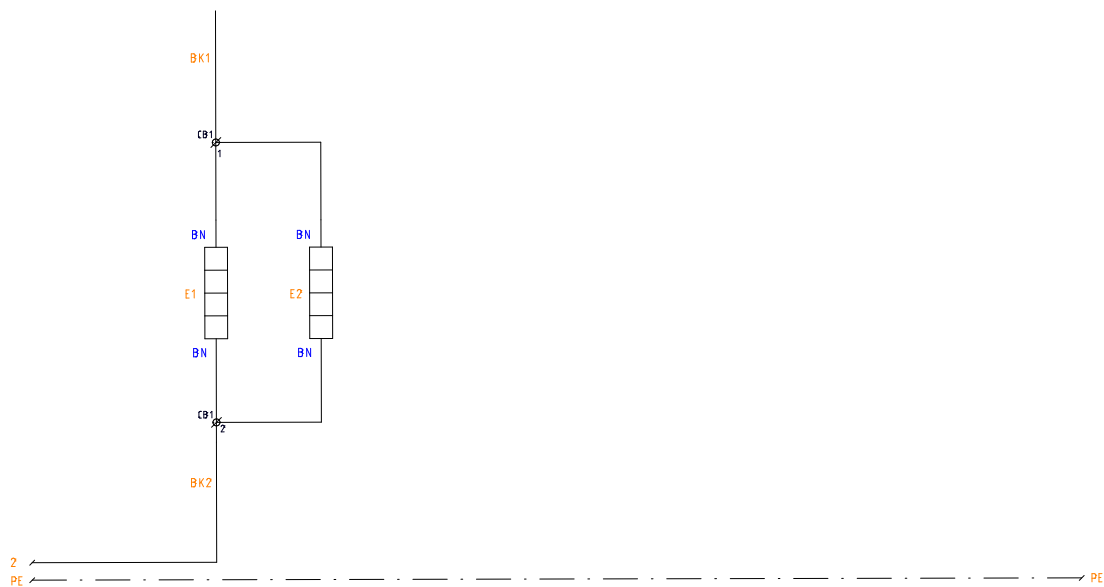
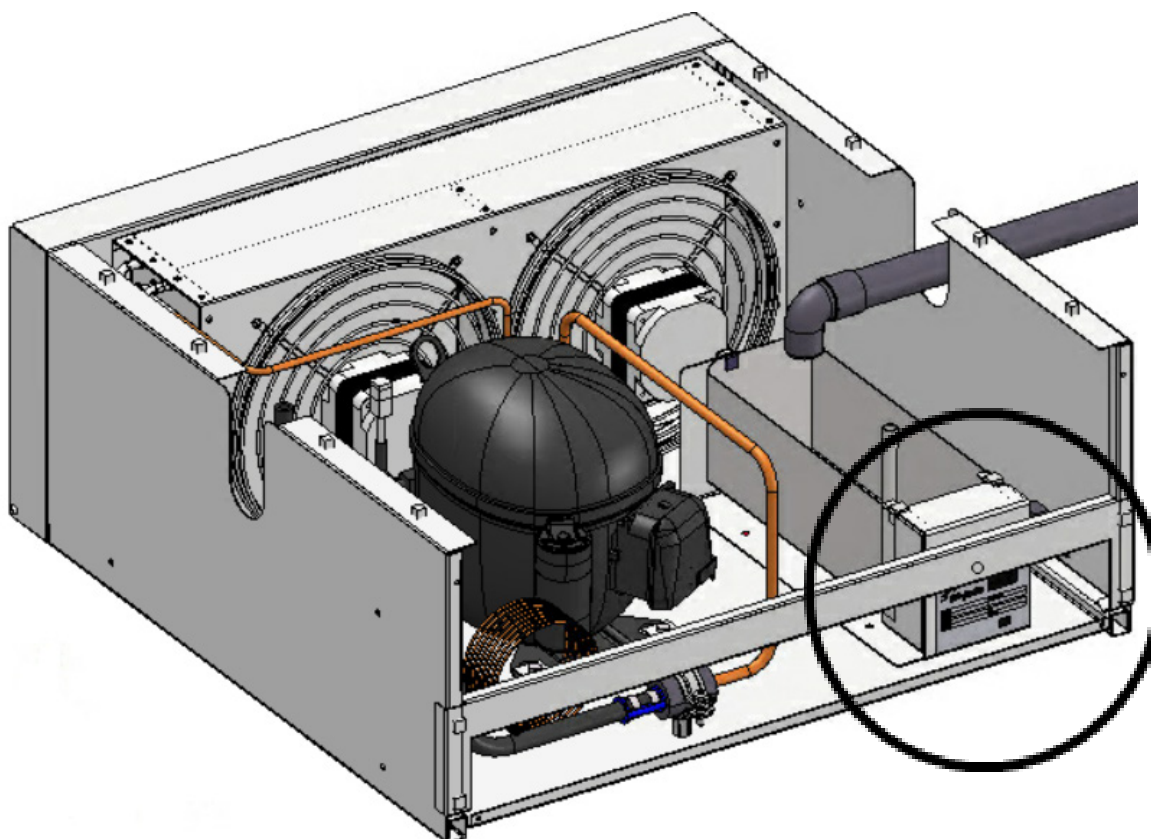
1. Turn of unit, and pull power plug from wall outlet.
2. Open back panel of unit (refer 11.16)
3. Extend drain of unit, using the delivered drain pipe.
Cut pipe on required length (depending on measurements of unit).
4. Put angle piece on end of drain pipe, exactly above the evaporator tray.
5. Place evaporation tray in position and mount this with two bolts and nuts



Evaporation tray must be placed with the serial number label faced to the back of the unit. Label must remain visible (readable) (see drawing below)

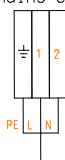
6. Connect power cord of evaporator tray to outlet on electrical box of MCC unit.

Circuit diagram evaporator tray



EVAPORATION HEATERS

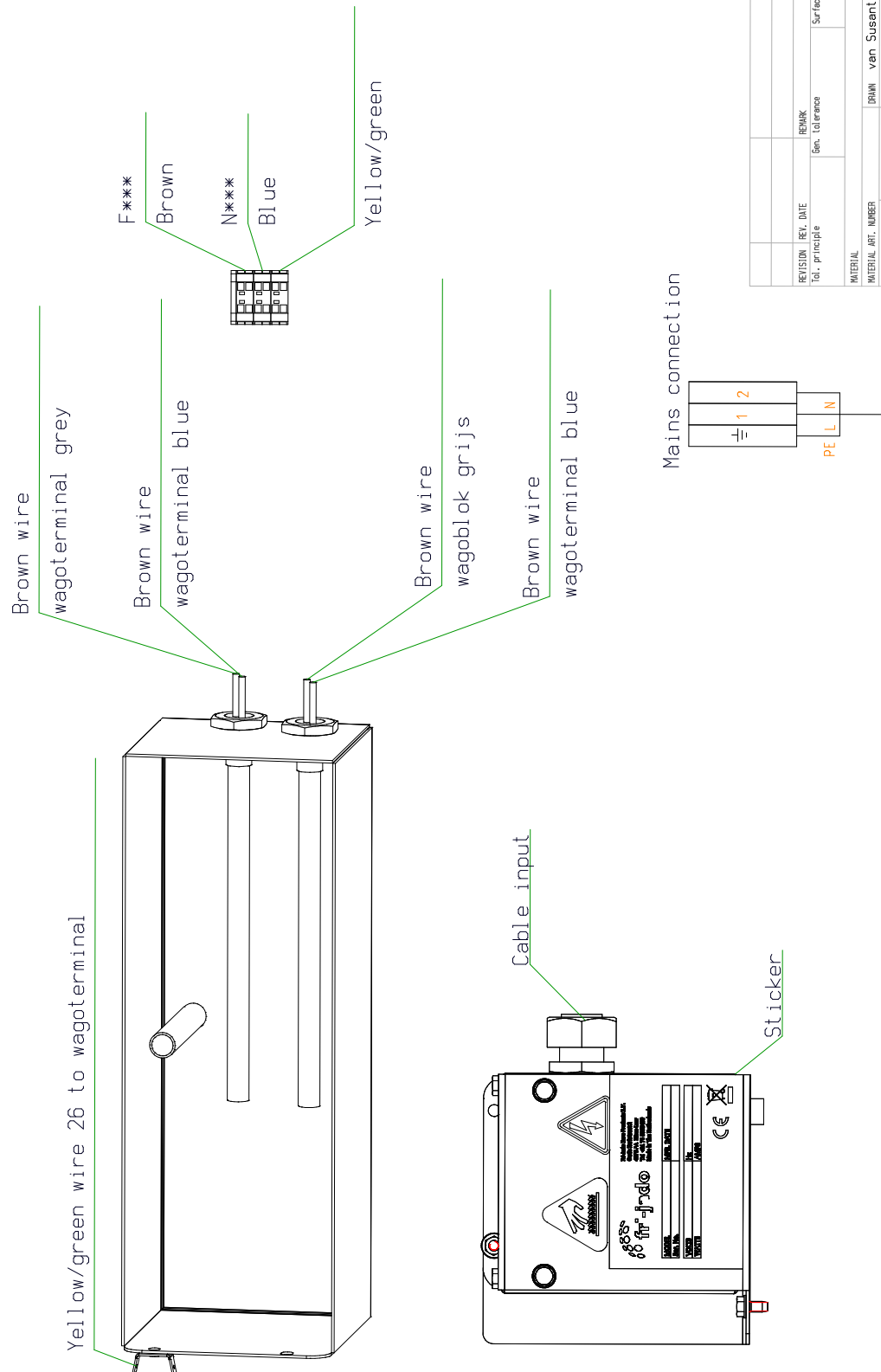
Mains connection



BN - BROWN
BU - BLUE
GN - GREEN
RD - RED
YE - YELLOW

REVISION	REV. DATE	REMARK			
SCALE 1:1		Gen. tolerance		Surface treatment	
				Secm. tolerance	
MATERIAL					
DRAWING NO. NUMBER		DRAWN: van Susante Adelin		APPROVED:	
UNIT mm		STATUS In Progress		DATE 20.10.2020	
SCALE 1:1		PROJECT 938		DRAWING NUMBER 9380801	
REVISIONS					
DESCRIPTION					
Circuit diagram Evaporation tray		REV. NUMBER		REV. SIZE	
		9380801		A3	

Wiring diagram evaporator tray



BN - BROWN
BU - BLUE
GN - GREEN
RD - RED
YE - YELLOW

REVISION	REV.	DATE	REMARK	Gen. tolerance	Surface treatment	Gen. tolerance
101 - principle						
MATERIAL						
PARTIAL ART. NUMBER	101 - principle	DATE	29.10.2020	STATUS	In Progress	APPROVED
UNIT	mm	SCALE	1:1	PROJECT	938	DRAWING NUMBER
DESCRIPTION	Wiring diagram Evaporation tray					
ART. NUMBER	9380802	REV.		SIZE	A3	

4.11 Intended use

Self-serve models have been designed solely to keep packaged products cold or warm and to display them.

Serve over models can be used for unpacked foodstuff as well.

Any other use will not be regarded as intended use.



The manufacturer accepts no liability whatsoever for loss or injury caused by failing to strictly adhere to the safety guidelines and instructions in this manual or due to carelessness during installation, use, maintenance and repair of the unit referred to in this manual and any of its accessories.

Use the unit in perfect technical condition only.

Cold Units

Cold units are factory programmed to achieve a product temperature $\leq 5^{\circ}\text{C}$ (41°F) at an ambient of 25°C (77°F) with a relative humidity of 60% by a max. draft of 0.2 m/s (0.66 ft/sec). This corresponds with a 3M1 classification according to ISO 23953:2015.

The set temperature can be changed from -6°C to $+0^{\circ}\text{C}$ (21.2°F to 32°F).

Switching-on the unit

- Switch the cooling on by means of the temperature controller.
- Let the unit cool for approx. 30 minutes.

Loading the unit

- Only load products of which the temperature is maximum 4°C (39.2°F).
- The maximum loading height is 50mm (2 inch) below the bottom of the shelf/air guide above.
- The maximum carrying-capacity per shelf is 30 kg/m (66 lbs/m), by equal load.

Hot Unit

The unit is set at 65°C (149°F) intake air temperature for the self-service models, and 80°C (176°F) for the serve over model.

If required this temperature can be adjusted to some degree.

At a ambient temperature of 20°C (68°F) and an initial core temperature of 85°C (185°F) these factory settings of the unit's temperature ensure a constant core temperature of at least 63°C (145.5°F) for 4 hours.

Switching-on the unit:

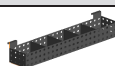

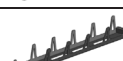




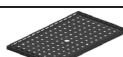
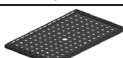
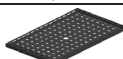
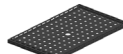
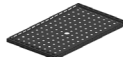
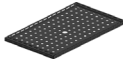
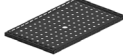
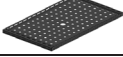
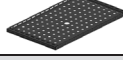

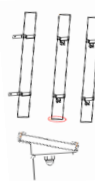





- Switch the heating on.
- Preheat the unit for approx. 30 minutes.
- Switch on the lighting.

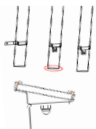





Loading the unit:



- Only place products that have a core temperature of at least 85°C (185°F).
- Only package the hot products in bags or containers that are suitable for this purpose.
- To ensure a good contact with the heated trays, only place a single layer of products.
- The maximum loading height is 50mm (2 inch) below the bottom of the shelf/air guide above.
- The maximum carrying-capacity per shelf is 30 kg/m (66 lbs/m), by equal load.

4.1 Accessories

Accessoires	MCC Hot Self Serve	Compatibility		
Condiment holder	9380198	MCC 60/90/120		
Merchandising rack 410 mm - Top Shelf	9384463	MCC 60/90/120		
Merchandising rack 475 mm - Middle Shelf	9384473	MCC 60/90/120		
Merchandising rack 550 mm - Bottom Shelf	9384475	MCC 60/90/120		
Shelf divider 410 mm - Top Shelf	9384505	MCC 60/90/120		
Shelf divider 475 mm - Middle Shelf	9384503	MCC 60/90/120		
Shelf divider 550 mm - Bottom Shelf	9384505	MCC 60/90/120		
Shelf insert 250x410 mm - Top Shelf	9384534	MCC 60		
Shelf insert 250x475 mm - Middle Shelf	9384535	MCC 60		
Shelf insert 250x550 mm - Bottom Shelf	9384536	MCC 60		
Shelf insert 400x410 mm - Top Shelf	9384461	MCC 90		
Shelf insert 400x475 mm - Middle Shelf	9384470	MCC 90		
Shelf insert 400x550 mm - Bottom Shelf	9384471	MCC 90		
Shelf insert 550x410 mm - Top Shelf	9384537	MCC120		
Shelf insert 550x475 mm - Middle Shelf	9384538	MCC120		
Shelf insert 550x550 mm - Bottom Shelf	9384539	MCC120		
Accessoires	MCC Hot Self Serve	MCC Hot Self serve humidified	MCC Hot Full serve	
Price rail set MCC SS 60	9389801			
Price rail set MCC SS 90	9389802			
Price rail set MCC SS 120	9389803			
Price rail set MCC FS 60		9389811	9389811	
Price rail set MCC FS 90		9389812	9389812	
Price rail set MCC FS 120		9389813	9389813	
Bumper MCC 60	9380206	9380206	9380206	
Bumper MCC 90	9380207	9380207	9380207	
Bumper MCC 120	9380205	9380205	9380205	
Castor set	9389851	9389851	9389851	
Total height of MCC + 23 cm				
Accessoires	MCC Cold Self Serve	MCC Cold Self serve with doors	MCC Cold Full serve	
Price rail set MCC 90	9389812	9389812	9389812	

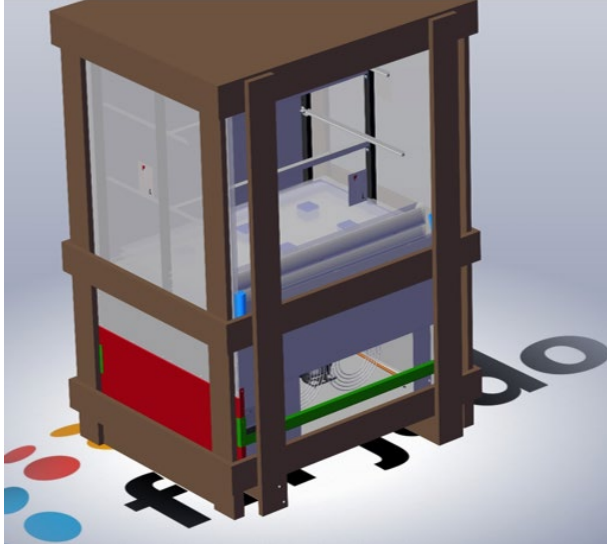
Price rail set MCC 120	9389813	9389813	9389813	
Price rail set MCC 150	9389814	9389814	9389814	
Evaporation tray	9389820	9389820	9389820	
Bumper MCC 90	9380207	9380207	9380207	
Bumper MCC 120	9380205	9380205	9380205	
Bumper MCC 150	9380208	9380208	9380208	
Castor set	9389852	9389852	9389852	
Total height of MCC + 23 cm				

9389831	Ass. Front door set 60
9389832	Ass. Front door set 90
9389833	Ass. Front door set 120
9389834	Ass. Front door set 150

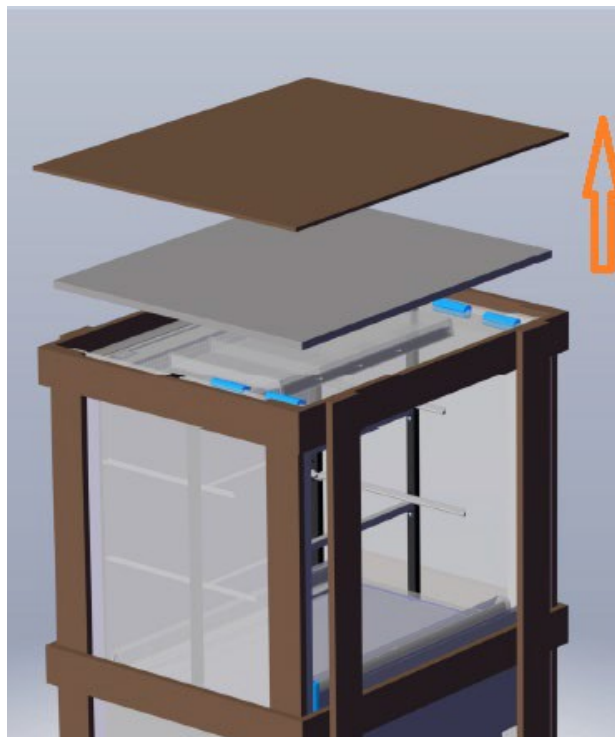
5.0 MCC Drop-in

For installation guide, refer 5.6

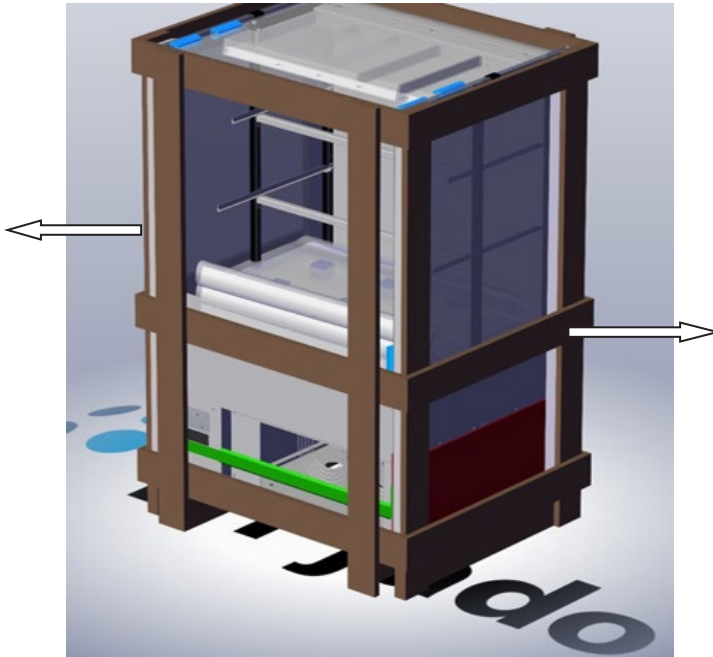
The MCC Drop in will be delivered, packed in a crate



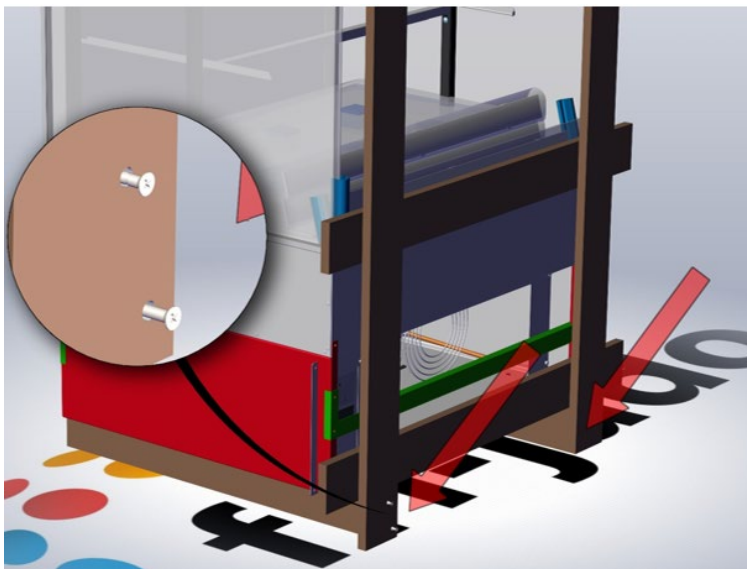
Start unpacking by removing top cover



Remove short sides first (Left and Right), by unscrewing them.

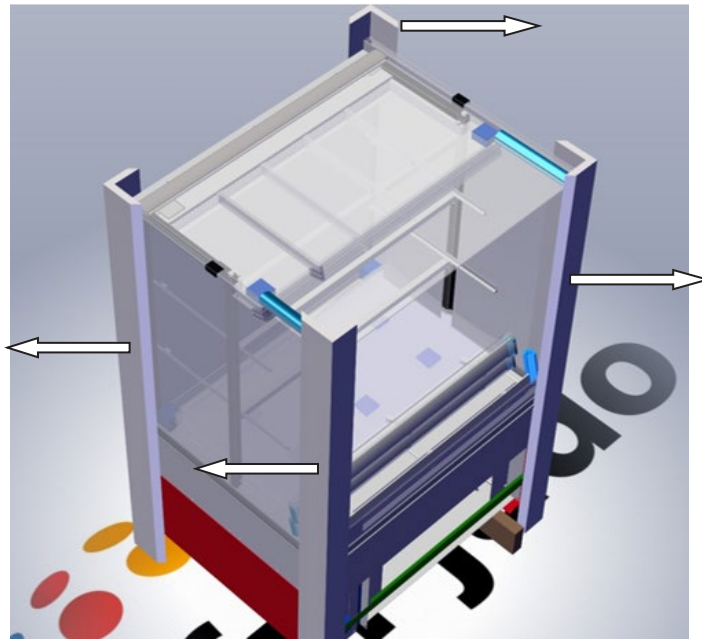


Next, remove front and back panel, they are also screwed onto the support beams under the unit.



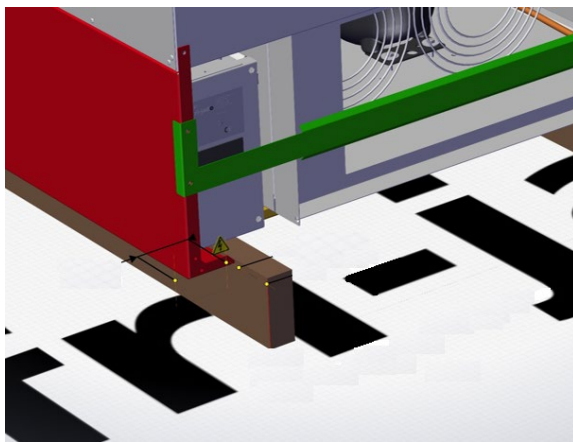
Keep the support beams for further use.

Remove wrapping foil and remove corner pieces EPS foam.

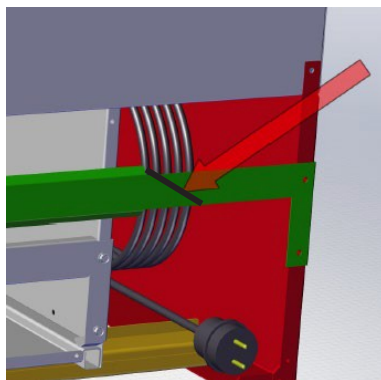


Unit is placed on a metal sub frame for transport purposes. Frame is kept together with metal strip at the front and the back.

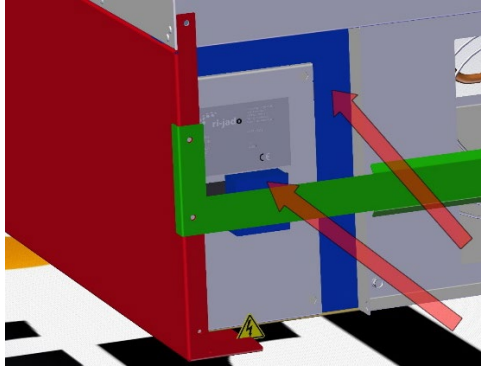
Keep strip in place during placing process. Keep wooden support beams for further usage.



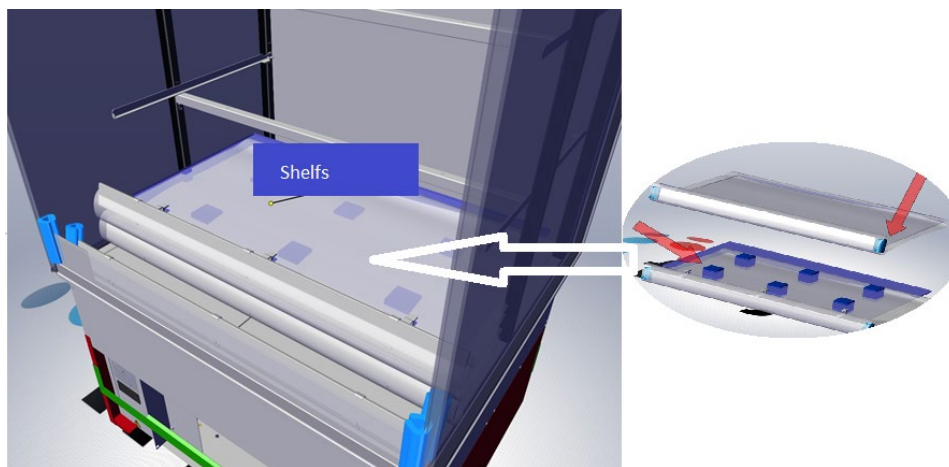
After lowering the cabinet into the cut-out in the counter top:
Remove tie-wrap which is holding the power cord.



Remove foam which holds the electrical box

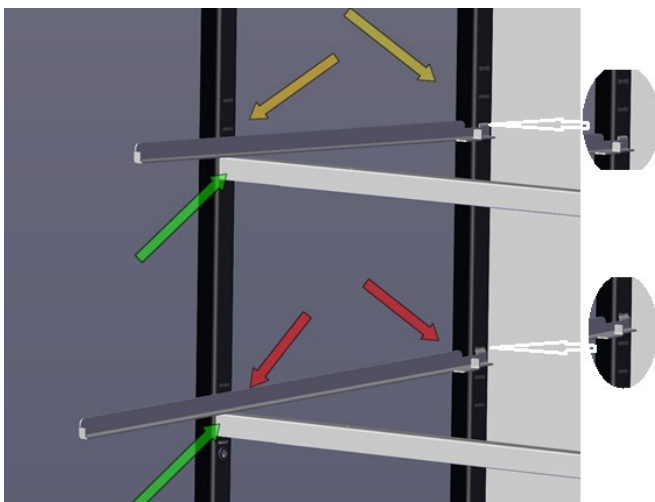


Remove documents and glass shelves from unit.



After placing cabinet in final position, remove tie-wraps which hold the shelf holders.

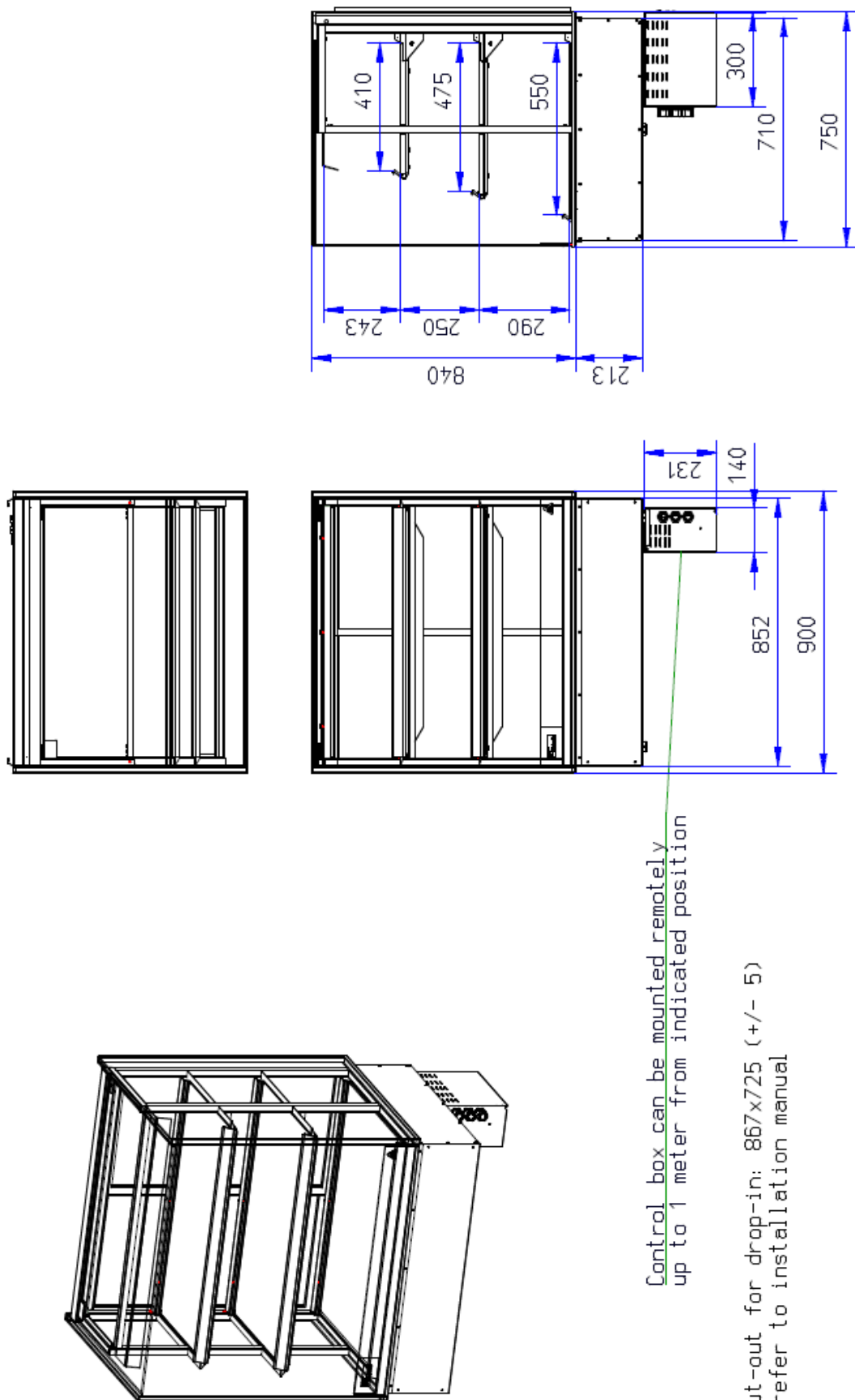
Make sure the shelf holders are placed in the required sleeve, for the wanted angled or straight position of the shelves.



Shelf rails of top shelf should be placed in lowest position.

Shelf rails of middle shelf should be placed in highest position

5.1 MCC 90 Drop-in Dimensions Self Serve



5.2 MCC Cold Drop-in Specifications Self Serve

Specification	Unit	Model			
		60-3	90-3	120-3	150-3
General					
Length incl. end walls	mm	n.a.	900	1200	1500
Length excl. end walls	mm	n.a.	850	1150	1450
Depth	mm	n.a.		750	
Height on stand	mm	n.a.		1420	
Height above worktop	mm	n.a.		840	
Underframe height	mm	n.a.		580	
Plinth height	mm	n.a.		100	
Drop-in cut out (W x D)	mm	n.a.	867 x 725 (+/- 5)	1167 x 725 (+/- 5)	1467 x 725 (+/- 5)
Electronics panel cut out (W x H)	mm	n.a.		153 x 244 (+/- 5)	
Weight (net)	kg	n.a.	175	202	229
Weight (gross)	kg	n.a.	207	240	273
Packaging dimensions (W x D x H)	mm	n.a.	1020 x 870 x 1460	1320 x 870 x 1460	1620 x 870 x 1460
Nr. of presentation levels		n.a.		3	
Dimensions bottom shelf	mm	n.a.	590 x 800	590 x 1100	590 x 1400
Dimensions middle shelf	mm	n.a.	475 x 800	475 x 1100	475 x 1400
Dimensions top shelf	mm	n.a.	410 x 800	410 x 1100	410 x 1400
Shelf display area	m2	n.a.	1,18	1,62	2,07
Usable display volume	l	n.a.	258	355	452
Drain diameter	mm	n.a.		32	
Minimum room floor area	m2	n.a.	11,00	14,35	17,70
Minimum air inlet surface area	cm2	n.a.	1100		1250
Minimum air outlet surface area	cm2	n.a.	500	700	900

Specification	Unit	Model			
		60-3	90-3	120-3	150-3
Performance					
Climate class*		n.a.		3	
Classification*		n.a.		M1	
TDA*	m2	n.a.	1,18	1,60	2,02
TEC at 3M1*	kWh/day	n.a.	12,8	t.b.d.	t.b.d.
TEC/TDA at 3M1*	kWh/day/m2	n.a.	10,85	t.b.d.	t.b.d.
Energy class at 3M1*		n.a.	E	t.b.d.	t.b.d.
TEWI**	kg of CO ₂	n.a.	27023	t.b.d.	t.b.d.
Sound pressure	dB(A)	n.a.		<70	
Minimum ambient temperature	°C	n.a.		17	
Maximum ambient temperature	°C	n.a.		25	
Maximum relative air humidity	%	n.a.		60	

* According to ISO 23953, open front, test type 1 (24 hours without night cover)

** Total equivalent warming impact according to EN 378, based on 10 years of operation at climate class 3, 0,295 kg CO₂/kWh and a leakage rate of 1% per year

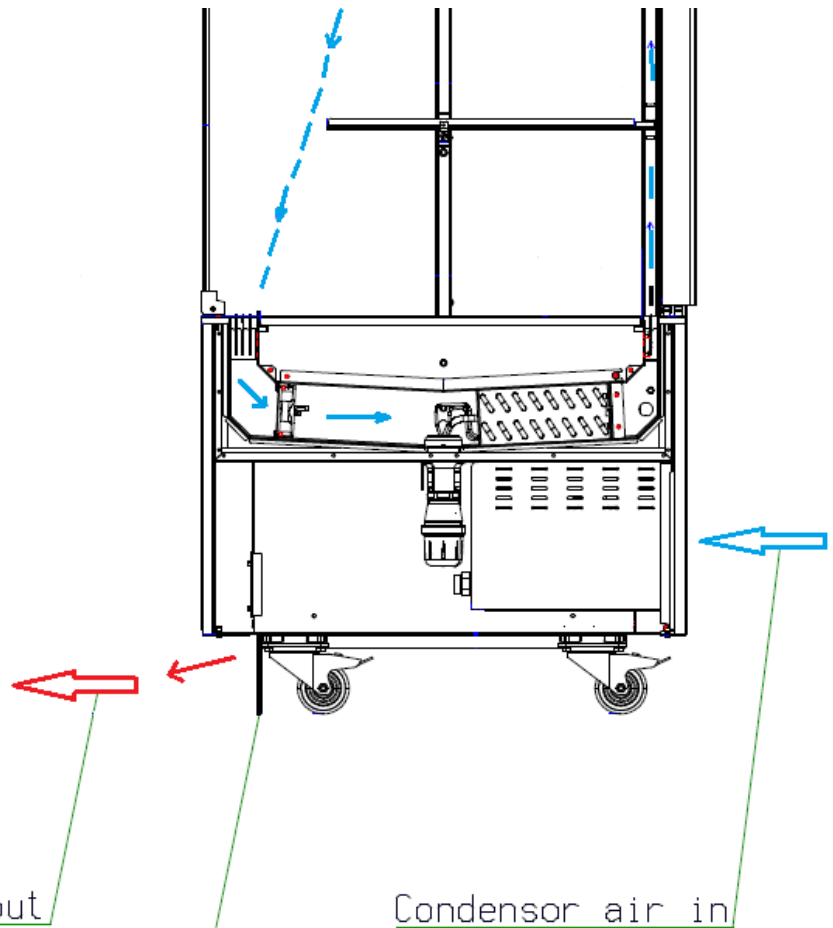
Note:

Airflow inside the cabinet is crucial.

Air intake and Air outlet are not allowed to interfere.

A physical barrier **must be** placed in between the two air flows.

Air inlet and air outlet surfaces must comply with the specifications, (see previous page)



Flexible floor seal front or back
to prevent air circulation

5.3 MCC Cold Drop-in Requirements Self Serve



Important remark before installation:

When installing Front doors on the drop in unit, Please follow Front door installation procedure, until step in which the glass is put in.

Placing the doors in a later stage, means the unit must be lifted again.

Installation must comply with:

- No spark-forming components or components with a high surface temperature (according to IEC 60079-15) may be present in the substructure/counter where the counter is placed
- The refrigeration components must not be directly accessible by unauthorized personnel (according to IEC 60335-2-89)
- Make sure that the counter is still easily accessible for service after installation by means of a removable hatch.
The condenser must be cleaned regularly
- Keep enough space on the back of the unit, to enable servicing which implies the back panel of the counter can be removed
- Provide enough space to place the counter with a stacker.
Maintain the dimensions and minimum height as indicated in the installation manual (also applies to hot units)
- Provide adequate ventilation; keep the minimum air inlet and outlet opening as indicated in the installation manual.
Place baffles to prevent hot exhaust air from being sucked back through the condenser
- Make sure that the room/shop in which the furniture is placed meets the minimum dimensions as indicated in the installation manual
- All warning signs/labels, minimum floor area label (Cold unit) and data plate must remain visible after installation
- Operation of the appliance must be accessible.
- Additional ventilation: prevent gas accumulation due to leakage.
- Avoid high temperatures (> 200 ° C) in the vicinity of the furniture



Note:

Airflow inside the cabinet is crucial.

Air intake and Air outlet are not allowed to interfere.

A physical barrier **must be** placed in between the two air flows.

Air inlet and air outlet surfaces must comply with the specifications, (see previous page)

5.4 MCC Hot Drop-in Requirements Self Serve



Important remark before installation:

When installing Front doors on the drop in unit, Please follow Front door installation procedure, until step in which the glass is put in.

Placing the doors in a later stage, means the unit must be lifted again.

Installation must comply with:

- Make sure the counter is still easily accessible for service after installation by means of a removable hatch.
- Provide enough space to place the counter with a stacker.
Maintain the dimensions and minimum requirements as indicated in the installation manual.
- Provide adequate ventilation; keep the minimum air inlet and outlet opening as indicated.
- Make sure the room/shop[in which the counter is placed meets the minimum dimensions as indicated in the installation manual.
- All warning signs/labels, minimum floor area label and Data plate must remain visible after installation.
- Operation of the appliance must be accessible.

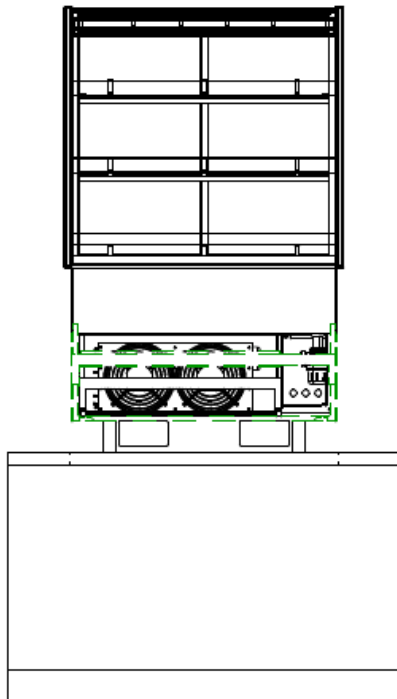
5.5 MCC Hot Drop-in Specifications Self Serve

Specification	Unit	Model		
		60-3	90-3	120-3
				150-3
General				
Length incl. end walls	mm	600	900	1200
Length excl. end walls	mm	550	850	1150
Depth	mm		750	
Height on stand	mm		1420	
Height above worktop	mm		840	
Underframe height	mm		580	
Plinth height	mm		100	
Drop-in cut out (W x D)	mm	567 x 725 (+/- 5)	867 x 725 (+/- 5)	1167 x 725 (+/- 5)
Electronics panel cut out (L x H)	mm		153 x 244 (+/- 5)	
Weight (net)	kg	152	180	208
Weight (gross)	kg	178	212	246
Packaging dimensions (W x D x H)	mm	720 x 870 x 1460	1020 x 870 x 1460	1320 x 870 x 1460
Nr. of presentation levels			3	
Dimensions bottom shelf	mm	550 x 500	550 x 800	550 x 1100
Dimensions middle shelf	mm	475 x 500	475 x 800	475 x 1100
Dimensions top shelf	mm	410 x 500	410 x 800	410 x 1100
Shelf display area	m2	0,72	1,15	1,58
Usable display volume	l	130	207	285
				n.a.

Specification	Unit	Model		
		60-3	90-3	120-3
				150-3
Performance				
TDA *	m2	0,78	1,21	1,64
TEC at climate class 0*	kWh/h	t.b.d.	1,70	t.b.d.
TEC at climate class 0 *	kWh/day	t.b.d.	40,80	t.b.d.
TEC/TDA at climate class 0*	kWh/day/m2	t.b.d.	33,72	t.b.d.
Sound pressure	dB(A)		<70	n.a.
Minimum ambient temperature	°C		20	n.a.
Maximum ambient temperature	°C		30	n.a.
Maximum relative air humidity	%		60	n.a.

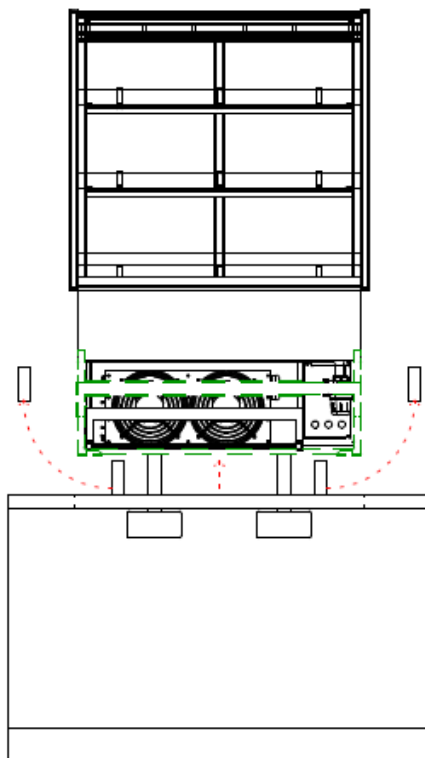
* According to ISO 23953

5.6 MCC Drop-in Installation (Self Serve)



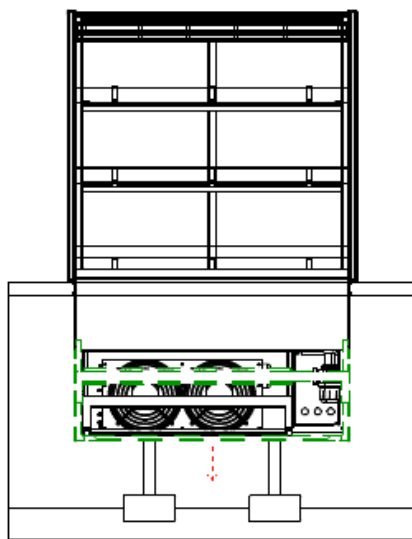
Step 1.

Position the cabinet above the cut-out in the counter top with a forklift and support it using the wooden beams supplied with the unit



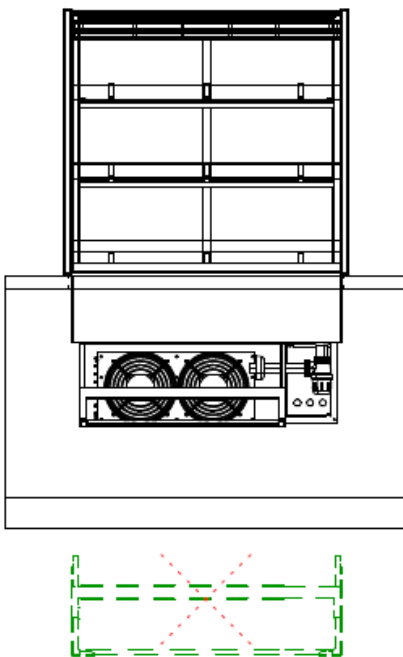
Step 2.

Lift the cabinet from below, using stable filler blocks and remove the wooden support beams



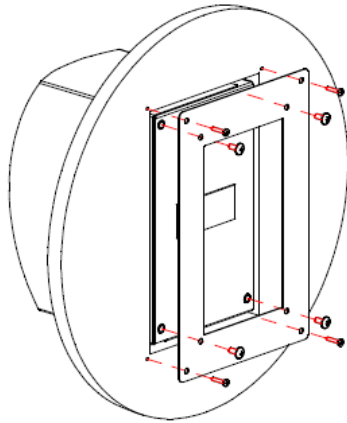
Step 3.

Apply sealant or a thin flexible foam seal around the cut-out in the countertop. Carefully lower the cabinet into the counter



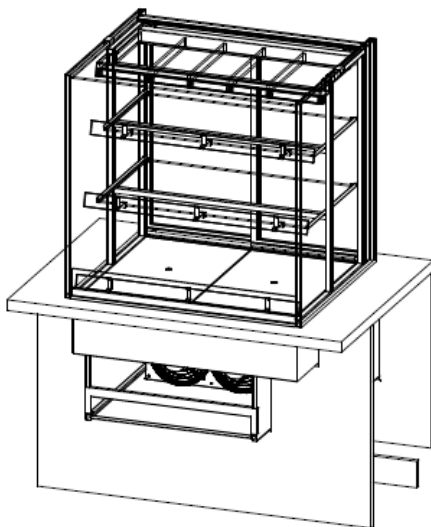
Step 4.

Remove and discard the metal transportation frame.



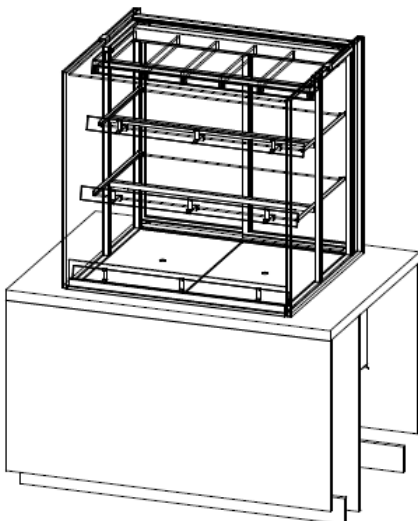
Step 5.

Install the control panel using the supplied mounting plate and screws. (up to 1 meter from the original position)



Step 6.

Install a partition panel to prevent recirculation of hot condenser air. (refrigerated models only)

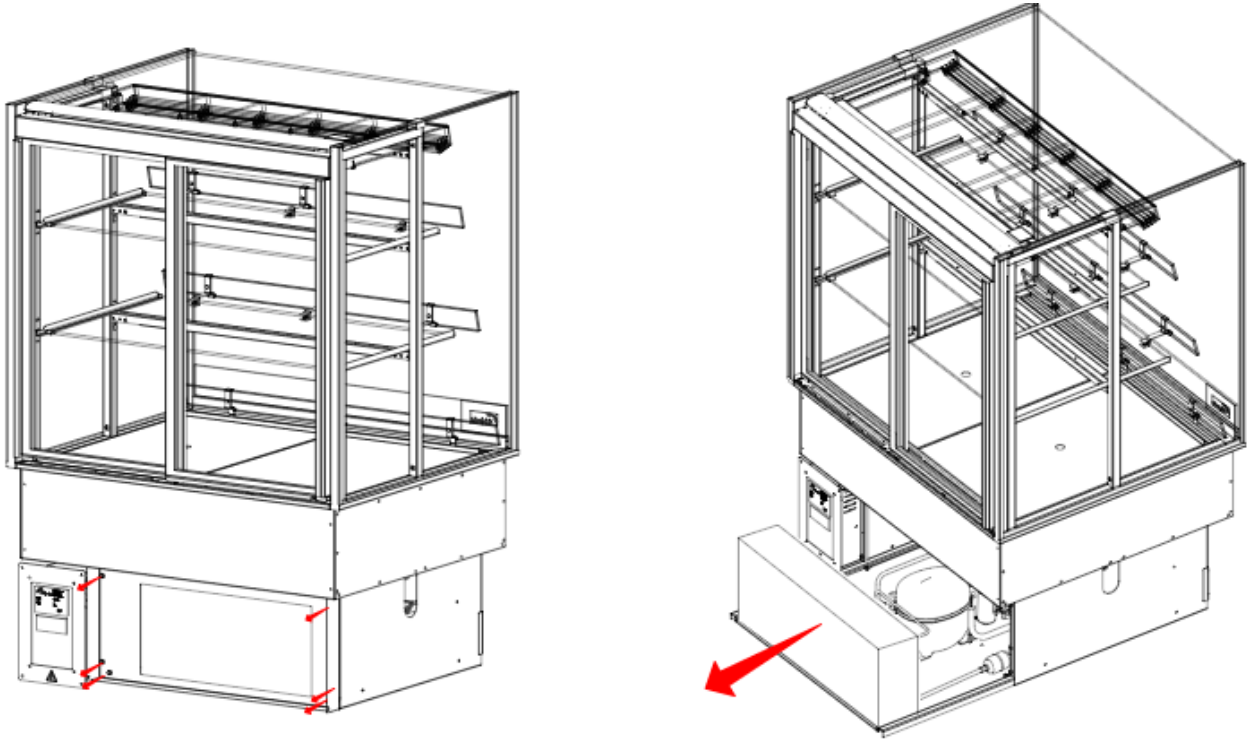


Step 7.

Install all remaining trim panels. Make sure ventilation openings have the correct size and the cabinet remains accessible for service and maintenance.

Make sure, after build in, the cool engine is still accessible.

Keep in mind the complete engine is extendable at the back side of the unit for maintenance and service purposes.


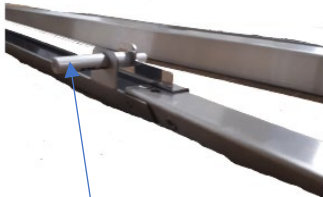







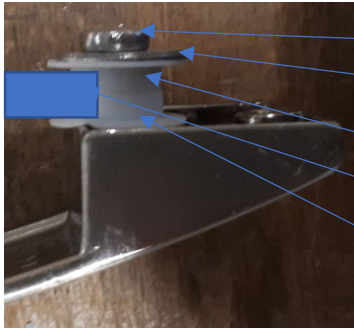


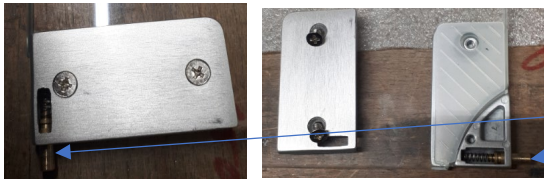



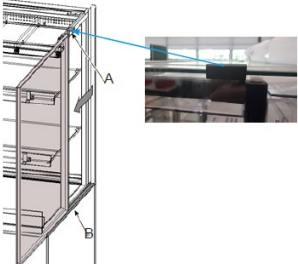
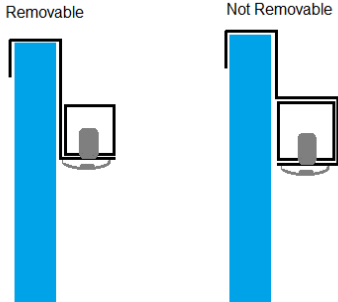
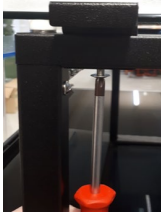
6.0 Installation Front door section




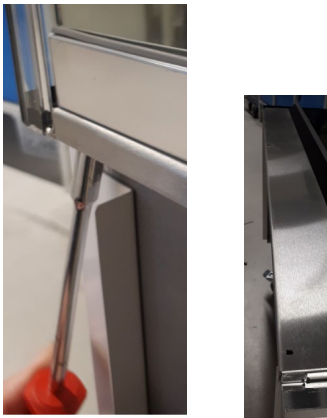
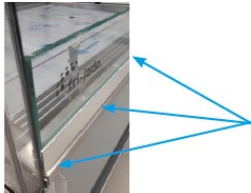


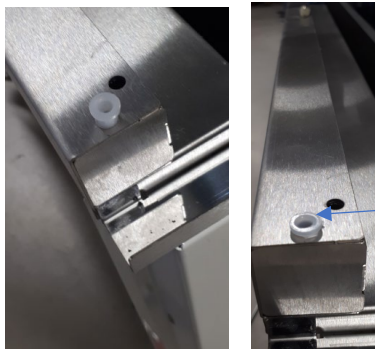

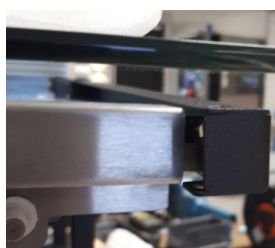

01	29.01.2021	cable	
REVISION	REV. DATE	REMARK	
Tol. principle	Gen. tolerance	Surface treatment	Geom. tolerance
MATERIAL			
MATERIAL ART. NUMBER	DRAWN	Kappers	APPROVED
UNIT mm	STATUS	In Progress	DATE 04.03.2020
SCALE 1:10	PROJECT		DRAWING NUMBER 9380104
REMARKS			
Ass. MCC-90 SS front door module			
ART. NUMBER			REV. SIZE
9380104			A A4

Pos. Number	Amount	Unit	Article number	Description
1	1	pc	9380105	Ass. Front door top supports MCC-90
2	1	pc	9380108	Ass. MCC-90 Front door [Left]
3	1	pc	9380109	Ass. MCC-90 Front door [Right]
4	1	pc	9380107	Ass. bottom support self-close door MCC-90
5	2	pc	9383040	Stainless steel rod Ø2mm

	<p>Step 1.</p> <p>Remove any remaining protective coatings from the stainless steel parts provided.</p>
 <p>Place soft close damper</p>	<p>Step 2.</p> <p>Depending on variant:</p> <p>With standard underframe: Remove front underframe panel (two screws, one on each bottom corner).</p> <p>Drop-In: Raise the unit at least 30cm from tabletop level in order to access the screws for the child-guard. Be careful to support the unit such that no components or connections underneath the base of the unit are damaged while doing so.</p>
	<p>Step 3.</p> <p>Slide profiles into each other.</p> <p>Be careful to guide the rivet nut into the profile.</p>
	<p>Step 4.</p> <p>Slide square profiles into each other.</p>
	<p>Step 5.</p> <p>Place end cover on profile end.</p>
	<p>Step 6.</p> <p>Mount handle on glass door.</p>

	<p>Step 7.</p> <p>Make sure to use place the white nylon rings on both side of the glass.</p>
	<p>Step 8.</p> <p>Bolt</p> <p>Washer (steel)</p> <p>Nylon washer with collar 1 </p> <p>Glass</p> <p>Nylon washer with collar 2 </p>
	<p>Step 9.</p> <p>Place hinge on glass door. One on the bottom, one on top.</p> <p>  (Hight adjustment washer 3701241 and 3701242)</p> <p>For placement washers wait till step 22</p>
	<p>Step 10.</p> <p>Place glass between nylon sheets Glass position</p>
	<p>Step 11.</p> <p>Remove side glass (both sides)</p> <p>CAUTION: Once past the top guide, the glass pane might fall if not properly held</p>
	<p>Step 12.</p> <p>Remove side glass holder, depending on version.</p> 

	<p>Step 13.</p> <p>Remove white stud.</p> <p>Remove top column cover (two screws)</p>
 <p>screws</p>	<p>Optional Step 14. (only necessary when top column is stuck)</p> <p>Remove back cover(s) left and right (sliding door stopper).</p> <p>Both fixed with three screws.</p>
	<p>Step 15.</p> <p>Place new (longer) top column cover (two screws)</p> <p>Re-mount side glass holder. (the first screw)</p> <p>Mount second screw just before back column</p> <p>Replace white stud removed in step 13.</p>
	<p>Step 16.</p> <p>Remove screws (3x) to detach child guard from the bottom (recycle these screws to fix the bottom support!)</p>  <p>Mounting screws</p> <p>Dispose of the child guard in accordance with local regulations</p>

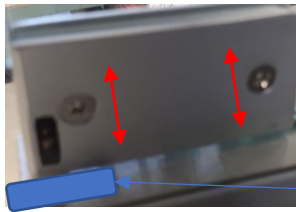
	<p>Step 17.</p> <p>Place square profiles (prepared in step 4) in previous position from child glass.</p> <p>Use same screws to mount.</p> <p>Place nylon bearing in profile (packet in bag with hinge).</p>
	<p>Step 18.</p> <p>Place bumper rubber in bottom profile (two).</p>
	<p>Step 19.</p> <p>Place top profile set (step 3) in top column cover.</p>
	<p>Step 20.</p> <p>Place additional white stud on top of top column cover</p> <p>Place nylon bearing in top column cover from below.</p>
	<p>Step 21.</p> <p>Put glass door in place.</p>
<p>Very carefully, try to close the glass door(s). They are not adjusted in height yet,</p>	

so they can scratch the bottom plate.

Very carefully, try to close the glass door(s).

**They are not adjusted in height yet,
so they can scratch the bottom plate.**

Always place height adjustment nylon washer first
before placing the bottom hinge pin in its bearing




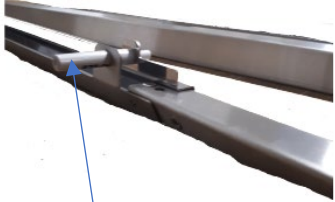
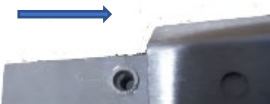
Step 22.

Adjust glass door height by adjusting position in
the hinge (place in step 9).

Also available in kit, 3701241 and 3701242
Height adjustment nylon washer set.
See step 9.



Height adjustment is done by repositioning the
hinge on the glass, or adding the height
adjustment washer(s).

	<p>Step1.</p> <p>Remove any remaining protective coatings from the stainless steel parts provided.</p>
 <p>Place soft close damper</p>	<p>Step 2.</p> <p>Depending on variant:</p> <p>With standard underframe: Remove front underframe panel (two screws, one on each bottom corner).</p> <p>Drop-In: Raise the unit at least 30cm from tabletop level in order to access the screws for the child-guard. Be careful to support the unit such that no components or connections underneath the base of the unit are damaged while doing so.</p>
	<p>Step 3.</p> <p>Slide profiles into each other.</p>

7.0 Operation MCC Cold

7.0 Cold Units



The display value is not the product temperature!



When switched on, the display performs a lamp test; the display and LED's will flash for several seconds to check all function are working correctly.








7.0.1 Control Panel

Temperature controller

- 1 Display
- 2 Up and Down keys
- 3 Escape/Stand-by key
- 4 Enter key



USER INTERFACE

 Reduced SET / Economy LED Permanently on: Energy Saving active Flashing: Reduced SET active Quick flashing: access to level2 parameters Off: otherwise	 Fans LED Permanently on: fans active Off: otherwise
 Compressor LED Permanently on: compressor active Flashing: a delay, a protection or a locked start-up Off: otherwise	 Defrost LED Permanently on: defrost active Flashing: manual or D.I. activation Off: otherwise
 Alarm LED Permanently on: alarm active Flashing: alarm acknowledged Off: otherwise	AUX Aux LED Permanently on: Aux output active Flashing: Deep Cooling cycle active Off: Aux output not active
°C °C LED Permanently on: °C setting (dro = 0) Off: otherwise	°F °F LED Permanently on: °F setting (dro = 1) Off: otherwise

7.0.2 Cold Units

Cold units are factory programmed to achieve a product temperature $\leq 5^{\circ}\text{C}$ (41°F) at an ambient of 25°C (77°F) with a relative humidity of 60% by a max. draft of 0.2 m/s (0.66 ft/sec).

This corresponds with a 3M1 classification according to ISO 23953:2015.
The set temperature can be changed from -6°C to $+0^{\circ}\text{C}$ (21.2°F to 32°F).


Switching-on the unit

- Switch the cooling on by means of the temperature controller.
- Let the unit cool for at least 30 minutes.

Loading the unit

- Only load products of which the temperature is maximum 4°C (39.2°F).
- The maximum loading height is 50mm (2 inch) below the bottom of the shelf/air guide above.
- The maximum carrying-capacity per shelf is 30 kg/m (66 lbs/m), by equal load.

Checking the temperature




- During operation the display of the thermostat shows the temperature in the unit.
The maximum reading must not exceed 5°C (41°F).
- The indication  will light when the cooling is active.

Locking/unlocking the keypad

- The keypad locks automatically in the following situations:
- On start-up,
- After 30 seconds of inactivity.

To unlock the keypad, press and hold  for at least 3 seconds.

Checking the SET temperature

1. Unlock the keypad by pressing and holding  for at least 3 seconds.
2. Press and release **SET** to access the “*Machine status*” menu.
3. Scroll through the folders with  and  until you find the folder **Pb1**, **Pb2** or **Pb3**.
4. Press **SET** to view the value measured by the corresponding probe.







Notes:



The displayed value cannot be changed.

- Folder **Pb2** can only be viewed on models that manage probe **Pb2**.
- Folder **Pb3** can only be viewed on models that manage probe **Pb3**.

Adjusting the SET Temperature

1. To unlock the keypad, press and hold  for at least 3 seconds, until the label “*UnL*” appears.
2. Press and release **SET** to access the “*Machine status*” menu.
3. Scroll through the folders with  and  until you find the folder **SEt**.
4. Press **SET** to view the current set point value.
5. Change the set point value using  and  within 15 seconds.
6. To confirm the value press **SET** or , let a timeout occur (15 seconds).

Checking the product temperature

- Once every hour, the product temperature should be checked using a digital thermometer, write down the measured values in a log.
- Always use a disinfected thermometer sensor.

Switching off

- Remove all products from the unit.
In order to avoid temperature rise of the products, store them in another cooling unit.
- Switch the cooling off.

8.0 Operation MCC Hot

8.0 Hot Units



The display value is not the product temperature!



When switched on, the display performs a lamp test; the display and LED's will flash for several seconds to check all function are working correctly.



8.0.1 Control Panel

On/Off Switches (hot unit).




Heating



Lighting



Key Function			
	Press and hold at power up: FACTORY RESET ("FAC" is displayed)		Press for one second: UP
			Press and hold: ON/OFF
			Press for one second: DOWN
			
	Press for one second: BACK Press and hold: PULL-DOWN		Press for one second: TEMPERATURE SETPOINT/OK
			Press and hold: MENU
Display Icons			
	Night mode (Energy saving)		Fan running
			Active alarm
			Unit (°C or °F)

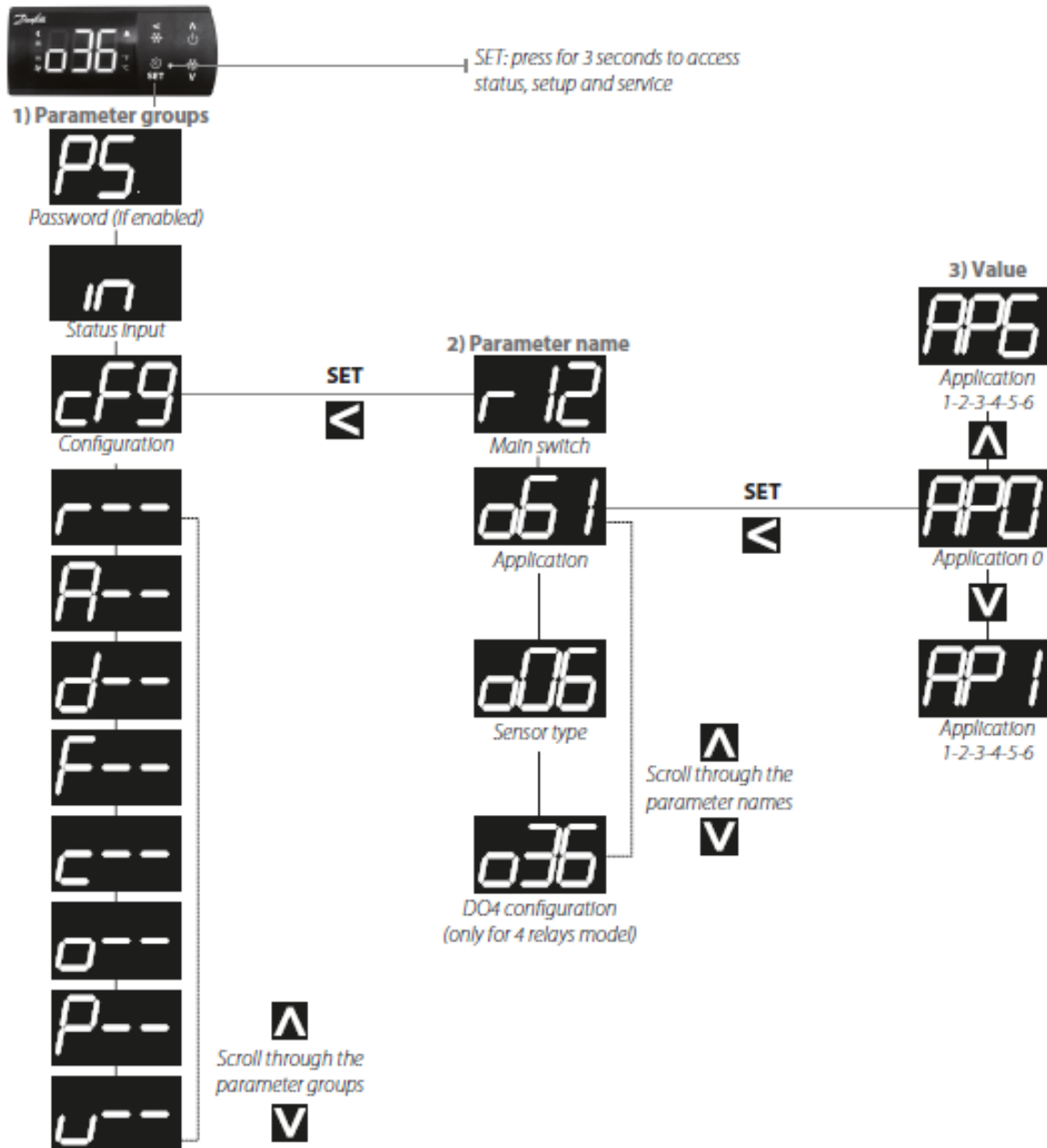
8.0.2 Factory settings

The unit is set at 65 °C (149 °F) intake air temperature.
If required this temperature can be adjusted to some degree.

At a ambient temperature of 20 °C (68 °F) and an initial core temperature of 85 °C (185 °F) the factory settings of the unit's temperature ensure a constant core temperature of at least 63 °C (145.5 °F) for 4 hours.

8.1 Operation MCC Hot <access controller>

8.1.0 Menu Structure

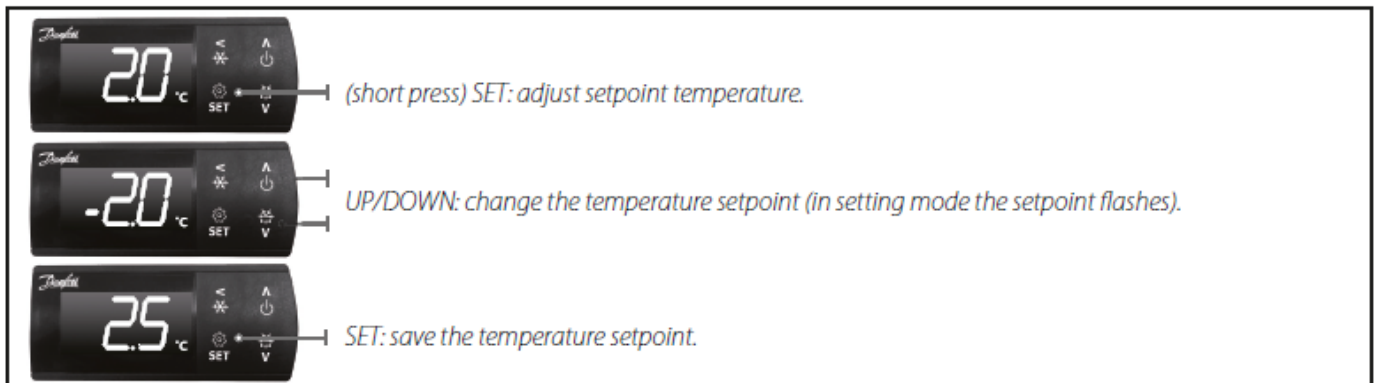


Quick Configuration via “cFg” menu

- Press SET for three seconds to access the parameters groups.
- Select “cFg” menu and press SET to enter. The first menu “r12” (main switch) is displayed.
- Switch OFF main switch (r12=0) for changing the pre-installed application.
- Press UP/DOWN to scroll through the parameter list.
- Configure the “o61” parameter to select a pre-installed application:
- Press SET to access the “o61” parameter.
- Press UP/DOWN to select an application.
- Press SET to confirm, “o61” is displayed.
- Continue to set the next parameters in the “cFg” menu.

8.2 Operation <access controller>

Adjust set point temperature

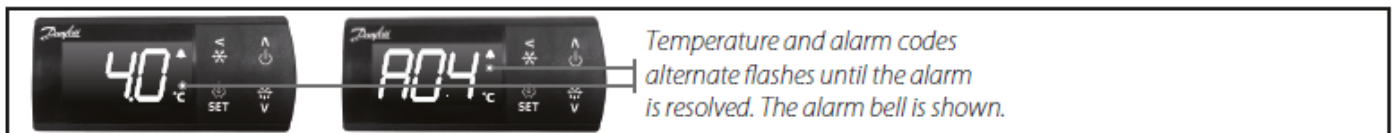


(short press) SET: adjust setpoint temperature.

UP/DOWN: change the temperature setpoint (in setting mode the setpoint flashes).

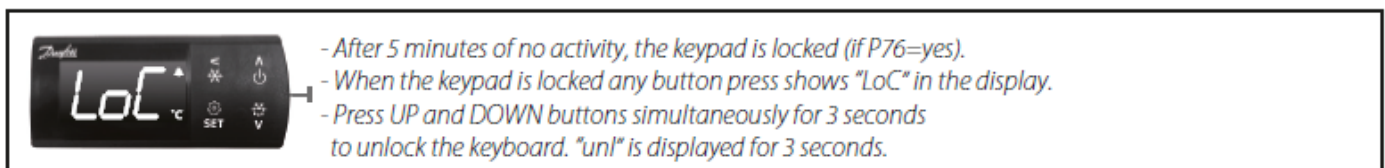
SET: save the temperature setpoint.

View active alarm



Temperature and alarm codes alternate flashes until the alarm is resolved. The alarm bell is shown.

Unlock keyboard



- After 5 minutes of no activity, the keypad is locked (if P76=yes).
- When the keypad is locked any button press shows "LoC" in the display.
- Press UP and DOWN buttons simultaneously for 3 seconds to unlock the keyboard. "unl" is displayed for 3 seconds.

8.2.0 Switching-on the unit

- Switch the unit on, by means of the main switch (located top front, and/or top back)
- Switch on controller for specified shelf (Multi-temp only)
- Preheat the unit/shelf for at least 30 minutes.
- Switch on the lighting with appropriate switch (next to controller)

8.2.1 Loading the unit

- Only place products that have a core temperature of at least 85 °C (185 °F) or above.
- Only with packaged hot products in bags or containers that are suitable for this purpose, withstanding these temperatures.
- To ensure a good contact with the heated trays, only place a single layer of products.
- The maximum carrying-capacity per shelf is 30 kg/m (66 lbs/m), by equal load.

9.0 Maintenance



CLEANING AND MAINTENANCE

WARNING



Never use a water hose for cleaning.
Water can seep into the unit through the ventilation holes of the unit.

Because of hygiene aspects and optimum condition of the unit it is of up most importance to keep a daily cleaning pattern from first use onwards.

Maintenance schedule for users

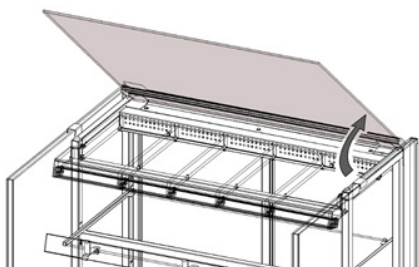
Item	Action	Frequency
Inside	Clean	Daily
Glass Panes	Clean	Weekly
Outside	Clean Use Stainless Steel cleaning spray to remove stains, and restoring the gloss.	Weekly
Condenser	Clean	Monthly

For detailed cleaning instructions refer to User manual chapter 5

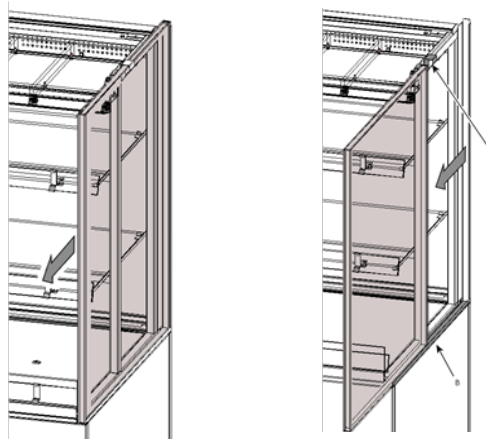


Examples:

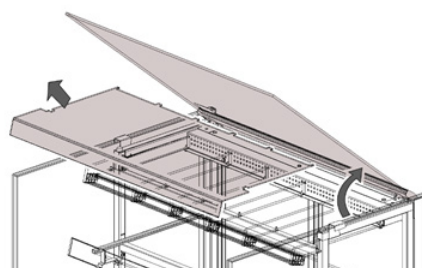
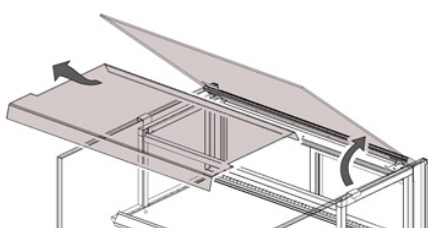
Cleaning possibility the top glass pane all units



Cleaning possibility side pane all units



Cleaning possibility off the top air guides



9.1 Parameter MCC Cold Settings (Self Serve)

MCC Cold SS Eliwell EWPlus 974 EO

Table of "user" menu paramters			
Parameter	Description	Value	Unit
SEt	Temperature Setpoint	1	°C
diF	Compressor relay activation differential	1	°C
HSE	Maximum value that can be assigned to the Setpoint	5	°C
LSE	Minimum value that can be assigned to the Setpoint	-1	°C
dtY	Type of defrost (0 = electrical, 1 = reverse cycle, 2 = "Free")	0	num
diT	Interval between the start of two consecutive defrost cycles	3	hours
dEt	Defrost timeout; determines the maximum defrost duration	30	min
dSt	Defrost end temperature (determiend by evaporator probe)	4	°C
FSt	Fan stop temperature	50	°C
Fdt	Fan activation delay after a defrost cycle	0	min
dt	Coil drainage time	0	min
dFd	Allows to select the evaporator probes exclusion during defrost	n	flag
HAL	Maximum temperature alarm	10	°C
LAL	Minimum temperatre alarm	-30	°C
tAO	Temperature alarm signal delay time	30	min
dCS	Deep cooling cycle setpoint	-1	°C
tdC	Deep cooling cycle duration	0	min
OSP	Offset on setpoint	0,5	°C
OdF	Intervention differential correction	4	°C
dnt	Duration of night mode	10	hours
DFt	Duration of fast cooling mode	1	hours
SPn	Night mode setpoint	1	°C
dFn	Night mode offset	2	°C
SPF	Fast cooling setpoint	-1	°C
dFF	Fast cooling offset	0,1	°C
LOC	LOCK Setpoint change shutdown	n	flag
PS1	Password 1	0	num
CA1	Calibration 1 (Pb1)	5	°C
CA2	Calibration 2 (Pb2)	0	°C
CA3	Calibration 3 (Pb3)	0	°C
ddt	Display mode during defrost	2	num
Ldd	Timeout value for display unlock	30	min
H42	Evaporator probe present	y	flag
rEL	firwarme rELease		
tAb	tAble of parameters		
Table of "installer" menu parameters			

9.1 ParameterMCC Cold Settings (Self Serve)

Parameter	Description	Value	Unit
SEt	Temperature Setpoint	1	°C
Compressor ("CP" folder)			
diF	Compressor relay activation differential	1	°C
HSE	Maximum value that can be assigned to the Setpoint	5	°C
LSE	Minimum value that can be assigned to the Setpoint	-1	°C
Ont	Controller on time for faulty probe	0	min
Oft	Controller off time for faulty probe	1	min
dOn	Compressor relay activation delay after request	0	secs
dOF	Deflay after switching off and subsequent activation	0	min
dbi	Delay between two concsecutive compressor activations	2	min
OdO	Delay in activating outputs after the instrument is switched on or after a power failure	0	min
dFA	Delay fimte in activating compressor and condenser fans after request	0	secs
Defrost ("dEF" folder)			
dtY	Type of defrost (0 = electrical, 1 = reverse cycle, 2 = "Free")	0	num
dit	Interval between the start of two consecutive defrost cycles	3	hours
dCt	Selects the count mode for the defrost interval	1	num
dOH	Defrost start delay time after request	0	min
dEt	Defrost timeout; determines the maximum defrost duration	30	min
dSt	Defrost end temperature (determiend by evaporator probe)	4	°C
dPO	Determines whether the instrument must enter defrost mode	y	flag
dSE	Temperature threshold for start of defrost	0	°C
dtT	Time for which the temperature of the evaporator must remain below dSE	0	min
Fan regulator ("Fan" folder)			
FPt	Characterizes the "Fst" parameter	0	flag
FSt	Fan stop temperature	50	°C
Fad	Fan starting differential	1	°C
Fdt	Fan activation delay after a defrost cycle	0	min
dt	Coil drainage time	0	min
dFd	Allows to select the evaporator probes exclusion during defrost	n	flag
FCO	Evaporator fans operating mode	1	num
FdC	Evaporator fans switch-off delay after compressor disabled	0	min
Fon	Fans ON time in duty cycle	12	secs*10
FoF	Fans OF time in duty cycle	6	secs*10
Fnn	Fans ON time in night duty cycle	1	secs*10
FnF	Fans OF time in night duty cycle	12	secs*10
Alarms ("AL" folder)			
Att	Parameters HAL and LAL	0	num
AFd	Alarm differential	2	°C
HAL	Maximum temperature alarm	10	°C
LAL	Minimum temperatre alarm	-30	°C

9.1 Parameter MCC Cold Settings (Self Serve)

PAO	Alarm exclusion time after instrument switch on, after a power failure	0	hours
dAO	Temperature alarm exclusion time after defrost	0	min
OA0	Alarm signaling delay after digital input disabling	0	hours
tdO	Alarm activation delay time open door	0	hours
tAO	Temperature alarm signal delay time	30	min
dAt	Alarm for defrosting ended due to time out	n	flag
rLO	External alarm locks controller	n	flag
AOP	Alarm outp polarity	1	num
SA3	Probe Pb3 Alarm Setpoint	30	°C
dA3	Probe Pb3 alarm activation differential	1	°C
Cool protection ("CPr" folder)			
CPS	Cool protection setpoint	-10	°C
CPd	Cool protection differential	1	°C
CPT	Time that the temperature remains below the cool protection setpoint	0	min
Lights & digital inputs ("Lit" folder)			
dOd	Enable utility switch-off on activation of door switch	0	num
dad	Activation delay for digital input	0	min
dCO	Compressor deactivation delay after door opened	0	min
dCd	Fans activation delay after door closed	10	secs
Pressure switch ("Pre" folder)			
Pen	Number of errors allowed for general pressure switch input	5	num
PEI	Minimum/maximum pressure switch error count interval	1	min
Pet	Delay in activating compressor after pressure switch deactivation	0	min
Deep cooling ("dEC" folder)			
dCA	Enable deep cooling	0	num
dCS	Deep cooling setpoint	-1	°C
tdC	Deep cooling duration	0	min
dcc	Defrost delay after deep cooling	0	min
Sid	Deep cooling start threshold	12	°C
toS	Over-threshold time for deep cooling start	5	min
Energy saving ("EnS" folder)			
Est	Energy Saving mode	0	num
ESA	AUX output status in energy saving mode	0	num
ESF	Night mode activation for fans	y	flag
Cdt	Door close time	60	min*10
ESo	Cumulative door open time for disabling Energy Saving mode	0	num
OSP	Offset on setpoint	0,5	°C
OdF	Intervention differential correction	4	°C
dnt	Duration of night mode	10	hours
dFt	Duration of fast cooling mode	1	hours
SPn	Night mode setpoint	1	°C

9.1 Parameter MCC Cold Settings (Self Serve)

dFn	Night mode offset	2	°C
SPF	Fast cooling setpoint	-1	°C
dFF	Fast cooling offset	0,1	°C
ESP	Virtual door regulator's sensitivity	0	num
dOt	Maximum Time Door Open with virtual door switch	0	secs
Communication ("Add" folder)			
PtS	Communication protocol selection	t	flag
dEA	Device address	0	num
FAA	Family address	0	num
Pty	Modbus parity bit setting	n	num
StP	Modbus stop bit setting	1b	flag
Display ("dIS" folder)			
LOC	LOCK Setpoint change shutdown	n	flag
PS1	Password 1	0	num
PS2	Password 2	0	num
ndt	Display with decimal point	y	num
CA1	Calibration 1 (Pb1)	5	°C
CA2	Calibration 2 (Pb2)	0	°C
CA3	Calibration 3 (Pb3)	0	°C
ddL	Display mode during defrost	2	num
Ldd	Timeout value for display unlick	15	min
dro	Select °C or °F	0	num
ddd	Selection of type of value to be displayed	1	num
Configuration ("CnF" folder)			
H08	Stand-by operating mode	2	num
H11	Configuration of digital input 1	10	num
H12	Configuration of digital input 2	0	num
H21	Configurability of digital output 1	1	num
H22	Configurability of digital output 2	3	num
H23	Configurability of digital output 3	5	num
H25	Enable/Disable buzzer	0	num
H32	Configurability of down key	2	num
H33	Configurability of ESC key	4	num
H42	Evaporator probe present	y	flag
H43	Probe 3 present	n	flag
reL	reLease firmware		
tAb	tAble of parameters		
Copy card ("Fpr" folder)			
UL	Upload		
Fr	Format Copy Card		

9.2 Parameter MCC Cold Settings (Full Serve)

MCC Cold FS	Eliwell EWPlus 974 EO	9124651	Rev. A
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Table of "user" menu paramters			
Parameter	Description	Value	Unit
SEt	Temperature Setpoint	1,0	°C
diF	Compressor relay activation differential	1	°C
HSE	Maximum value that can be assigned to the Setpoint	5	°C
LSE	Minimum value that can be assigned to the Setpoint	-1	°C
dtY	Type of defrost (0 = electrical, 1 = reverse cycle, 2 = "Free")	0	num
diT	Interval between the start of two consecutive defrost cycles	6	hours
dEt	Defrost timeout; determines the maximum defrost duration	30	min
dSt	Defrost end temperature (determiend by evaporator probe)	4	°C
FSt	Fan stop temperature	50	°C
Fdt	Fan activation delay after a defrost cycle	0	min
dt	Coil drainage time	0	min
dFd	Allows to select the evaporator probes exclusion during defrost	n	flag
HAL	Maximum temperature alarm	10	°C
LAL	Minimum temperatre alarm	-30	°C
tAO	Temperature alarm signal delay time	30	min
dCS	Deep cooling cycle setpoint	-1	°C
tdC	Deep cooling cycle duration	0	min
OSP	Offset on setpoint	0,5	°C
OdF	Intervention differential correction	4	°C
dnt	Duration of night mode	10	hours
DFt	Duration of fast cooling mode	1	hours
SPn	Night mode setpoint	1	°C
dFn	Night mode offset	2	°C
SPF	Fast cooling setpoint	-1	°C
dFF	Fast cooling offset	0,1	°C
LOC	LOCK Setpoint change shutdown	n	flag
PS1	Password 1	0	num
CA1	Calibration 1 (Pb1)	4,8	°C
CA2	Calibration 2 (Pb2)	0	°C
CA3	Calibration 3 (Pb3)	0	°C
ddt	Display mode during defrost	2	num
Ldd	Timeout value for display unlick	30	min
H42	Evaporator probe present	y	flag
rEL	firwarne rELease		
tAb	tAble of parameters		
Table of "installer" menu parameters			
Parameter	Description	Value	Unit
SEt	Temperature Setpoint	1	°C
Compressor ("CP" folder)			
diF	Compressor relay activation differential	1	°C
HSE	Maximum value that can be assigned to the Setpoint	5	°C
LSE	Minimum value that can be assigned to the Setpoint	-8	°C
Ont	Controller on time for faulty probe	0	min
Oft	Controller off time for faulty probe	1	min

9.2 ParameterMCC Cold Settings (Full Serve)

dOn	Compressor relay activation delay after request	0	secs
dOF	Deflay after switching off and subsequent activation	0	min
dbi	Delay between two concsecutive compressor activations	2	min
OdO	Delay in activating outputs after the instrument is switched on or after a power failure	0	min
dFA	Delay fimte in activating compressor and condenser fans after request	0	secs
Defrost ("dEF" folder)			
dty	Type of defrost (0 = electrical, 1 = reverse cycle, 2 = "Free")	0	num
dit	Interval between the start of two consecutive defrost cycles	6	hours
dCt	Selects the count mode for the defrost interval	1	num
dOH	Defrost start delay time after request	0	min
dEt	Defrost timeout; determines the maximum defrost duration	30	min
dSt	Defrost end temperature (determiend by evaporator probe)	4	°C
dPO	Determines whether the instrument must enter defrost mode	y	flag
dSE	Temperature threshold for start of defrost	0	°C
dt	Time for which the temperature of the evaporator must remain below dSE	0	min
Fan regulator ("Fan" folder)			
FPt	Characterizes the "Fst" parameter	0	flag
FSt	Fan stop temperature	50	°C
Fad	Fan starting differential	1	°C
Fdt	Fan activation delay after a defrost cycle	0	min
dt	Coil drainage time	0	min
dFd	Allows to select the evaporator probes exclusion during defrost	n	flag
FCO	Evaporator fans operating mode	1	num
FdC	Evaporator fans switch-off delay after compressor disabled	0	min
Fon	Fans ON time in duty cycle	12	secs*10
FoF	Fans OF time in duty cycle	6	secs*10
Fnn	Fans ON time in night duty cycle	1	secs*10
FnF	Fans OF time in night duty cycle	12	secs*10
Alarms ("AL" folder)			
Att	Parameters HAL and LAL	0	num
AFd	Alarm differential	2	°C
HAL	Maximum temperature alarm	10	°C
LAL	Minimum temperatre alarm	-30	°C
PAO	Alarm exclusion time after instrument switch on, after a power failure	0	hours
dAO	Temperature alarm exclusion time after defrost	0	min
OAo	Alarm signaling delay after digital input disabling	0	hours
tdO	Alarm activation delay time open door	0	hours
tAO	Temperature alarm signal delay time	30	min
dAt	Alarm for defrosting ended due to time out	n	flag
rLO	External alarm locks controller	n	flag
AOP	Alarm outp polarity	1	num
SA3	Probe Pb3 Alarm Setpoint	30	°C
dA3	Probe Pb3 alarm activation differential	1	°C
Cool protection ("CPr" folder)			
CPS	Cool protection setpoint	-10	°C
CPd	Cool protection differential	1	°C
CPt	Time that the temperature remains below the cool protection setpoint	0	min

9.2 Parameter MCC Cold Settings (Full Serve)

Lights & digital inputs ("Lit" folder)			
dOd	Enable utility switch-off on activation of door switch	0	num
dad	Activation delay for digital input	0	min
dCO	Compressor deactivation delay after door opened	0	min
dCd	Fans activation delay after door closed	10	secs
Pressure switch ("Pre" folder)			
Pen	Number of errors allowed for general pressure switch input	5	num
PEI	Minimum/maximum pressure switch error count interval	1	min
Pet	Delay in activating compressor after pressure switch deactivation	0	min
Deep cooling ("dEC" folder)			
dCA	Enable deep cooling	0	num
dCS	Deep cooling setpoint	-1	°C
tdC	Deep cooling duration	0	min
dcc	Defrost delay after deep cooling	0	min
Sid	Deep cooling start threshold	12	°C
toS	Over-threshold time for deep cooling start	5	min
Energy saving ("EnS" folder)			
Est	Energy Saving mode	0	num
ESA	AUX output status in energy saving mode	0	num
ESF	Night mode activation for fans	y	flag
Cdt	Door close time	60	min*10
ESo	Cumulative door open time for disabling Energy Saving mode	0	num
OSP	Offset on setpoint	0,5	°C
OdF	Intervention differential correction	4	°C
dnt	Duration of night mode	10	hours
dFt	Duration of fast cooling mode	1	hours
SPn	Night mode setpoint	1	°C
dFn	Night mode offset	2	°C
SPF	Fast cooling setpoint	-1	°C
dFF	Fast cooling offset	0,1	°C
ESP	Virtual door regulator's sensitivity	0	num
dOt	Maximum Time Door Open with virtual door switch	0	secs
Communication ("Add" folder)			
PtS	Communication protocol selection	t	flag
dEA	Device address	0	num
FAA	Family address	0	num
Pty	Modbus parity bit setting	n	num
StP	Modbus stop bit setting	1b	flag
Display ("dIS" folder)			
LOC	LOCK Setpoint change shutdown	n	flag
PS1	Password 1	0	num
PS2	Password 2	0	num
ndt	Display with decimal point	y	num
CA1	Calibration 1 (Pb1)	4,8	°C
CA2	Calibration 2 (Pb2)	0	°C
CA3	Calibration 3 (Pb3)	0	°C
ddL	Display mode during defrost	2	num
Ldd	Timeout value for display unlick	15	min

9.2 Parameter MCC Cold Settings (Full Serve)

dro	Select °C or °F	0	num
ddd	Selection of type of value to be displayed	1	num
Configuration ("CnF" folder)			
H08	Stand-by operating mode	2	num
H11	Configuration of digital input 1	10	num
H12	Configuration of digital input 2	0	num
H21	Configurability of digital output 1	1	num
H22	Configurability of digital output 2	3	num
H23	Configurability of digital output 3	5	num
H25	Enable/Disable buzzer	0	num
H32	Configurability of down key	2	num
H33	Configurability of ESC key	4	num
H42	Evaporator probe present	y	flag
H43	Probe 3 present	n	flag
reL	reLease firmware		
tAb	tAble of parameters		
Copy card ("Fpr" folder)			
UL	Upload		
Fr	Format Copy Card		

9.3 Parameter MCC Hot Settings (Full Serve)

r00	Temperature set point	95	°C
r01	Differential	1	K
r02	Min set point limitation	0	°C
r03	Max set point limitation	99	°C
r04	Display offset	0	°C
r05	Display unit (°C/°F)	°C	
r09	Calibration of Sair	0.0	°C
r12	Main switch	1	
r13	Night set back	0	
r40	Thermostat reference displacement	0	
r96	Pull-down duration	0	
r97	Pull-down limit temperature	0	
A03	Delay for temperature alarm (normal conditions)	30	min
A12	Delay for temperature alarm (pull down/start-up/defrost)	60	min
A13	High temperature alarm limit	100	°C
A14	Low temperature alarm limit	-30	°C
A27	DI1 delay	30	min
A37	Condenser high alarm limit	80	°C
A54	Condenser high block limit	85	°C
A72	Voltage protection enable	no	
A73	Minimum cut-in voltage	0	V
A74	Minimum cut-out voltage	0	V
A75	Maximum voltage	270	V
d01	Defrost method (no=no defrost, nAt=natural)	no	
d02	Defrost stop temperature	6	°C
d03	Defrost Interval	8	hr.
d04	Max. defrost time	30	min
d05	Defrost delay at power up	0	min
d06	Drip delay	0	min

d10	Defrost stop sensor (non=time, Air=Sair)	non	
d18	Compressor accumulated	0	hr.
d30	Defrost delay after pull-down	0	min
c01	Compressor minimum ON time	0	min
c02	Compressor minimum OFF-time	0	min
c04	Compressor OFF delay	0	sec
c70	Zero crossing selection	yES	
o01	Delay of outputs	0	sec
o02	DI1 configuration	oFF	
o03	Serial address	0	
o05	Password	no	
o06	Sensor type selection (n5=NTC5 K, n10=NTC10 K, Ptc=PTC, Pt1=Pt1000)	Ptc	
o07	Cooling/heating (rE=refrigeration / Ht=heat)	Ht	
o15	Display resolution (°C)	0.1	
o23	Relay counter	0	
o61	Predefined applications	AP0	
o67	Save settings as factory	no	
o91	Display at defrost	d	
P73	DI1 input polarity	no	
P76	Keyboard lock enable	no	
u01	Air temperature (Sair)	-	°C
u02	Read the present regulation reference	-	
u10	DI1 input	-	
u13	Status of night operation	-	
u58	Compressor relay status	-	-
u80	Firmware version readout	-	

9.4 Parameter MCC Hot Settings (Self Serve)

r00	Temperature set point	65	°C
r01	Differential	1	K
r02	Min set point limitation	40	°C
r03	Max set point limitation	70	°C
r04	Display offset	0	°C
r05	Display unit (°C/°F)	°C	
r09	Calibration of Sair	0	°C
r12	Main switch	1	
r13	Night set back	0	
r40	Thermostat reference displacement	0	
r96	Pull-down duration	0	
r97	Pull-down limit temperature	0	
A03	Delay for temperature alarm (normal conditions)	30	min
A12	Delay for temperature alarm (pull down/start-up/defrost)	60	min
A13	High temperature alarm limit	100	°C
A14	Low temperature alarm limit	-30	°C
A27	DI1 delay	30	min
A37	Condenser high alarm limit	80	°C
A54	Condenser high block limit	85	°C
A72	Voltage protection enable	no	
A73	Minimum cut-in voltage	0	V
A74	Minimum cut-out voltage	0	V
A75	Maximum voltage	270	V
d01	Defrost method (no=no defrost, nAt=natural)	no	
d02	Defrost stop temperature	6	°C
d03	Defrost Interval	8	hr.
d04	Max. defrost time	30	min
d05	Defrost delay at power up	0	min
d06	Drip delay	0	min

d10	Defrost stop sensor (non=time, Air=Sair)	non	
d18	Compressor accumulated	0	hr.
d30	Defrost delay after pull-down	0	min
c01	Compressor minimum ON time	0	min
c02	Compressor minimum OFF-time	0	min
c04	Compressor OFF delay	0	sec
c70	Zero crossing selection	yES	
o01	Delay of outputs	0	sec
o02	DI1 configuration	oFF	
o03	Serial address	0	
o05	Password	no	
o06	Sensor type selection (n5=NTC5 K, n10=NTC10 K, Ptc=PTC, Pt1=Pt1000)	Ptc	
o07	Cooling/heating (rE=refrigeration / Ht=heat)	Ht	
o15	Display resolution (°C)	0.1	
o23	Relay counter	0	
o61	Predefined applications	AP0	
o67	Save settings as factory	no	
o91	Display at defrost	d	
P73	DI1 input polarity	no	
P76	Keyboard lock enable	no	
u01	Air temperature (Sair)	-	°C
u02	Read the present regulation refer- ence	-	
u10	DI1 input	-	
u13	Status of night operation	-	
u58	Compressor relay status	-	-
u80	Firmware version readout	-	

9.5 Safety Instructions

9.3

Safety instructions



R290

Units with the natural refrigerant propane (R290) must be installed in a safe Environment that meets the requirements of the respective directive. Exclusively electrical devices may be used inside the unit that are certified by the applicable ATEX directive. The operator is responsible for this.

Read this manual carefully and follow all precautions described herein



SPECIAL SAFETY INSTRUCTIONS FOR UNITS WITH PROPANE (R290) REFRIGERANT

- In the event of the installation or combination with units as well as electrical / Refrigeration system components that do not comply with an R290 design in Accordance with the respective directives, the unit must be covered and Separated from the adjoining units/components.
- The refrigerant circuit may be exclusively opened and the refrigerant extracted in a well ventilated room or outdoors.
- Work on the refrigeration system is to be carried out exclusively by authorized, Qualified specialists who are trained for the refrigerant propane (R290).
- Exclusively electrical devices may be used inside the unit that are certified by the applicable ATEX directive .
- The cooling circuit and refrigeration system of the unit must not be damaged. This can lead to an unintentional exothermic reaction of the ignitable gas/air mix.
- The ventilation openings of the cladding of the unit (including accessories) must not be blocked or covered. In the event of a leak in the refrigeration system, this can lead to an unintentional exothermic reaction of the ignitable gas/air mix.
- All ventilation openings wherever on the front and / or back side of the appliance must be kept free.
The minimum distances to other units must be complied with.
Make sure that the air circulation is unobstructed.
In the event of a leak in the refrigeration system, a blockage of the air circulation can lead to an unintentional exothermic reaction of the ignitable gas/air mix.
- According to the standard DIN EN 378-1, the refrigerant propane is combustible and explosive (refrigerant group A3).
- The refrigerant propane (R290) can create an ignitable gas/air mix, which can trigger an exothermic reaction in a critical mixing ratio with air and in connection with the respective ignition energy (ignition source).

9.6 Maintenance Points MCC Cold

9.4 Condenser Cleaning (cold units)



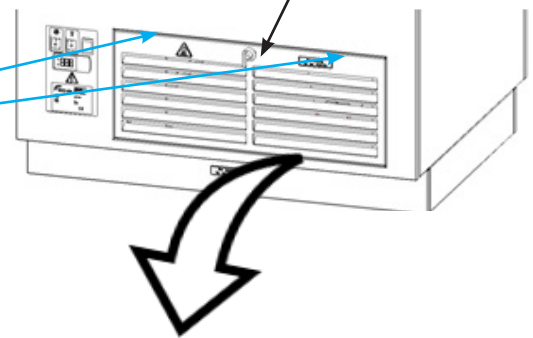
WARNING

Cleaning of the condenser must be performed by qualified persons and in a well Ventilated environment.

Unscrew the condenser cover
(this can be done using the special key, or
by unscrewing two closing screws, depending
on the version)

Screws

Special key



Keep condenser free from dirt and dust,
clean regularly.

For cleaning use a long haired soft brush
and a vacuum cleaner



Be aware not to damage the aluminum plates



Close the cover and place the screws in place or use the special key, which ever is
Applicable



R290

WARNING

No spark-forming components or components with a high surface temperature
(according to IEC 60079-15) may be present in the substructure/counter where the
unit is placed

10.0 Trouble Shooting

10.0.0 Problems which can be checked by user

Each user can check the following points as mentioned in the user manual:

- Is the power supply OK?
- Check the fuses and the earth leakage switch in the meter cup board.
- Are all the switches in the correct “on” position?

Item	Malfunction	Possible action
Unit	Unit does not work	<ul style="list-style-type: none"> • Check the power supply. • Are all switches in the correct position.
Unit	Display shows error code	<ul style="list-style-type: none"> • Contact your supplier or service agency.
Lamp	Does not light up	<ul style="list-style-type: none"> • Switch ON.
Mains cord	Damaged	<ul style="list-style-type: none"> • Replace.
Window	Damaged	<ul style="list-style-type: none"> • Replace.

10.0.1 Cold units



WARNING

All service operations on the refrigeration system and gas charging must be performed by fully certified and qualified persons, in a well ventilated environment.

10.0.2 Replace the mains cord



WARNING

Hazardous electrical voltage.

If the mains cord is damaged, it must be replaced by a fully certified and qualified person, in order to avoid hazards.

10.0.3 Error codes and solutions

See page 53

10.0.4 Heating element testing (Self Serve units)

Resistance

1. Remove wiring (two) from the element.
2. Connect the probe of the multimeter to each of the wires.
3. Test the probe with a Ohm tester, values see below.

Current

1. Place ampere pliers around red wire of Element.
2. In normal working condition, test current see below. (230V version)

		MCC60			MCC90			MCC120	
Shelf	Power	Current	Resistance	Power	Current	Resistance	Power	Current	Resistance
	Watt	Ampere	Ohm	Watt	Ampere	Ohm	Watt	Ampere	Ohm
Top	465	2,02	113,7	700	3,04	75,6	935	4,07	56,6
Middle	570	2,48	92,8	850	3,70	62,2	1130	4,91	46,8
Bottom	750	3,26	70,5	1125	4,89	47,0	1500	6,52	35,3

10.0 Trouble Shooting

10.0.5 Heating element testing (Full Serve units)

Resistance

1. Remove wiring (two) from the element.
2. Connect the probe of the multimeter to each of the wires.
3. Test the probe with a Ohmtester, values see below.

Current

1. Place ampère pliers around red wire of Element.
2. In normal working condition, test current see below. (230V version)

		MCC60				MCC90				MCC120		
Shelf	Power	Current	Resistance		Power	Current	Resistance		Power	Current	Resistance	
	Watt	Ampere	Ohm		Watt	Ampere	Ohm		Watt	Ampere	Ohm	
	1500	6,5	35,25		1800	7,8	29,3		2400	10,5	22	

10.0.6 PTC sensor testing (Hot Unit)

1. Remove wiring from the sensor.
2. Connect a temperature tester to the probe of the sensor for comparison.
3. Test the probe with a Ohm tester.

Temperature		Resistance Ω
$^{\circ}\text{F}$	$^{\circ}\text{C}$	+/- 5 Ohms
-4	-20	951
14	-10	877
32	0	807
50	10	740
68	20	677
77	25	990

NTC sensor testing (Cold Unit)

1. Remove wiring from the sensor.
2. Connect a temperature tester to the probe of the sensor for comparison.
3. Test the probe with a Ohm tester (range 5k Ω til 100k Ω).

Temperature		Resistance k Ω
$^{\circ}\text{F}$	$^{\circ}\text{C}$	+/- 500 Ohms
-4	-20	67,77
14	-10	42,47
32	0	27,28
50	10	17,96
68	20	12,09
77	25	10,00

10.0 Trouble Shooting

10.0.7 Alarm codes <hot units>

Alarm Code

Alarm status	Alarm Code
Air temperature sensor (Sair) error	E29
Defrost sensor (S5) error	E27
Condenser sensor (Sc) error	E30
High temperature alarm	A01
Low temperature alarm	A02
High voltage alarm	A99
Low voltage alarm	AA1
High condenser temperature alarm	A61
Door alarm	A04
Standby alarm	A45
DI external alarm	A15

10.0.8 Alarm codes <cold units>

Alarms If there is any active alarm, the Alarm icon located in the upper left part will light up.

To display the active alarm, you have to press the “set” key and look for the “AL” folder.

In the following table, you will be able to see all the possible alarms.

The following table shows the alarms that the application can generate along with its description.

Tag	Description	Reset
Er01	Room Temperature probe 1 Error	AUTO
Er02	Room Humidity probe error (not used)	AUTO
Er03	Expansion Error	AUTO
AL01	High room temperature alarm	AUTO
AL02	Low room temperature alarm	AUTO
AL03	High humidity alarm	AUTO
AL04	Low humidity alarm	AUTO
AL05	Low water level alarm	AUTO

10.1 All Parameters <Cold units>

ACCESSING AND USING THE MENUS

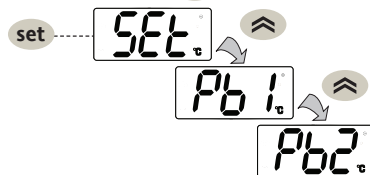
Resources are organised into 2 menus which are accessed as explained below:

- **"Machine Status"** menu: press and release the **set** key.
- **"Programming"** menu: press for at least 5 secs the **set** key.

Either do not press any keys for 15 seconds (time-out) or press the **⏻**, key once, to confirm the last value displayed and return to the previous screen.

"MACHINE STATUS" MENU

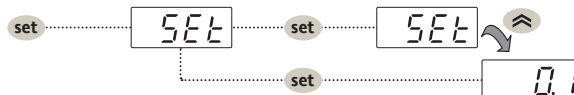
Access the Machine Status menu by pressing **set** and releasing the key. If no alarms are active, the "SEt" label appears. Use the keys **⏮** and **⏭** to scroll through all the folders in the menu:



- AL: alarms folder (**only visible if an alarm is active**);
 - SEt: Setpoint setting folder;
 - Pb1: probe 1 - Pb1 folder;
 - Pb2: probe 1 - Pb2 folder* (**EWPlus 971/974 EO LVD models only**);
 - Pb3: power supply value folder.
- * folder displayed if Pb2 present (H42 = y)

SETPOINT SETTING:

To display the Setpoint value press the **set** key when the "SEt" label is displayed. The Setpoint value appears on the display. To change the Setpoint value, press the **⏮** and **⏭** keys within 15 seconds. Press **set** to confirm the modification.



LOCK SETPOINT MODIFICATION:

The keypad can be locked by programming the 'LOC' parameter. With the keypad locked you can still access the 'Machine Status' menu by pressing **set** to display the Set point, but you cannot edit them. To disable the keypad lock, repeat the locking procedure.

DISPLAYING THE PROBES:

When labels Pb1 or Pb2* are present, press the **set** key to view the value measured by the corresponding probe.

- N.B.:**
- 1) Pb2 is only present on EWPlus 971/974 EO LVD models.
 - 2) the value cannot be modified.

PROGRAMMING MENU

To access the "Programming" menu, press the **set** key for more than 5 seconds. If specified, an access PASSWORD will be requested: **PA1** for "User" parameters and **PA2** for "Installer" parameters (see "PASSWORD" paragraph).

"User" parameters: When accessed, the display will show the first parameter (e.g. "diF"). Press **⏮** and **⏭** to scroll through all the parameters on the current level. Select the desired parameter by pressing **set**. Press **⏮** and **⏭** to modify it and **set** to save the changes.

"Installer" parameters: When accessed, the display will show the first folder (e.g. "CP"). Press **⏮** and **⏭** to scroll through the folders on the current level. Select the desired folder using **set**. Press **⏮** and **⏭** to scroll through the parameters in the current folder and select the parameter using **set**. Press **⏮** and **⏭** to modify it and **set** to save the changes.

N.B.: Make sure you switch the instrument off and on again each time the parameter configuration is changed, in order to prevent malfunctioning in the configuration and/or timing in progress.

PASSWORD

Password PA1: used to access "User" parameters. The password is not enabled by default (**PS1=0**).

To enable it (**PS1≠0**): press and hold **set** for longer than 5 seconds, scroll through the parameters using **⏮** and **⏭** until you see the label **PS1**, press **set** to display the value, modify it using **⏮** and **⏭**, then save it by pressing **set** or **⏻**. If enabled, it will be required in order to access the User parameters.

Password PA2: used to access "Installer" parameters. The password is enabled by default (**PS2=15**).

To modify it (**PS2≠15**): press and hold **set** for longer than 5 seconds, scroll through the parameters using **⏮** and **⏭** until you see the label **PA2**, press **set**, set the value to "15" using **⏮** and **⏭**, then confirm using **set**. Scroll through the folders until you find the label **diS** and press **set** to enter. Scroll through the parameters using **⏮** and **⏭** until you see the label **PS2**, press **set** to display the value, modify it using **⏮** and **⏭**, then save it by pressing **set** or **⏻**. The visibility of "PA2" is as follows:

- 1) **PA1 and PA2 ≠ 0:** Press and hold **set** for longer than 5 seconds to display **PA1** and **PA2**. It will then be possible to decide whether to access the "User" parameters (**PA1**) or the "Installer" parameters (**PA2**).
- 2) **Otherwise:** The password **PA2** is amongst the level1 parameters. If enabled, it will be required when accessing the Installer parameters; to enter it, proceed as instructed for password **PA1**.

N.B.: If the password entered is incorrect, the label PA1/PA2 will be displayed again and the procedure will need to be repeated.

MANUAL DEFROST CYCLE ACTIVATION

Hold down the **⏮** key for longer than 5 seconds. It is only activates if the temperature conditions are fulfilled. Otherwise, the display will flash three times to indicate that the operation will not be performed.

INSTRUMENT ON/OFF

The instrument can be switched off by pressing the key **ⓘ** for longer than 5 seconds.

In this condition, the adjustment algorithms and defrost cycles are disabled and the text "OFF" will appear on the display.

USING THE UNICARD/COPYCARD

The Unicard/Copycard is connected to the serial port (TTL) and allows rapid programming of the instrument parameters.

Access "Installer" parameters by entering **PA2**, scroll through the folders using **⏮** and **⏭** until folder **FPr** appears.

Select it using **set**, scroll through the parameters using **⏮** and **⏭**, then select the function using **set** (e.g. **UL**).

- **Upload (UL):** Select UL and press **set**. This function uploads the programming parameters from the instrument to the card. If the procedure is a success, "y" will appear on the display, otherwise "n" will appear.
- **Format (Fr):** This command is used to format the Unicard/Copycard, (recommended when using the card for the first time). **IMPORTANT:** the **Fr** parameter deletes all data present. This operation cannot be cancelled.
- **Download:** Connect the Unicard/Copycard when the instrument is switched off. At power-on, data is downloaded from the Unicard/Copycard to the instrument automatically. At the end of the lamp test, the display will show "dLy" if the operation was successful and "dLn" if not.

N.B.: After downloading, the instrument works with the settings of the new map just downloaded.



TABLE OF "USER" MENU PARAMETERS

PAR.	DESCRIPTION	RANGE	M.U.	EWPlus 961 EO LVD				EWPlus 971 EO LVD				EWPlus 974 EO LVD			
				AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4
SEt	Temperature control SEtpoint	LSE ... HSE	°C/°F	3,5	3,5	3,5	3,5	3,5	1,5	1,0	3,5	3,5	1,5	1,0	2,0
diF	Compressor relay activation differential (diF must be ≠ 0).	0,1 ... 30,0	°C/°F	2,0	2,0	2,0	2,0	2,0	4,0	2,0	2,0	2,0	4,0	2,0	8,0
HSE	Maximum value that can be assigned to the Setpoint	LSE ... 320	°C/°F	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0
LSE	Minimum value that can be assigned to the Setpoint	-67,0 ... HSE	°C/°F	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0
dtY	Type of defrost (0 = electrical, 1 = reverse cycle, 2 = "Free").	0/1/2	num					0	0	1	0	0	0	1	0
diT	Interval between the start of two consecutive defrost cycles	0 ... 250	hours	24	24	24	24	24	2	6	24	24	2	6	10
dEt	Defrost timeout; determines the maximum defrost duration	1 ... 250	min	30	30	30	30	30	30	30	30	30	30	30	45
dSt	Defrost end temperature (determined by evaporator probe)	-67,0 ... 320	°C/°F					8,0	3,0	8,0	8,0	8,0	3,0	8,0	7,0
FSt	Fans stop temperature; if Pb2 > FSt , the fans are stopped. The value is either positive or negative and, depending on parameter FPr , can be either the absolute temperature or the temperature relative to the Setpoint.	-67,0 ... 320	°C/°F					50,0			50,0	50,0	-20,0	50,0	
Fdt	Fan activation delay after a defrost cycle	0 ... 250	min					0			0	0	0	0	
dt	Coil drainage time	0 ... 250	min					0	0	0	0	0	0	0	
dFd	Allows to select the evaporator probes exclusion during defrost. y = yes; n = no.	n/y	flag					y			y	y	y	y	
HAL	Maximum temperature alarm. Temperature value which, if exceeded in an upward direction, triggers the activation of the alarm signal.	LAL ... 320	°C/°F	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	9,5
LAL	Minimum temperature alarm. Temperature value which, when exceeded downwards, triggers the activation of the alarm signal.	-67,0 ... HAL	°C/°F	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-2,0
tAO	Tempo ritardo segnalazione allarme temperatura.	0 ... 250	min	0	0	0	0	0	0	0	0	0	0	0	30
dCS	Deep cooling cycle setpoint	-67,0 ... 320	°C/°F	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0
tdC	Deep cooling cycle duration	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0
OSP	Offset on setpoint	-30,0 ... 30,0	°C/°F	0,5	0,5	1,0	1,0	0,5	1,0	0,5	0,5	0,5	1,0	0,5	1,0
OdF	Intervention differential correction	0,0 ... 30,0	°C/°F	4,0	4,0	2,0	2,0	4,0	2,0	4,0	4,0	4,0	2,0	4,0	2,0
dnt	Duration of night mode	0 ... 24	hours	11	11	10	9	11	10	10	11	11	10	10	9
dFt	Duration of fast cooling mode	0 ... 24	hours	0	0	1	1	0	1	1	0	0	1	1	1
SPn	Night mode setpoint	LSE ... HSE	°C/°F	0,7	0,7	3,0	6,5	0,7	3,0	1,0	0,7	0,7	3,0	1,0	6,5
dFn	Night mode offset	0,1 ... 30,0	°C/°F	4,0	4,0	2,0	0,1	4,0	2,0	4,0	4,0	4,0	2,0	4,0	0,1
SPF	Fast cooling setpoint	LSE ... HSE	°C/°F	0,0	0,0	-0,5	-6,8	0,0	-0,5	-2,0	0,0	0,0	-0,5	-2,0	-6,8
dFF	Fast cooling offset	0,1 ... 30,0	°C/°F	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
LOC	LOCK. Basic commands modification lock. n = no; y = yes.	n/y	flag	n	n	n	n	n	n	n	n	n	n	n	n
PS1	PAssword 1. When enabled (PS1 ≠ 0) it constitutes the access key for level1 parameters (User).	0 ... 250	num	0	0	0	0	0	0	0	0	0	0	0	0
CA1	Calibration 1. Value to be added to the value read by probe Pb1 .	-12,0 ... 12,0	°C/°F	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0
CA2	Calibration 2. Value to be added to the value read by probe Pb2 .	-12,0 ... 12,0	°C/°F					0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
ddl	Display mode during defrost. 0 = display the temperature read by probe Pb1 ; 1 = locks the reading at the temperature value read by Pb1 when defrosting starts and until the next time the SEt value is reached; 2 = displays the label deF during defrosting and until the next time the SEt value is reached (or until Ldd has elapsed).	0/1/2	num	1	1	1	1	1	1	1	1	1	1	1	1
Ldd	Timeout value for display unlock - deF label	0 ... 255	min	30	30	30	30	30	30	30	30	30	30	30	30
H42	Evaporator probe present (Pb2). n = not present; y = present.	n/y	flag					y	y	y	y	y	y	y	y
rEL	firmware rELease. Reserved: read-only parameter	/	/	/	/	/	/	/	/	/	/	/	/	/	/
tAb	tAbLe of parameters. Reserved: read-only parameter	/	/	/	/	/	/	/	/	/	/	/	/	/	/

Note: ** The USER menu parameters also include 'PA2', which can be used to access the Installer menu.

TABLE OF "INSTALLER" MENU PARAMETERS

PAR.	DESCRIPTION	RANGE	M.U.	EWPlus 961 EO LVD				EWPlus 971 EO LVD				EWPlus 974 EO LVD				
				AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4	
SEt	Temperature control Setpoint. The SEtpoint is visible from the "machine status" menu only.	LSE ... HSE	°C/°F	3,5	3,5	3,5	3,5	3,5	1,5	1,0	3,5	3,5	1,5	1,0	2,0	
COMPRESSOR ("CP" folder)																
diF	differeNtial. Compressor relay activation differential. N.B.: diF cannot be equal to 0.	0,1 ... 30,0	°C/°F	2,0	2,0	2,0	2,0	2,0	4,0	2,0	2,0	2,0	4,0	2,0	8,0	
HSE	Maximum value that can be assigned to the Setpoint. N.B.: The two Setpoints are interdependent: HSE cannot be less than LSE and vice-versa.	LSE ... 320	°C/°F	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	99,0	
LSE	Minimum value that can be assigned to the Setpoint. N.B.: The two Setpoints are interdependent: LSE cannot be higher than HSE and vice-versa.	-67,0 ... HSE	°C/°F	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	
Ont	Controller on time for faulty probe. - if Ont = 1 and Oft = 0, the compressor remains ON, - if Ont > 0 and Oft > 0, it runs in duty cycle mode.	0 ... 250	min	0	0	0	0	0	1	0	0	0	1	0	0	
Oft	Controller off time for faulty probe. - if Oft = 1 and Ont = 0, the compressor remains OFF, - if Ont > 0 and Oft > 0, it runs in duty cycle mode.	0 ... 250	min	1	1	1	1	1	1	1	1	1	1	1	1	
dOn	Compressor relay activation delay after request.	0 ... 250	secs	0	0	0	0	0	15	0	0	0	15	0	10	
dOf	Delay after switching off and subsequent activation.	0 ... 250	min	0	0	0	0	0	3	0	0	0	3	0	2	
dbi	Delay between two consecutive compressor activations.	0 ... 250	min	0	0	0	0	0	0	0	0	0	0	0	2	
OdO (!)	Delay in activating outputs after the instrument is switched on or after a power failure. 0 = not active	0 ... 250	min	0	0	0	0	0	0	0	0	0	0	0	0	
dFA	Delay time in activating compressor and condenser fans after request	0 ... 255	secs	0	0	0	0	0	0	0	0	0	0	0	10	
DEFROST ("dEF" folder)																
dty	Type of defrost. 0= electric defrost - compressor OFF during defrost cycle 1= cycle inversion defrost (hot gas) - compressor ON during defrost cycle 2= 'Free': defrosting independently of compressor	0/1/2	num						0	0	1	0	0	0	1	0
dit	Interval between the start of two consecutive defrost cycles. 0 = function disabled (defrosting NEVER performed)	0 ... 250	hours	24	24	24	24	24	2	6	24	24	2	6	10	
dCt	Selects the count mode for the defrost interval: 0 = compressor hours of operation (DIGIFROST® method); Defrost active ONLY when the compressor is on. N.B.: compressor operation time is counted separately from the evaporator probe (count active also when evaporator probe missing or faulty). 1 = appliance running hours = the defrost count is always active when the machine is on and starts at each power-on; 2 = compressor stop Every time the compressor stops, a defrost cycle is performed according to parameter dTY; 3 = temperature	0/1/2/3	num	1	1	1	1	1	0	1	1	1	0	1	1	
dOH	Defrost start delay time after request.	0 ... 59	min	0	0	0	0	0	0	0	0	0	0	0	0	0
dEt	Defrost time-out; determines the maximum defrost duration.	1 ... 250	min	30	30	30	30	30	30	30	30	30	30	30	30	45
dSt	Defrost end temperature (determined by the evaporator probe).	-67,0 ... 320	°C/°F					8,0	3,0	8,0	8,0	8,0	3,0	8,0	7,0	
dPO	Determines whether the instrument must enter defrost mode (if the temperature measured by the evaporator allows this operation). n = no, does not start defrosting at start-up; y = yes, starts defrost at start-up.	n/y	flag	n	n	n	n	n	n	n	n	n	n	n	y	
dSE	Temperature threshold for start of defrost.	-67,0 ... 320	°C/°F	0,0	0,0	0,0	0,0	0,0	-6,0	0,0	0,0	0,0	-6,0	0,0	-6,0	
dtT	Time for which the temperature of the evaporator must remain below dSE.	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0	0
FAN REGULATOR ("FAn" folder)																
FpT	Characterizes the "FSt" parameter that can be expressed or as an absolute temperature value or as a value related to Setpoint. 0 = absolute; 1 = relative.	0/1	flag						0	0	0	0	0	0	0	0
FSt	Fan lock temperature; if Pb2 > FSt , the fans are stopped. The value is either positive or negative and, depending on parameter FpT , can be either the absolute temperature or the temperature relative to the Setpoint.	-67,0 ... 320	°C/°F					50,0	-20,0	50,0	50,0	50,0	-20,0	50,0	50,0	
FAd	Fan starting differential (see parameters FSt and Fot).	1,0 ... 50,0	°C/°F					2,0	1,0	2,0	2,0	2,0	1,0	2,0	1,0	
Fdt	Delay time in activating fans after a defrost operation.	0 ... 250	min					0	0	0	0	0	0	0	0	0
dt	drainage time. Dripping time.	0 ... 250	min					0	0	0	0	0	0	0	0	0
dFd	Allows to select the evaporator fans exclusion during defrost. y = yes; n = no.	n/y	flag					y	y	y	y	y	y	y	y	y
FCO	Evaporator fans operating mode. The state of the fans will be:															
			DAY		NIGHT											
	H42	FCO	COMPRESSOR ON	COMPRESSOR OFF	COMPRESSOR ON	COMPRESSOR OFF										
	H42 = y	0	Regulated by Pb2	OFF	Regulated by Pb2	OFF										
		1	Regulated by Pb2	Regulated by Pb2	Regulated by Pb2	Regulated by Pb2										
		2	Regulated by Pb2	Duty cycle Day	Regulated by Pb2	Duty cycle Night										
		3	Duty cycle Day	Duty cycle Day	Duty cycle Night	Duty cycle Night										
	H42 = n	0	ON	OFF	ON	OFF										
		1	ON	Duty cycle Day	ON	Duty cycle Night										
		2	ON	Duty cycle Day	ON	Duty cycle Night										
3		Duty cycle Day	Duty cycle Day	Duty cycle Night	Duty cycle Night											
Duty cycle Day: controlled by means of parameters "Fon" and "FoF" . Duty cycle Night: controlled by means of parameters "FnN" and "FnF" .																
FdC	Evaporator fans switch-off delay after compressor disabled.	0 ... 99	min					1	0	1	1	1	0	1	0	
Fon	Fans ON time in duty cycle. Fans used in duty cycle mode; valid when FCO = dc and H42=1 (Pb2 probe present)	0 ... 250	secs*10					12	2	12	12	12	2	12	2	
FoF	Fans OFF time in duty cycle. Fans used in duty cycle mode; valid when FCO = dc and H42=1 (Pb2 probe present)	0 ... 250	secs*10					6	1	6	6	6	1	6	1	

PAR.	DESCRIPTION	RANGE	M.U.	EWPlus 961 EO LVD				EWPlus 971 EO LVD				EWPlus 974 EO LVD			
				AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4
Fnn	Fans ON time in night duty cycle. Fans used in duty cycle mode; valid when FCO = dc and H42=1 (Pb2 probe present)	0 ... 250	secs*10					1	1	1	1	1	1	1	1
FnF	Fans OFF time in night duty cycle. Fans used in duty cycle mode; valid when FCO = dc and H42=1 (Pb2 probe present)	0 ... 250	secs*10					12	10	12	12	12	10	12	10
ALARMS ("AL" folder)															
Att	Parameters HAL and LAL intended as the absolute temperature value or differential in relation to the setpoint. 0 = absolute value; 1 = relative value. N.B.: In case of relative values (para. Att=1) parameter HAL should be set to positive values, whilst parameter LAL should have only negative values (-LAL).	0/1	num	1	1	1	1	1	0	1	1	1	0	1	1
AFd	Alarm differential.	1,0 ... 50,0	°C/°F	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	1,0
HAL (!)	Maximum temperature alarm. Temperature value (intended either as distance from Setpoint or as an absolute value based on Att) which, if exceeded in an upward direction, triggers the activation of the alarm signal. See "Max/Min Temperature Alarms".	LAL to 320	°C/°F	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	9,5
LAL (!)	Minimum temperature alarm. Temperature value (intended as distance from the set point or as an absolute value based on Att) which, when exceeded downwards, triggers the activation of the alarm signal. See "Max/Min Temperature Alarms".	-67,0 to HAL	°C/°F	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-50,0	-2,0
PAO (!)	Alarm exclusion time after instrument switch on, after a power failure. This parameter refers to high/low temperature alarms only.	0 ... 10	hours	0	0	0	0	0	0	0	0	0	0	0	2
dAO	Temperature alarm exclusion time after defrost.	0 ... 999	min	0	0	0	0	0	0	0	0	0	0	0	60
OAO	Alarm signaling delay (low and high temperature) after digital input disabling (door close).	0 ... 10	hours	0	0	0	0	0	0	0	0	0	0	0	0
tdO	Alarm activation delay time open door.	0 ... 250	min	0	0	0	0	0	0	0	0	0	0	0	0
tAO	Temperature alarm signal delay time. This parameter refers to high/low temperature alarms only.	0 ... 250	min	0	0	0	0	0	0	0	0	0	0	0	30
dAt	Alarm for defrosting ended due to time out. n = alarm deactivated; y = alarm activated.	n/y	flag					n	n	n	n	n	n	n	n
rLO	External alarm locks controllers. n = does not lock; y =locks	n/y	flag	n	n	n	n	n	n	n	n	n	n	n	n
AOP	Alarm output polarity. 0 = alarm active and output disabled; 1 = alarm active and output enabled.	0/1	num					1	1	1	1	1	1	1	1
COOL PROTECTION ("CPr" folder)															
CPS	Cool protection setpoint	-67,0 ... 320	°C/°F	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0	-10,0
CPd	Cool protection differential	0,1 ... 30,0	°C/°F	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
CPt	Time that the temperature remains below the cool protection Setpoint (CPS)	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0
LIGHTS & DIGITAL INPUTS ("Lit" folder)															
dOd	Enable utility switch-off on activation of door switch. 0 = disabled 1 = disables fans 2 = disables the compressor 3 = disables fans and compressor	0/1/2/3	num	1	1	1	1	1	0	1	1	1	0	1	0
dAd	Activation delay for digital input	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0
dCO	Compressor deactivation delay after door opened	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0
dCd	Fans activation delay after door closed	0 ... 250	secs	10	10	10	10	10	10	10	10	10	10	10	0
PRESSURE SWITCH ("PrE" folder)															
PEn	Number of errors allowed for general pressure switch input. 0 = disabled.	0 ... 15	num	5	5	5	5	5	5	5	5	5	5	5	5
PEI	Minimum/maximum pressure switch error count interval	1 ... 99	min	1	1	1	1	1	1	1	1	1	1	1	1
PEt	Delay in activating compressor after pressure switch deactivation	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0
POWER SUPPLY CONTROL ("SuC" folder) ➡ NOTE: all parameters available in the folder are not available in the vectors.															
SPH	Maximum supply voltage threshold. 0 = deactivated.	0 ... 300	Volt	250				250				250			
SPL	Minimum supply voltage threshold. 0 = deactivated.	0 ... 250	Volt	190				190				190			
dFL	Intervention differential. 0 = deactivated.	0,1 ... 25,0	Volt	5,0				5,0				5,0			
SoU	Selection of the output to be deactivated. 0 = no output; 1 = out1 (A); 2 = out2 (B); 3 = out1 (A) + out2 (B); 4 = out3 (C); 5 = out1 (A) + out3 (C); 6 = out2 (B) + out3 (C); 7 = out1 (A) + out2 (B) + out3 (C)	0 ... 7	num	1				1				1			
DEEP COOLING ("dEC" folder)															
dCA	Enable deep cooling (0 = disabled; 1 = manual; 2 = automatic).	0/1/2	num	2	2	2	2	2	2	2	2	2	2	2	2
dCS	Deep cooling setpoint.	-67,0 ... 320	°C/°F	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0	-2,0
tdC	Deep cooling duration.	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0
dcc	Defrost delay after deep cooling.	0 ... 255	min	0	0	0	0	0	0	0	0	0	0	0	0
Sid	Deep cooling start threshold.	-67,0 ... 320	°C/°F	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0
toS	Over-threshold time for deep cooling start.	0 ... 255	min	5	5	5	5	5	5	5	5	5	5	5	5
ENERGY SAVING ("EnS" folder)															
ESt	Energy Saving mode: 0 = disabled; 1 = Offset on setpoint; 2 = Offset on differential; 3 = Offset on setpoint and differential; 4 = 'Bottle cooler open front' algorithm; 5 = 'Bottle cooler glass door' algorithm; 6 = 'Vertical display cabinet' algorithm	0 ... 6	num	5	5	4	4	5	4	6	5	5	4	6	4
ESA	AUX output status in energy saving mode: 0 = disabled (no effect on AUX); 1 = AUX off; 2 = AUX on	0/1/2	num	0	0	0	0	1	1	0	0	1	1	1	1
ESF	Night mode activation (Energy saving) for fans. n = disabled; y =enabled if energy saving mode is active (ESt ≠ 0)	n/y	flag	y	y	y	y	y	y	y	y	y	y	y	y
Cdt	Door close time	0 ... 255	min*10	6	6	6	6	6	6	6	6	6	6	6	6
ESo	Cumulative door open time for disabling Energy Saving mode	0 ... 10	num	0	0	0	0	0	0	5	0	0	0	5	0
OSP	Offset on setpoint	-30,0 ... 30,0	°C/°F	0,5	0,5	1,0	1,0	0,5	1,0	0,5	0,5	0,5	1,0	0,5	1,0
OdF	Intervention differential correction	0,0 ... 30,0	°C/°F	4,0	4,0	2,0	2,0	4,0	2,0	4,0	4,0	4,0	2,0	4,0	2,0
dnt	Duration of night mode	0 ... 24	hours	11	11	10	9	11	10	11	11	11	10	10	9
dFt	Duration of fast cooling mode	0 ... 24	hours	0	0	1	1	0	1	1	0	0	1	1	1
SPn	Night mode setpoint	LSF ... HSF	°C/°F	0,7	0,7	3,0	6,5	0,7	3,0	1,0	0,7	0,7	3,0	1,0	6,5

PAR.	DESCRIPTION	RANGE	M.U.	EWPlus 961 EO LVD				EWPlus 971 EO LVD				EWPlus 974 EO LVD			
				AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4	AP1	AP2	AP3	AP4
dFn	Night mode offset.	0,1 ... 30,0	°C/°F	4,0	4,0	2,0	0,1	4,0	2,0	4,0	4,0	4,0	2,0	4,0	0,1
SPF	Fast cooling setpoint.	LSE ... HSE	°C/°F	0,0	0,0	-0,5	-6,8	0,0	-0,5	-2,0	0,0	0,0	-0,5	-2,0	-6,8
dFF	Fast cooling offset.	0,1 ... 30,0	°C/°F	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
ESP	Virtual door regulator's sensitivity.	0 ... 5	num	0	0	0	0	0	0	0	0	0	0	0	0
dOt	Maximun Time Door Open with virtual door switch.	0 ... 255	sec	0	0	0	0	0	0	0	0	0	0	0	0
COMMUNICATION ("Add" folder)				NOTE: all parameters available in the folder are not available in the vectors.											
PtS (!)	Communication protocol selection (t = Televis; d = ModBus).	t/d	flag	t				t				t			
dEA (!)	Device address: indicates the device address to the management protocol.	0...14	num	0				0				0			
FAA (!)	Family address: indicates the device family to the management protocol.	0...14	num	0				0				0			
Pty (!)	Modbus parity bit setting (n = none; E = even; o = odd).	n/E/o	flag	n				n				n			
StP (!)	Modbus stop bit setting.	1b/2b	flag	1b				1b				1b			
DISPLAY ("dis" folder)															
LOC	LOCK. Setpoint change shutdown. There is still the possibility to enter into parameters programming and modify these, including the status of this parameter to permit keyboard shutdown. n = no; y = yes.	n/y	flag	n	n	n	n	n	n	n	n	n	n	n	n
PS1	PAssword 1. When enabled (PS1 ≠ 0), this is the access key to level 1 parameters (User).	0...250	num	0	0	0	0	0	0	0	0	0	0	0	0
PS2	PAssword 2. When enabled (PS2 ≠ 0), this is the access key to level 2 parameters (Installer).	0...250	num	15	15	15	15	15	15	15	15	15	15	15	15
ndt	Display with decimal point. n = no (integers only); y = yes (displayed with decimal point).	n/y	flag	y	y	y	y	y	y	y	y	y	y	y	y
CA1	Calibration 1. Positive or negative temperature value added to the value read by Pb1. This sum is used both for the temperature displayed and for regulation.	-12,0...12,0	°C/°F	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
CA2	Calibration 2. Positive or negative temperature value added to the value read by Pb2. This sum is used both for the temperature displayed and for regulation.	-12,0...12,0	°C/°F					0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
ddl	Display mode during defrost. 0 = display the temperature read by Pb1; 1 = locks the reading on the temperature value read by Pb1 when defrosting starts, and until the next time the SET value is reached; 2 = displays the label deF during defrosting, and until the next time the SET value is reached. (or until Ldd has elapsed).	0/1/2	num	1	1	1	1	1	1	1	1	1	1	1	1
Ldd	Timeout value for display unlock - deF label	0 ... 255	min	30	30	30	30	30	30	30	30	30	30	30	30
dro	Select °C or °F for displaying the temperature read by probes. 0 = °C, 1 = °F. NOTE: switching between °C and °F or vice-versa DOES NOT modify the SET, diF values, etc. (e.g. Setpoint=10°C becomes 10°F).	0/1	num	0	0	0	0	0	0	0	0	0	0	0	0
ddd	Selection of type of value to be displayed. 0 = Setpoint; 1 = probe Pb1; 2 = probe Pb2; 3 = not used.	0/1/2/3	num	1	1	1	1	1	1	1	1	1	1	1	1
CONFIGURATION ("CnF" folder) - NOTE: the instrument must be switched off and then on again each time folder CnF parameter configuration is modified to prevent any malfunction of the configuration and/or current timer operations.															
H08	Stand-by operating mode. 0 = display switch off; the loads are active and the device reactivates the display to signal any alarms; 1 = display switch off, loads and alarms stopped; 2 = display with OFF label, loads and alarms stopped.	0/1/2	num	2	2	2	2	2	2	2	2	2	2	2	2
H11	Configuration of digital input 1/polarity (D.I.1). 0 = disabled; ± 1 = defrost; ± 2 = reduced SET; ± 3 = AUX; ± 4 = door switch; ± 5 = external alarm; ± 6 = stand-by (ON-OFF); ± 7 = pressure switch; ± 8 = deep cooling; ± 9 = energy saving; ± 10 = door switch + energy saving. N.B.: - the "+" sign indicates that the input is active if the contact is closed - the "-" sign indicates that the input is active if the contact is open	-10 ... 10	num	10	0	9	9	10	9	10	10	10	9	10	9
H12	Configuration of digital input 2/polarity (D.I.2). Same as H11.	-10 ... 10	num	0	0	0	0	0	0	0	0	0	0	0	0
H21	Configurability of digital output 1 (A). 0 = disabled; 1 = compressor; 2 = defrost; 3 = Fans; 4 = alarm; 5 = AUX; 6 = Stand-by; 7 = not used; 8 = condenser fan change rotation; 9 = retain valve.	0 ... 9	num	1	1	1	1	1	1	1	1	1	1	1	1
H22	Configurability of digital output 2 (B). Analogo a H21.	0 ... 9	num					5	5	2	3	3	3	2	8
H23	Configurability of digital output 3 (C). Analogo a H21.	0 ... 9	num									5	5	3	5
H25	Enable/Disable buzzer. 0 = disabled; 4 = enabled; 1-2-3-5-6-7-8-9 = not used	0 ... 9	num	0	0	0	0	0	0	0	0	0	0	0	0
H32	Configurability of DOWN key. 0 = disabled; 1 = defrost; 2 = AUX; 3 = reduced SET; 4 = Stand-by; 5 = deep cooling; 6 = energy saving	0 ... 6	num	0	0	0	0	2	2	0	0	2	2	0	2
H33	Configurability of ESC key. Same as H32	0 ... 6	num	4	4	4	4	4	4	4	4	4	4	4	4
H42	Evaporator probe present (Pb2). n = not present; y = present.	n/y	flag					y	y	y	y	y	y	y	y
reL	reLease firmware. Device version: read-only parameter	/	/	/	/	/	/	/	/	/	/	/	/	/	/
tAb	tAbLe of parameters. Reserved: read-only parameter	/	/	/	/	/	/	/	/	/	/	/	/	/	/
COPY CARD ("Fpr" folder)															
UL	Upload. Programming parameter transfer from instrument to Copy Card.	/	/	/	/	/	/	/	/	/	/	/	/	/	/
Fr	Format Copy Card. Erase all data contained in the Copy Card. ATTENTION: If parameter "Fr" is used, the data entered will be permanently lost. This operation cannot be cancelled	/	/	/	/	/	/	/	/	/	/	/	/	/	/
FUNCTION ("Fnc" folder)															
The following function is available in the 'Fnc' folder:															
Function		Function label ACTIVE				Function label INACTIVE				alarm signalled					
Reset pressure switch alarms		rAP				rAP				Led ON					
NOTES:															
• To modify the status of a specified function press the 'set' button															
• If the unit is switched off, the function labels go back to their default status															

DIAGNOSTICS

Alarms are always indicated by the buzzer (if present) and the alarm icon (🔊).

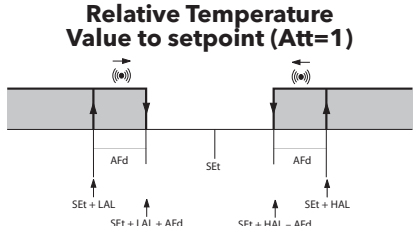
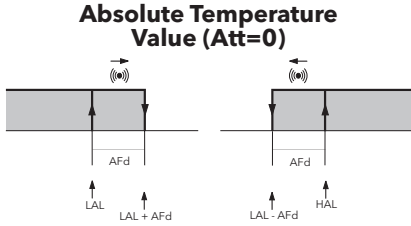
To switch off the buzzer, press and release any key; the corresponding icon will continue to flash.

N.B.: If alarm exclusion times have been set (see "AL" folder in the parameters table) the alarm will not be signalled.

ALARMS

Label	Fault	Cause	Effects	Remedy
E1	Probe1 faulty (cold room)	<ul style="list-style-type: none"> measured values are outside operating range Probe faulty/short-circuited/open 	<ul style="list-style-type: none"> Display label E1 Alarm icon permanently on Disable max/min alarm controller Compressor operation based on parameters 'Ont' and 'OFt'. 	<ul style="list-style-type: none"> check probe wiring replace probe
E2	Probe2 faulty (defrost) only on EWPlus971/974 EO LVD	<ul style="list-style-type: none"> measured values are outside operating range Probe faulty/short-circuited/open 	<ul style="list-style-type: none"> Display label E2 Alarm icon permanently on The Defrost cycle will end due to Timeout (dEt) The evaporator fans will work in Duty Cycle mode. 	<ul style="list-style-type: none"> check probe wiring replace probe
AH1	Alarm for HIGH Pb1 temperature	value read by Pb1 > HAL after time of tAO . (see "MAX/MIN TEMPERATURE ALARMS")	<ul style="list-style-type: none"> Recording of label AH1 in folder AL No effect on regulation 	<ul style="list-style-type: none"> Wait until value read by Pb1 returns below HAL-AFd.
AL1	Alarm for LOW Pb1 temperature	value read by Pb1 < LAL after time of tAO . (see "MAX/MIN TEMPERATURE ALARMS")	<ul style="list-style-type: none"> Recording of label AL1 in folder AL No effect on regulation 	<ul style="list-style-type: none"> Wait until value read by Pb1 returns above LAL+Afd.
EA	External Alarm	digital input activation (H11 = ±5)	<ul style="list-style-type: none"> Recording of label EA in folder AL Alarm icon permanently on Regulation locked if rLO = y 	<ul style="list-style-type: none"> check and remove the external cause which triggered the alarm on the D.I.
OPd	Door open alarm	digital input activation (H11 = ±4) (for longer than tdO)	<ul style="list-style-type: none"> Recording of label OPd in folder AL Alarm icon permanently on Controller locked 	<ul style="list-style-type: none"> close the door delay function defined by OA0
Ad2	end of defrost cycle due to timeout	end of defrost cycle due to timeout rather than due to defrost end temperature being recorded by probe Pb2.	<ul style="list-style-type: none"> Recording of label Ad2 in folder AL Alarm icon permanently on 	<ul style="list-style-type: none"> wait for the next defrost cycle for automatic return
Ad3	end of defrost cycle due to timeout	activation of the defrost for temperature independently dAt . (active if dCt = 3)	<ul style="list-style-type: none"> Recording of label Ad3 in folder AL Alarm icon permanently on 	<ul style="list-style-type: none"> wait for the next defrost cycle for automatic return
HiP	HIGH voltage alarm	Voltage value read by the analog input is higher than the SPH value.	<ul style="list-style-type: none"> Display label HiP Alarm icon permanently on Regulation locked depending on SoU value. 	<ul style="list-style-type: none"> wait for the value read by the analog input returns below SPH-dFL
LoP	LOW voltage alarm	Voltage value read by the analog input is lower than the SPL value.	<ul style="list-style-type: none"> Display label LoP Alarm icon permanently on Regulation locked depending on SoU value. 	<ul style="list-style-type: none"> Wait for the value read by the analog input returns above SPL+dFL
nPA	General pressure switch alarm	Activation of pressure alarm by general pressure switch. (H11 = ±7)	<p>If the number N of pressure switch activations is N < PEn:</p> <ul style="list-style-type: none"> Recording of folder nPA in folder AL, with the number of pressure switch activations Regulation locked (Compressor and Fans) 	<ul style="list-style-type: none"> check and remove the cause which triggered the alarm on the D.I. (Automatic Reset)
PAL	General pressure switch alarm	Activation of pressure alarm by general pressure switch. (H11 = ±7)	<p>If the number N of pressure switch activations is N = PEn:</p> <ul style="list-style-type: none"> Display label PAL Recording of label PA in folder AL Alarm icon permanently on Regulation locked (Compressor and Fans) 	<ul style="list-style-type: none"> Switch the device off and back on again Reset alarms by entering the functions folder and selecting the rAP function (Manual Reset)

MAX/MIN TEMPERATURE ALARMS

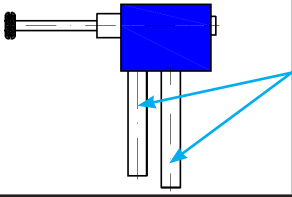
	Relative Temperature Value to setpoint (Att=1)	Absolute Temperature Value (Att=0)
		
Minimum temperature alarm	Temp. ≤ Set + LAL *	Temp. ≤ LAL (LAL with sign)
Maximum temperature alarm	Temp. ≥ Set + HAL **	Temp. ≥ HAL (HAL with sign)
Returning from minimum temperature alarm	Temp. ≥ Set + LAL + Afd or Temp. ≥ Set - LAL + Afd (LAL < 0)	Temp. ≥ LAL + Afd
Returning from maximum temperature alarm	Temp. ≤ Set + HAL - Afd (HAL > 0)	Temp. ≤ HAL - Afd
	<p>* if LAL is negative, Set + LAL < Set ** if HAL is negative, Set + HAL < Set</p>	

10.2 Trouble Shooting Symptoms and causes

Symptom	Possible causes
No power	<ol style="list-style-type: none"> 1. Main circuit breaker open 2. Fuse Blown 3. Loose wire connection
Main fuse or breaker blown	<ol style="list-style-type: none"> 1. Wiring incorrectly 2. Short circuit heating element 3. Short circuit fan element 4. Short circuit wiring
Illumination does not work	<ol style="list-style-type: none"> 1. Led malfunction 2. Tumble switch malfunction 3. Led driver malfunction 4. Loose / short circuit wiring connection
No heating	<ol style="list-style-type: none"> 1. Heating element malfunction 2. Relay malfunction 3. Loose wiring connection 4. Thermostat malfunction 5. Loos wiring connection 6. Air flow not functioning
No cooling	<ol style="list-style-type: none"> 1. Compressor malfunction 2. Loose wiring connection 3. Thermostat malfunction 4. Loose wiring connection 5. Air flow not functioning
Unit does not reach desired temperature	<ol style="list-style-type: none"> 1. Heating element malfunction (HOT unit only) 2. Cooling unit malfunction (COLD unit only) 3. Strong air current along unit / Draft 4. Burned contact on contactor 5. Sensor malfunction 6. Sliding doors not closed
No indication on controller	<ol style="list-style-type: none"> 1. Electronic controller malfunction 2. Blown fuse 3. Loose wiring connection
No air flow inside unit	<ol style="list-style-type: none"> 1. Fans do not work 2. Blown fuse 3. Loose wiring connection 4. 24Vdc power supply malfunction
Evaporator full of ice	<ol style="list-style-type: none"> 1. Set point too low 2. Humidity too high 3. Defrost sensor not in right position 4. Defrost sensor malfunction 5. Parameters not according the specified values 6. Electronic thermostat malfunction
Products dry out (Hot FS only)	<ol style="list-style-type: none"> 1. No water intake / Not filled by hand 2. No water intake, supply not open 3. No water intake, inlet valve blocked, or defective 4. No water, or too much water, Water level sensor

10.3 Trouble Shooting Analytical description

Description of part	Symptoms	Possible causes	Solution / Action
Contactor	Contactor does not work	Wiring Coil malfunction Contact burned	Check wiring Check resistance of coil +/- 525Ω Check the contacts Replace contactor
Heating element (HOT unit)	Unit is not reaching the set temperature	Wiring Element malfunction Air flow not Working, Fan's not turning	Check wiring Check power on elements per shelf Check current with AC current tester Check Resistance (refer 6.4) Replace element Check wiring Check power on fans per shelf Replace Air box / Power Supply
Cooling engine (COLD unit)	Cooling system does not initiate (compressor doesn't run)	Wiring cooling Engine Compressor Malfunction	Check wiring Replace cooling engine
Tumble switch	Light, heating or cooling does not switch on	Wiring Contact burned	Check wiring Check the voltage on "in" and "output"
LED	Light does not turn on	Wiring LED broken Led driver defect	Check Wiring Replace LED Replace LED driver
Electronic thermostat	Display does not light up The unit is not reaching the set temperature	Wiring Loose sensor Thermostat Malfunction Thermostat setting	Check wiring Check sensor Replace thermostat Check parameters

PTC 1000 sensor (Hot Unit)	<p>The unit is not reaching the set temperature or does not heat up at all</p> <p>The unit becomes too hot</p>	<p>Broken Sensor</p> <p>Loose sensor</p> <p>Broken Sensor</p> <p>Loose sensor</p>	<p>Replace sensor</p> <p>Check sensor wiring</p> <p>Replace sensor</p> <p>Check sensor wiring</p>
Defrost sensor (Cold Unit)	<p>Ice on evaporator</p> <p>The unit is not reaching the set temperature or does not cool at all</p> <p>The unit becomes too cold</p>	<p>Condensor blocked</p> <p>Broken Sensor</p> <p>Loose sensor</p> <p>Broken Sensor</p> <p>Loose sensor</p>	<p>Clean condensor with long haired soft brush</p> <p>Replace sensor</p> <p>Check sensor wiring</p> <p>Replace sensor</p> <p>Check sensor wiring</p>
Air out sensor (Cold Unit)	<p>Ice on evaporator</p> <p>The unit is not reaching the set temperature or does not cool at all</p> <p>The unit becomes too cold</p>	<p>Condensor blocked</p> <p>Broken Sensor</p> <p>Loose sensor</p> <p>Broken Sensor</p> <p>Loose sensor</p>	<p>Clean condensor with long haired soft brush</p> <p>Replace sensor</p> <p>Check sensor wiring</p> <p>Replace sensor</p> <p>Check sensor wiring</p>
Water intake (Hot FS only)	<p>Not filling of Humidification tray</p> 	<p>Water supply closed</p> <p>Inlet Valve</p> <p>Contaminated of water level sensor</p>	<p>Open water supply</p> <p>Check, clean or replace</p> <p>Clean or replace</p>

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11.0 Replacement and Adjustments

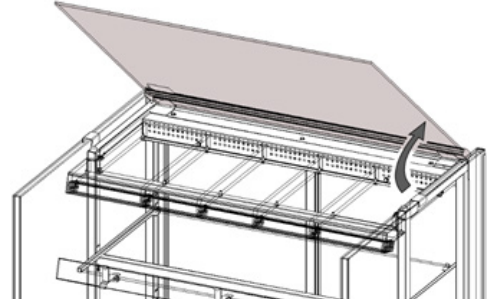
11.1

Top glass replacement

1. For replacement, open top glass pane entirely.

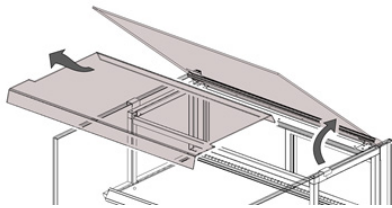


Be aware of the weight of the glass.

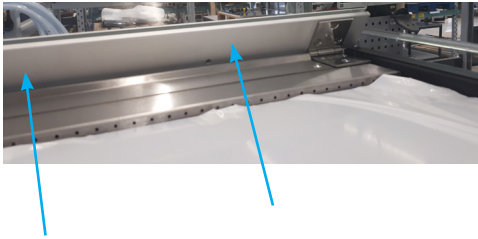
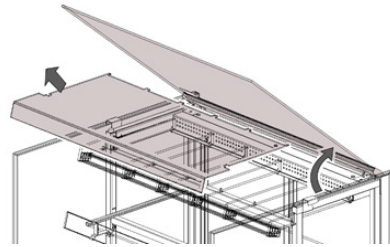


2. Remove the air guide (for the hot version) or the air box (for the cold version) by simply lifting them out.

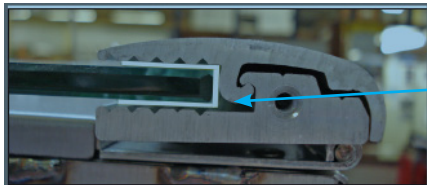
HOT



COLD



3. Loosen the adjusting screws which secure the glass with a torques key TX15
Depending on the length of the unit, there are 4, 6 or 8 screws.

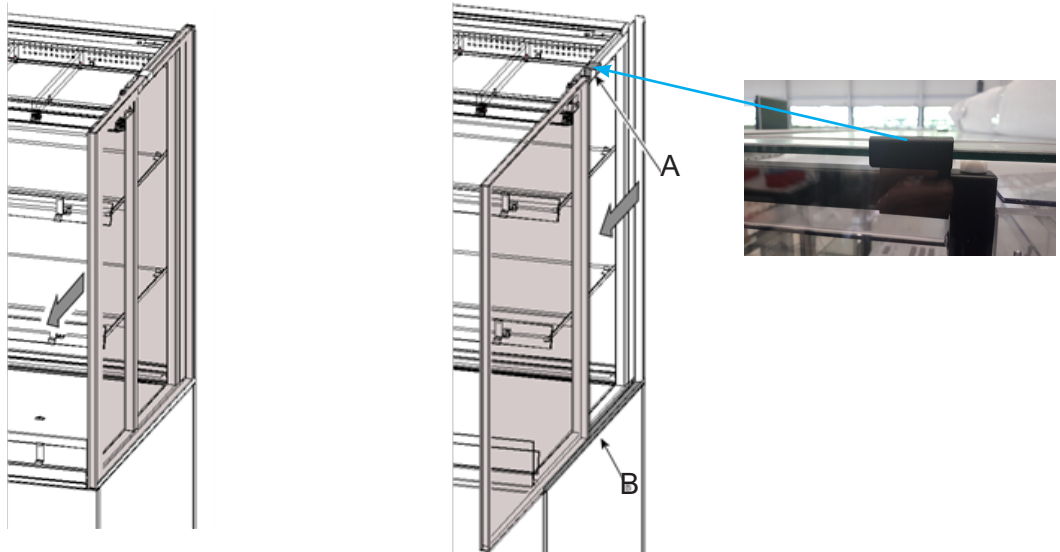


4. When refitting the glass, make sure the silicon protection profile is on.

11.2. Side glass replacement

The side pane glass of the units can easily be replaced.

1. Slide the double glass pane towards the front along the top (A) and bottom (B) guiding rails.
The side pane can be removed from the unit once it has slid entirely past the top guide.



CAUTION:

Once past the top guide, the glass pane might fall if not properly held.

Hence do not leave it standing upright without being supported by both guide rails or holding it.

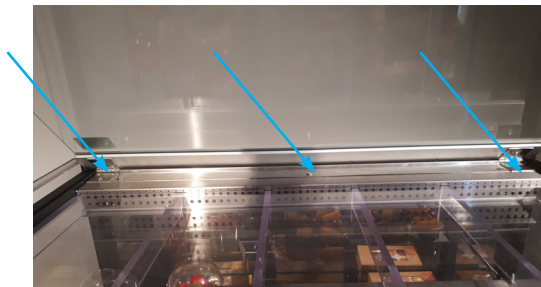
2. Before placing a new side pane, clean the guiding rails. (Top, back and bottom)
3. Before sliding the new pane into the rails, ensure the transparent sides of the pane are facing forwards and up.
4. Slide it all the way back till the front of the pane is in line with the front plating.

11.4 Sliding door Replacement (First version (magnets in rails))

(Two different versions, please select appropriate type)

In order to replace the sliding doors, take following step:

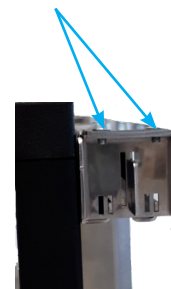
1. Remove Sliding door stopper (three screws). Left and right side.
2. Remove rail cover, loosen mounting screws and pull cover backwards.



Screws



3. Remove rail stopper (two screws on top).
4. Remove sliding door(s).



5. Replace in reverse order.

11.4.1 Sliding door Replacement (Second version, magnets in door)

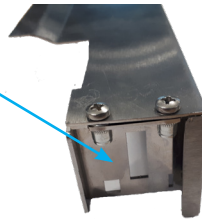
(Two different versions, please select appropriate type)

Recognizable: Two screws on top of rail cover. Top back side, two left and two right.



In order to replace the sliding doors, take following step:

1. Remove Sliding door stopper (three screws). Left and right side.
2. Remove Rail cover, four screws, on top of rails two left and two right.
3. Remove rail stopper
4. Remove sliding door(s).
5. Replace in reverse order.



screws

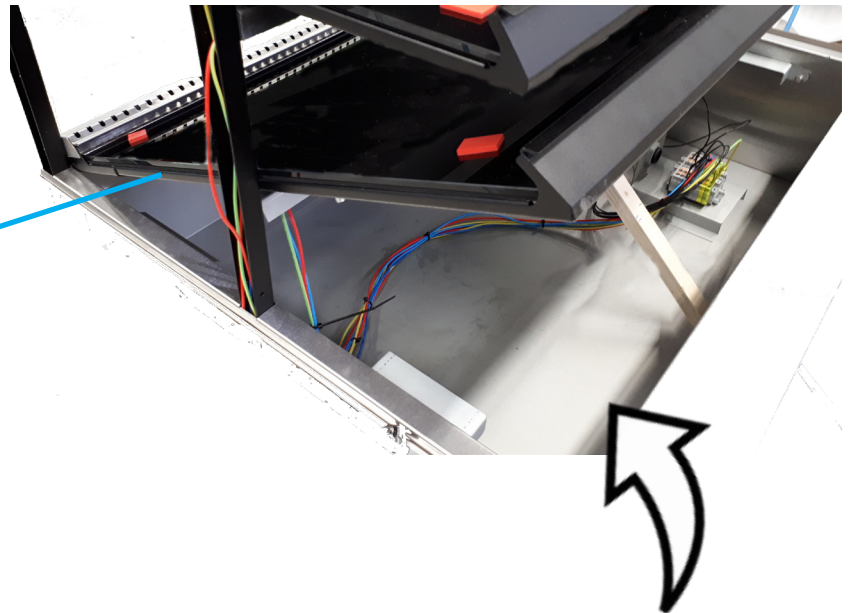
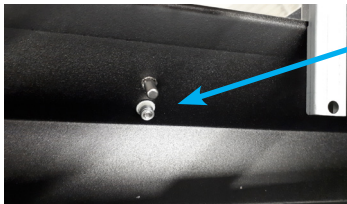


11.5 Sensor Replacement (Hot Unit)



1. Remove the brackets (two pieces, one left, one right). One Screw each.

2. Lift bottom shelf at the front. It is turnable.
3. Sensor is located at the back.
4. Sensor is screwed from the outside in.



5. Remove glass pane from lowest shelf. (see 11.10).
6. Remove fan box. (see 11.9).
7. Unscrew the sensor holding plate.
8. Click sensor out of mounting bracket.
9. Place new sensor, put wiring in the same location as the old wiring.



11.6 Sensor Replacement (Cold Unit)



Defrost sensor

Under construction

Air out sensor

Under construction



11.7 Child glass replacement

1. Remove front panel (see 11.16).
2. Loosen mounting screws (3x) of child glass.
Screwed from underneath
3. Place new child glass.
4. Mount in reverse order.



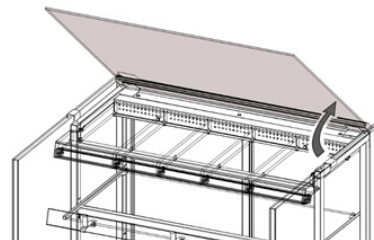
Mounting screws

11.8 MCC Air guide replacement

1. Air guide replacement
2. For replacement, open top glass pane entirely.

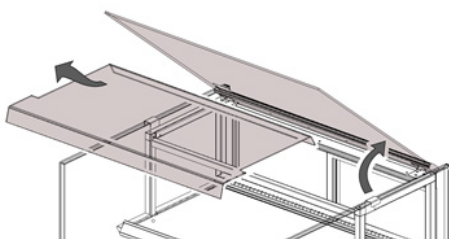


Be aware of the weight of the glass.

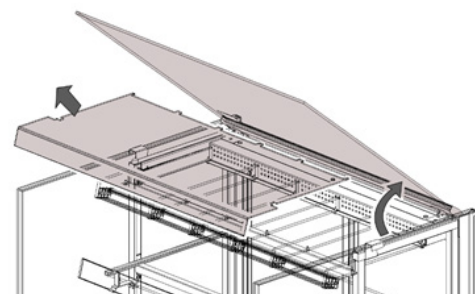


3. Remove the air guide by simply lifting them out.

HOT



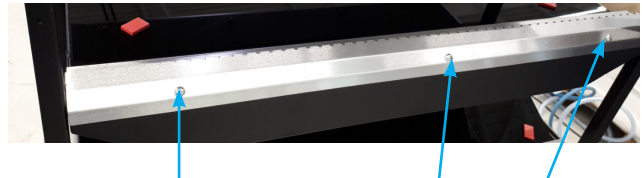
COLD



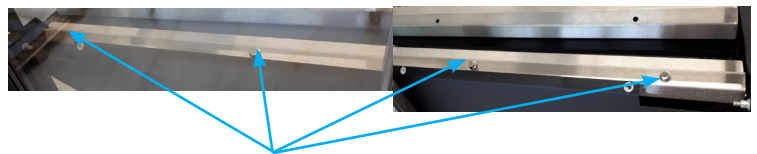
11.9 Fan box replacement (MCC Hot)



1. Remove air box cover (3 screws).

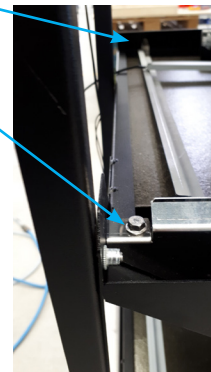
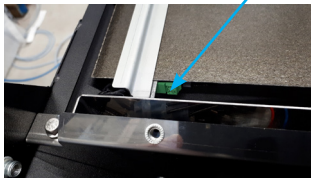


2. Remove glass pane clamp.
(4 or more bolts depending on unit length)



3. Remove Glass pane (refer 11.10).

4. Remove air box (1 connector, two screws).



5. Replace in reverse order.



Note:

If replacement has to take place on a solid back unit, the back panel assembly must be removed before accessing the air box screws mentioned in step 1

11.10 Replacement of shelf glass pane

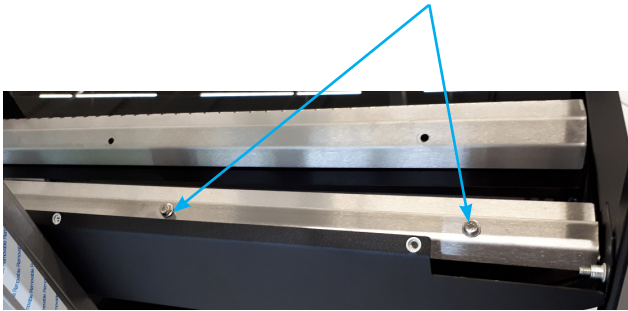


Each shelf is covered with a tempered glass pane.
To replace follow steps below:

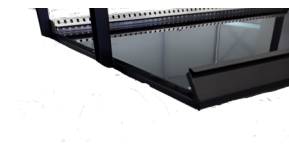
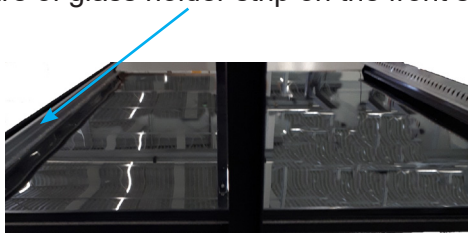
1. Remove air outlet cover by removing the screws (depending on length three or more screws)



2. Remove glass mounting profile by removing the screws (depending on length three or more screws)



3. Lift out glass pane, starting lifting from the back. (Take care of glass holder strip on the front side of the glass)



4. Take new glass pane, place front glass holder strip and place pane into position.

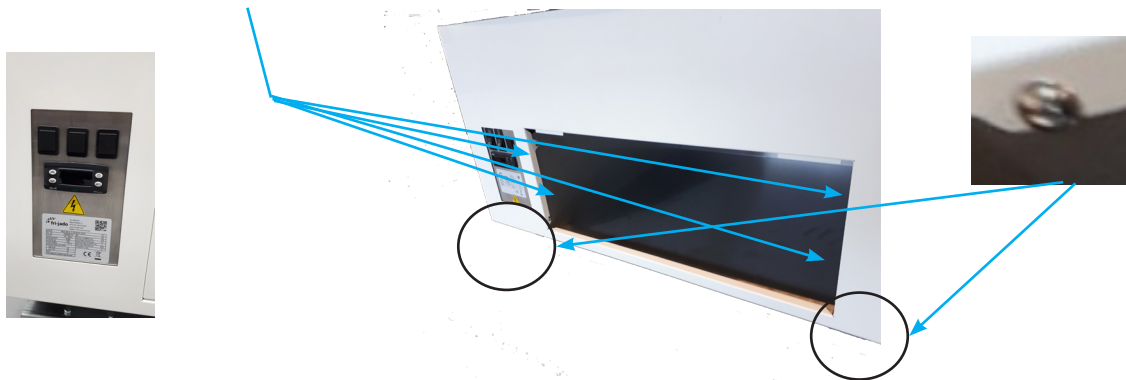
11.11 Opening Electrical box



Depending on the MCC version the electric box is placed at the back or in the front of the unit. For drop in versions the box can be placed anywhere in the build in counter.

First remove the panel (back or front depending on version)
Panel is fixed with two screws underneath the unit. Loosen those.

In some versions you also need to loosen the screws on the side of the under storage compartment.



After loosening the screws, you can remove the panel by pulling it slightly down and then turning it towards you.

Two lips on the top of the panel, keep the panel in place.

Depending on the version you find one
Screw on top of the electrical box,
or two screws, underneath the pull
out handle from the box.

Remove those screws.

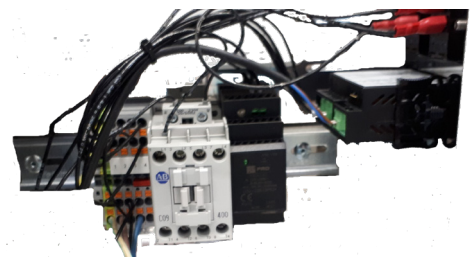
Now you can pull the box toward you.
The box will slide in its rails



Normal version (24V psu)



Special version (15V psu)
See serial number remarks in
parts section

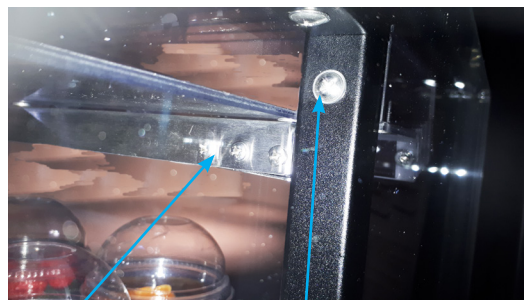


11.12 Led light Replacement



All LED Lights are mounted in the same way.

1. Remove side glass panes. (Refer 7.2)
2. Remove column cover.
(two screws, one on top backside and one at the bottom back side)
3. Pull off column cover.
4. Remove screw holding the LED housing .
5. Disconnect connector in Column, before you do so, make a note of the placing of the red and black cable in the connector.
6. Take LED light out of LED light holder, and place new LED.
7. Connect the wires from the new LED in the column, taking care of the notes you made regarding the red and black cable.



Column screw (top)

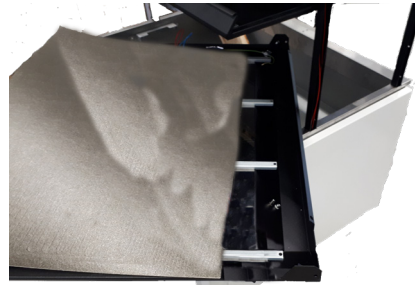
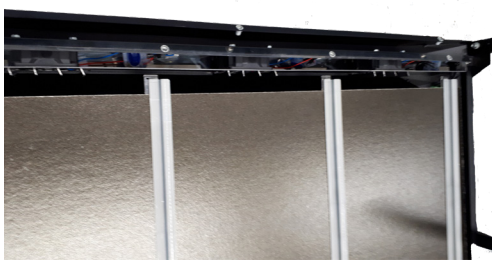
11.13 Heating element replacement



1. Remove Shelf Glass pane (refer 11.10)
2. Remove air box (refer 11.9).
3. Remove side glass (refer 11.2)
3. Remove column cover (middle left column cover, seen from back of unit).



4. Loosen Element holders, depending on the version the holders are twisted at the back side, or fastened with screws.



5. Take off the top element holders. Heating Element is now free to take out.



Make a note of the placement of the wiring.

6. Take out element.

If possible, follow the wires going down in the column.

If not, cut the wire in the column, leaving enough length to make a connection to the wires from the new element.

NEVER make a connection underneath the heating element

Connect the wires in the column using a wago connector like the one on this picture:



Take care of connecting:



Red to Red,
Blue to Blue, and
Yellow to Yellow.

11.14 Controller Replacement



1. Open Electric box (refer 11.11)
2. Unscrew the brown and Blue wire (Make note of connection points)
3. Unscrew the four black wires. (Make note of number and connection position)
4. Using a flat screwdriver push out the controller to the front of the box
5. Place new controller, by pushing it in.
6. Connect wires again, to the marked positions (point 2 and 3)
7. Check all parameter settings according the parameter list.(Chapter 9)



11.15 MCC Cold



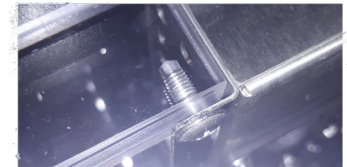
Top Fan replacement

Remark; Connection of end wires is done by Wago connector in the side beam.

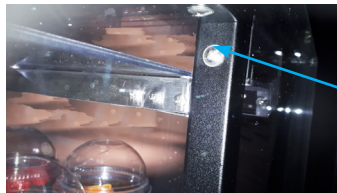
1. Remove side glass panels (See 11.2)
2. Remove Top glass (See 11.1)
3. Take out Air guide (see 11.8)



4. Remove Air box by unscrewing the mounting screws at the back



5. Remove column covers, left and right back by unscrewing the top and bottom screw.



Top cover screw

6. Open the air box by removing the closing screws



7. Take out the faulty fan, and replace.
Use new waterproof connectors to connect to the wires.
8. Replace is reverse order.

11.16 Panel Replacement

1. Remove Plinths (refer 4.8)

Front panel

1. Remove front panel, by removing the holding screws (left and right bottom corner)



Bottom view



2. Pull panel slightly towards you and down, to remove.
3. Replace in reverse order

Back panel

1. Remove back panel, by removing the holding screws (left and right bottom corner)

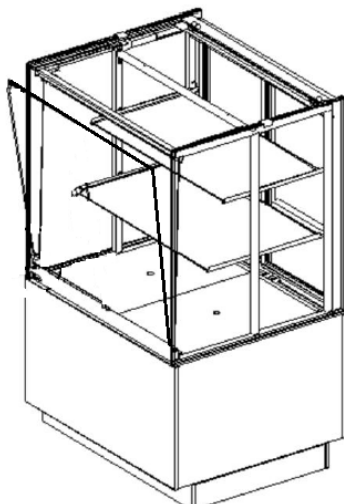
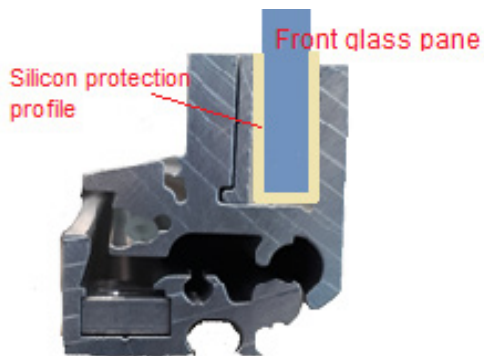


Bottom view



2. Pull panel slightly towards you and down, to remove.
3. Replace in reverse order

11-17 Front glass pane replacement (Full serve models)



1. Lift top glass to "unlock" the front glass
2. Slightly turn the front glass towards you
3. In the right tilted position, you can take glass pane including profile out.
4. Replace in reverse order.

12.0 Technical Specifications MCC Cold (Self Serve)

TECHNICAL SPECIFICATIONS MCC Cold Self Serve



WARNING

Consult the identification plate to get the proper specifications of the unit.
The electrical data may vary from country to country.

Self-service models

Model	MCC 90-3-C SS	MCC 120-3-C SS	MCC 150-3-C SS
Approved for	EU	EU	EU
Width	900 mm	1200 mm	1500 mm
Depth	750 mm	750 mm	750 mm
Height on stand	1420 mm	1420 mm	1420 mm
Height above worktop	840 mm	840 mm	840 mm
Weight Net approx.	173 kg / 382 lbs	199 kg / 439 lbs	225 kg / 496 lbs
Ambient Temperature	min. 17 °C / 62,2 °F max. 25 °C / 77 °F	min. 17 °C / 62,2 °F max. 25 °C / 77 °F	min. 17 °C / 62,2 °F max. 25 °C / 77 °F
Relative Humidity	max. 60%	max. 60%	max 60%
Noise Level (at workspace)	<70 dB(A)	<70 dB(A)	<70 dB(A)
Voltage	1N~ 230V	1N~ 230V	1N~ 230V
Frequency	50 Hz	50 Hz	50 Hz
Max. Nominal Current	4,6 A	5,5 A	6,1 A
Plug	2 pole earthed plug 16A	2 pole earthed plug 16A	2 pole earthed plug 16A
Length power cord approx.	1,5 m	1,5 m	1,5 m
Climate class (EN-ISO 23953-2:2015)	3 (25 °C/60%RH)	3 (25 °C/60%RH)	3 (25 °C/60%RH)
Minimum room floor area	11.00 m ²	14.35 m ²	17.70 m ²
Refrigerant	R290	R290	R290
Refrigerant charge	230 g	300 g	370 g
Height drop-in	1320 mm	1320 mm	1320 mm
Temperature class	3M1	3M1	3M1
Voltage	1N, 230VAC	1N, 230VAC	1N, 230VAC
Frequency	50 Hz	50 Hz	50 Hz
Power	0.48 kW	0.56 kW	0.67kW
Refrigerant/GWP	R290 / 3	R290 / 3	R290 / 3
Refrigerant charge	170 g	220g	270 g

12.0.1 Technical Specifications MCC Cold (Full Serve)

TECHNICAL SPECIFICATIONS MCC Cold Full Serve



WARNING

Consult the identification plate to get the proper specifications of the unit.
The electrical data may vary from country to country.

Full-service models

Model	MCC 90-3-C FS	MCC 120-3-C FS	MCC 150-3-C FS
Approved for	EU	EU	EU
Width	900 mm	1200 mm	1500 mm
Depth	750 mm	750 mm	750 mm
Height on stand	1420 mm	1420 mm	1420 mm
Height above worktop	840 mm	840 mm	840 mm
Weight Net approx.	175 kg / 386 lbs	202 kg / 445 lbs	229 kg / 505 lbs
Ambient Temperature	min. 17 °C / 62,2 °F max. 25 °C / 77 °F	min. 17 °C / 62,2 °F max. 25 °C / 77 °F	min. 17 °C / 62,2 °F max. 25 °C / 77 °F
Relative Humidity	max. 60%	max. 60%	max 60%
Noise Level (at workspace)	<70 dB(A)	<70 dB(A)	<70 dB(A)
Voltage	1N~ 230V	1N~ 230V	1N~ 230V
Frequency	50 Hz	50 Hz	50 Hz
Max. nominal Current	3,9 A	4,2 A	5,2 A
Plug	2 pole earthed plug 16A	2 pole earthed plug 16A	2 pole earthed plug 16A
Length power cord approx.	1,5 m	1,5 m	1,5 m
Climate class (EN-ISO 23953-2:2015)	3 (25 °C/60%RH)	3 (25 °C/60%RH)	3 (25 °C/60%RH)
Minimum room floor area	11.00 m ²	14.35 m ²	17.70 m ²
Refrigerant	R290	R290	R290
Refrigerant charge	170g	220g	270g

12.1 Technical Specifications MCC Hot (Self Serve)

TECHNICAL SPECIFICATIONS MCC Hot Self Serve



WARNING

Consult the identification plate to get the proper specifications of the unit.
The electrical data may vary from country to country.

Self-service models

Model	MCC 60-3-H SS	MCC 90-3-H SS	MCC 120-3-H SS
Approved for	EU	EU	EU
Width	600 mm	900 mm	1200 mm
Depth	750 mm	750 mm	750 mm
Height	1420 mm	1420 mm	1420 mm
Weight Net approx.	152 kg / 335 lbs	179 kg / 395 lbs	206 kg / 454 lbs
Ambient Temperature	min. 20 °C / 68 °F max. 30 °C / 86 °F	min. 20 °C / 68 °F max. 30 °C / 86 °F	min. 20 °C / 68 °F max. 30 °C / 86 °F
Relative Humidity	max. 60%	max. 60%	max 60%
Noise Level (at workspace)	<70 dB(A)	<70 dB(A)	<70 dB(A)
Voltage	1N~ 230V	1N~ 230V	3N~ 400/230V
Frequency	50 Hz	50 Hz	50 Hz
Max. Nominal Current	9,2 A	13,5 A	10,3 A
Plug	2 pole earthed plug	2 pole earthed plug	CEE-form 16 A
Length power cord approx.	1,5 m	1,5 m	1,5 m
Height on stand	1420 mm	1420 mm	1420 mm
Height drop-in	1053 mm	1053 mm	1053 mm
Voltage	1N, 230VAC	1N, 230VAC	3N, 400 / 230 VAC
Frequency	50 Hz	50 Hz	50 Hz
Power	1,85 kW	3,02 kW	4,19 kW

12.1.0 Technical Specifications MCC Hot (Full Serve)

TECHNICAL SPECIFICATIONS MCC Hot Self Serve



WARNING

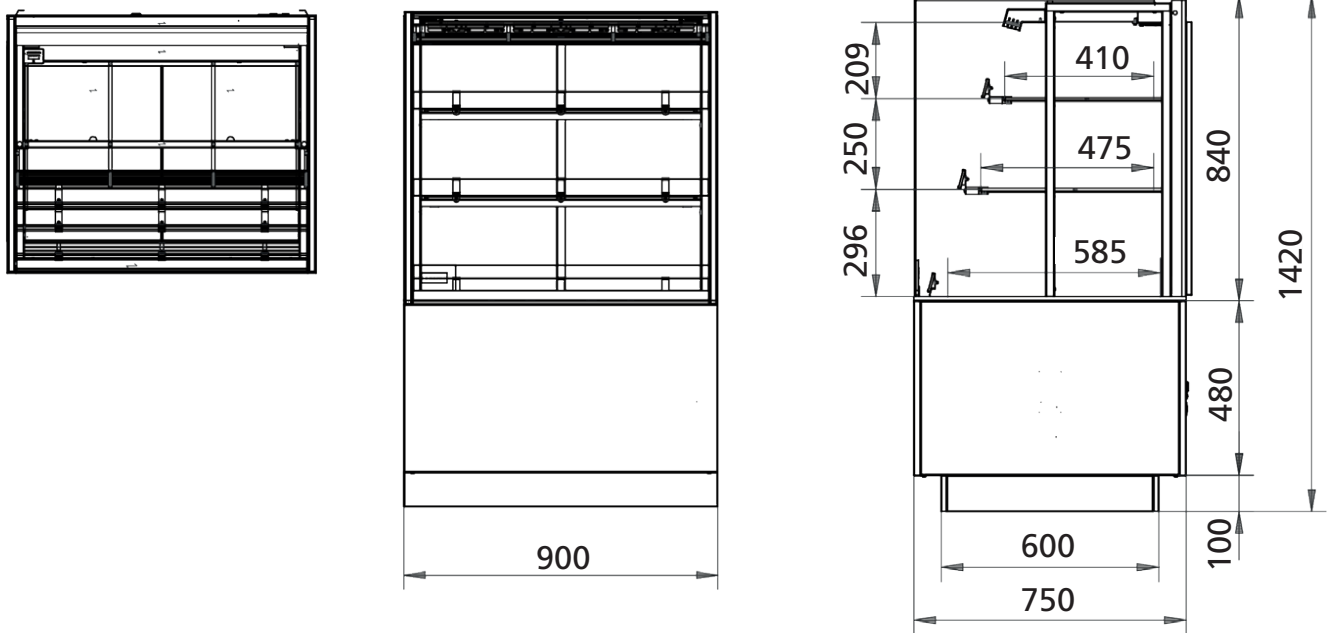
Consult the identification plate to get the proper specifications of the unit.
The electrical data may vary from country to country.

Full-service models

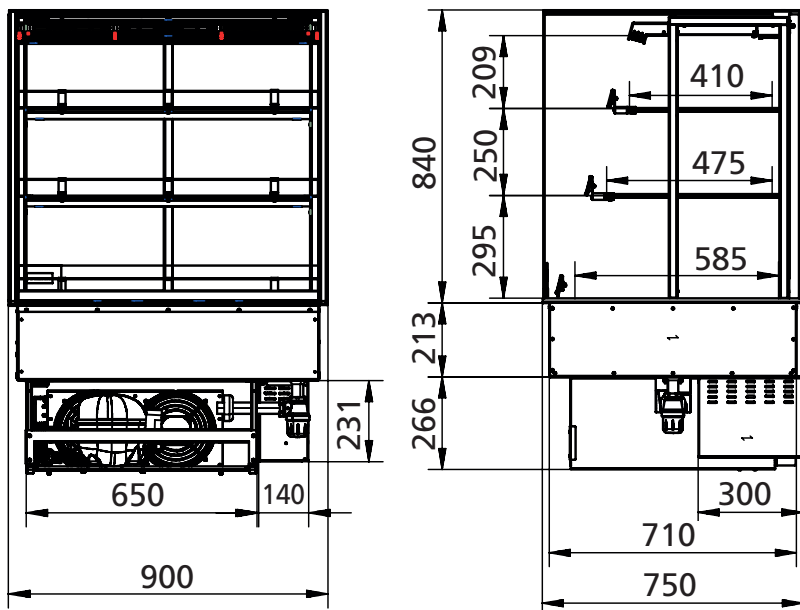
Model	MCC 60-3-H FS	MCC 90-3-H FS	MCC 120-3-H FS
Approved for	EU	EU	EU
Width	600 mm	900 mm	1200 mm
Depth	750 mm	750 mm	750 mm
Height	1420 mm	1420 mm	1420 mm
Weight Net approx.	152 kg / 335 lbs	179 kg / 395 lbs	206 kg / 454 lbs
Ambient Temperature	min. 20 °C / 68 °F max. 30 °C / 86 °F	min. 20 °C / 68 °F max. 30 °C / 86 °F	min. 20 °C / 68 °F max. 30 °C / 86 °F
Relative Humidity	max. 60%	max. 60%	max 60%
Noise Level (at workspace)	<70 dB(A)	<70 dB(A)	<70 dB(A)
Voltage	1N~ 230V	1N~ 230V	3N~ 400/230V
Frequency	50/60 Hz	50 /60Hz	50/60 Hz
Max. nominal Current	7,5 A	8,1A	11,2 A
Plug	2 pole earthed plug	2 pole earthed plug	2 pole earthed plug
Length power cord approx.	1,5 m	1,5 m	1,5 m
Water supply pressure	≥150 kPa	≥150 kPa	≥150 kPa

12.2 Dimensions (Self Serve)

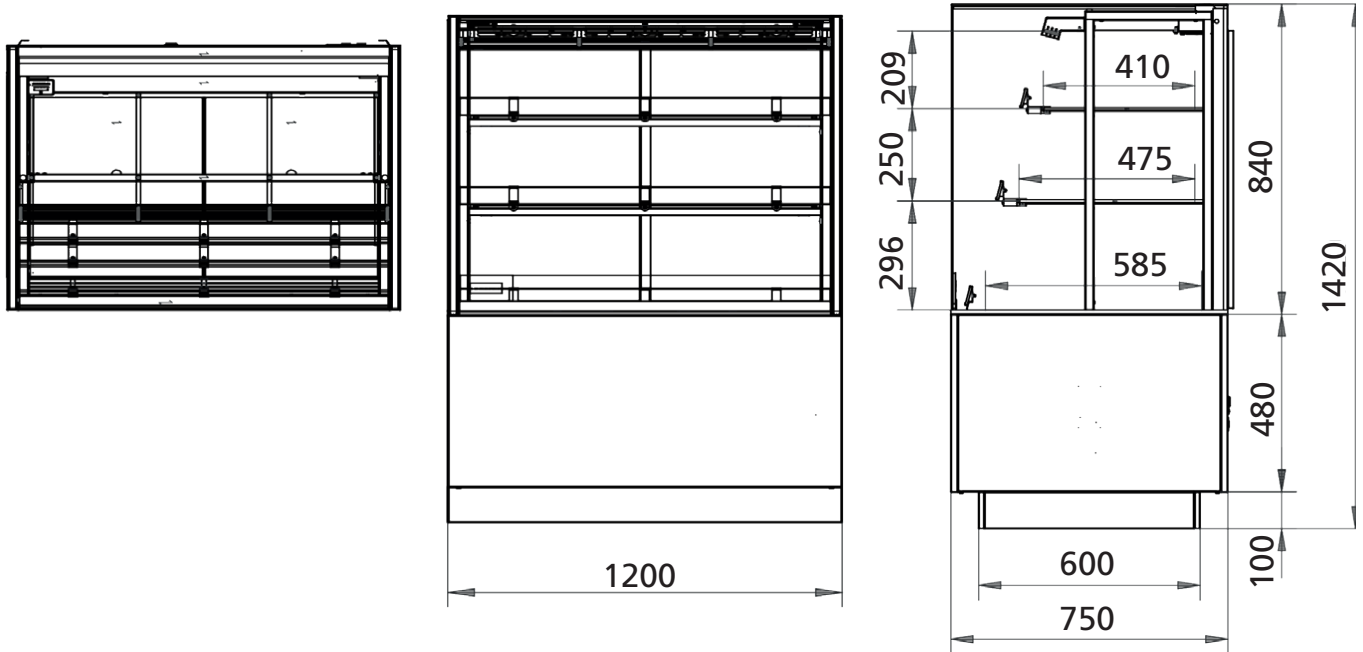
MCC 90 Cold



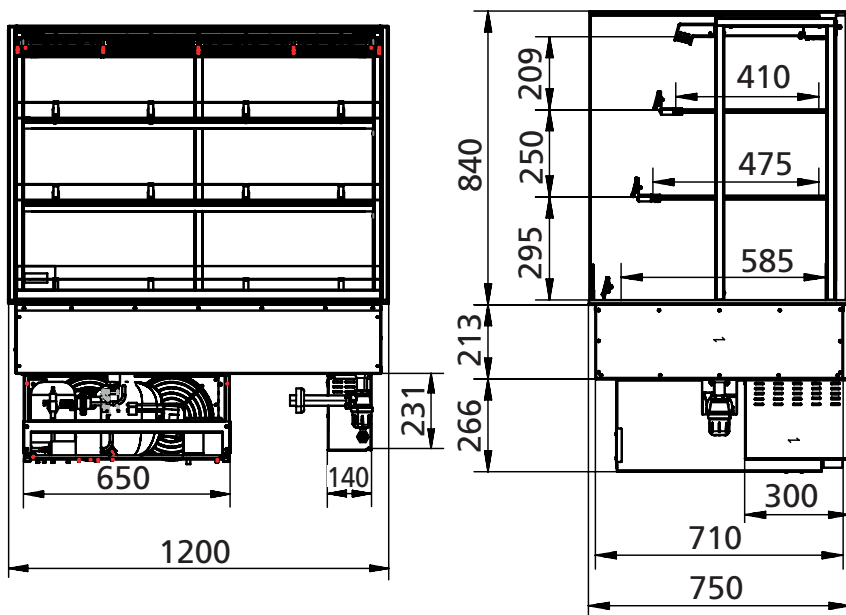
MCC 90 Cold drop-in version



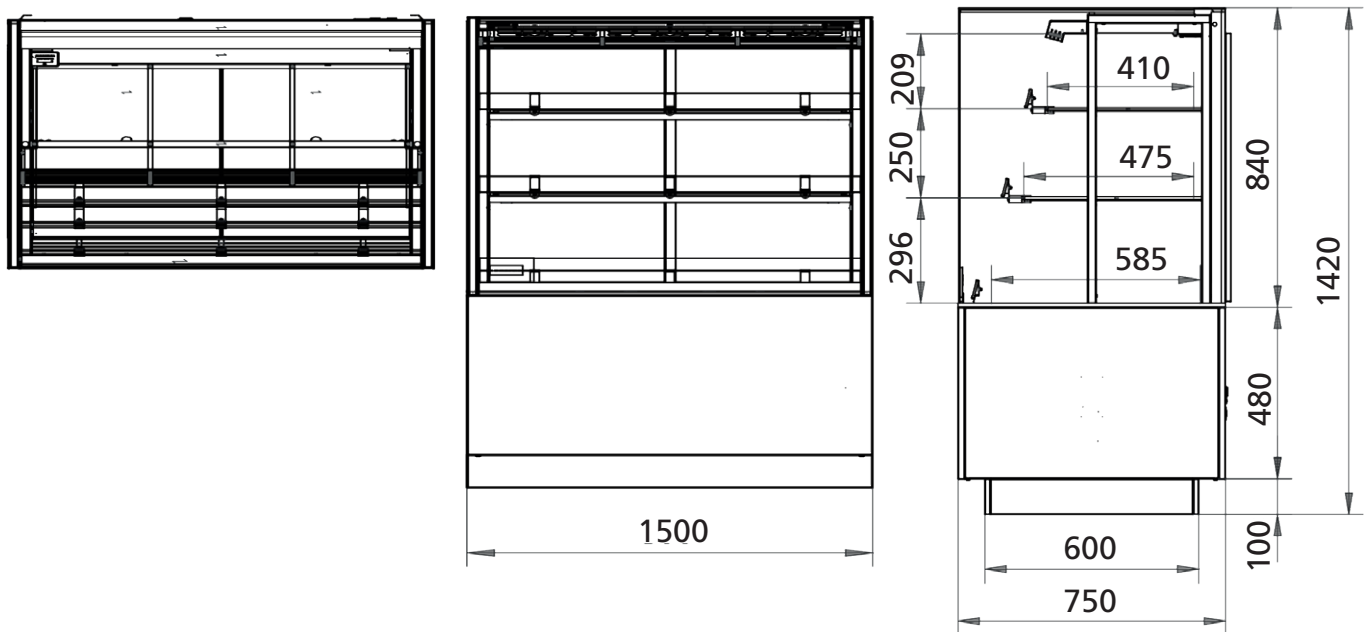
MCC 120 Cold



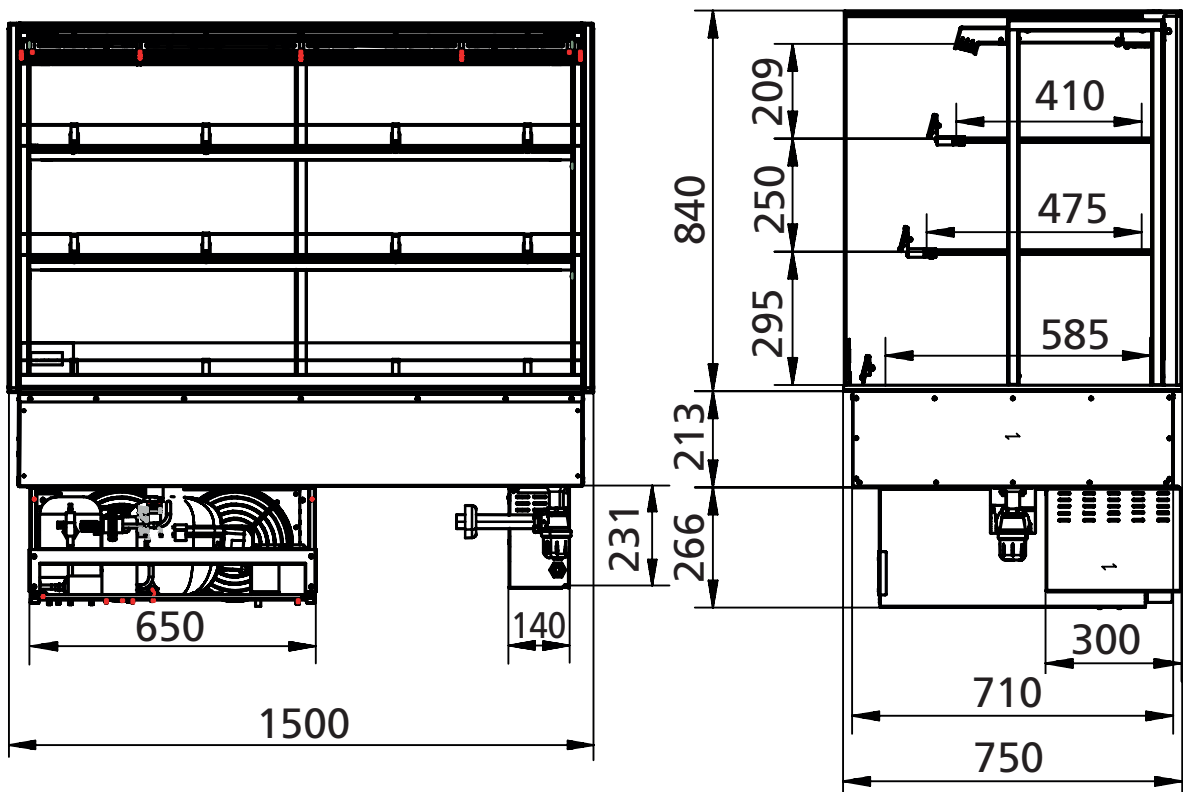
MCC 120 Cold drop-in version



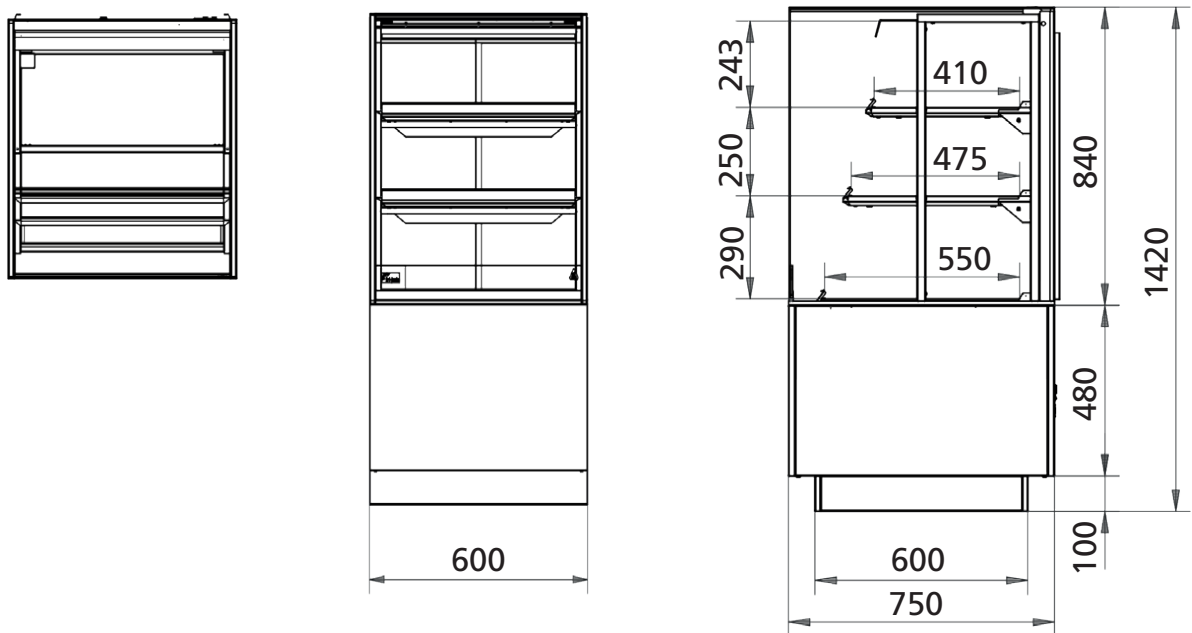
MCC 150 Cold



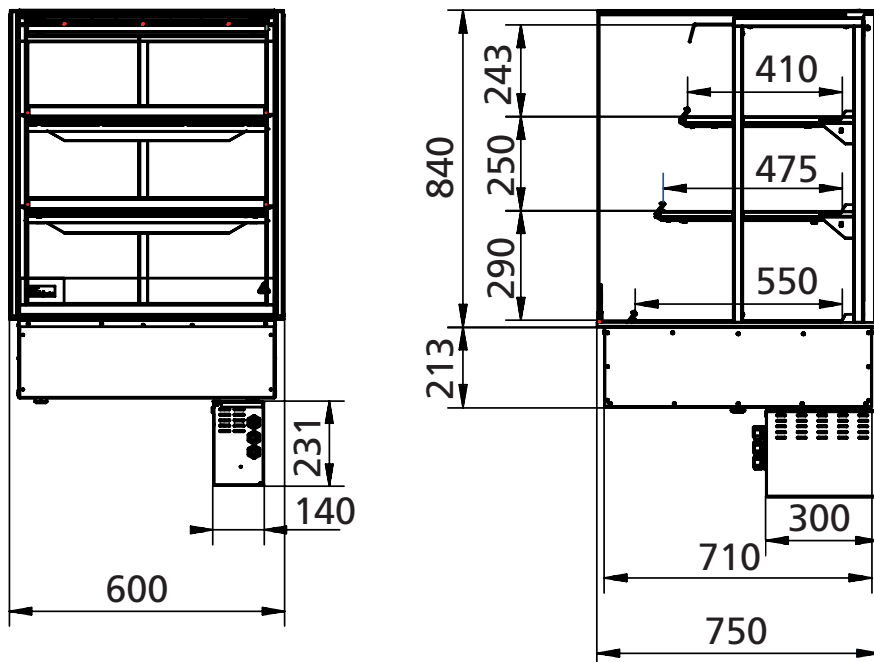
MCC 150 Cold drop-in version



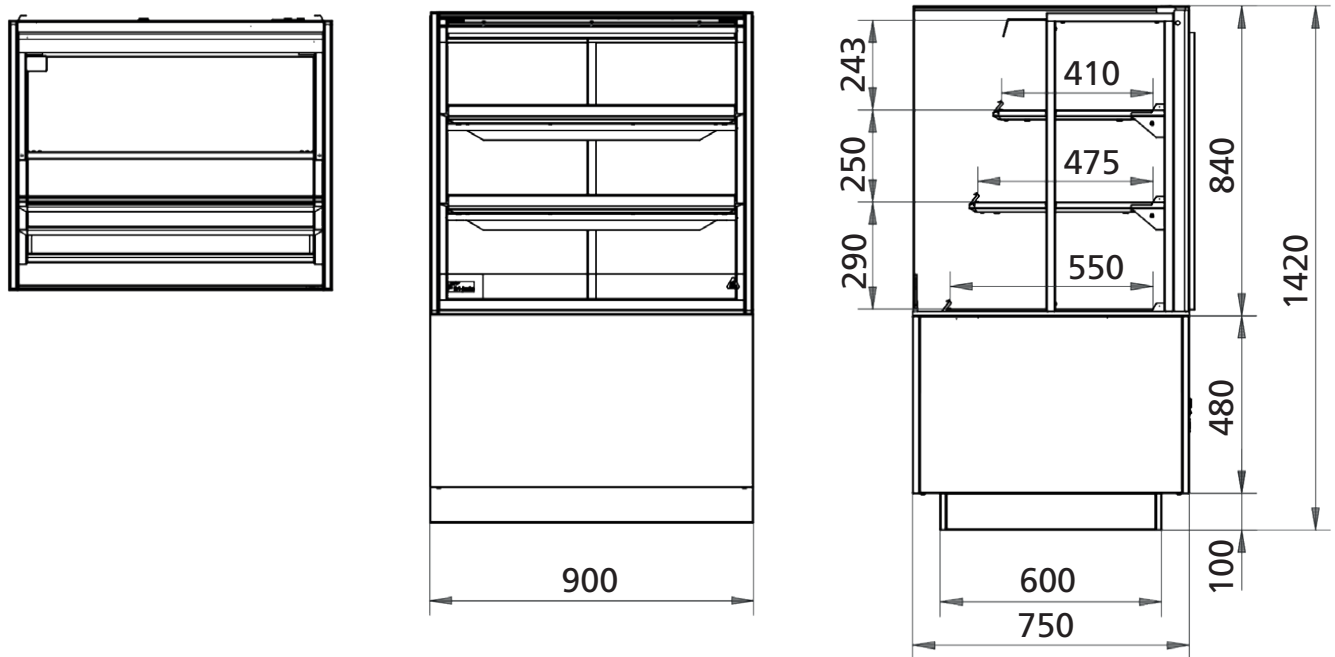
MCC 60 Hot



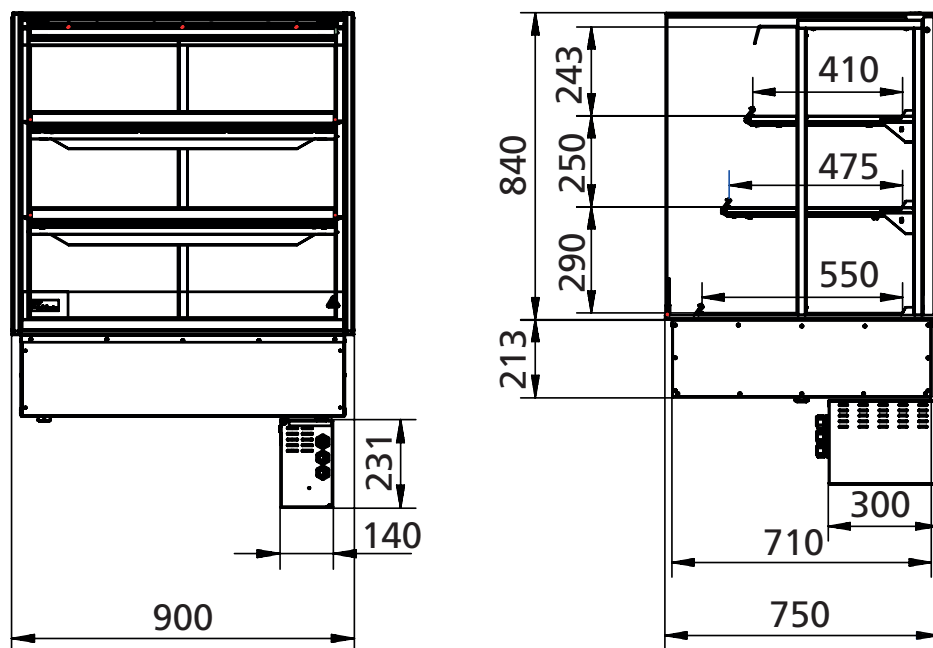
MCC 60 Hot drop-in version



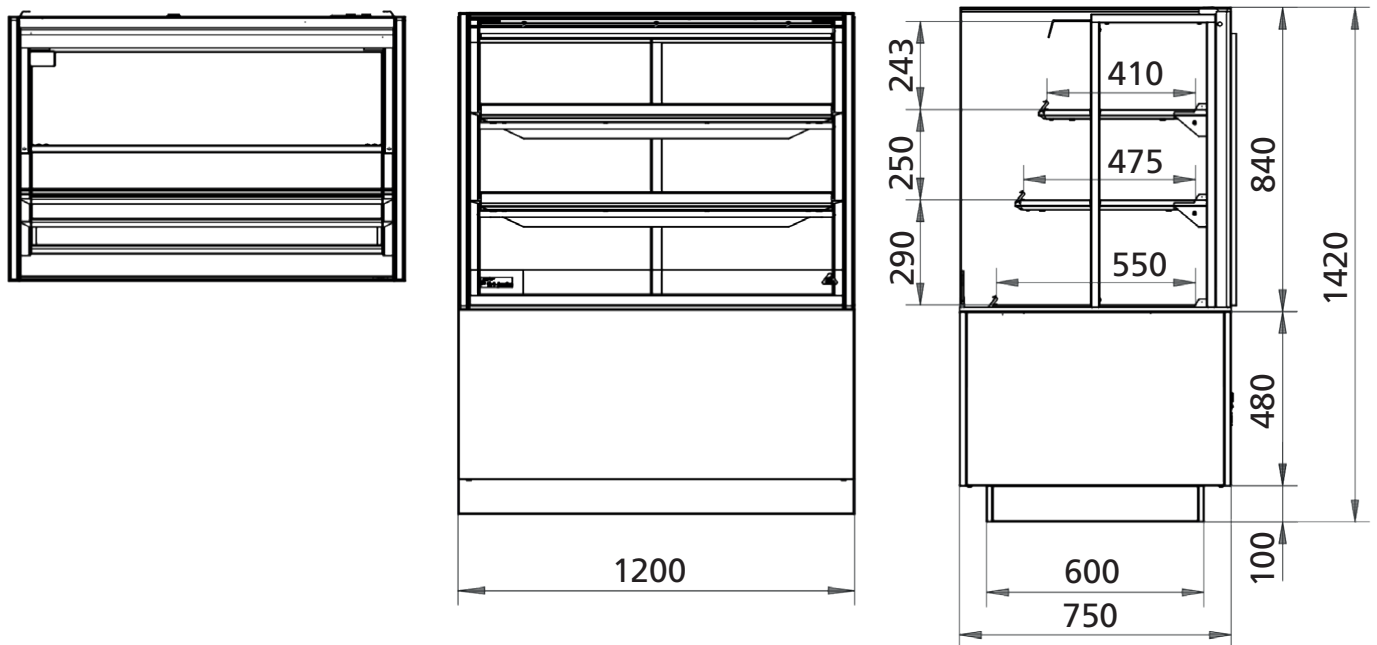
MCC 90 Hot



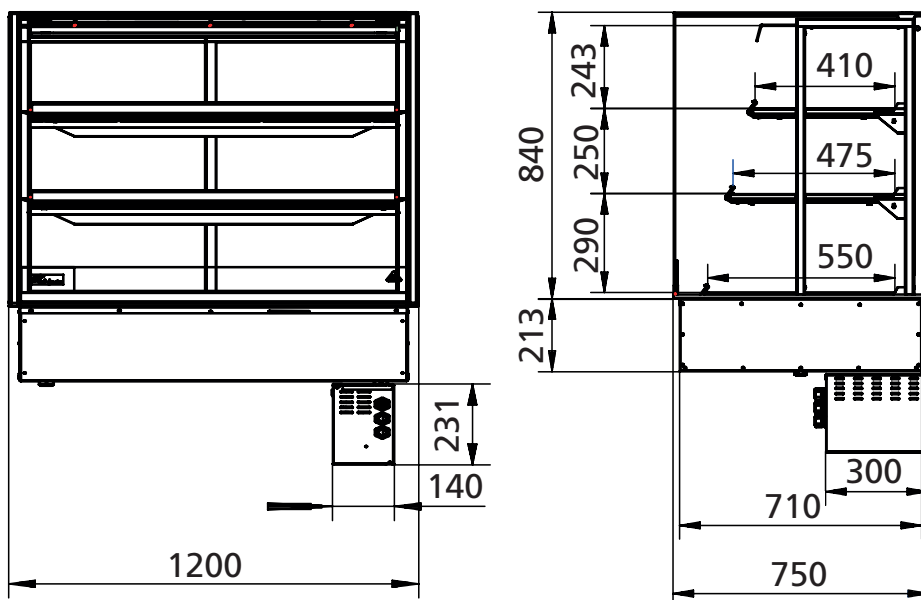
MCC 90 Hot drop-in version



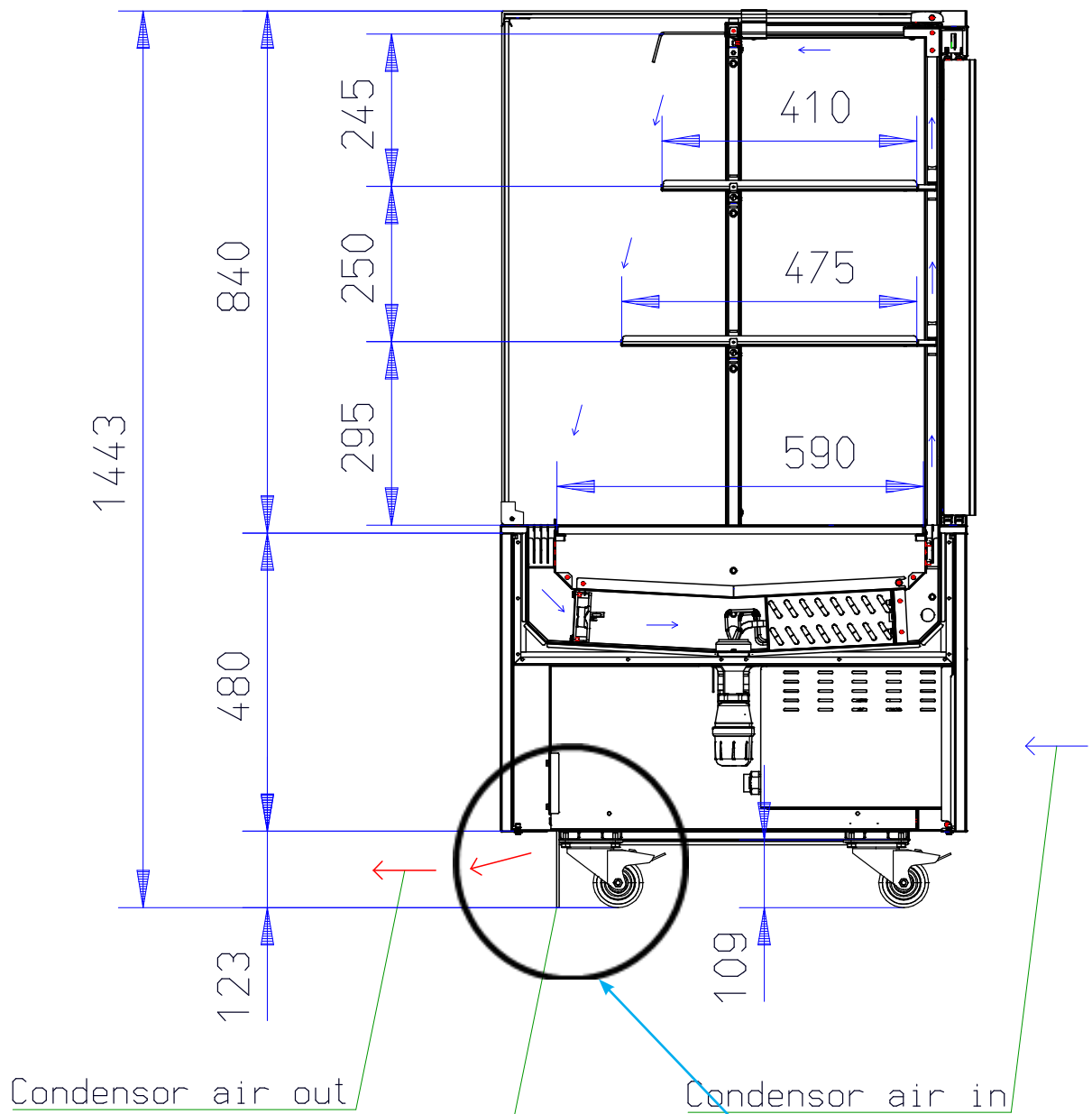
MCC 120 Hot



MCC 120 Hot drop-in version



2020

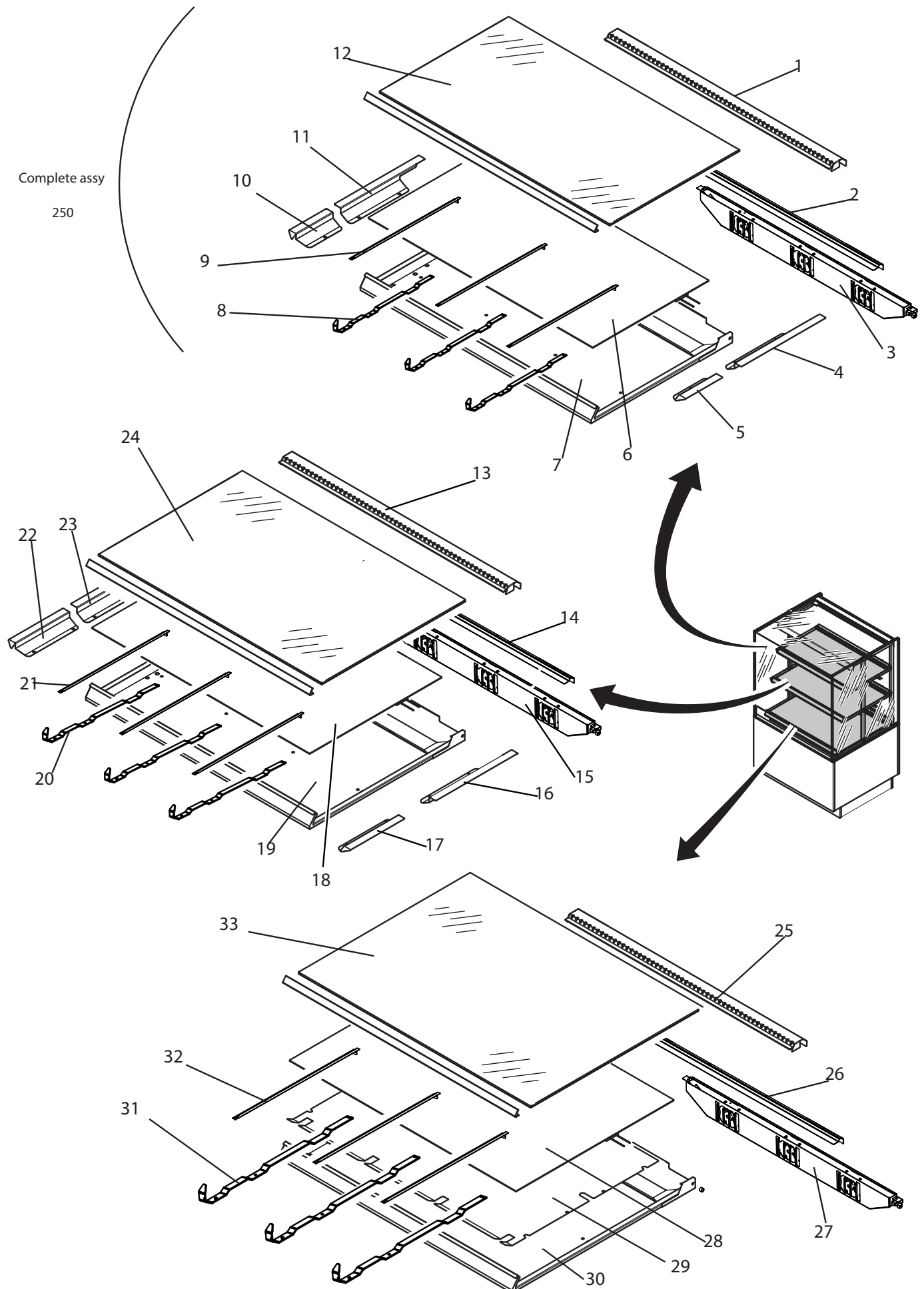


MCC placed on wheels will always need a floor seal (as seen on picture) in order to prevent warm outlet air being sucked in at the air inlet, condensor side.(back side of unit)



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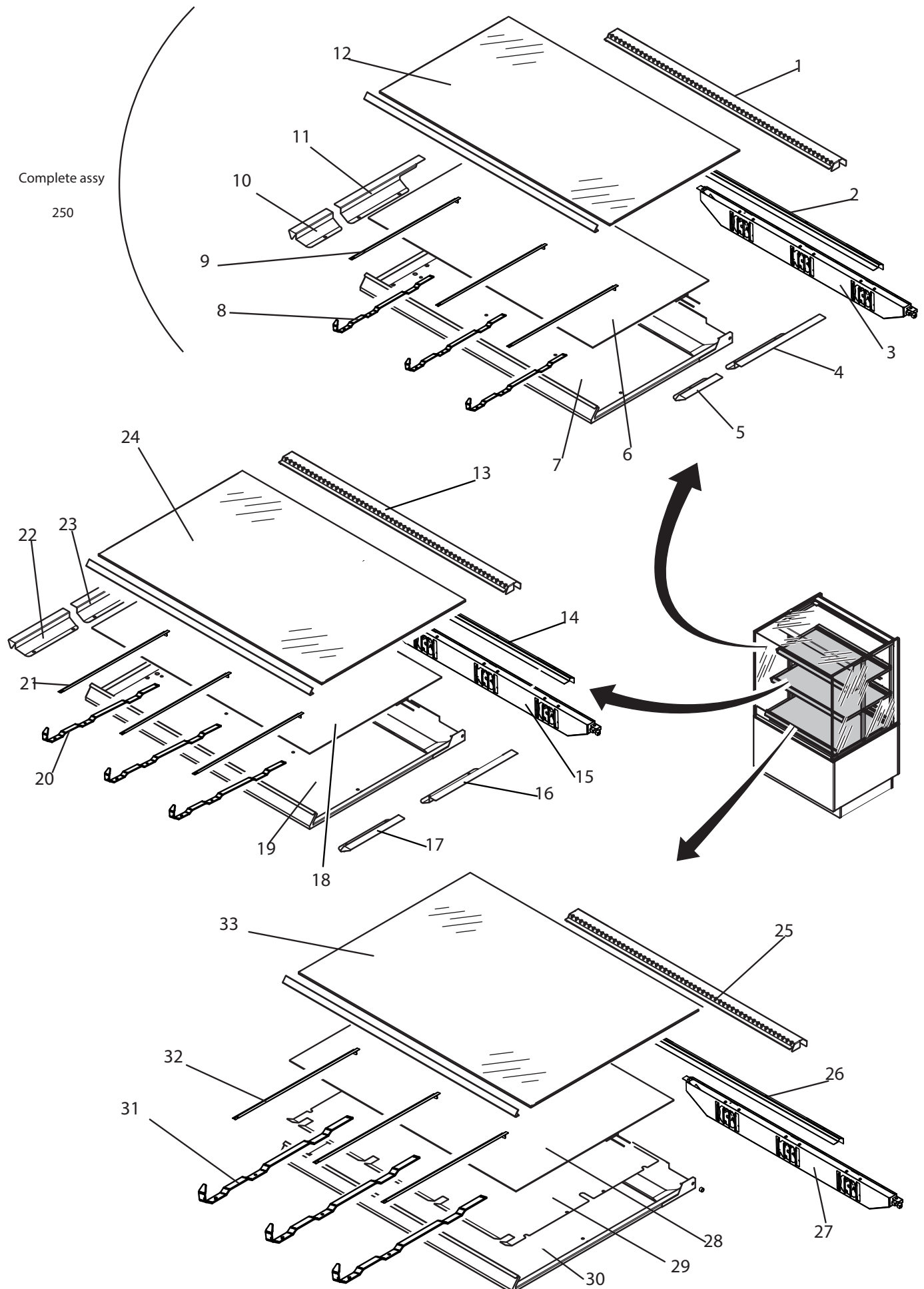
13.0 Exploded view MCC Hot (Self Serve)



13.0 Exploded view MCC Hot (Self Serve)

Number	Description	Article number	Quantity
1	Rear cover Shelf MCC 60 Rear cover Shelf MCC 90 Rear cover Shelf MCC 120	9384303 9384235 9384304	
3	Fan Box Top MCC 60 Fan Box Top MCC 90 Fan Box Top MCC 120	9380072s 9380058s 9380074s	See Remark Serial number
4	Air blocker right rear top MCC 60	9384170	
5	Air blocker right top MCC 60	9384069	
6	Heating element 475x400 450W MCC60 Heating element 775x400 700W MCC90 Heating element 1075x400 1000W MCC120	9382088 9382091 9382094	
7	Weld. Assy Shelf MCC 60 Small Weld. Assy Shelf MCC 90 Small Weld. Assy Shelf MCC 120 Small	9380400 9380403 9380406	Complete shelf assy see
8	Support element Shelf Top	9384335	3
9	Element Clamp shelf top	9384334	
10	Air blocker left top	9384068	
11	Air blocker left rear top	9384169	
12	Glass shelf Top MCC 60 Glass shelf Top MCC 90 Glass shelf Top MCC 120	9382035s 9382141s 9382079s	
13	Rear cover Shelf MCC 60 Rear cover Shelf MCC 90 Rear cover Shelf MCC 120	9384303 9384235 9384304	
15	Fan Box Middle MCC 60 Fan Box Middle MCC 90 Fan Box Middle MCC 120	9380072s 9380058s 9380074s	See remark serial number
16	Air blocker right rear top	9384170	
17	Air blocker right middle	9384079	
18	Heating element 475x470 550W MCC 60 Heat- ing element 775x470 850W MCC 90 Heating element 1075x470 1150W MCC 120	9382089 9382092 9382095	
19	Wled. Assy Shelf MCC 60 middle Wled. Assy Shelf MCC 90 middle Wled. Assy Shelf MCC 120 middle	9380401 9380404 9380407	
20	Support element shelf middle	9384320	
21	Element clamp shelf middle	9384321	
22	Air blocker left middle	9384078	
23	Air blocker left rear top	9384169	
24	Glass shelf middle MCC 60 Glass shelf middle MCC 90 Glass shelf middle MCC 120	9382036s 9382140s 9382080s	
25	Rear cover Shelf MCC 60 Rear cover Shelf MCC 90 Rear cover Shelf MCC 120	9384303 9384235 9384304	
27	Fan Box Bottom MCC 60 Fan Box Bottom MCC 90 Fan Box Bottom MCC 120	9380072s 9380058s 9380074s	See remark serial number
28	Heating element 475x540 750W MCC 60 Heating element 775x540 1125W MCC90 Heating element 1075x540 1500WMCC120	9382090 9382093 9382096	

13.0 Exploded view MCC Hot (Self Serve)



13.0 Exploded view MCC Hot (Self Serve)

29	Reflector plate MCC 60 Reflector plate MCC 90 Reflector plate MCC 120	9384086 9384226 9384184	
30	Assy Shelf MCC 60 bottom Assy Shelf MCC 90 bottom Assy Shelf MCC 120 bottom	9380402 9380405 9380408	
31	Support element bottom shelf	9384337	
32	Element clamp shelf bottom	9834336	
33	Glass shelf bottom MCC 60 Glass shelf bottom MCC 90 Glass shelf bottom MCC 120	9382037s 9382142s 9382081s	Remark; Inner exhaust nozzle must be glued on
250	Assy shelf MCC Hot SS 60 small 230V Assy shelf MCC Hot SS 60 middle 230V Assy shelf MCC Hot SS 60 large 230V Assy shelf MCC Hot SS 90 small 230V Assy shelf MCC Hot SS 90 middle 230V Assy shelf MCC Hot SS 90 Large 230V Assy shelf MCC Hot SS 120 small 230V Assy shelf MCC Hot SS 120 middle 230V Assy shelf MCC Hot SS 120 Large 230V	9380081s 9380082s 9380085s 9380083s 9380087s 9380089s 9380091s 9380093s 9380095s 9380097s	Complete packed shelf assy. including heating element and fan box, assembled



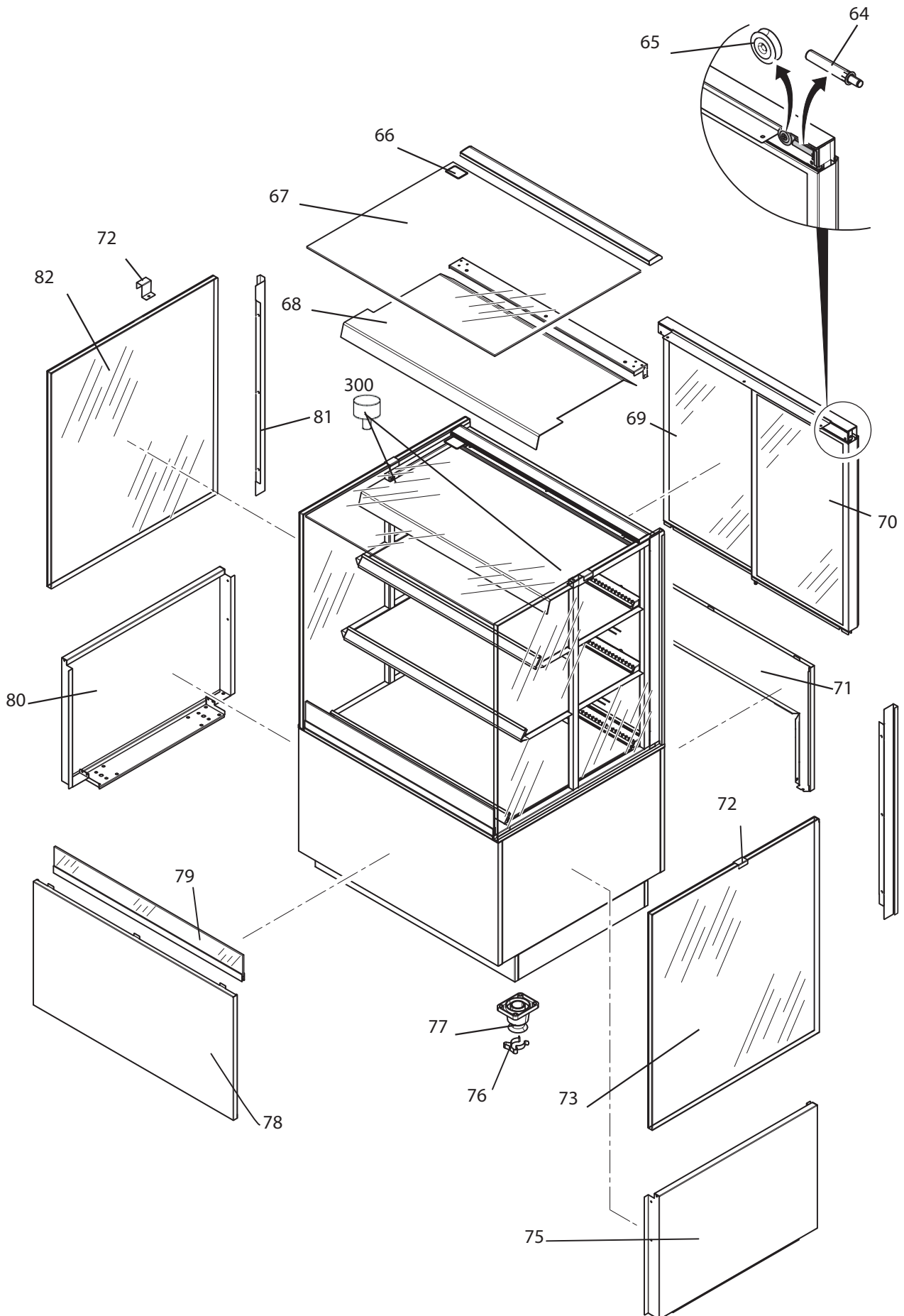
Serial number Remark

Starting of serial number use mentioned article numbers

For serial number before use article numbers below

Number	Description	Article number	Quantity
3	Fan box top shelf		1
15	Fan box middle shelf		1
27	Fan box bottom shelf		1
58	Power supply		1

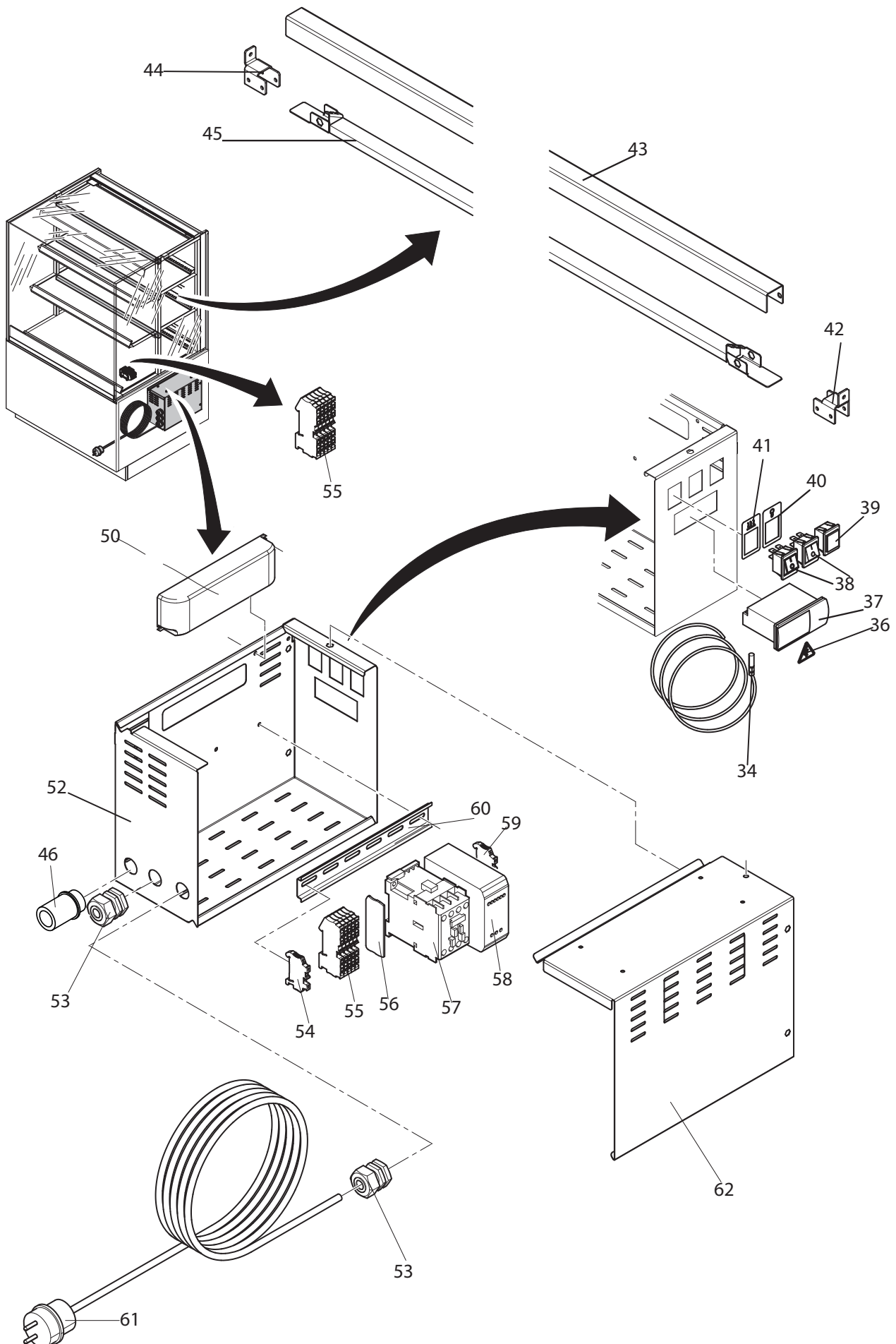
13.0 Exploded view MCC Hot (Self Serve)



13.0 Exploded view MCC Hot (Self Serve)

Number	Description	Article number	Quantity
64	Soft close damper 3N	9281078	4
65	Steel roller bearing	9382100	4
66	Label max. Load 10 kg	9123759	1
67	Top Glass Square MCC 60 SS	9382165s	1
	Top Glass Square MCC 90 SS	9382164s	1
	Top Glass Square MCC 120 SS	9382166s	1
68	Air guide MCC 60	9382062	1
	Air guide MCC 90	9382061	1
	Air guide MCC 120	9382063	1
69	Assy Glass sliding door 60 Right V0	9380226s	1
	Assy Glass sliding door 60 Right V1	9380216s	1
	Assy Glass sliding door 90 Right V0	9380220s	1
	Assy Glass sliding door 90 Right V1	9380210s	1
	Assy Glass sliding door 120 Right V0	9380222s	1
	Assy Glass sliding door 120 Right V1	9380212s	1
70	Assy Glass sliding door 60 Left	9380217s	1
	Assy Glass sliding door 90 Left	9380211s	1
	Assy Glass sliding door 120 Left	9380213s	1
71	Back panel MCC 60	9384006	1
	Back panel MCC 90	9384007	1
	Back panel MCC 120	9384008	1
72	Side glass topside bracket	9384201	1
73	Side glass MCC	9382030s	2 (see 82)
74	Base end cover panel	9384021	
75	Side panel	9384005	2 (see 80)
76	Tool-clamp	8071090	1
77	Adjustable leg	9291162	4
78	Front panel MCC 60	9384001	1
	Front panel MCC 90	9384002	1
	Front panel MCC 120	9384003	1
79	Child guard assy MCC60	9380017s	1
	Child guard assy MCC90	9380018s	1
	Child guard assy MCC120	9380019s	1
80	Side panel	9384005	2 (see 75)
81	Base end cover panel	9384021	1
82	Side glass MCC	9382030s	2 (see 73)
300	Plug top glass-pane	9263022	2

13.0 Exploded view MCC Hot (Self Serve)



13.0 Exploded view MCC Hot (Self Serve)

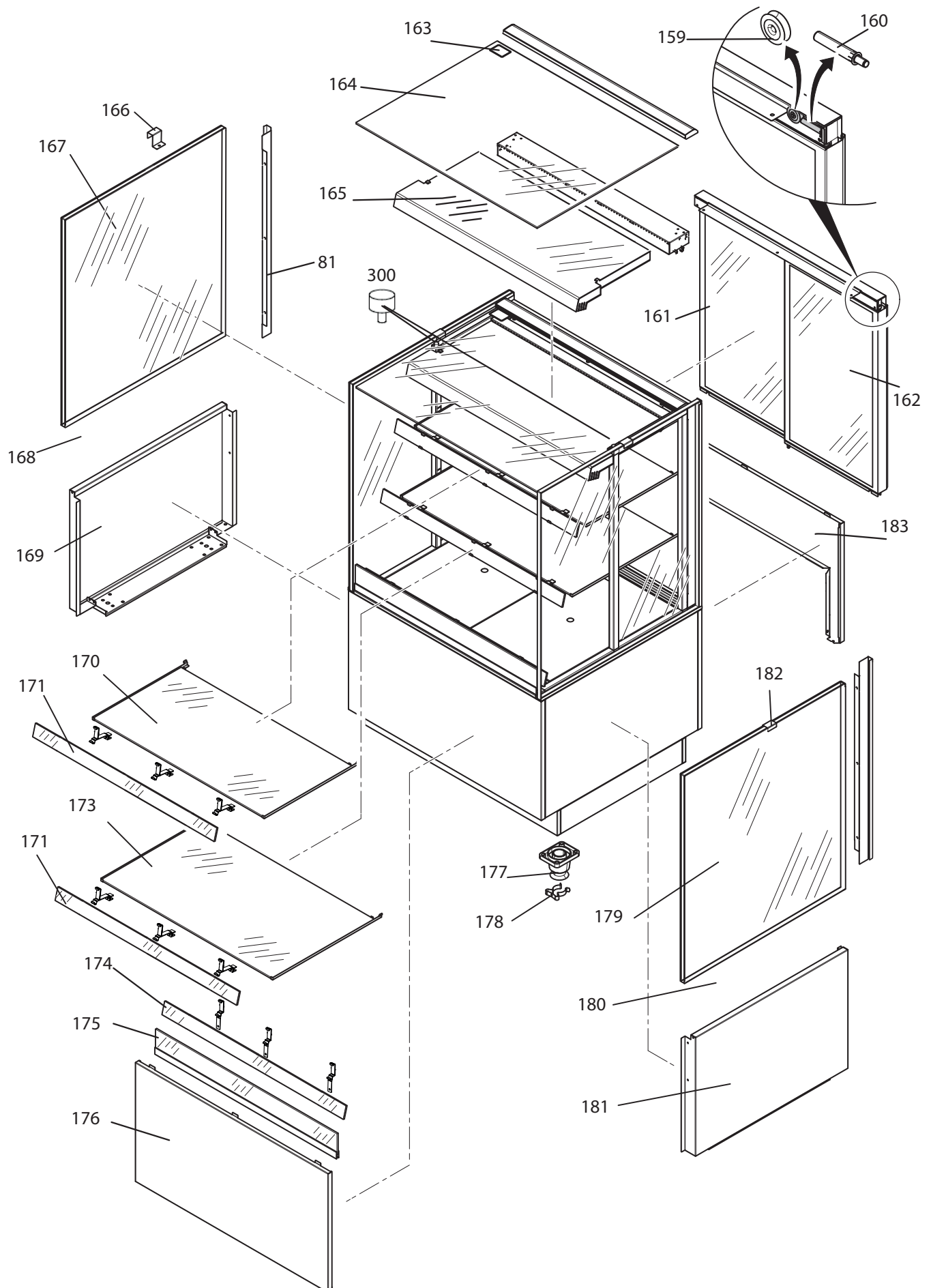
Number	Description	Article number	Quantity
34	Sensor PTC 1000	9221011	
35	Model plate	9110810	
36	Sticker Black Elect. Sign triangle	3500105	
37	Thermostat ERC211	9221109	
38	Switch	9181008	2
39	Switch dummy	30002730	
40	Sticker Lighting	9181071	
41	Sticker Lower Heat	9181072	
42	Led Armature support bracket	9384091	
43	LED Armature MCC 60 LED Armature MCC 90 LED Armature MCC 120	9384110 9384090 9384111	2
45	Led 3000k 12V 400mm MCC 60: Led 3000k 12V 700mm MCC90 Led 3000k 12V 1000mm MCC 120:	9382075s 9382067s 9382068s	
44	Led Armature support bracket	9384091	
50	Led driver EDXe 160/12.054	30007730	
52	Box electronics	9384094	
53	Strain relief Nut for cable gland	9222076 9222077	
54	End Clamp Clip-fix 35-5 PHX	9191222	
55	Terminal PT 4 (GN/YE) Terminal PT 4 (GY)	9191239 9191240	
56	End cover D=PT 4 PHX	9191223	
57	Contactor AB100-C09KL400	3500069	
58	Power supply 24VDC 40W	9381012	See remark serial number
59	End Clamp Clip-fix 35-5 PHX	9191222	
60	Din rail	9293057	
61	Power cable	9091383	
62	Cover Electronics box	9384095	



Serial number Remark Starting of serial number use above mentioned article numbers. For serial number before use article numbers below

Number	Description	Article number	Quantity
3	Fan box top shelf		1
15	Fan box middle shelf		1
27	Fan box bottom shelf		1
57 A	Timing relays	30003932	1
57 B	Relays	9290114s	1
58	Power supply	9381019	1
Output voltage should be 16,7 Vdc			

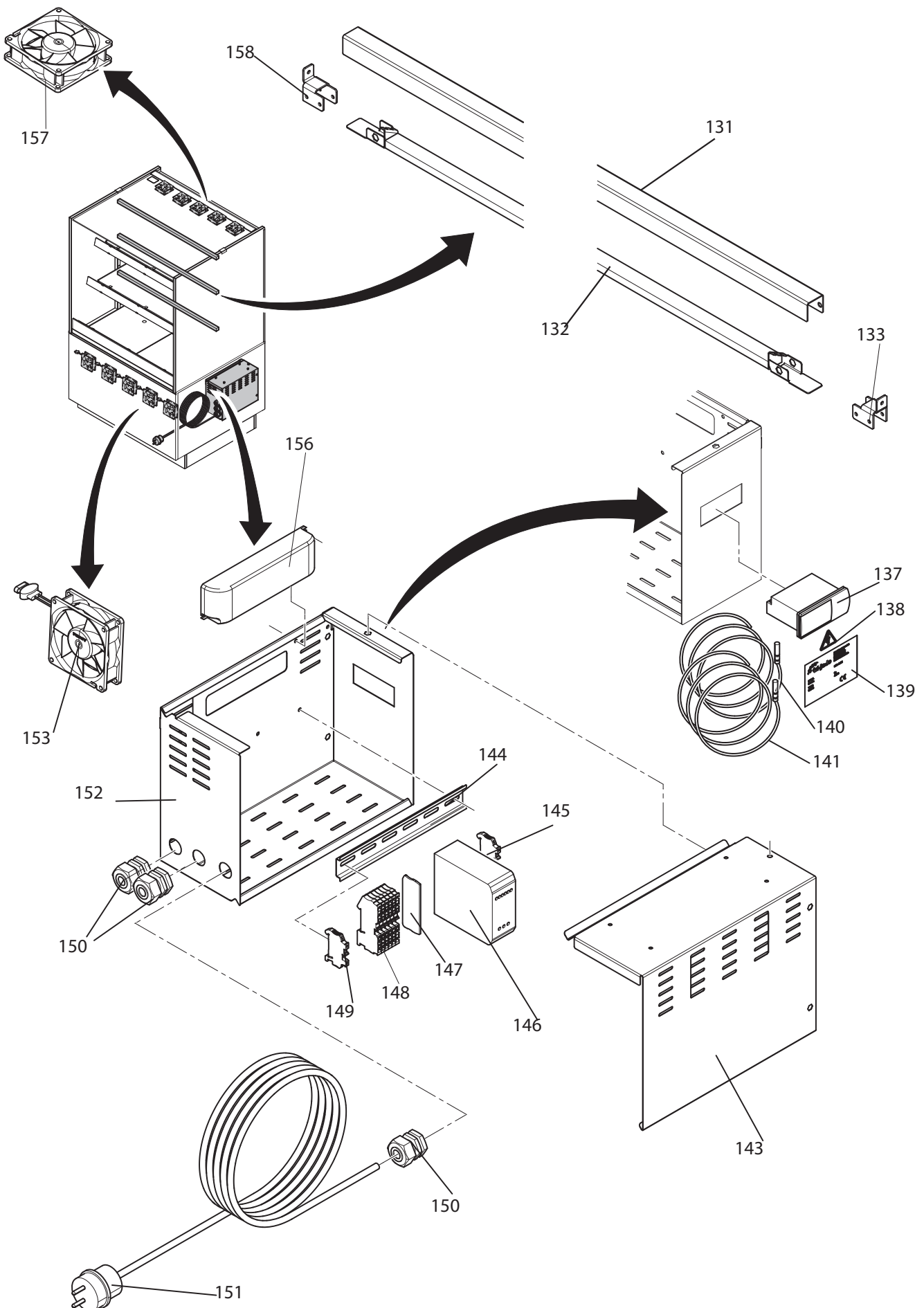
14.0 Exploded view MCC Cold (Self Serve)



14.0 Exploded view MCC Cold (Self Serve)

Number	Description	Article number	Quantity
159	Steel-roller bearing	9382100	4
160	Soft close damper 3N	9281078	4
161	Assy Glass sliding door 90 Right V0 Assy Glass sliding door 90 Right V1 Assy Glass sliding door 120 Right V0 Assy Glass sliding door 120 Right V1 Assy Glass sliding door 150 Right V0 Assy Glass sliding door 150 Right V1	9380220s 9380210s 9380222s 9380212s 9380224s 9380214s	1 1 1 1 1 1
162	Assy Glass sliding door 90 Left Assy Glass sliding door 120 Left Assy Glass sliding door 150 Left	9380211s 9380213s 9380215s	1 1 1
163	Label max load 10kg	9123759	1
164	Top Glass Square MCC 90 Top Glass Square MCC 120 Top Glass Square MCC 150	9382164s 9382166s 9382167s	1 1 1
165 see also 157 (single fan)	Assy. Air box MCC 90 SS Assy. Air box MCC 120 SS Assy. Air box MCC 150 SS	9380002 9380098 9380137	1 1 1
166	Side glass topside bracket	9384201	2 (see 182)
167	Side glass MCC	9382030	1
168	Base end cover panel	9384021	1
169	Side panel MCC	9384005	2 (see 181)
170	Glass Top Shelf 410 mm MCC 90 Glass Top Shelf 410 mm MCC 120 Glass Top Shelf 410mm MCC 150	9382052s 9382056s 9382109s	1 1 1
171	Assy price rail glass shelf MCC 90 Assy price rail glass shelf MCC 120 Assy price rail glass shelf MCC 150	9380052s 9380073s 9380117s	2 2 2
173	Glass Middle Shelf 475mm MCC 90 Glass Middle Shelf 475mm MCC 120 Glass Middle Shelf 475mm MCC 150	9382051s 9382055s 9382108s	1 1 1
174	Assy price rail glass Bottom shelf MCC 90 Assy price rail glass Bottom shelf MCC 120 Assy price rail glass Bottom shelf MCC 150	9380053s 9380040s 9380116s	1 1 1
175	Child guard assy MCC 90 Child guard assy MCC 120 Child guard assy MCC 150	9380018 9380019 9380020	1 1 1
176	Front panel MCC 90 Front panel MCC 120 Front panel MCC 150	9384002 9384003 9384004	1 1 1
177	Adjustable leg	9291162	1
178	Tool clamp	8071090	1
179	Side glass MCC	9382030	1
180	Base end cover panel	9384021	1
181	Side panel MCC 90 Side panel MCC 120 Side panel MCC 150	9384005 9384005 9384005	2 (see 169)
182	Side glass topside bracket	9384201	2 (see 166)
183	Back panel 90 Back panel 120 Back panel 150	9384007 9384008 9384009	
300	Plug top glass-pane	9263022	2

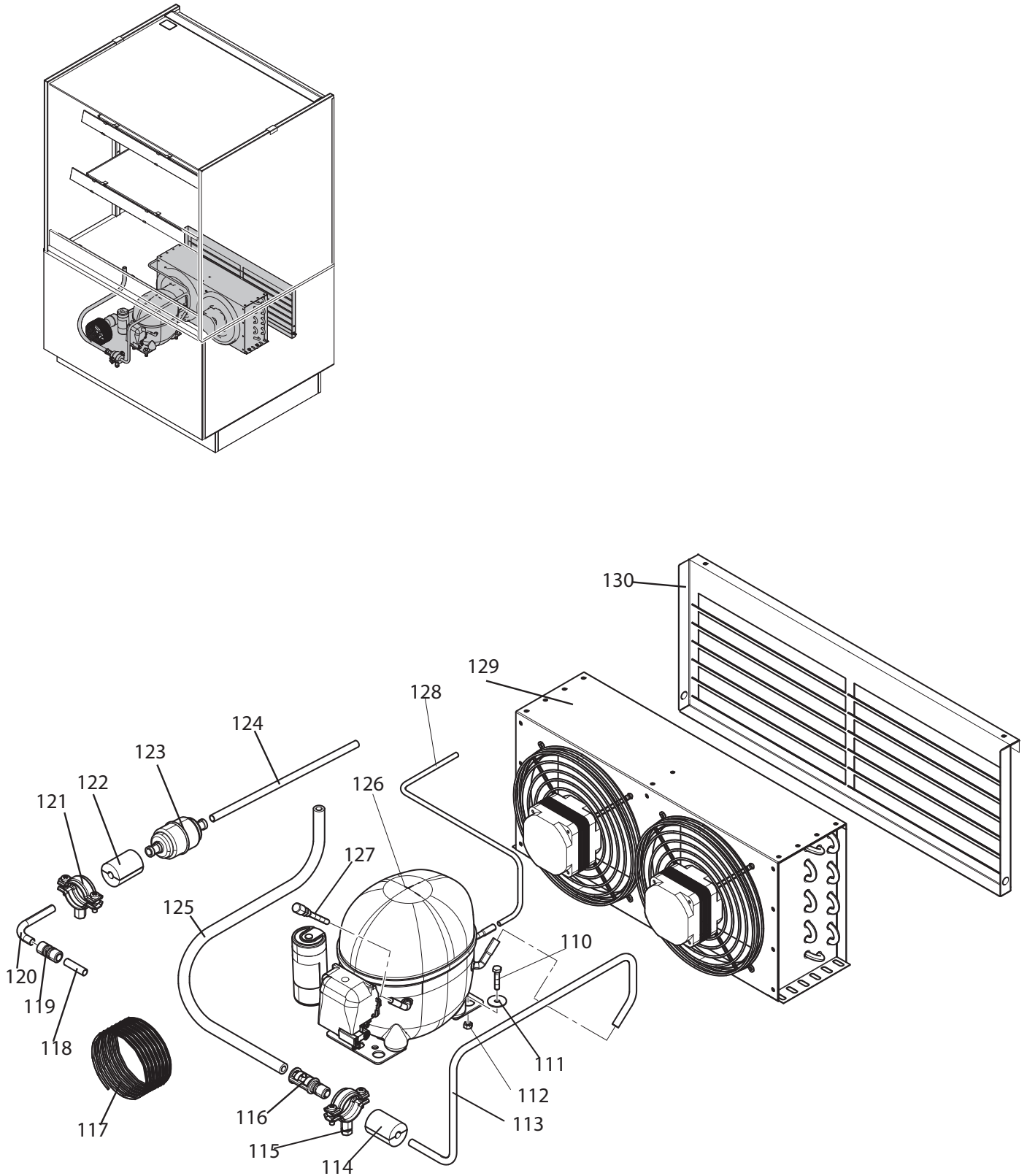
14.0 Exploded view MCC Cold (Self Serve)



14.0 Exploded view MCC Cold (Self Serve)

Number	Description	Article number	Quantity
131	Led Armature MCC 90	9384090	3
	Led Armature MCC 120	9384111	3
	Led Armature MCC 150	9384288	
132	Led 3000k 12V 700mm MCC 90	9382067	3
	Led 3000k 12V 1000mm MCC 120	9382068	3
	Led 3000k 12V 1300mm MCC150	9382105	3
133	Led Armature support bracket	9384091	
134	Switch dummy	30002730	1
135	Switch dummy	30002730	1
136	Switch dummy	30002730	1
137	Eliwell EWplus 974 EO	9381018	1
138	Sticker Black Elect. Sign triangle	3500105	1
139	Data plate	9110810	1
140	Sensor NTC	9381017	
141	Sensor NTC	9381017	
143	Cover electronics box	9384095	1
144	Din Rail1	9293057	
145	End Clamp Clip-fix 35-5 PHX	9191222	1
146	Power supply 24VDC 40W	9381012	1
147	End cover D=PT 4 PHX	9191223	1
148	Terminal PT 4 (GN/YE)	9191239	
	Terminal PT 4 (GY)	9191240	
149	End Clamp Clip-fix 35-5 PHX	9191222	1
150	Strain relief	9222076	3
	Nut Cable gland	9222077	3
151	Power cable	9091383	1
152	Box electronics	9384094	1
153	Compact fan 614 NN	30001330	5 - 9
155	Nut M4	0142307	
156	Led driver EDXe 160/12.054	30007730	1
157	Compact fan 8414 NLU	9381015	5 - 9
158	Led Armature support bracket	9384091	

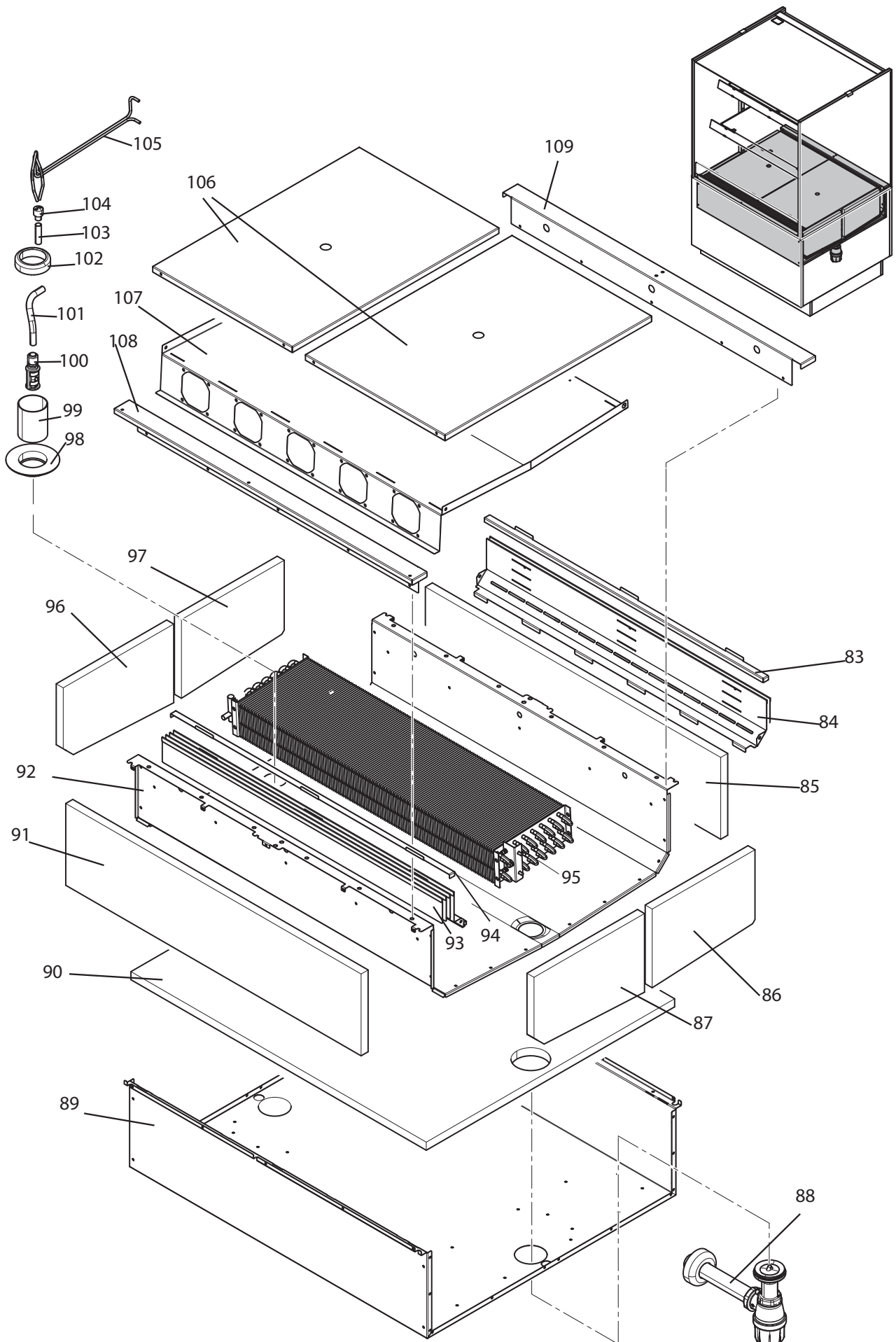
14.0 Exploded view MCC Cold (Self Serve)



14.0 Exploded view MCC Cold (Self Serve)

Number	Description	Article number	Quantity
110			
111			
112			
113	Connection tube	9383017	
114	Pipe support Armafix	2650252	
115	Clamp 31/37	2650216	
116	LOK clip AL NK9, 53-06	30005926	
117			
118			
119	LOK ring 9, 53 NK MS 50	30005928	
120	Connection tube	9383015	
121	Clamp 31/37	2650216	
122	Pipe support Armafix	2650252	
123	Fluid dryer Danfoss	7650204	1
124	Connection tube	9383014	
125			
126	Compressor	9381003	1
127	Valve Schrader	0185216	
128	Connection tube	9383016	
129	Condensor MCC 90 SS / MCC 120 FS Condensor MCC 150 SS Condensor MCC 120 SS / MCC 150 FS Condensor MCC 90 FS	9381004s 9381008s 9381010s 9381021s	Check by serial number required
130	Air flow cover	Depending on version	Check by serial number required

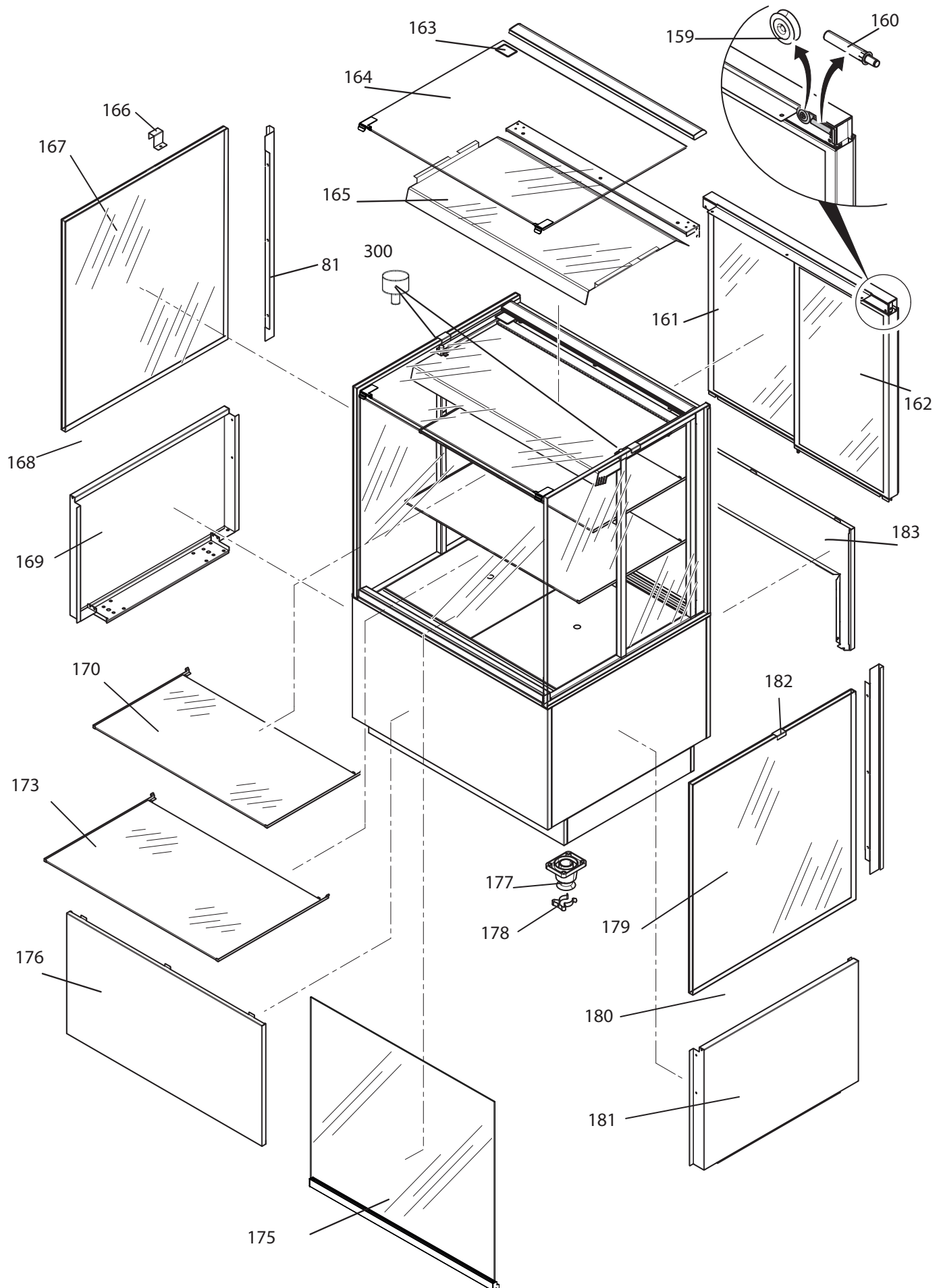
14.0 Exploded view MCC Cold (Full Serve)



14.0 Exploded view MCC Cold (Self Serve)

Number	Description	Article number	Quantity
83	Product plateau support MCC 90 Product plateau support MCC 120 Product plateau support MCC 150	9384082 9384125 9384290	1
84	Inner air guide MCC 90 Inner air guide MCC 120 Inner air guide MCC 150	9384076 9384291 9384292	
85	Insulation back MCC 90 Insulation back MCC 120 Insulation back MCC 150	9382170 9382172 9382173	1
86	Insulation side cold set of two	9382078	set of 2
87	See 86		
88	Drain with siphon	9381002	1
89	Base outer frame MCC 90 Base outer frame MCC 120 Base outer frame MCC 150	9384023 9384024 9384025	
90	Insulation bottom MCC 90 Insulation bottom MCC 120 Insulation bottom MCC 150	9382076 9382083 9382119	
91	Insulation front	9382077	1
92	Inner shell MCC 90 Inner shell MCC 120 Inner shell MCC 150	9384096 9384142 9384219	
93			
94	Product plateau support MCC 90 Product plateau support MCC 120 Product plateau support MCC 150	9384082 9384125 9384290	1
95	Assy evaporator PT MCC 90 SS Assy evaporator PT MCC 120 SS Assy evaporator PT MCC 150 SS Assy evaporator SB MCC 90 SS Assy evaporator SB MCC 120 SS Assy evaporator SB MCC 150 SS	9380159s 9380160s 9380161s 9380155s 9380189s 9380191s	Check by serial number required
96	See 86		
97	See 86		
98	Rosette type 220 1 1/4"	2104020	
99	Protective tube	2104012	1
100	Lokclip AL NK9, 53-06	30005926	
101	Connection tube evaporator	9383013	
102	Rosette type 240 1 1/4"	9381001	
103			
104			
105			
106	Product plateau MCC 90 400 mm Product plateau MCC 120 mm Product plateau MCC 150 mm	9384082 9384125 9384290	2
107	Fan plate MCC 90 Fan plate MCC 120 Fan plate MCC 150	9384080 9384283 9384284	1
108			
109			

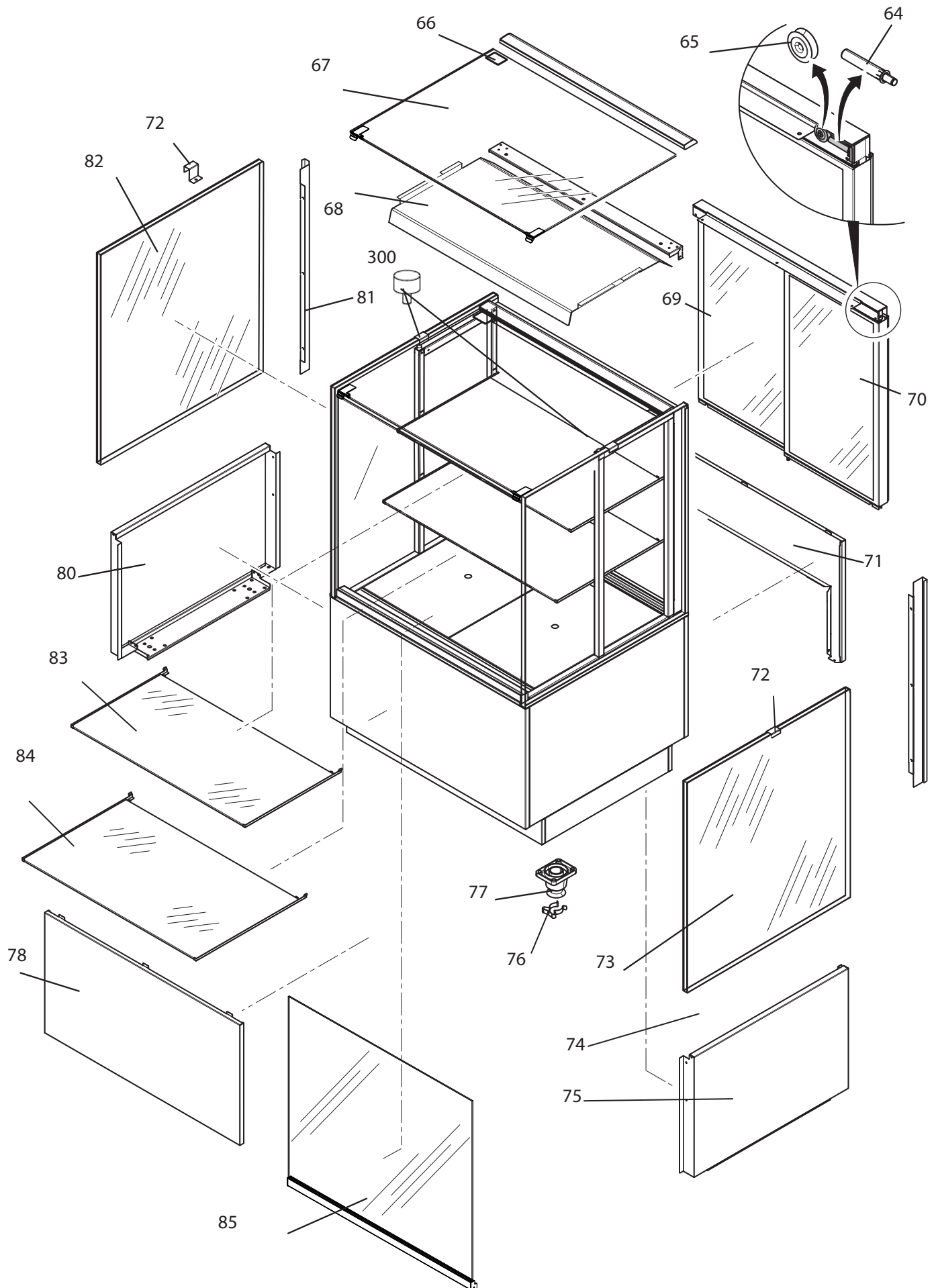
14.0 Exploded view MCC Cold (Full Serve)



14.0 Exploded view MCC Cold (Full Serve)

Number	Description	Article number	Quantity
159	Steelroller bearing	9382100	4
160	Soft close damper 3N	9281078	4
161	Assy Glass sliding door 90 Right V0 Assy Glass sliding door 90 Right V1 Assy Glass sliding door 120 Right V0 Assy Glass sliding door 120 Right V1 Assy Glass sliding door 150 Right V0 Assy Glass sliding door 150 Right V1	9380220s 9380210s 9380222s 9380212s 9380224s 9380214s	1 1 1 1 1 1
162	Assy Glass sliding door 90 Left Assy Glass sliding door 120 Left Assy Glass sliding door 150 Left	9380211s 9380213s 9380215s	1 1 1
163	Label max load 10kg	9123759	1
164	Top Glass Square MCC 60 Top Glass Square MCC 90 Top Glass Square MCC 120 Top Glass Square MCC 150	9380203s 9380200s 9380210s 9380202s	1 1 1 1
165	Assy. Air box MCC 90 Assy. Air box MCC 120 Assy. Air box MCC 150	9380002 9380098 9380137	1 1 1
166	Side glass topside bracket	9384201	2 (see 182)
167	Side glass MCC	9382030	1
168	Base end cover panel	9384021	1
169	Side panel MCC	9384005	2 (see 181)
170	Glass Top Shelf 410 mm MCC 90 Glass Top Shelf 410 mm MCC 120 Glass Top Shelf 410mm MCC 150	9382052 9382056 9382109	1 1 1
171	Assy price rail glass shelf MCC 90 Assy price rail glass shelf MCC 120 Assy price rail glass shelf MCC 150	9380052 9380073 9380117	2 2 2
173	Glass Middle Shelf 475mm MCC 90 Glass Middle Shelf 475mm MCC 120 Glass Middle Shelf 475mm MCC 150	9382051 9382055 9382108	1 1 1
174	Assy price rail glass shelf MCC 90 Assy price rail glass shelf MCC 120 Assy price rail glass shelf MCC 150	9380052 9380073 9380117	1 1 1
175	Front glass tilted forward MCC 60 with profile Front glass tilted forward MCC 90 with profile Front glass tilted forward MCC 120 with profile Front glass tilted forward MCC 150 with profile	9382033s 9382029s 9382034s 9382123s	1 1 1 1
176	Front panel MCC 90 Front panel MCC 120 Front panel MCC 150	9384001 9384003 9384004	1 1 1
177	Adjustable leg	9291162	1
178	Tool clamp	8071090	1
179	Side glass MCC	9382030	1
180	Base end cover panel	9384021	1
181	Side panel MCC 90 Side panel MCC 120 Side panel MCC 150	9384005 9384005 9384005	2 (see 169)
182	Side glass topside bracket	9384201	2 (see 166)
183	Back panel 90 Back panel 120 Back panel 150	9384007 9384008 9384009	
300	Plug top glass-pane	9263022	2

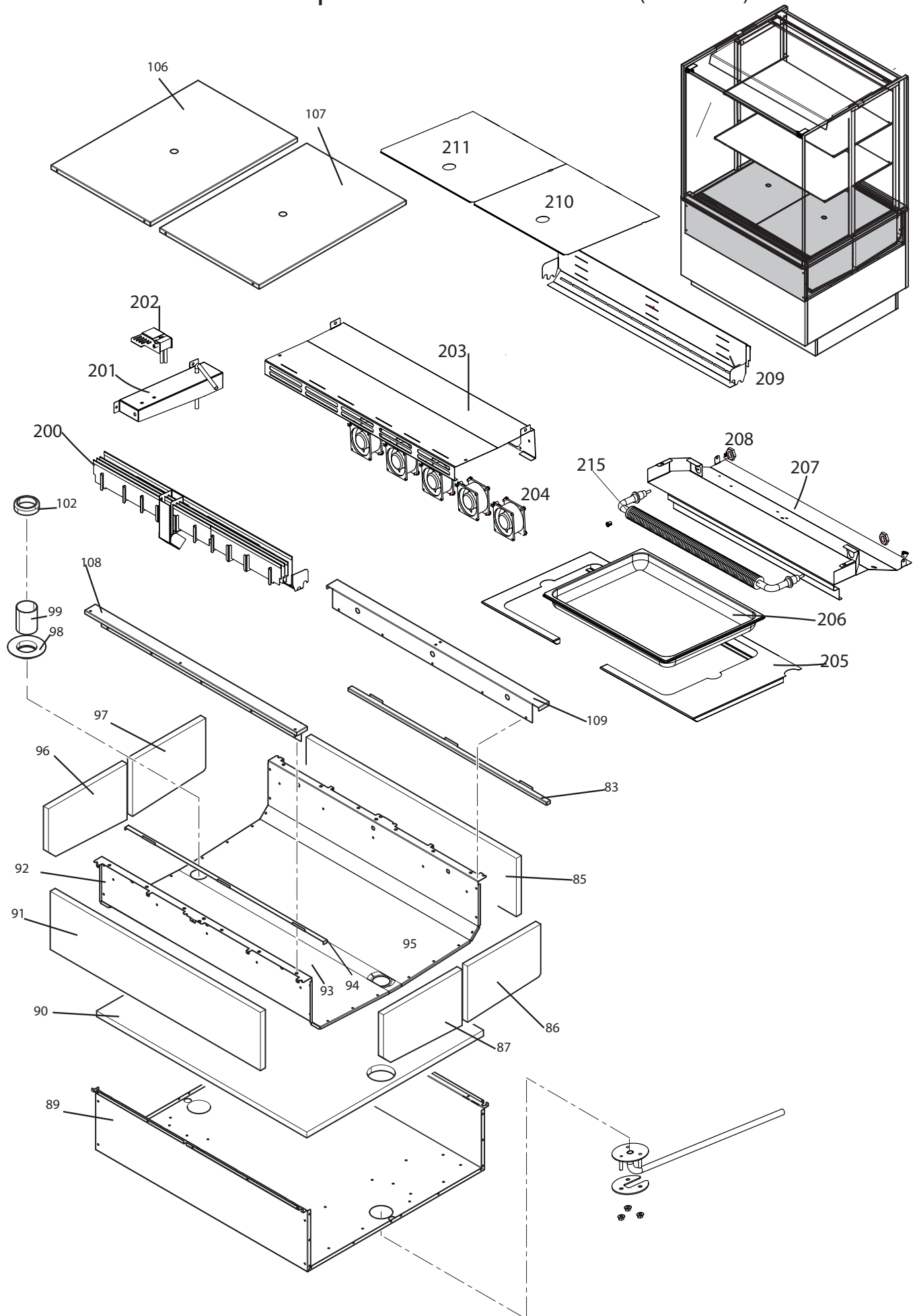
14.0 Exploded view MCC Hot (Full Serve)



14.0 Exploded view MCC Hot (Full Serve)

Number	Description	Article number	Quantity
64	Soft close damper 3N	9281078	4
65	Steel roller bearing	9382100	4
66	label max. load 10 kg	9123759	1
67	Top Glass Square MCC 60	9380203s	1
	Top Glass Square MCC 90	9380200s	1
	Top Glass Square MCC 120	9380201s	1
68	Air guide MCC 60		1
	Air guide MCC 90		1
	Air guide MCC 120		1
69	Assy Glass sliding door 60 Right V0	9380226s	1
	Assy Glass sliding door 60 Right V1	9380216s	1
	Assy Glass sliding door 90 Right V0	9380220s	1
	Assy Glass sliding door 90 Right V1	9380210s	1
	Assy Glass sliding door 120 Right V0	9380222s	1
	Assy Glass sliding door 120 Right V1	9380212s	1
70	Assy Glass sliding door 60 Left	9380217s	1
	Assy Glass sliding door 90 Left	9380211s	1
	Assy Glass sliding door 120 Left	9380213s	1
71	Back panel MCC 60	9384006	1
	Back panel MCC 90	9384007	1
	Back panel MCC 120	9384008	1
72	Side glass topside bracket	9384201	1
73	Side glass MCC	9382030s	2 (see 82)
74	Base end cover panel	9384021	
75	Side panel	9384005	2 (see 80)
76	Toolclamp	8071090	1
77	Adjustable leg	9291162	4
78	Front panel MCC 60	9384001	1
	Front panel MCC 90	9384002	1
	Front panel MCC 120	9384003	1
80	Side panel	9384005	2 (see 75)
81	Base end cover panel	9384021	1
82	Side glass MCC	9382030s	2 (see 73)
83	Glass shelf top MCC 60		
	Glass shelf top MCC 90		
	Glass shelf top MCC 120		
84	Glass shelf middle MCC 60		
	Glass shelf middle MCC 90		
	Glass shelf middle MCC 120		
85	Front glass pane tilted forward MCC 60	9382033s	
	Front glass pane tilted forward MCC 90	9382029s	
	Front glass pane tilted forward MCC 120	9382034s	
	Front glass pane tilted forward MCC 150	9382123s	
300	Plug top glass-pane	9263022	2

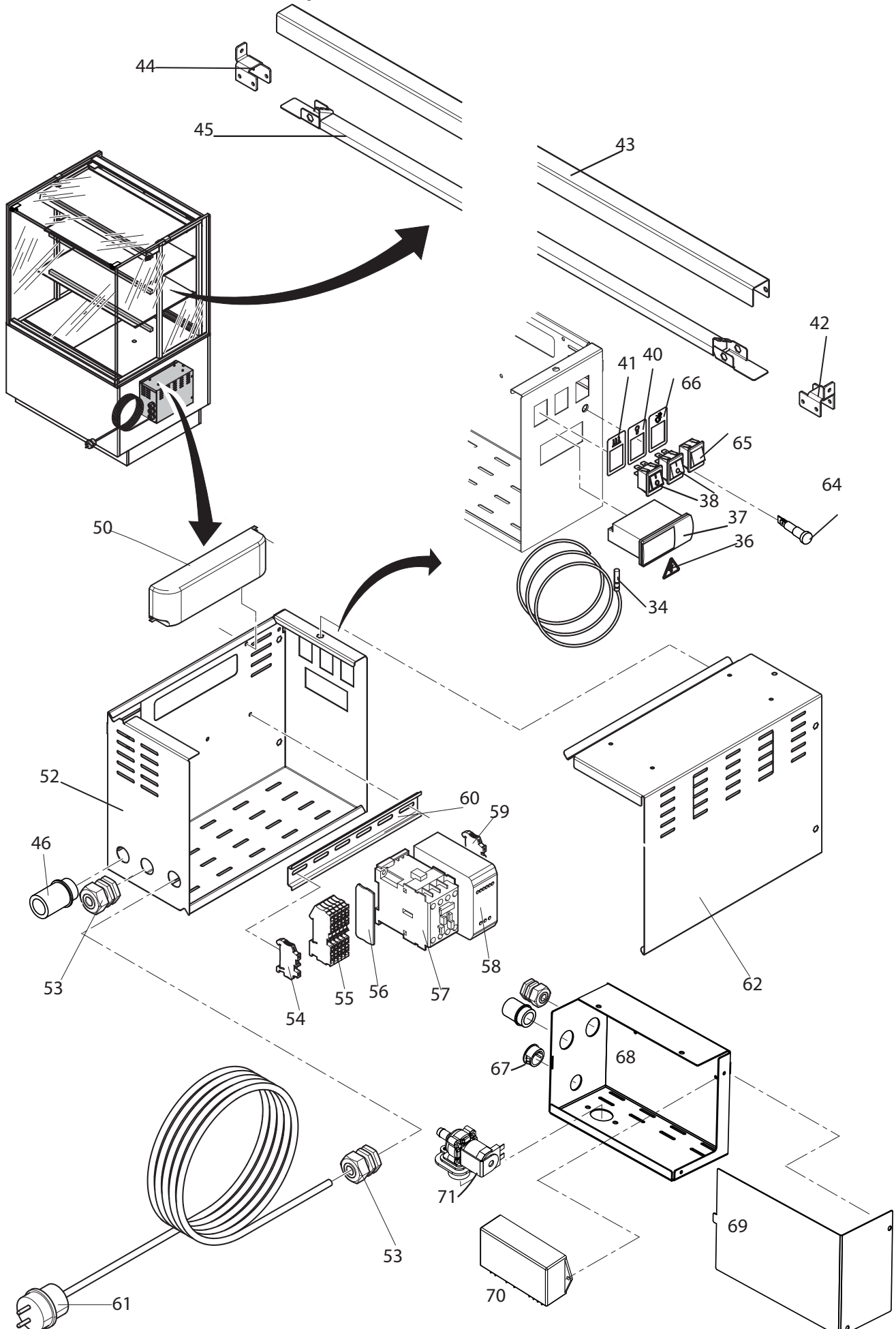
14.0 Exploded view MCC Hot (Full Serve)



14.0 Exploded view MCC Hot (Full Serve)

Number	Description	Article number	Quantity
83	product plateau support MCC 60 product plateau support MCC 90 product plateau support MCC 120	9384082 9384125 9384290	1
85	Insulation back MCC 60 Insulation back MCC 90 Insulation back MCC 120	9382177 9382172 9382173	1
86 / 87 / 96 / 97	Insulation side cold set of two	9382078	set of 2
89	Base outer frame MCC 60 Base outer frame MCC 90 Base outer frame MCC 120	9384023 9384024 9384025	
90	Insulation bottom MCC 60 Insulation bottom MCC 90 Insulation bottom MCC 120	9382076 9382083 9382119	
91	Insulation front	9382077	1
92	Inner shell MCC 60 Inner shell MCC 90 Inner shell MCC 120	9384096 9384142 9384219	
102	Rosette type 240 1 1/4"	9381001	
106	Product plateau MCC 60 400 mm Product plateau MCC 90 mm Product plateau MCC 120 mm	9384082 9384125 9384290	2
107	fan plate MCC 60 fan plate MCC 90 fan plate MCC 120	9384080 9384283 9384284	1
108			
109			
200			
201			
202	Water level sensor	9382215s	
203			
204	Fan 8556N	30010380s	4 till 7
205			
206	GN pan		
207			
208	Nut connection heating element		
209			
210	Deck		
211	Deck		
215	Element MCC 60 1500W 230V Element MCC 60 1500W 208V Element MCC 90 1800W 230V Element MCC 90 1800W 208V Element MCC 120 2400W 230V Element MCC 120 2400W 208V	9382174s 9382175 30002245s 9382176 30002244s 9382177	

14.0 Exploded view MCC Hot (Full Serve)



14.0 Exploded view MCC Hot (Full Serve)

Number	Description	Article number	Quantity
34	Sensor PTC 1000	9221011	
35	Model plate	9110810	
36	Sticker Black Elect. sign triangle	3500105	
37	Thermostat ERC211	9221109	
38	Switch	9181008	2
39	Switch dummy	30002730	
40	Sticker Lightning	9181071	
41	Sticker Lower Heat	9181072	
42	Led Armature support bracket	9384091	
43	LED Armature MCC 60 LED Armature MCC 90 LED Armature MCC 120	9384110 9384090 9384111	2
45	Led 3000k 12V 400mm MCC 60: Led 3000k 12V 700mm MCC90 Led 3000k 12V 1000mm MCC 120:	9382075 9382067 9382068	
44	Led Armature support bracket	9384091	
50	Led driver EDXe 160/12.054	30007730	
52	Box electronics	9384094	
53	Strain relief Nut for cable gland	9222076 9222077	
54	End Clamp Clipfix 35-5 PHX	9191222	
55	Terminal PT 4 (GN/YE) Terminal PT 4 (GY)	9191239 9191240	
56	End cover D=PT 4 PHX	9191223	
57	Contactor AB100-C09KL400	3500069	
58	Power supply 24VDC 40W	9381012	See remark serial number
59	End Clamp Clipfix 35-5 PHX	9191222	
60	Dinn rail	923057	
61	power cable	9091383	
62	Cover Electronics box	9384095	
64			
65			
66			
67			
68			
69			
70	PCB water level control	9181047s	
71	Valve inlet 2.5l.min	9261040s	

15.0 Recommended spare part list MCC

Number	Description	Article number	Prio- rity	Quantity
3	Fan Box MCC 60	9380072s	1	1
3	Fan Box MCC 90	9380058s	1	1
3	Fan Box MCC 120	9380074s	1	1
6	Heating element 475x400 450W MCC60	9382088	2	1
6	Heating element 775x400 700W MCC90	9382091	2	1
6	Heating element 1075x400 1000W MCC120	9382094	2	1
7	Assy Shelf MCC 60 Small	9380081s	3	1
7	Assy Shelf MCC 90 Small	9380087s	3	1
7	Assy Shelf MCC 120 Small	9380093s	3	1
12	Glass shelf Top MCC 60	9382035s	2	1
12	Glass shelf Top MCC 90	9382141s	2	1
12	Glass shelf Top MCC 120	9382079s	2	1
18	Heating element 475x470 550W MCC 60	9382089	2	1
18	Heating element 775x470 850W MCC 90	9382092	2	1
18	Heating element 1075x470 1150W MCC 120	9382095	2	1
19	Assy Shelf MCC 60 middle	9380083s	3	1
19	Assy Shelf MCC 90 middle	9380089s	3	1
19	Assy Shelf MCC 120 middle	9380095s	3	1
24	Glass shelf middle MCC 60	9382036s	2	1
24	Glass shelf middle MCC 90	9382140s	2	1
24	Glass shelf middle MCC 120	9382080s	2	1
28	Heating element 475x540 750W MCC 60	9382090	2	1
28	Heating element 775x540 1125W MCC90	9382093	2	1
28	Heating element 1075x540 1500WMCC120	9382096	2	1
30	Assy Shelf MCC 60 bottom	9380085s	3	1
30	Assy Shelf MCC 90 bottom	9380091s	3	1
30	Assy Shelf MCC 120 bottom	9380097s	3	1
33	Glass shelf bottom MCC 60	9382037s	2	1
33	Glass shelf bottom MCC 90	9382142s	2	1
33	Glass shelf bottom MCC 120	9382081s	2	1
34	Sensor PTC 1000	9221011	1	1
37	Thermostat ERC211	9221109s	1	1
38	Switch	9181008	1	2
45	Led 3000k 12V 400mm MCC 60:	9382075s	1	1
45	Led 3000k 12V 700mm MCC90	9382067s	1	1
45	Led 3000k 12V 1000mm MCC 120:	9382068s	1	1
50	Led driver EDXe 160/12.054	30007730	1	1
54	End Clamp Clipfix 35-5 PHX	9191222	3	2
55	Terminal PT 4 (GN/YE)	9191239	1	3-6
55	Terminal PT 4 (GY)	9191240	1	3-6
56	End cover D=PT 4 PHX	9191223	3	1
57	Contactor AB100-C09KL400	3500069	1	1
58	Power supply 24VDC 40W	9381012	1	1
64	Soft close damper 3N	9281078	2	4
65	Steel roller bearing	9382100	2	4

67	Top Glass Square MCC 60	9382165s	3	1
67	Top Glass Square MCC 90	9382164s	3	1
67	Top Glass Square MCC 120	9382166s	3	1
68	Air guide MCC 60	9382062	2	1
68	Air guide MCC 90	9382061	2	1
68	Air guide MCC 120	9382063	2	1
	Assy Glass sliding door 60 right (V0)	9380226s		
	Assy Glass sliding door 60 right (V1)	9380216s		
	Assy Glass sliding door 60 left (V0&V1)	9380217s		
	Assy Glass sliding door 90 right (V0)	9380220s		
	Assy Glass sliding door 90 right (V1)	9380210s		
	Assy Glass sliding door 90 Left (V0&V1)	9380211s		
	Assy Glass sliding door 120 right (V0)	9380222s		
	Assy Glass sliding door 120 right (V1)	9380212s		
	Assy Glass sliding door 120 Left (V0&V1)	9380213s		
	Assy Glass sliding door 150 right (V0)	9380224s		
	Assy Glass sliding door 150 right (V1)	9380214s		
	Assy Glass sliding door 150 Left (V0&V1)	9380215s		
73	Side glass MCC	9382030s	2	2
79	Childguard assy MCC60	9380017s	2	1
79	Childguard assy MCC90	9380018s	2	1
79	Childguard assy MCC120	9380019s	2	1
175	Childguard assy MCC 150	9380020s		
84	air guide MCC 90		3	1
84	air guide MCC 120		3	1
84	air guide MCC 150		3	1
88	drain with siphon	9381002	3	1
95	Evaporator 90 R290	9380159s		
95	Evaporator 120 R290	9380160s		
95	Evaporator 150 R290	9380161s		
	Evaporator 90 R290 SB	9380155s		
	Evaporator 120 R290 SB	9380189s		
	Evaporator 150 R290 SB	9380191s		
129	Condenser MCC 90 SS & MCC120 FS	9381004s		
	Condenser MCC 150 SS	9381008s		
	Condenser MCC 120 SS & MCC150 FS	9381010s		
	Condenser MCC 90 FS	9381021s		
132	Led 3000k 12V 1300mm MCC150	9382105s	1	1
137	Eliwell EWplus 974 EO	9381018s	1	1
141	Sensor NTC	9381017	1	2
146	Power supply 24VDC 40W	9381012	1	1
147	End cover D=PT 4 PHX	9191223	3	1
148	Terminal PT 4 (GN/YE)	9191239	1	1
149	End Clamp Clipfix 35-5 PHX	9191222	3	1
156	Led driver EDXe 160/12.054	30007730	1	1
157	Compact fan 8414 NLU	30010348	1	5 till 9

159	Steelroller bearing	9382100	3	4
160	Soft close damper 3N	9281078	1	4
164	Top Glass Square MCC 150	9382167s	3	1
165	Assy. Air box MCC 90 SS	9380002	2	1
165	Assy. Air box MCC 120 SS	9380098	2	1
165	Assy. Air box MCC 150 SS	9380137	2	1
170	Glass Top Shelf 410 mm MCC 90	9382052s	3	1
170	Glass Top Shelf 410 mm MCC 120	9382056s	3	1
170	Glass Top Shelf 410mm MCC 150	9382109s	3	1
171	Assy price rail glass shelf MCC 60	9380146s	3	3
171	Assy price rail glass shelf MCC 90	9380052s	3	3
171	Assy price rail glass shelf MCC 120	9380073s	3	3
	Assy price rail glass shelf MCC 150	9380117s		
	Assy price rail glass shelf MCC 60 Bottom	9380145s		
	Assy price rail glass shelf MCC 90 Bottom	9380053s		
	Assy price rail glass shelf MCC 120 Bottom	9380040s		
	Assy price rail glass shelf MCC 150 Bottom	9380116s		
173	Glass Middle Shelf 475mm MCC 90	9382051	3	1
173	Glass Middle Shelf 475mm MCC 120	9382055	3	1
173	Glass Middle Shelf 475mm MCC 150	9382108	3	1

15.1 Fasteners

Pos	Part nr	Description
800	4280107	Bolt M6x20 ZP
801	4289559	Lockwasher M6, serrated ZP
802	4288321	Screw M5x16, SS socket button head.
804	4285092	Nut M6, black serrated
805	4288232	Screw M5x12, SS cross recess, wide button head
806	4286713	Bolt M6x16, ZP threadforming
810	4288325	Screw M5x12, SS socket, wide button head
812	9087570	Nut M5, black serrated
814	4289787	Bolt M6x30 ZP
817	4287549	Washer M8, ZP
819	0196673	Bolt M8x25, ZP
820	0141149	Screw M5x16, SS Cross recess pan head
822	0142315	Nut M5, SS hexagonal
824	9191050	Bolt, SS M5x18
825	0142103	Washer M5, SS
826	4280218	Screw M5x45, SS Cross recess pan head
827	4280208	Screw M4x8, SS Cross recess pan head
828	4280215	Screw M5x8, SS Cross recess pan head
829	4280558	Screw M5x16, SS Slotted wide head
830	9192065	Capnut M4, ZP
831	0142129	Washer M4, SS
832	4288231	Bolt M5x10, SS serrated
833	0142307	Nut M4, SS
834	4311110	Washer M5, SS ø5xØ15
835	0142111	Washer M6, SS
836	4285035	Nut M6, Brass
837	0195910	Capnut M6, BNP
838	4285076	Bolt M8x16, ZP
841	0147017	Screw M2,5x16, SS Slotted pan head
842	0142293	Nut M2,5, SS hexagonal
843	9191130	starlock washer, 3mm black
845	0141081	
847	9070688	Bolt M8x12, SS
848	9008518	Lockwasher, M8 SS serrated
849	0142292	Nut M3
853	0141050	Screw M3x10, SS Cross recess pan head
854	0141076	Screw M3x20, SS Cross recess pan head
855	0141078	Screw M3x30, SS Cross recess pan head
856	0141035	Screw M3x5, SS Cross recess pan head
858	0141075	Screw M3x16, SS Cross recess pan head
859	4312810	Socket set screw M3x6, SS
861	4285151	starlock washer, 6mm
862	9191041	Circlips, E type for 6mm shaft
863	4287540	Screw M4x10, BNP
864	4285319	Screw 4,8x13, ZP Self drilling and tapping.
866	4287620	Screw 4,2x12, NP self tapping
868	4285078	Nut 1/4" bsw ZP
871	9191049	Set screw M5x5, black
872	4285010	Nut M3, ZP with lockwasher

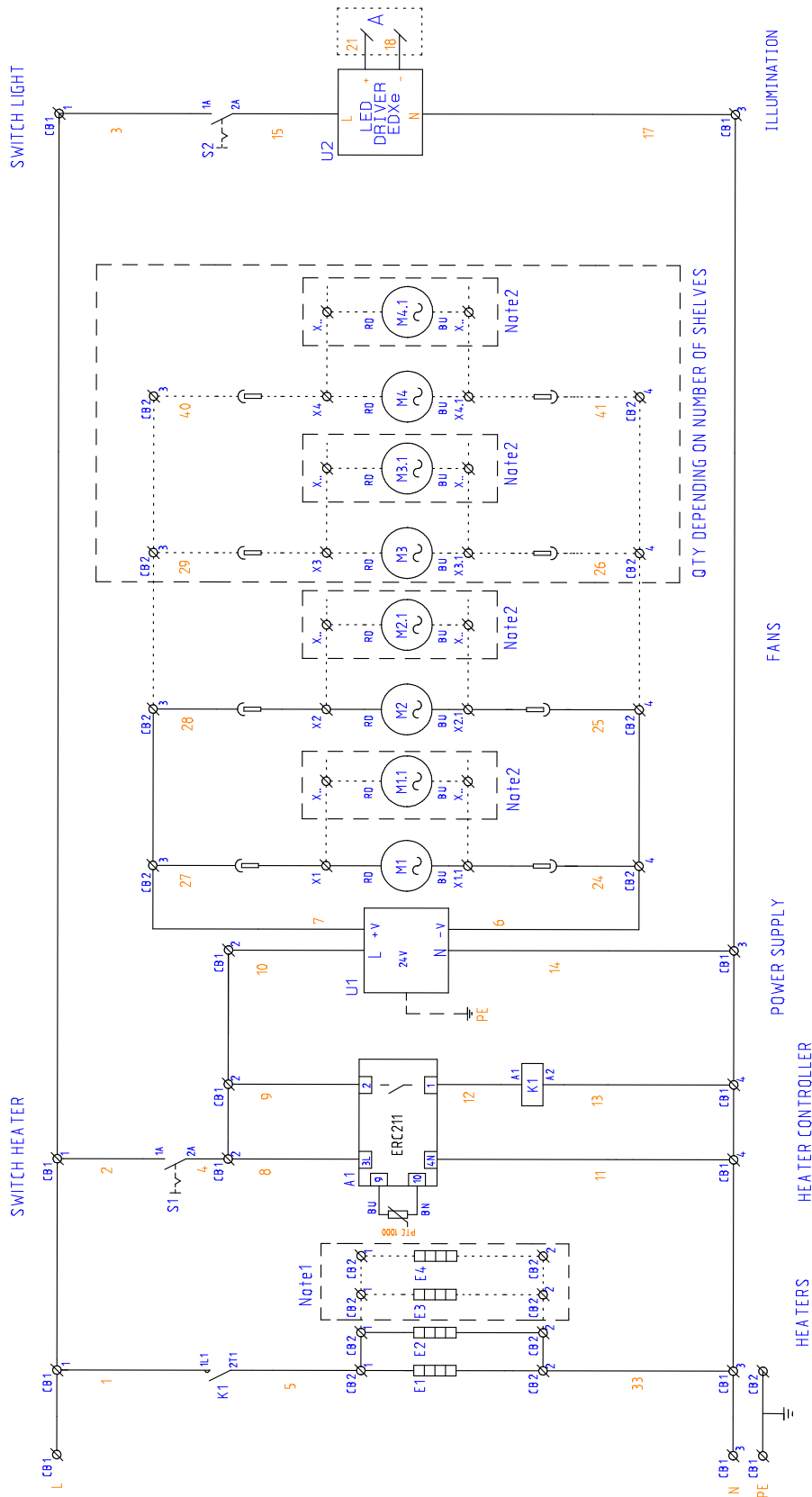
Pos	Part nr	Description
873	3701248	Spacer 7mm, Ø3,2x6 NP
874	0149296	Spacer 10mm, Ø4,2x8 Nylon
875	9057347	Spacer 10mm, Ø5,2x10 Nylon
876	0141165	Screw M5x25, SS Cross recess pan head
877	4285135	Bolt M5x10, ZP thread forming
878	0137344	Screw M5x30, SS Cross recess pan head
879	4287610	Screw, ZP selftapping 3,5x13
880	9008178	Bolt M5x8, SS
881	0141246	Bolt M6x12, SS
882	0141117	Screw M4x45, SS Cross recess pan head
883	0142365	Locknut M6, ZP
885	4288324	Screw M4x8, SS Cross recess pan head
888	6962153	Washer M6, ZP ø6xØ25
889	6802013	Rivet nut, M5, ZP
890	9172053	Nut M5, for sheet metal
891	4288058	Bolt M5x20, ZP
892	0141521	Nut M6, SS
893	0146987	Washer M8, SS
894	0211520	Bolt M5x12, SS
895	0144359	Locknut M5, SS
896	4285408	Capnut M5, BNP
897	4288320	Screw M5x50, SS hexagonal
898	9073987	Washer M8, SS ø8xØ25
900	9008869	Bolt M8x50, ZP
902	4288319	Screw 6x20, ZP CR threadforming
903	4289402	Lockwasher M8, ZP
904	3701280	Lockwasher, starlock for 10mm shaft
905	0141393	Screw M4x10, SS countersunk
906	0141084	Screw M4x10, SS Cross recess pan head
907	4288327	Screw M5x25, SS Socket pan head
908	9006930	Lockwasher M4, countersunk SS serrated
909	0141092	Screw M4x12, SS Cross recess pan head
910	4287520	Washer M4, Brass
911	4285020	Nut M4, Brass
912	4280128	Bolt M4x12, SS
914	0144347	Locknut M4, ZP
915	8047381	Washer M6, SS ø6xØ25
919	6501450	Circlips, E type for ??mm shaft
920	0141547	Nut M8, SS
922	2800066	Connection nut M8x24, ZP
923	4285051	Connection nut M10x30, ZP
925	0195596	Bolt M8x10, ZP Socket head
926	9070793	Connection nut M6x18, ZP
929	0197378	Washer M12, Zp
930	9008056	Nut M12, ZP
931	0142056	Lockwasher M8, SS
933	9077004	Socket set screw M4x6, SS
934	9301049	Circlips external ø25

Pos	Part nr	Description
935	4287557	Washer M10
936	9073149	Wingnut M6, SS
937	2800082	Wingnut M6, Brass Nickle plated
939	4312027	Connection nut M5x15, ZP
940	4280540	Screw M5x6, SS countersunk
941	4311215	Screw , socket head M6 x 30
942	0141123	Screw pan head, Philips M5x10, SS
943	149299	Spacer, Ø8xØ4,2, H15, black
944	0139142	Screw hexagon head M6x40, SS
945	4285410	Capnut M12 SS low profile
946	4286728	Set screw M8x40, socket
947	4280239	Screw M12x20, hexagon ZP
948	0197380	Washer M12, SS
949	0142975	
950	4285120	Screw M4x20, thread rolling
951	8071043	Nut M4, serrated ZP
952	6962187	
953	0197807	Screw M4x30, slotted ZP
954	4285084	Screw 4,8x19, ZP Self drilling and tapping.
955	9008217	Blind rivet 4x8,6
956	9174680	Washer ø5,2xØ20x2mm
957	4285047	nut M8 hexagon, thin DIN 439B
958	0195783	Screw M10x30 sock button head
959	9191108	Wing nut M6x10 SS
960	0141204	Screw M4x16, Pan head SS
961	0149210	Screw M5x6, Pan head
962	0141539	Screw M5x10, SS countersunk
963	4288233	Screw M8x16, ZP serrated
964		Screw M3x20, SS countersunk
965	4288330	Screw M8x12, SS button head, wide flange
966	4285414	Capnut, M4 ss
967	0149298	Spacer 10mm, Ø3,4x6 Nylon
968	0149299	Spacer 15mm, Ø4,2x8 Nylon
969	0251473	Washer M4, ZP ø4xØ16
970	4285043	Nut M5, prevailing torque SS
976	4280110	Bolt M6x20, SS hexagon head

16.0 Electrical schematic MCC Hot (Self Serve) (One Phase)

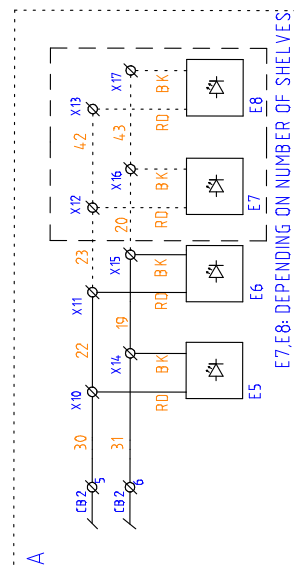
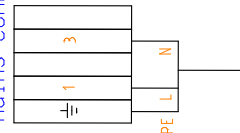


Schematics for: **Serial number starting from serial number**



Note1: QTY DEPENDING ON NUMBER OF SHELVES
Note2: QTY DEPENDING ON WIDTH OF THE UNIT

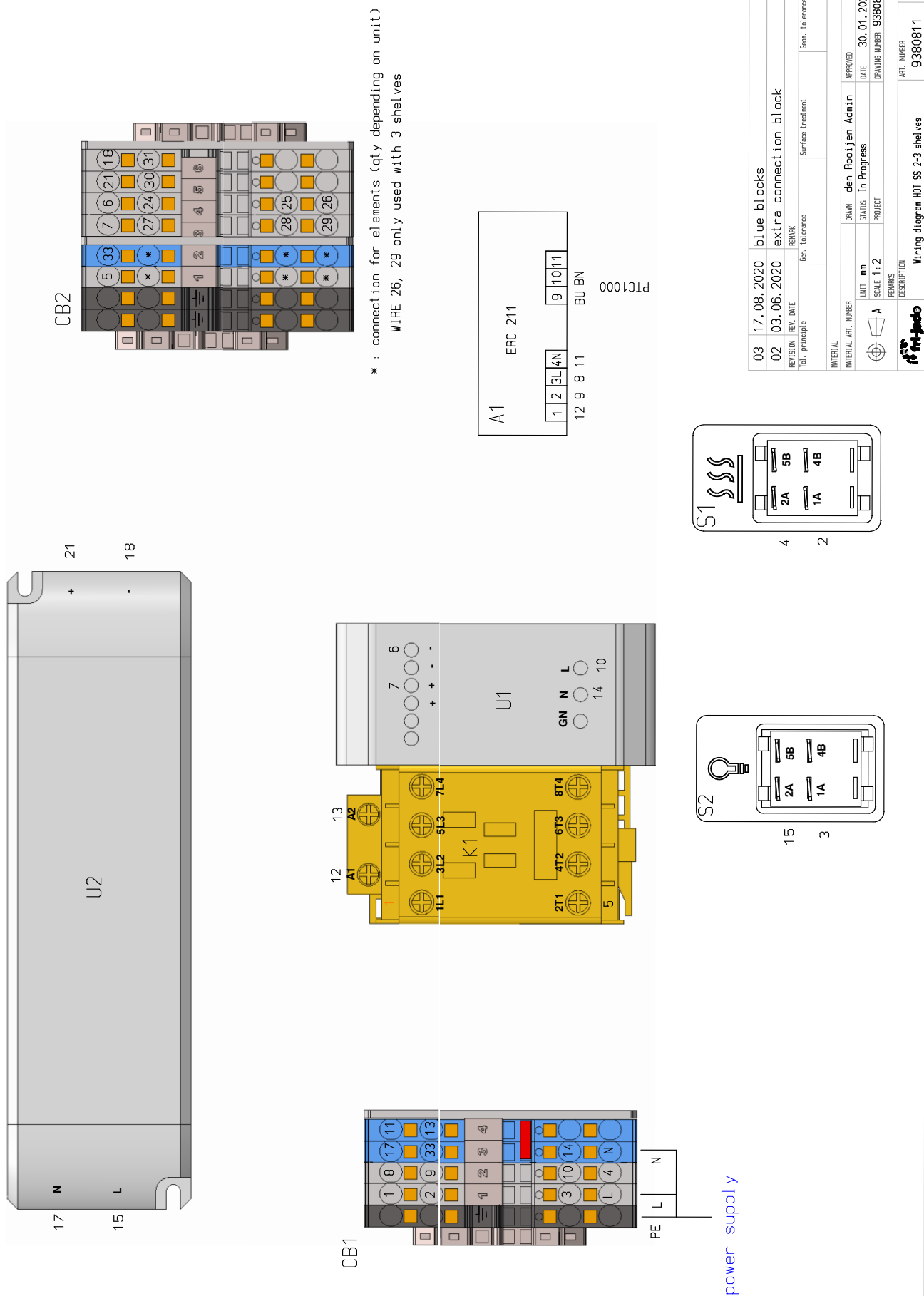
Mains connection



REVISION	REV. DATE	REMARK	Gen. Tolerance	Surface Treatment	Gen. Tolerance
02	03.06.2020	extra connection block			
01	31.03.2020	update			
MATERIAL	MATERIAL ART. NUMBER	DRAWN	den Rooijen Admin	APPROVED	
		UNIT	mm	DATE	17.12.2019
		SCALE	1:1	PROJECT	9380810
REVISION	REV. DATE	REMARK	Gen. Tolerance	Surface Treatment	Gen. Tolerance
		DESCRIPTION			
		Circuit diagram MCC HOT SS 2-3 shelves			
		ART. NUMBER	9380810	REV.	B
		SIZE			A3

BN - BROWN
BU - BLUE
GN - GREEN
RD - RED
YE - YELLOW
BK - BLACK
OR - ORANGE

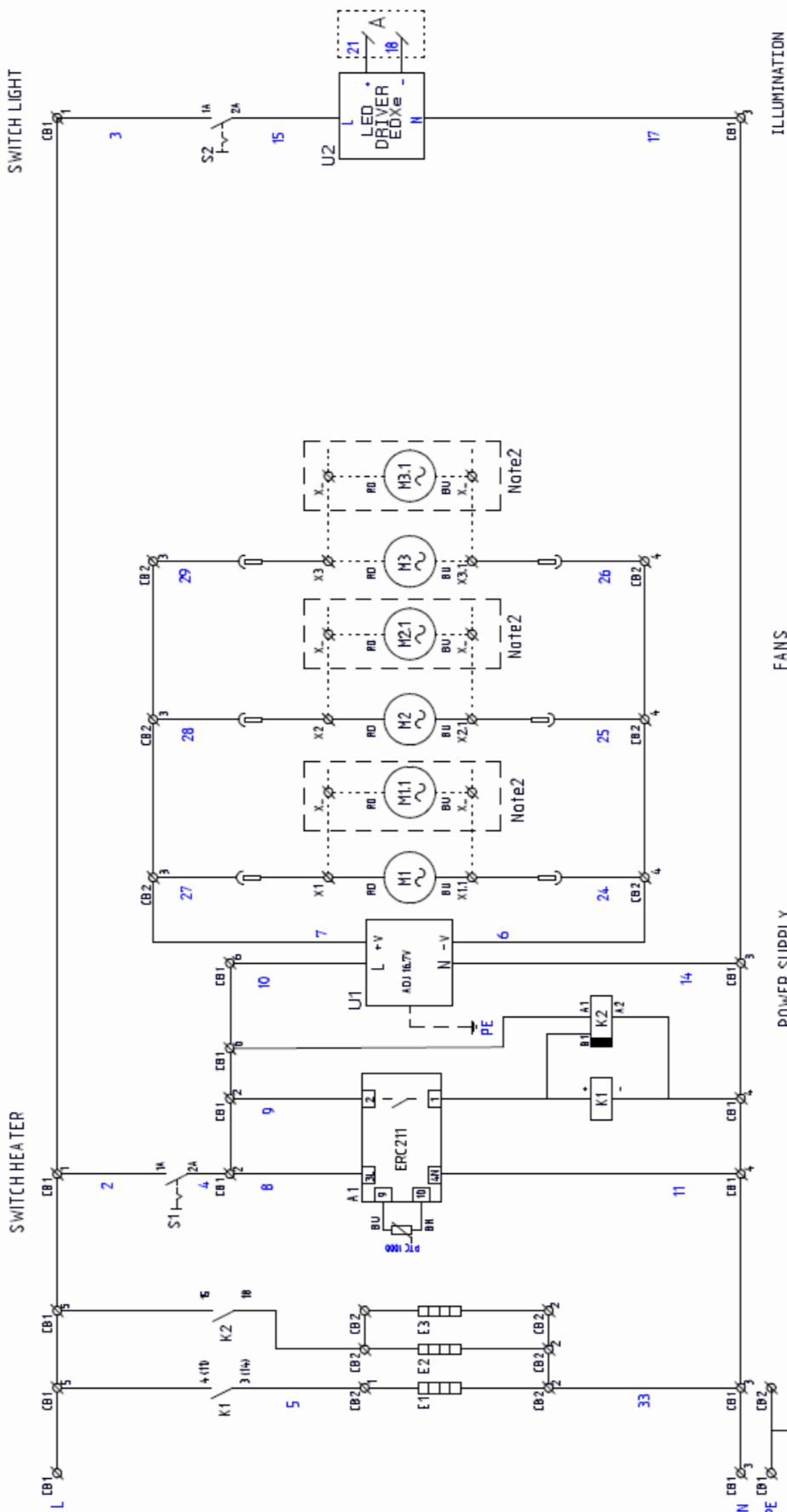
16.1 Electrical wiring MCC Hot (Self Serve) (One Phase)



16.1 Electrical schematic MCC Hot (Self Serve) (One phase and time relais)



Schematics for: **Serial number before serial number**

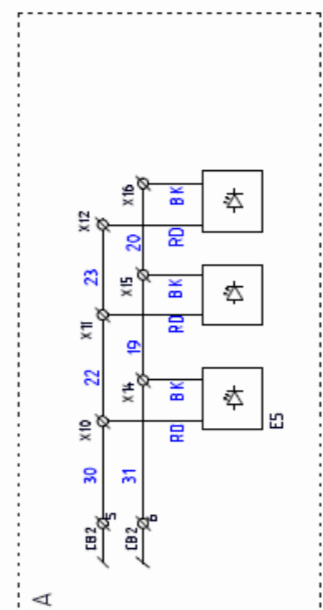
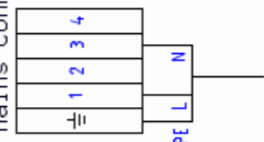


Note2: QTY DEPENDING ON WIDTH OF THE UNIT

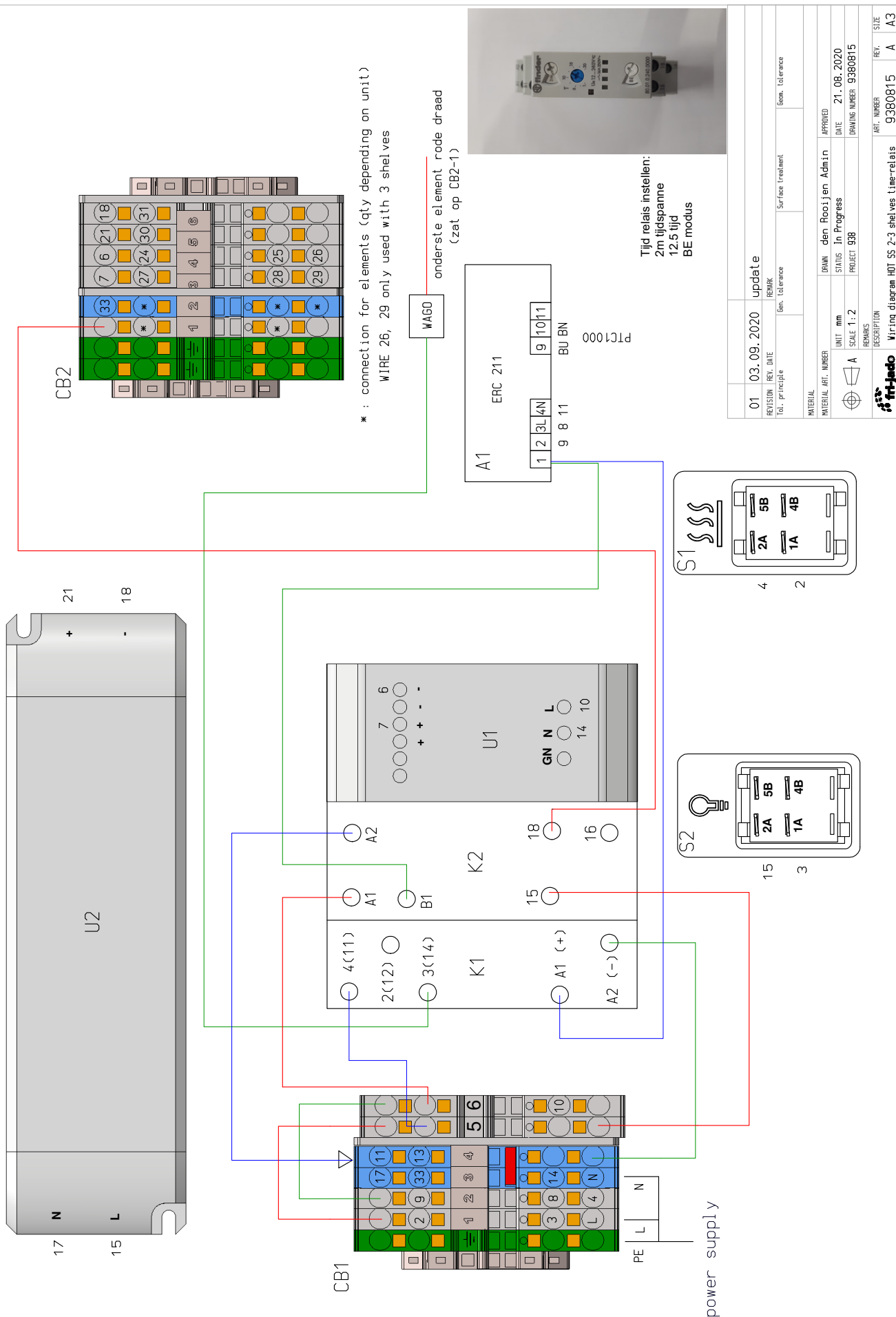
[illegible]

BN - BROWN
BU - BLUE
GN - GREEN
RD - RED
YE - YELLOW
BK - BLACK
OR - ORANGE

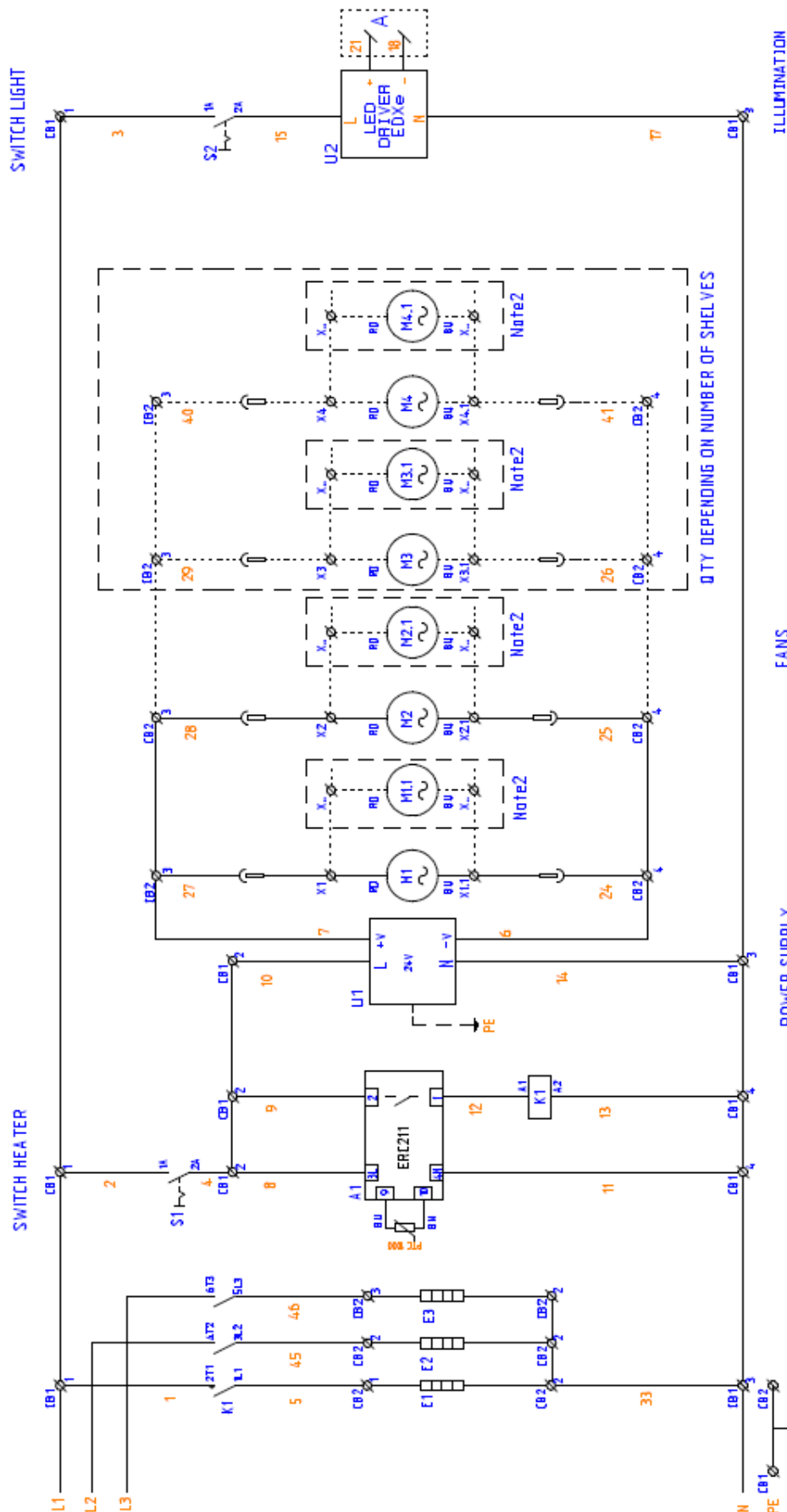
Mains connection



16.1 Electrical wiring MCC Hot (Self Serve) (One phase and time relays)



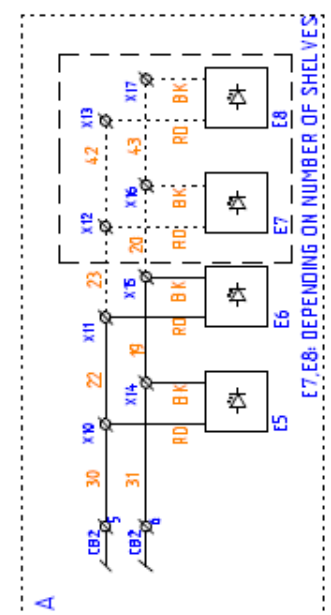
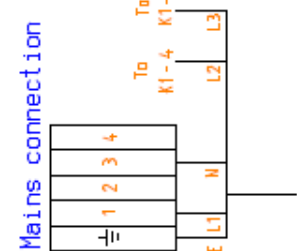
16.2 Electrical schematic MCC Hot (Self Serve) (Three phase)



E1	top shelf	935W
E2	middle shelf	1130W
E3	bottom shelf	1500W

01	11.11.2020	element table			
REFUSION	REV. DATE	REMARK	Surface treatment	Form	Location
17.11.2020	11.11.2020				

BN - BROWN
BU - BLUE
GN - GREEN
RD - RED
YE - YELLOW
BK - BLACK
OR - ORANGE

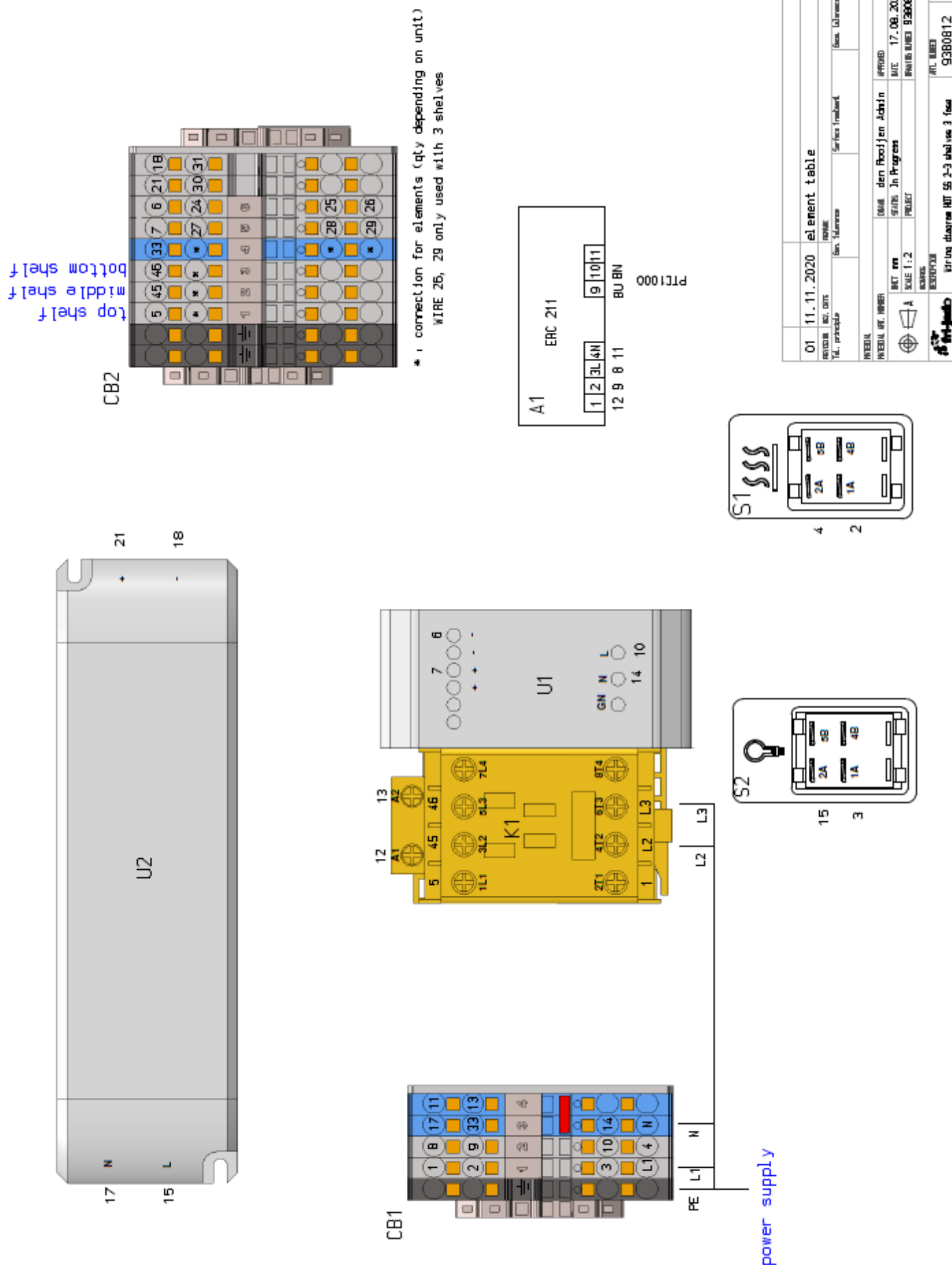


Note2: QTY DEPENDING ON WIDTH OF THE UNIT

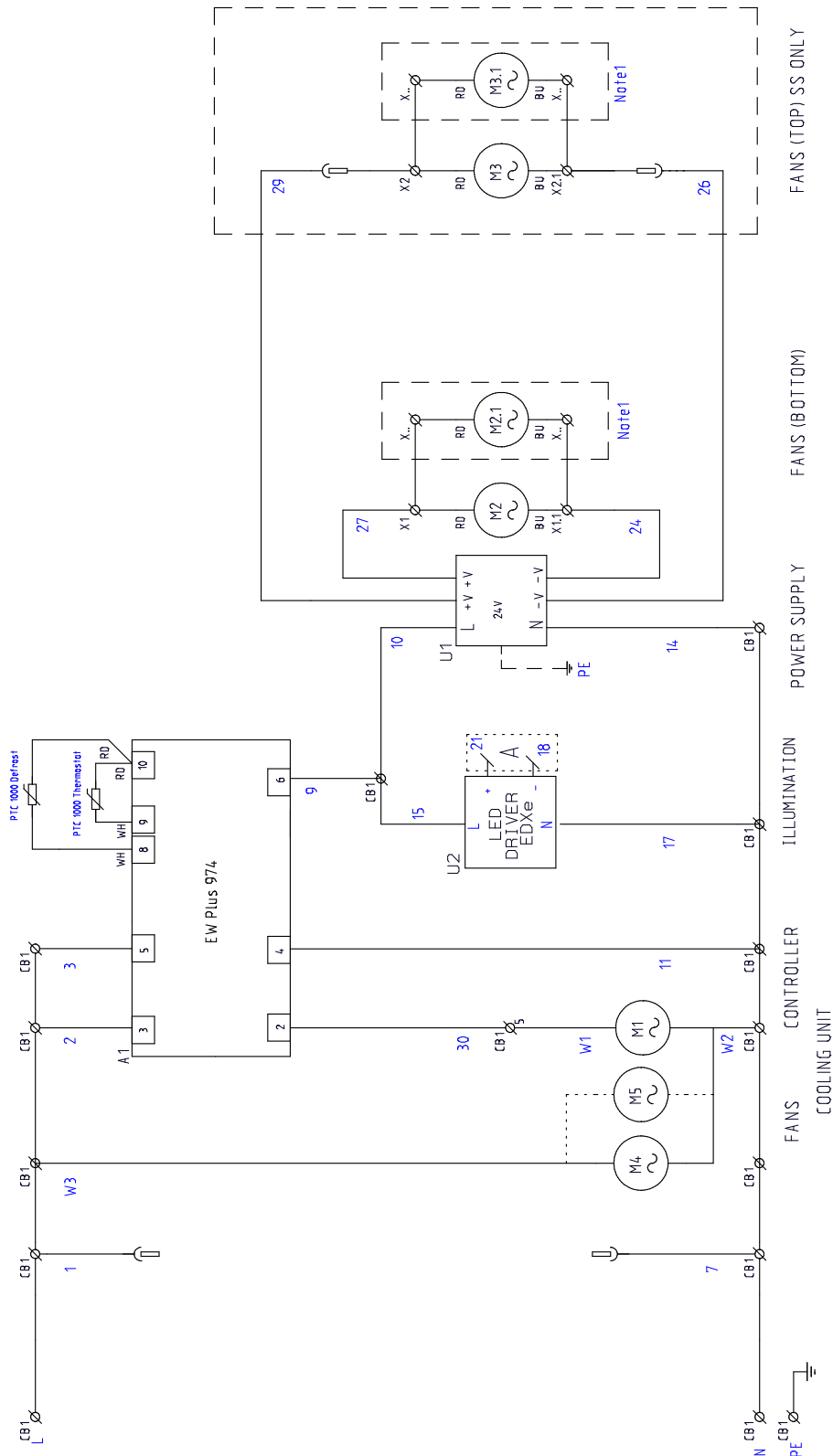
Note1: QTY DEPENDING ON NUMBER OF SHELVES

NAME OF FLIGHT	DATE	TIME	FLIGHT	DATE
Circuit diagram MCC HUT SS 2-3 shelves 3 fuses	9380813	A	A3	

16.2 Electrical wiring MCC Hot (Self Serve) (Three phase)

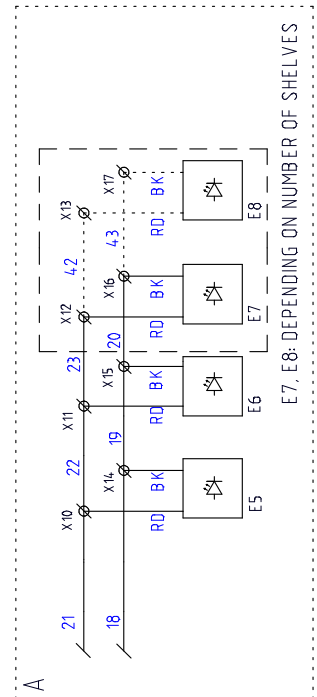
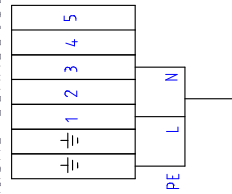


17.0 Electrical schematics MCC Cold (Self Serve)



Note1: QTY depending on width of the unit

Mains connection

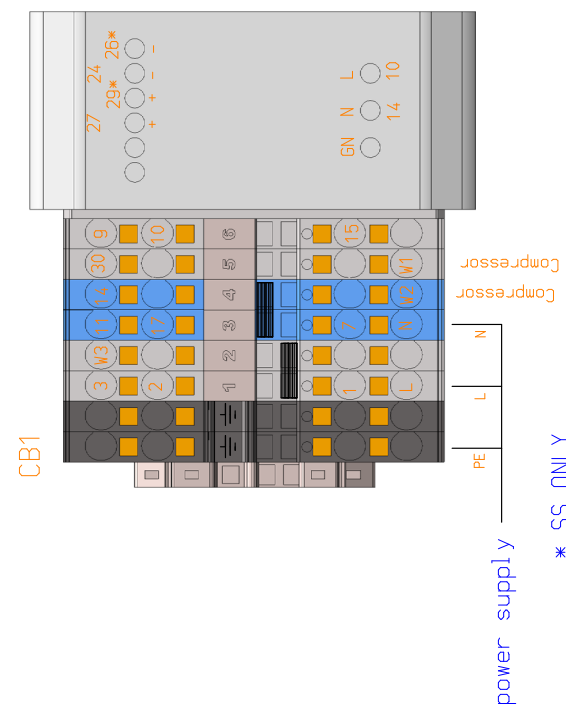
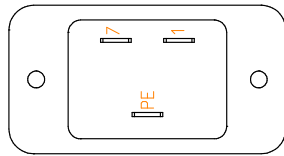
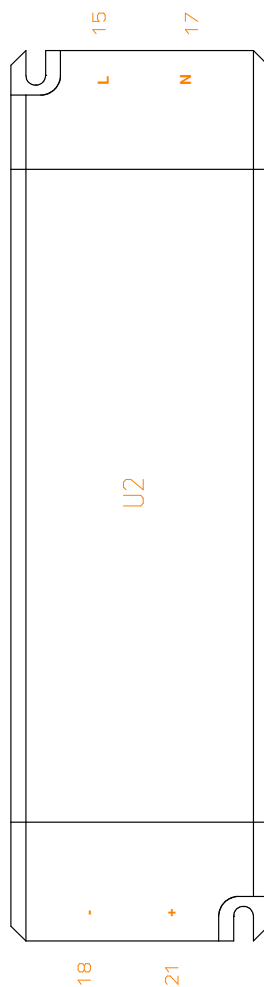


WH - WHITE
BU - BLUE
GN - GREEN
RD - RED
YE - YELLOW
BK - BLACK
OR - ORANGE

05	05.01.2021	PTCs switched	FS
04	26.10.2020		
REVISION: REV. DATE			
Tel.: principle			
REMARK			
Gen. Tolerance			
Surface Treatment			
MATERIAL			
MATERIAL ART. NUMBER			
DRAWN den Rooijen Admin			
STATUS In Progress			
DATE 20.01.2020			
UNIT mm			
SCALE 1:1			
PROJECT 938			
DRAWING NUMBER 9380820			
REMARKS			
Circuit diagram MCC COLD SS/FS			
ART. NUMBER 9380820			
REV. E			
SIZE A3			

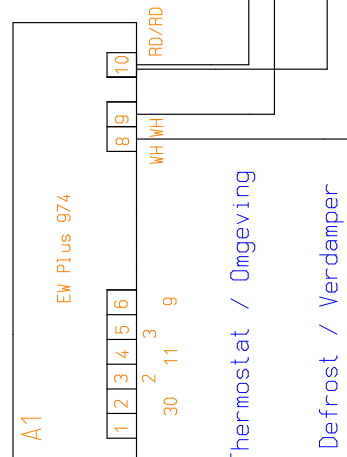




17.1 Electrical wiring MCC Cold (Self Serve)



Sticker "S2" (red) = Thermostat / Omgeving

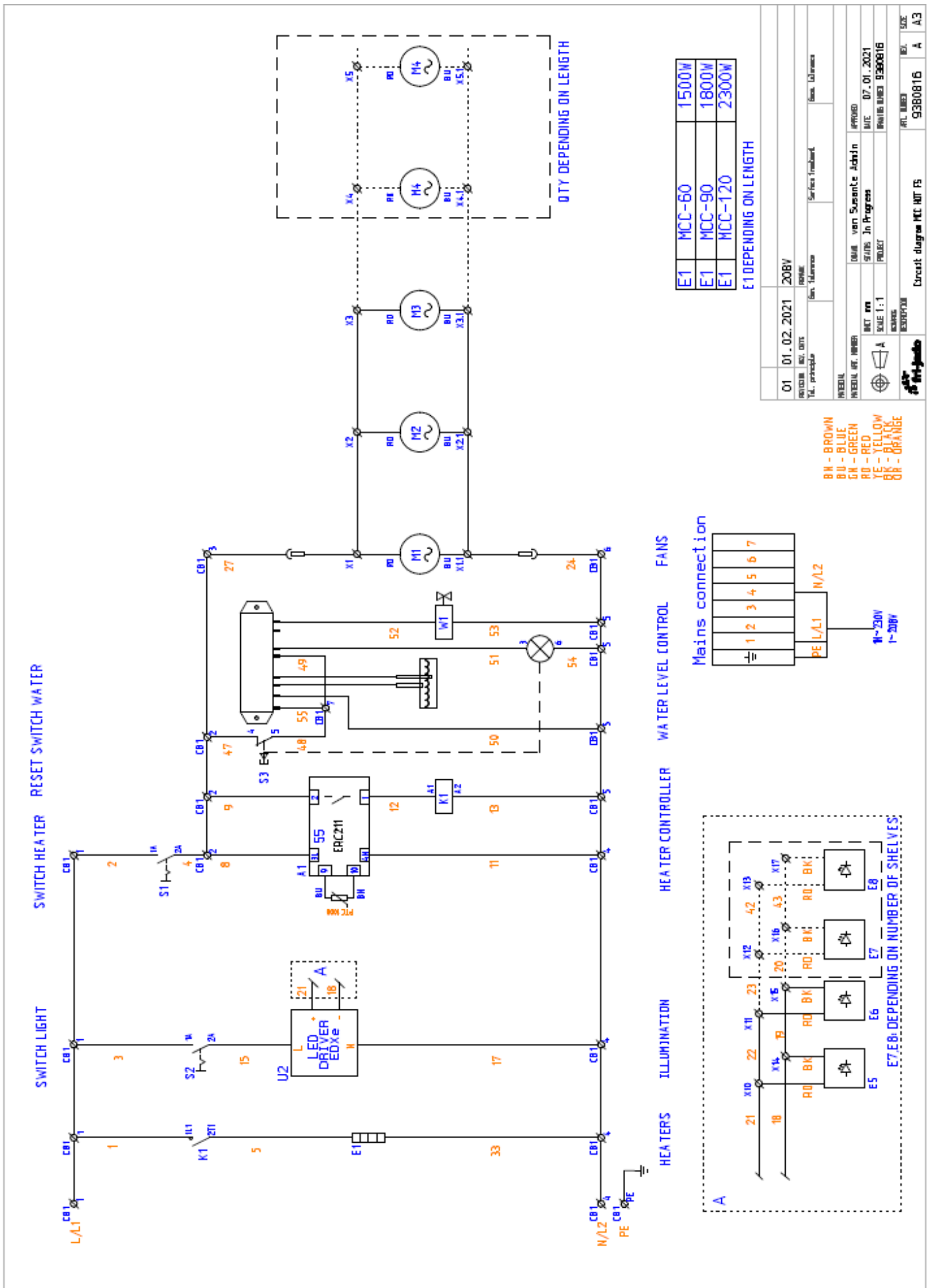
Sticker "S1" (blue) = Defrost / Verdampfer



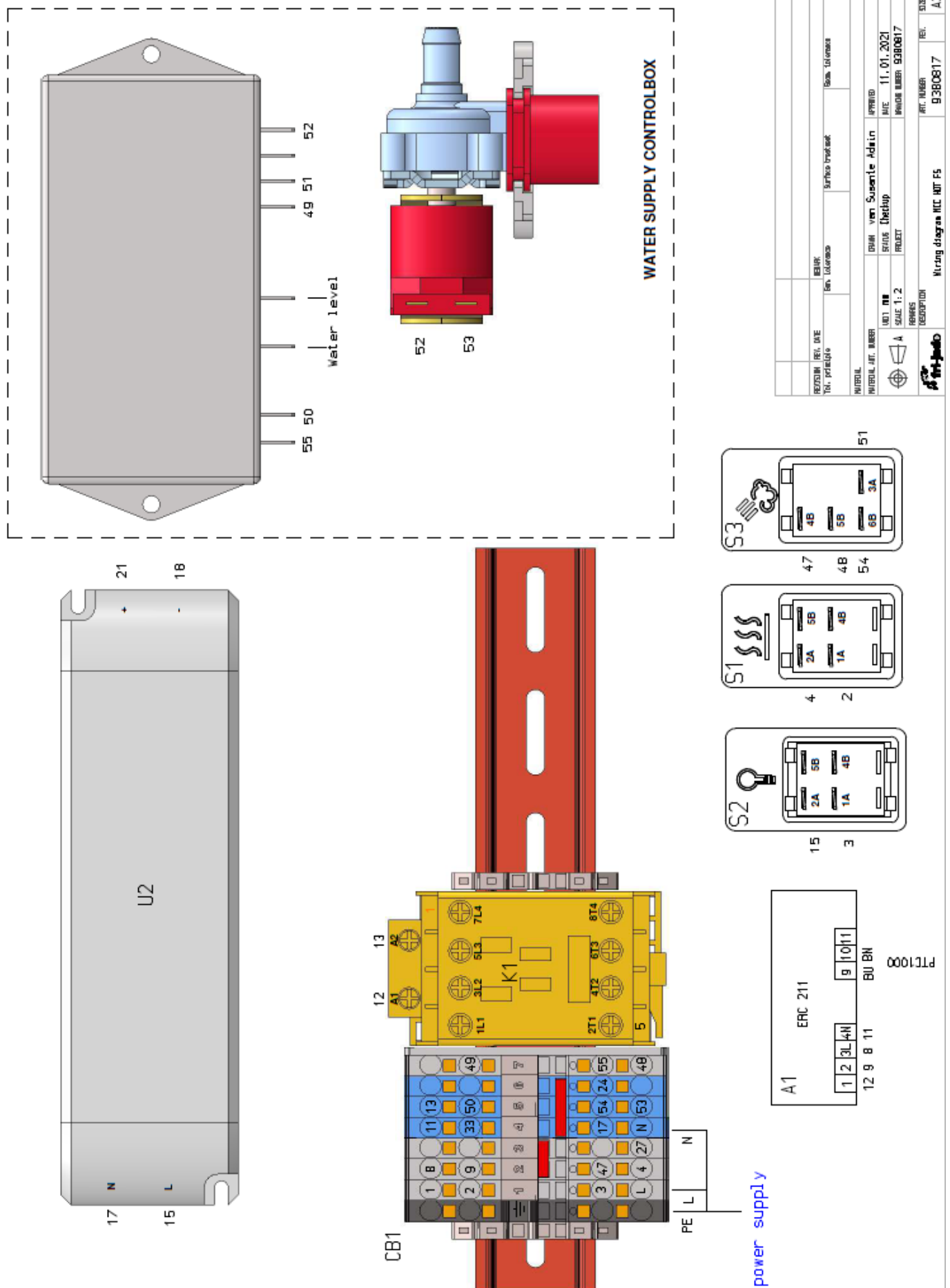
06	05.01.2021	PTCs switched
05	26.10.2020	FS
REVISION	REV. DATE	REMARK
	(a), principle	Gen. tolerance
		Surface treatment
		Gen. tolerance
MATERIAL		
MATERIAL ART. NUMBER	DRAWN	den Rooyen Admin
	UNIT mm	STATUS In Progress
	SCALE 1:2	PROJECT
		
REMARKS		
 Wiring diagram COLD SS/FS		
ART. NUMBER	REV.	SIZE
9380821	F	A3



17.2 Circuit Diagram MCC Hot (Full Serve)



17.3 Electrical wiring MCC Hot (Full Serve)









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