9124707
SERVICE MANUAL Multi Deck Display; MDD-Series EU

- 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 **Multi Deck Display** 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.

Version	Issue date	Remarks
	dd/mm/yy	
0	01-04-2021	Revision 0 <DRAFT>
1	01-01-2022	First Release
2	July 2022	Change into EU and US version
		Adding 3 level en second version wiring

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.

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

Index

1.0 Introduction

1.1 General

This manual is intended for trained technicians, performing repairs on the Multi Deck Display, 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 code
- 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

Cleaning
Not Allowed to use water hose.

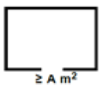
Suggestions and recommendations.

Notification
Take care off:

Reading
Instructions referred to, too be read

Recycling symbol.

Part of manual
Still under construction



Minimum room floor area.

Pictures or photos
Still to be added

Cleaning
On regularly interval

1.0 Introduction

1.4.1 Safety rules and 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 or any other tool, **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.

The pictograms, labels, instructions and warning signs 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 MDD user manual.

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

- All units must be cleaned regularly to ensure proper functioning.
  At least on a weekly basis.

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

1.4.2 Moving

- Before moving the unit, first switch off the mains switch and disconnect power by pulling the plug from the wall socket.
- Let unit cool down.
- Remove all product from the unit.
- Always keep the unit in upright position.

1.4.3 Outdoor use restrictions

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

1.0 Introduction

1.5 Hygiene

WARNING
Immediately remove products in damaged packaging from the equipment and destroy the products, abiding the locally prevailing safety rules and regulations.

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 hygienically packaged immediately after preparation, and loaded with a core temperature of 85 ºC.

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.

For detailed cleaning instructions, please refer to MDD user manual.

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, please contact Fri-Jado.

Service@Frijado.com

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.
- 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 rules and requirements.

2.0 Detailed description

2.0 Description

The Multi Deck Display is a multilevel self-service heated display cabinet intended for hot presentation of **packaged** food products.

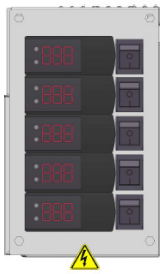
Each shelf has a self-contained heated air circulation system.
Air is drawn in at the back of the shelf and passed over a heating element located underneath the glass surface.

An air outlet at the front of the shelf creates a stable air curtain at the open side of the cabinet to minimize the infiltration of cold ambient air.

All air in- and outlet openings must be kept clear.

A digital controller is installed to regulate the temperature inside the cabinet.

This can be one single controller for the entire cabinet or one controller per shelf,
(Also called multi-temp configuration) which allows individual shelves to be controlled independently of one another.



To make sure the cabinet is installed, operated and serviced in a safe manner, the instructions provided by Fri-Jado and stated in this service manual should be adhered to at all times.

MDD cabinets can be ordered with a pass-through option (utilizing rear folding doors) or with a solid back.
The MDD is ETL listed (conforms to UL standard 197, NSF standard 4 and CSA standard C22.2 no. 109).

The information presented in this document is valid for standard MDD- configurations, specifications for custom configurations may differ.

No rights can be derived from this document. Specifications and technical data are subject to amendment without prior notice.

2.0 Detailed description

2.1 Connection to main voltage regulations

Connection to main voltage.

Warning Electrical shock Hazard

- ***Grounding instructions:***

Only connect the appliance

> on: an alternating current,
> on: 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 serious injury or even death.

3.0 Unpacking

UNPACKING INSTRUCTION MDD

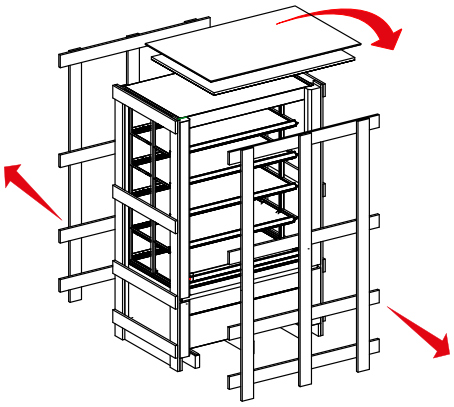
9124672 rev. 05/2020

1

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

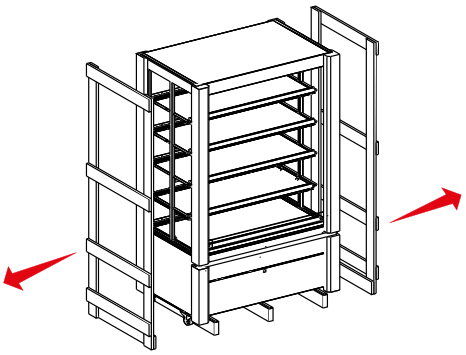
Before and during unpacking, check the state of the unit.
In case of damage, store the packing material,
and contact the transporter within fifteen working
days after receiving the goods.

2



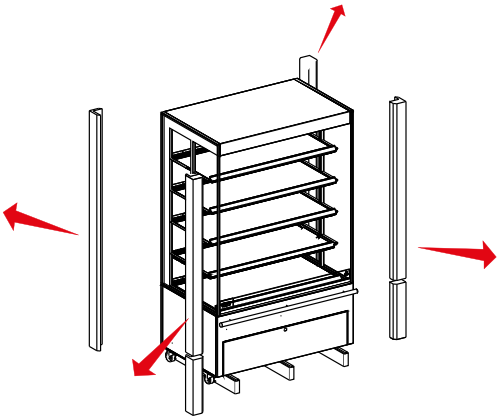
Remove the top crate pane and foam.

3



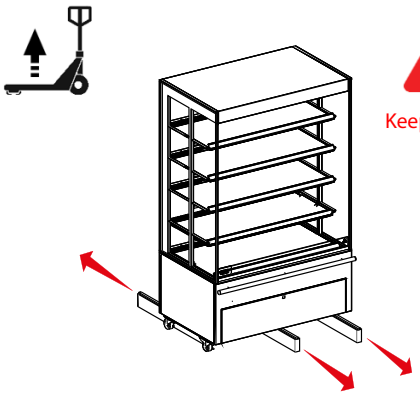
Remove the 2 side boards.

4



Remove tempex and foil.

5



Keep castors locked!

Lift the unit from the support beams using a pallet truck or forklift.

Remove the supporting beams.

6

NL - Lees de handleiding voordat u verder gaat.
EN - Read the manual before proceeding.
DE - Lesen Sie die Gebrachsanleitung, bevor Sie Fortfahren.
FR - Lire le manuel avan de continuer
ES - Leer el manual antes de continuar
PT - Leia o manual de instruções antes de continuar.
IT - Leggere il manuale prima di procedere.
NO - Les nøye gjennom instruksjonene før du tar apparatet i bruk.
SV - Läs igenom bruksanvisningen innan du fortsättler.
FI - Lue käyttöohje ennen kuin otat laitteen käyttöön.

4.0 Installation

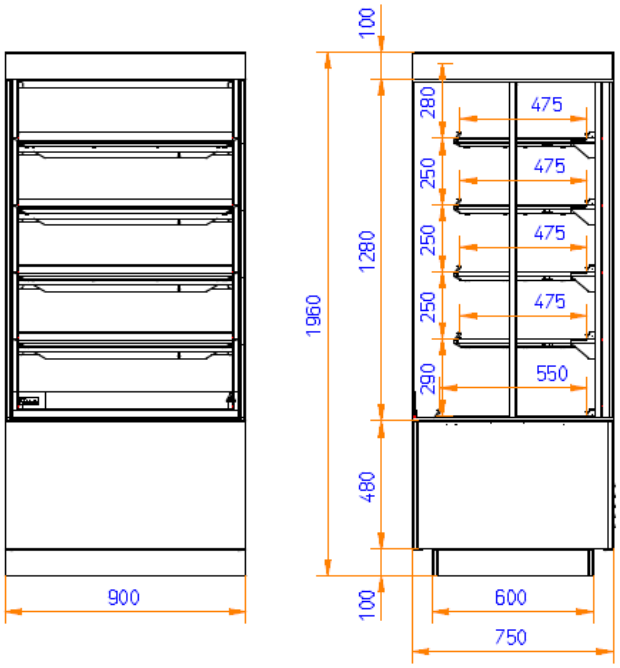
4.0 Placement of the unit

WARNING

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

- 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 wall and the back of the unit.
- While positioning, keep the unit out of children's reach.
- 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 into direct sunlight.
- The unit should not be used below 20 ºC (68 ºF) ambient temperatures.
- The unit has a mains plug, and must be connected to a wall socket with the proper mains voltage.
  The wall outlet must be installed by a certified electrician.

For detailed specifications see chapter 9



4.1 Air blockers !!

Last step of installation is the installation of the air blockers on each shelf.

**Without the air blockers in position,
the performance of the MDD can not be guaranteed.**

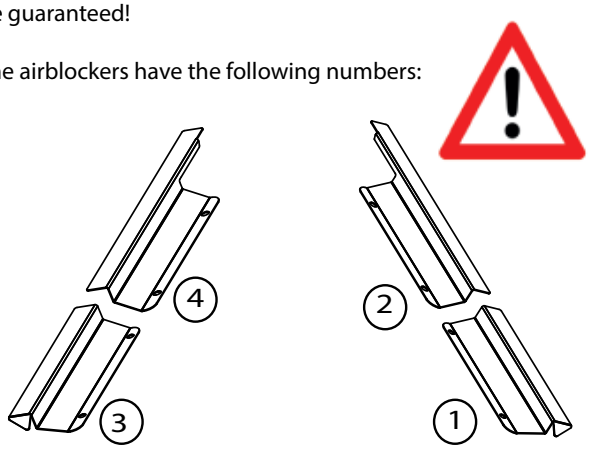
4.1 Installation of air blockers !!

INSTALL INSTRUCTION AIRBLOCKERS MDD 9124609 rev. 10/2021

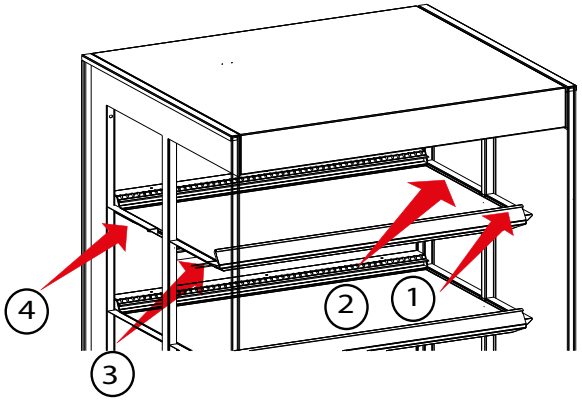
1

Without the airblockers the preformance of the MDD **cannot** be guaranteed!

The airblockers have the following numbers:

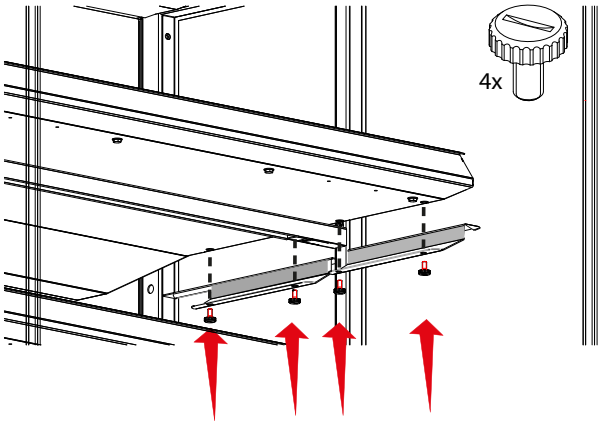


2



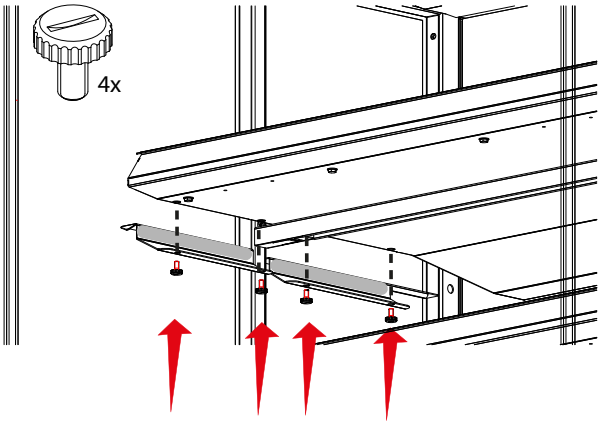
Mount the airblockers under the shelfs.

3



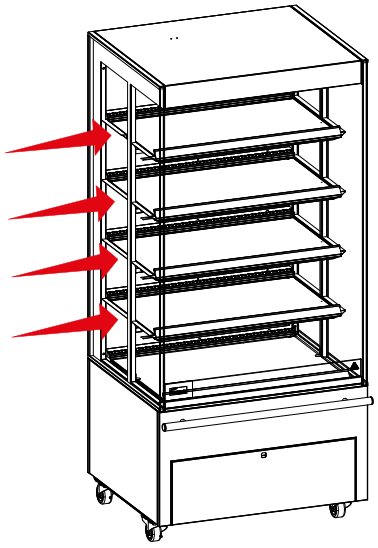
Mount airblocker 1 & 2 on the right hand side of the shelf with 4 screws (hand tight).

4



Repeat step 3 with airblocker 3 & 4 on the left side of the shelf.

5



Repeat step 3 & 4 for all shelves.

6

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4.2 Installation of front doors 3 level

9124722 Service Instruction
Installation front doors MDD-3 level

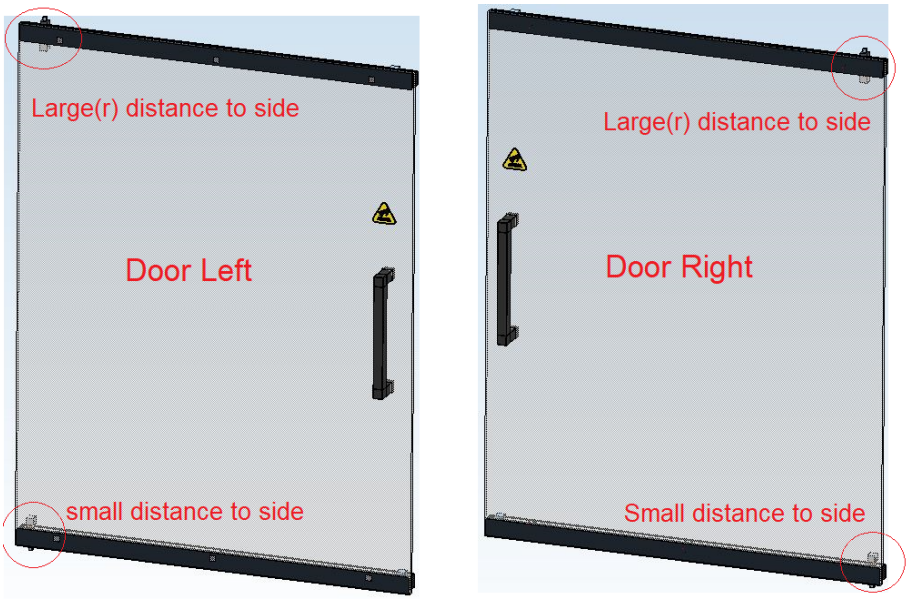
The technician, working on the unit will be fully responsible for abiding the locally prevailing safety rules and regulations.

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

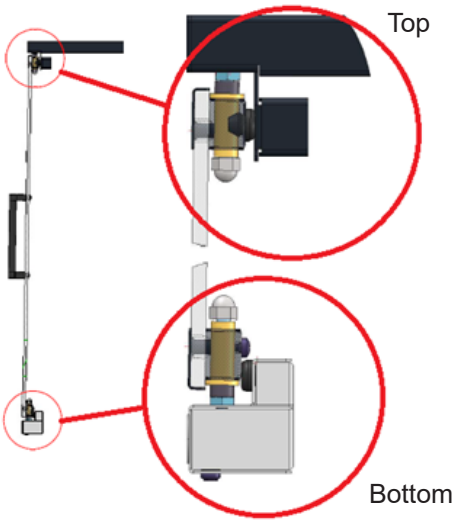
Before working on any electrical part, or dismantling the unit by means of using a screwdriver or any other tool, **ALWAYS REMOVE THE POWER PLUG** from the main outlet.

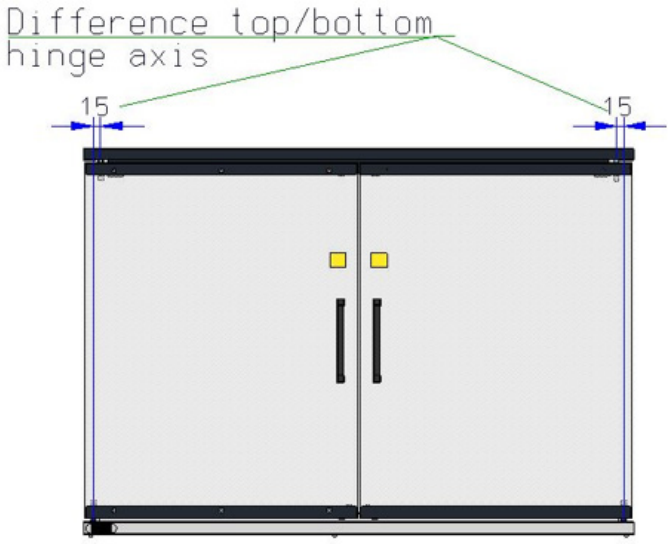
4.2 Installation of front doors 3 level

	Door set
MDD-3 60	9380369
MDD-3 90	9380370
MDD-3 120	9380372



4.2 Installation of front doors 3 level





Depending on variant:

With standard under frame:
Remove front under frame panel (two screws, one on each bottom corner).

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.

Step 1.

Remove Child guard:

Refer service manual chapter replacement and adjustment

a. Remove front panel.

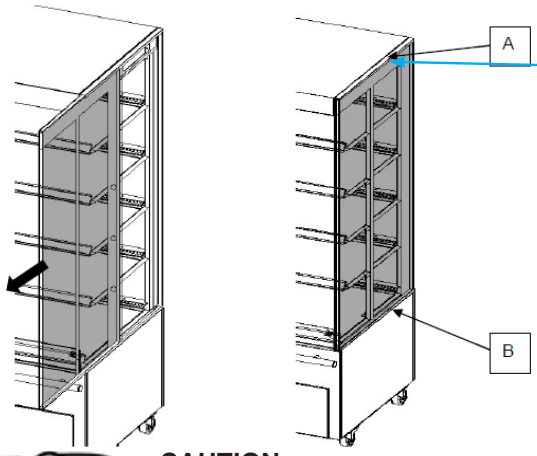
b. Loosen mounting screws
(3x depending on unit length) of child guard.
Screwed from underneath.

c. Remove child guard

d. Position under beam on place of child guard

e. Fasten mounting screws.

4.2 Installation of front doors 3 level



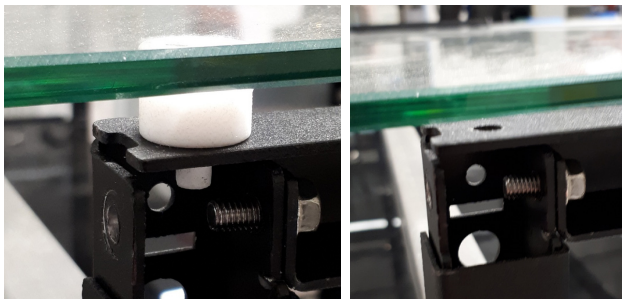
Step 2.

a. **Remove side glass** both sides:

b. Slide the double glass pane towards the front along the top (A) and bottom (B) guiding rails.

c. The side pane can be removed from the unit once it has slid entirety 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.

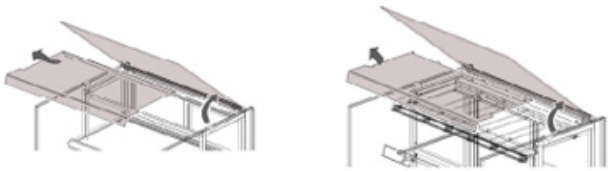


Step 3.

a. **Remove white (or black) stud,** both sides.
(*Black stud is screwed in)*

Step 4.

a. **Remove top air guide**.

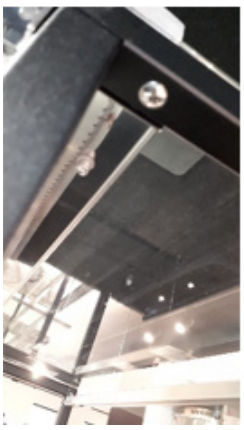
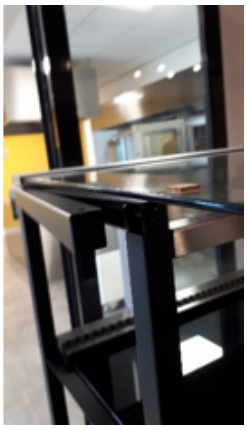


Step 5.

a. **Remove side glass holder**,
left and right.

4.2 Installation of front doors 3 level

fri-jado

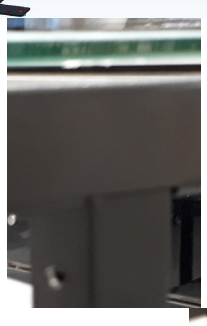
Step 6.

a. **Remove top column cover** by removing last screw. (one each side)


Step 7.

a. **Place new (longer) top column cover(s)/ window support** (two screws).

b. Mount screws in new top column cover




Step 8.

a. **Replace white (or black) stud** removed earlier.

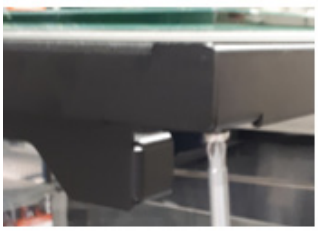
Step 9.

a. **Replace side glass holder** removed earlier.

Step 10.

a. **Place top front beam** in side profiles.

Slide the beam into the front of the profile.



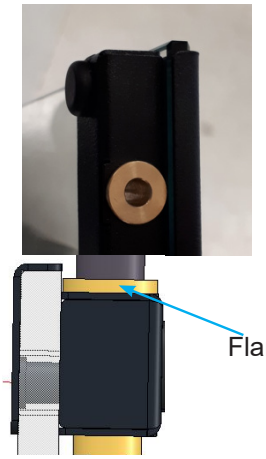

View from underneath

Step 11.

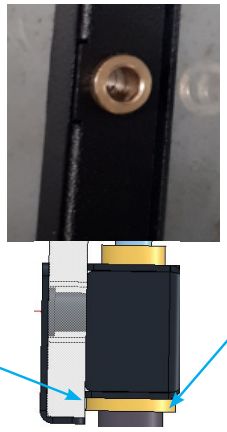
a. **Fasten the top front beam** in side profiles with screws. (both sides)

4.2 Installation of front doors 3 level

fri-jado



Bottom Side



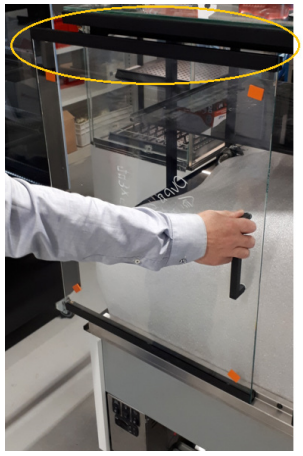
Flange

TOP Side

Step 12.

a. **Check placing bearing(s)** in door(s),
one in the top,
one at the bottom.

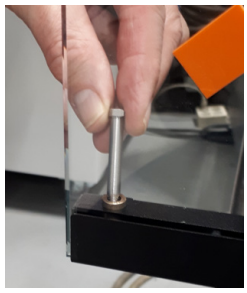
Make sure the flange of the bearing sits opposite of the glass.



Step 13.

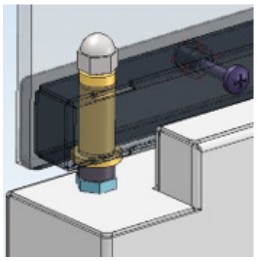
a. Place a door on the lower beam, let it stick out of the unit.

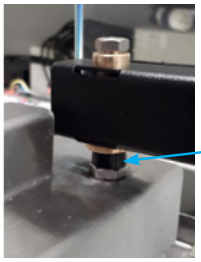
CAUTION:
Be careful not to touch the top beam with the glass door.



Step 14.

a. Place hinge pin into bearing





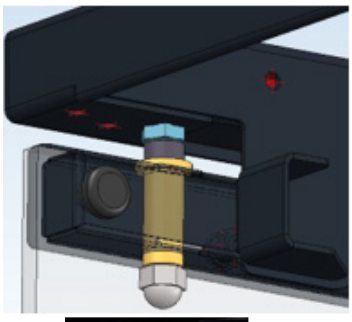
Step 15.

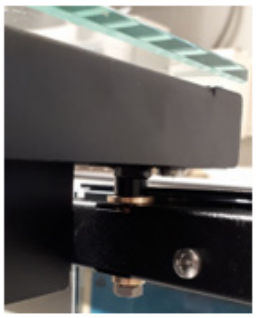
a. Place distance ring on hinge pin.

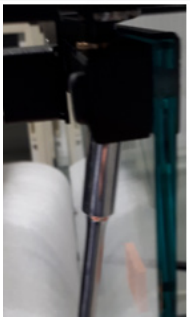
Step 16.

a. Fasten hinge pin loosely, making sure the door is kept in place

4.2 Installation of front doors 3 level







Step 17.

a. Place top hinge pin into top bearing.

b. Place distance ring on top hinge pin.

c. Fasten top hinge pin, tighten tight !

Step 18.

a. Fasten lower hinge pin, tighten tight !

Step 19.

a. Repeat step 14 till 19 for each front door, depending on MDD variation.

b. Replace top air guide.

4.3 Installation of front doors 4 - 5 level

9124723 Service Instruction
Installation front doors MDD 4-5 Level

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.

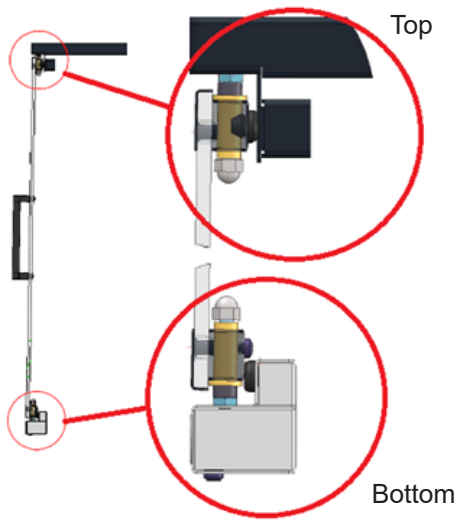
Before working on any electrical part, or dismantling the unit by means of using a screwdriver or any other tool,

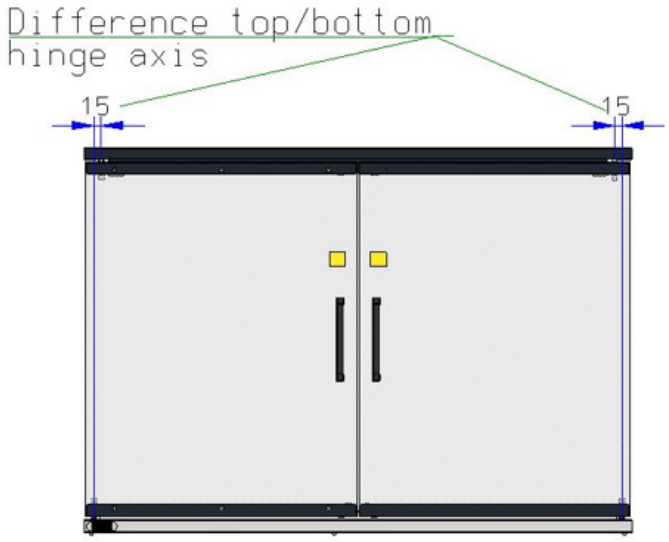
ALWAYS REMOVE THE POWER PLUG from the main outlet.

4.3 Installation of front doors 4 - 5 level

Version	Door set	Version	Door set
MDD-60-4	9398010	MDD-60-5	9398013
MDD-90-4	9398011	MDD-90-5	9398014
MDD-120-4	9398012	MDD-120-5	9398015

4.3 Installation of front doors 4 - 5 level





Step 1.

Remove Child guard:

Refer service manual chapter replacement and adjustment.

a. Remove front panel.

b. Loosen mounting screws of child guard.
(3x depending on unit length)
Screwed from underneath.

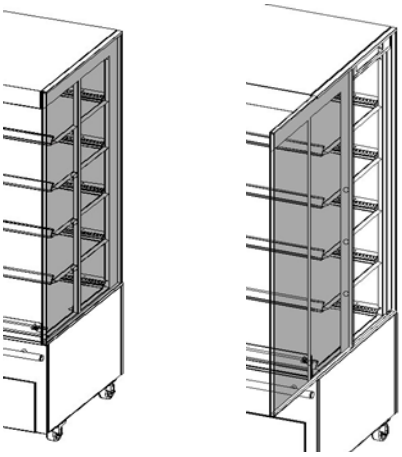
c. Remove Child guard.

d. Position under beam on place of child guard.

e. Fasten mounting screws.

4.3 Installation of front doors 4 - 5 level

fri-jado



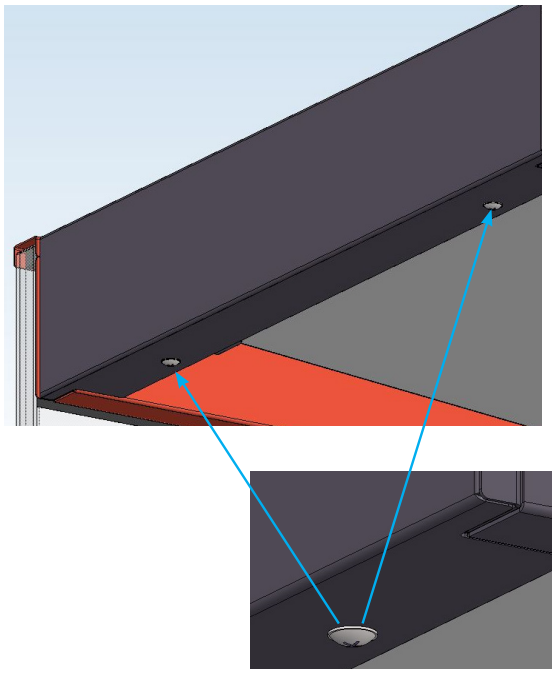
Step 2.

a. **Remove side glass:**
(MDD-60 hinge side only):
(MDD-90 and MDD-120 both sides):

b. Slide the double glass pane towards the front along the guiding rails.

c. The side pane can be removed from the unit once it has slid entirety past the guiding rails.

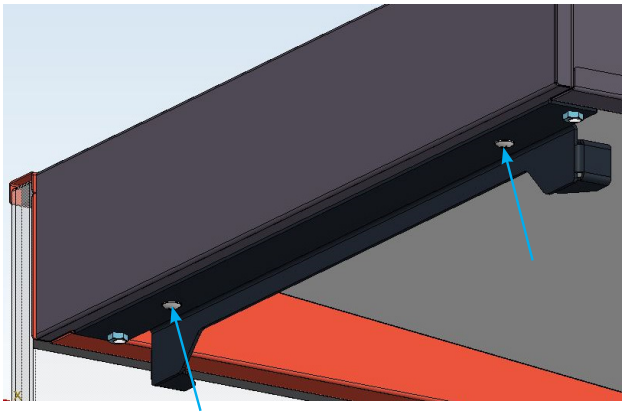
CAUTION:
Once past the guide rails, the glass pane might fall if not properly held.
Do not leave it standing upright without being supported or holding it.



Step 3.

a. **Remove screw(s):**
from top panel.

Leave top panel in position.

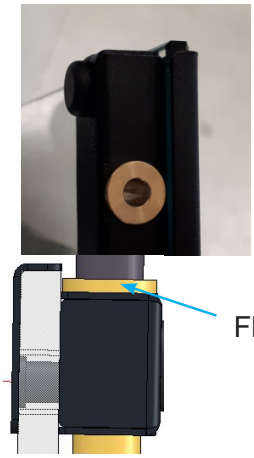


Step 4.

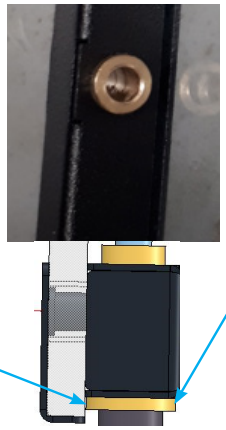
a. **Place top front beam,**
use mounting holes from previously removed screws from top panel.

Use the screws removed earlier.

4.3 Installation of front doors 4 - 5 level



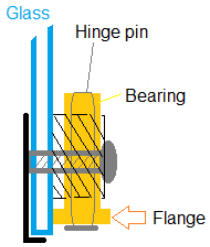
Bottom Side

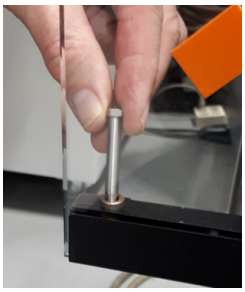


Step 5.

a. **Check placing bearing(s):**
in the door(s),
one in the top,
one at the bottom.

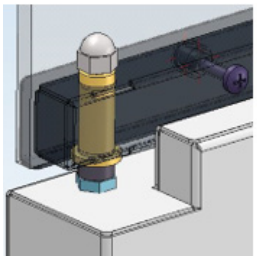
Make sure the flange of the bearing sits opposite of the glass.

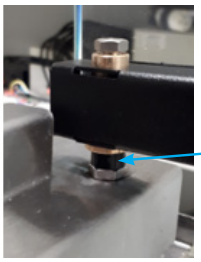




Step 6.

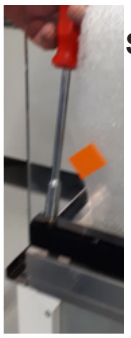
a. Place hinge pin into bearing.





Step 7.

a. Place distance ring on hinge pin.

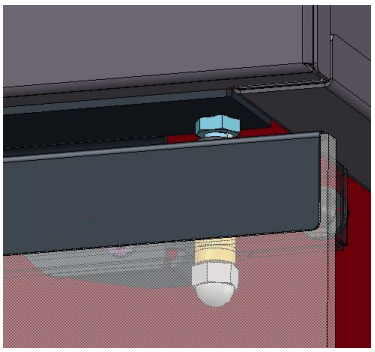


Step 8.

a. Fasten hinge pin loosely, making sure the door is kept in position.

Do not loose the distance ring.

4.3 Installation of front doors 4 - 5 level



Step 18.

a. Place top hinge pin into top bearing.

b. Place distance ring on top hinge pin.

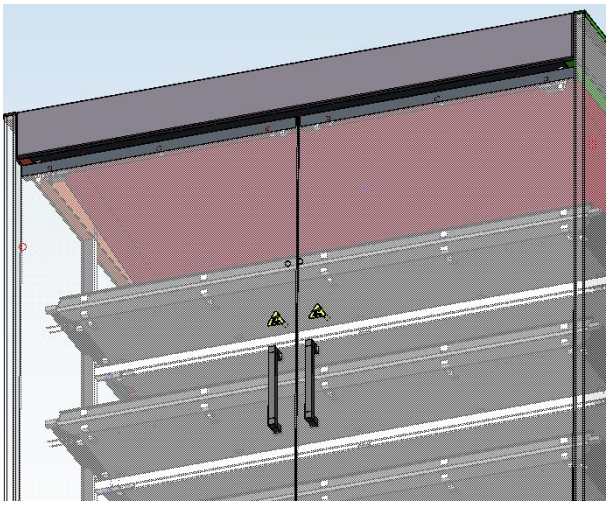
c. Fasten top hinge pin, tighten tight !

Step 19.

a. Fasten lower hinge pin, tighten tight !

Step 20.

a. Repeat step 14 till 19 for each front door, depending on MDD variation.



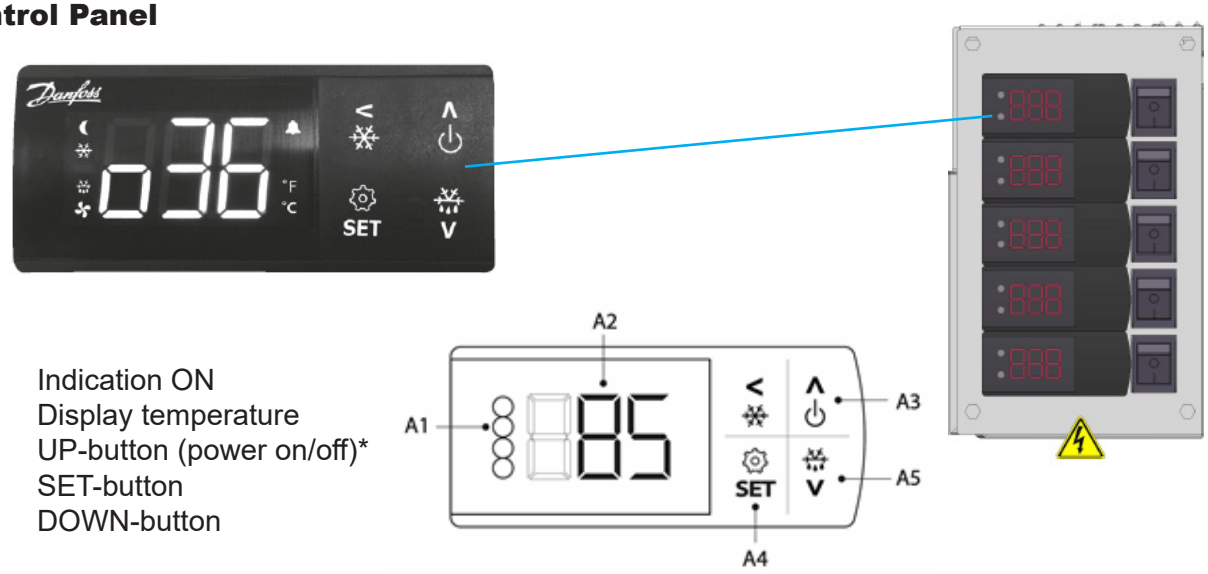
5.0 Operation

5.0.0 Settings

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 functions are working correctly.

5.0.1 Control Panel



A1 Indication ON
A2 Display temperature
A3 UP-button (power on/off)*
A4 SET-button
A5 DOWN-button

* Switch on/off: hold for approx. 3 sec.

Key Function			
	Press and hold: ON/OFF		Press for one second: UP
			Press for one second: DOWN
	Press for one second: BACK	SET	Press for one second: TEMPERATURE SETPOINT/OK Press and hold: MENU
Display Icons			
	Night mode (Energy saving)		Fan running
			Active alarm
		°C	Unit (°C or °F)

For additional key functions refer 5.2.2

5.0.2 Factory settings

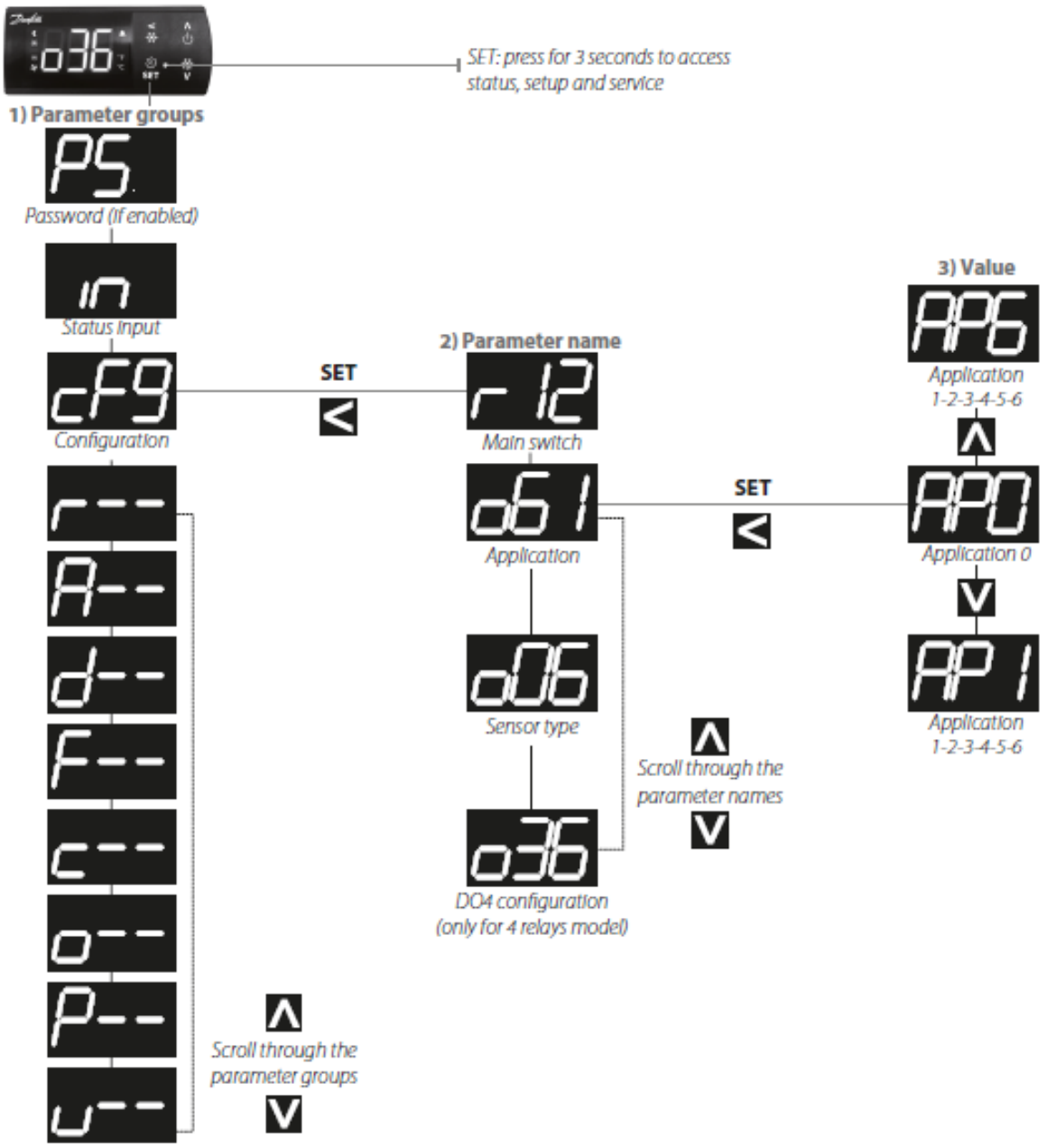
The unit is set at 65 ºC (149 ºF) intake air temperature.
If required this temperature can be adjusted to some degree.

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

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

5.1 Operation <access controller>

5.1.0 Menu Structure



Adjust set point temperature

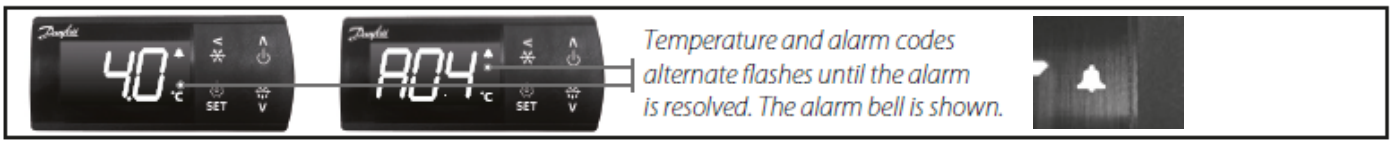
(short press) SET: adjust setpoint temperature.

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

SET: save the temperature setpoint.

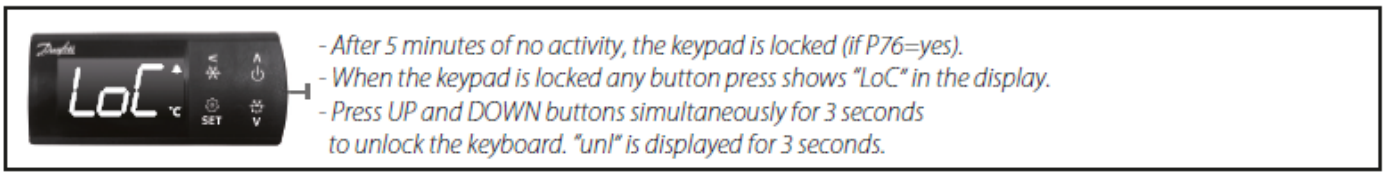
5.2 Operation <access controller>

View active alarm



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

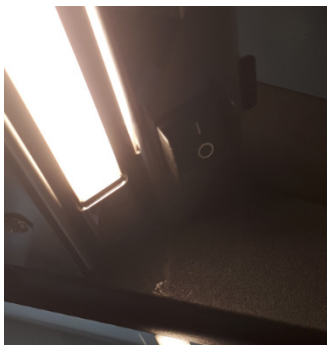
Unlock keyboard



- *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.*

5.2.0 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 of specified shelf).



5.2.1 Loading the unit

- Only place products that have a core temperature of at least 85 ºC (185 ºF) or above.
- Only with packaged hot products in closed bags or closed containers (without punctured holes) 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.

5.2.2 Additional key functions

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 and hold: DEFROST **NOT USED IN MDD**
< ❄	Press for one second: BACK Press and hold: PULL-DOWN **NOT USED IN MDD**	⚙ SET	Press for one second: TEMPERATURE SETPOINT/OK Press and hold: MENU
Display Icons			
☾	Night mode (Energy saving)	✣	Fan running
❄	Compressor running **NOT USED IN MDD**	🔔	Active alarm
❄	Defrost **NOT USED IN MDD**	°C	Unit (°C or °F)

5.3 Operation <parameter settings>

Doc. nr.	Rev.	Registration form.	
9124410		Danfoss ERC 211 – 65 ℃	fri-jado

MDD	

Note: Use tool **STICK 18** for inserting parameters and only change yellow arced parameters manually!

r00	Temperature set point	**65**	℃
r01	Differential	**1**	K
r02	Min set point limitation	**40**	℃
r03	Max set point limitation	**70**	℃
r04	Display offset	0	℃
r05	Display unit (℃/℉)	℃	
r09	Calibration of Sair	**0**	℃
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**	℃
A14	Low temperature alarm limit	-30	℃
A27	DI1 delay	30	min
A37	Condenser high alarm limit	80	℃
A54	Condenser high block limit	85	℃
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	℃
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 (℃)	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)	-	℃
u02	Read the present regulation reference	-	
u10	DI1 input	-	
u13	Status of night operation	-	
u58	Compressor relay status	-	-
u80	Firmware version readout	-	

6.0 Maintenance

6.0 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 utmost importance to keep a daily cleaning pattern from first use onwards.

Maintenance schedule for users

Item	Action	Frequency
Inside	Clean	Daily
Glass Panes	Clean	Daily
Outside	Clean Use e.g. mild detergent or cleaning spray to remove stains, and restoring the gloss.	Weekly

For detailed cleaning instructions refer to User manual.

6.1 Cleaning Shelf(s)

- Remove products from shelf.
- Switch off unit, and let cool down.
- Clean shelf glass with moist cloth, using a mild detergent only.

7.0 Trouble shooting

7.0 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 circuit breaker in the meter cupboard.
- Are all the switches in the correct “on” position?

Item	Malfunction	Possible action
Unit	Unit does not work	• Check the power supply. • Check the earth leakage circuit breaker. • Are all switches in the correct position.
Unit	Display shows error code	• Contact your supplier or service agency.
Lamp	Does not light up	• Switch ON.
Mains cord	Damaged	• Replace.
Window	Damaged	• Replace.

7.1 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.

7.2 Heating element testing

Resistance

1. Remove wiring (two) from the element.
2. Connect a probe of the multimeter to each of the contact points of the element.
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)

		MDD60			MDD90			MDD120	
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
Shelf 1	570	2,48	92,8	850	3,70	62,2	1130	4,91	46,8
Shelf 2	570	2.48	92,8	850	3,70	62,6	1130	4,91	46,8
Shelf 3	570	2.48	92,8	850	3,70	62,6	1130	4.91	46,8
Bottom	750	3,26	70,5	1125	4,89	47,0	1500	6,52	35,3

7.0 Trouble shooting

7.3 PTC1000 sensor testing (Each shelf has own PTC1000 sensor)

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

Temperature		Resistance Ω
ºF	***ºC***	***+/- 5 Ohms***
-4	-20	951
14	-10	877
32	0	807
50	10	740
68	20	677
77	25	990

Symptom	Possible causes
No power	1. Main circuit breaker open 2. Earth leakage circuit breaker tripped 3. Fuse Blown 4. Loose wire connection 5. Wiring incorrectly 6. Short circuit heating element 7. Short circuit fan 8. Short circuit wiring
Illumination does not work	1. Led malfunction 2. Tumble switch malfunction 3. Led driver malfunction 4. Loose / short circuit / wiring connection
No heating	1. Heating element malfunction 2. Relay malfunction 3. Loose wiring connection 4. Thermostat malfunction 5. Air flow blocked 6. PTC sensor malfunction
Unit does not reach desired temperature	1. Heating element malfunction 2. Strong air current along unit / Draft 3. Burned contact on contactor 4. Sensor malfunction 5. Doors not closed (if available)
No indication on controller	1. Electronic controller malfunction 2. Blown fuse 3. Loose wiring connection
No air flow inside unit	1. Fans do not work 2. Blown fuse 3. Loose wiring connection 4. 24 Vdc power supply malfunction

7.0 Trouble shooting

Description of part	Symptoms	Possible causes	Solution / Check / Action
Contactor	Contactor does not work	Wiring	Check wiring
		Coil malfunction	Check resistance of coil +/- 525Ω
		Contact burned	Check the contacts
			Replace contactor
Heating element	Unit is not reaching the set temperature	Wiring	Check wiring
		Element malfunction	Check power on elements per shelf
			Check current with AC current tester (refer 7.3)
			Check Resistance (refer 7.3)
			Replace element
		No Air flow. Fan's not turning	Check wiring
			Check power on fans per shelf
			Replace fan box/Power Supply
Tumble switch	Unit, Light or heating does not switch on	Wiring	Check wiring
		Contact burned	Check the voltage on "in" and "output"
LED	Light does not turn on	Wiring	Check Wiring
		LED broken	Replace LED
		LED driver defect	Replace LED driver
Electronic thermostat	Display does not light up	Wiring	Check wiring
	The unit is not reaching the set temperature	Loose sensor	Check sensor
		Thermostat Malfunction	Replace thermostat
		Thermostat setting	Check parameters
PTC 1000 sensor	The unit is not reaching the set temperature or does not heat up at all	Loose sensor	Check Resistance (refer 7.4)
		Broken Sensor	Check sensor wiring
	The unit becomes too hot		Replace sensor

7.0 Trouble shooting

7.4 Alarms

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

Solutions

ALARM CODE	POSSIBLE SOLUTION
E29	Not applicable for MDD
E27	Not applicable for MDD
E30	Not applicable for MDD
A01	Heating element malfunction / sensor error
A02	Heating element malfunction / sensor error
A99	Power supply error
AA1	Power supply error
A61	Not applicable for MDD
A04	Not applicable for MDD
A45	Controller error
A15	Sensor error

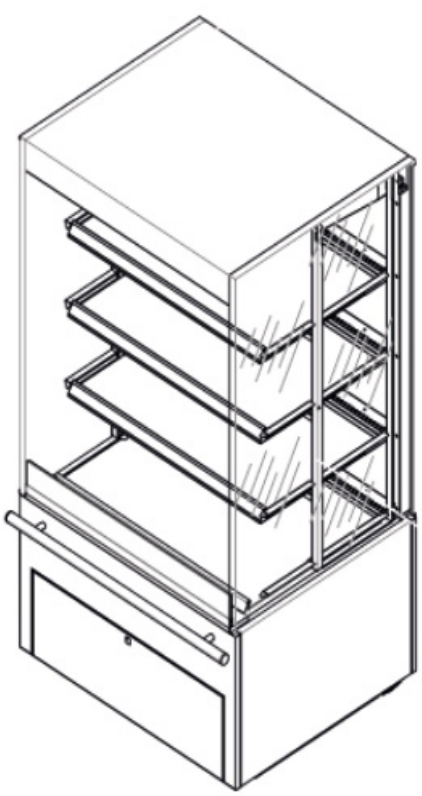
Alarm Reset - Power controller OFF and power ON controller again.
- Switch controller OFF and ON again via main switch or front button.

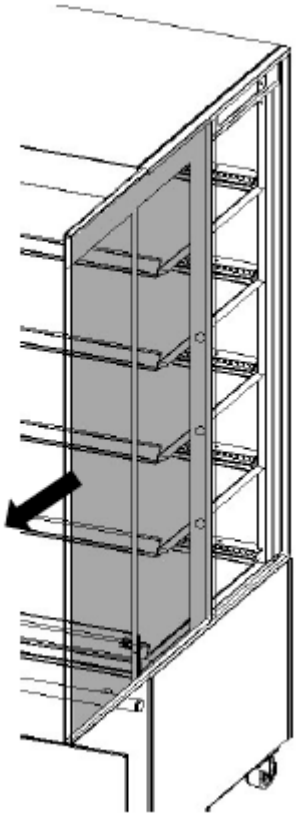
8.0 Replacement and adjustment

8.0. Side glass replacement:

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

1. Slide the double glass pane towards the front along the top and bottom guiding rails.
   The side pane can be removed from the unit once it has slid entirety out of the unit.





CAUTION:
Once past the middle, the glass pane might till forward when not properly held.

Be aware of the weight of the glass pane !

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

Be careful not to chip the edges of the glass. If chipped, the glass will break later on.

For safe keeping, please put cloth or cardboard between ground/wall and glass.

2. Before placing a new side pane, clean the guiding rails. (Top, bottom and back).

3. Before sliding the new pane into the rails, ensure the black screening side of the pane is facing backwards.

4. Slide it all the way back till the front of the pane is in line with the front plating.

8.0 Replacement and adjustment

8.1 Child glass replacement:

1. Remove front panel (see 8.2).
2. Loosen mounting screws (3x depending on unit length) of child guard glass.

   Screwed from underneath.
3. Place new child glass.
4. Mount in reverse order.

8.2 Panel Opening or Replacement:

1. Remove Plinths when mounted.

Front panel:

2. Remove front panel, by removing the holding Bolts (left and right bottom corner) Screwed from underneath.
3. Pull panel slightly towards you and down, to remove.
4. Replace in reverse order.

Back panel:

2. Remove back panel, by removing the holding screws (left and right bottom corner) Screwed from underneath.
3. Pull panel slightly towards you and down, to remove.
4. Replace in reverse order.

8.0 Replacement and adjustment

8.3.1 LED replacement Shelf:

1. Remove side glass panes. (Refer 8.0).
2. Remove column cover (middle right column cover, seen from customer side). (two screws, one on top backside and one at the bottom back side).

3. Take 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.
8. Replace in reverse order.

8.3.2 LED replacement Top:

1. Top LED can be reached from the front side (customer side) of the MDD.
2. Remove screw holding the top LED (2 x one left, one right).

3. Disconnect connector (Left side).

Before you do so, make a note of the placing of the red and black cable in the connector.

4. Take LED light out and place new LED.
5. Connect the wires from the new LED in the column, taking care of the notes you made regarding the red and black cable.
6. Replace in reverse order.

8.0 Replacement and adjustment

8.4 Replacement shelf glass. :

1. Remove side glass panes, both sides. (Refer 8.0).
2. Remove fan box top cover.(3 screws depending on unit length).
3. Remove Complete Solid back (6 screws depending on version).
4. Remove glass pane clamp. (4 or more bolts depending on unit length).
5. Remove Shelf Glass pane, by lifting it upwards.

8.5 Heating element replacement:

1. Remove side glass panes. (Refer 8.0).
2. Remove Shelf Glass pane. (Refer 8.4).
3. Remove fan box.(Refer 8.6).
3. Remove column cover (back right column cover, seen from customer side).
4. Loosen Element holders, fastened with screws. (1 screw each).
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, **inside the column.**

<u>NEVER make a connection underneath the heating element</u>

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/green to Yellow/green. Most of the times, this wire can stay as is.

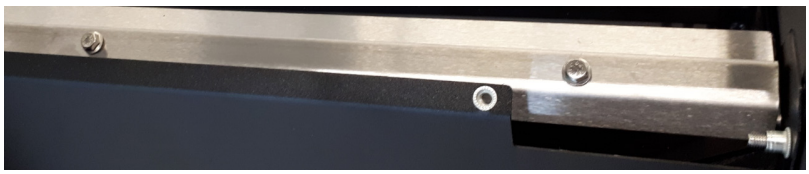
7. Replace in reverse order.

8.0 Replacement and adjustment

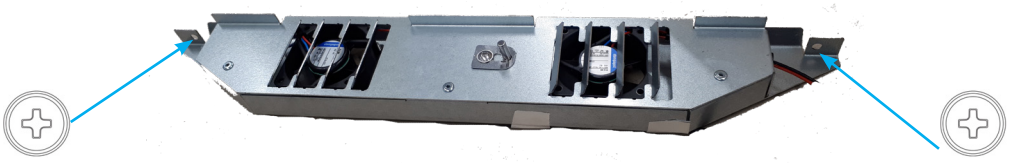
8.6 Fan box replacement:

1. Remove side glass panes, both sides. (Refer 8.0).
2. Remove fan box top cover (3 screws depending on unit length).

3. Remove Complete Solid back (6 screws depending on version).
4. Remove glass pane clamp. (4 or more bolts depending on unit length).



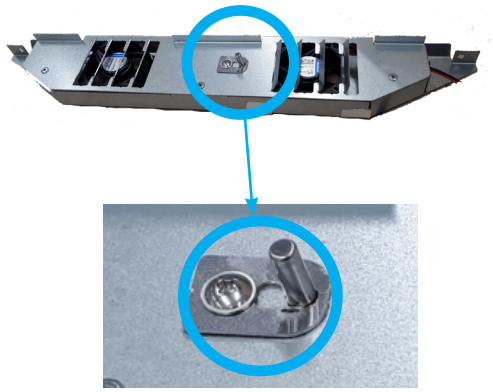
5. Remove Shelf Glass pane (refer 8.4).
6. Remove fan box (1 connector, two screws).



7. Replace in reverse order.

8.0 Replacement and adjustment

8.7 PTC sensor replacement:



1. Remove fan box (Refer 8.5).
2. Remove Sensor bracket (one screw).
3. Remove sensor from bracket.
4. Remove sensor from fan box via back side.
5. Open electrical box (Refer 8.8).
6. Follow sensor cable trough back side column into electrical box.
7. Disconnect cable from contact points in electrical box.
8. Insert new sensor, feeding cable in the same way as previous one.
9. Connect sensor cable on contact points in electrical box from which the old cable was disconnected.
10. Replace in reverse order.

8.0 Replacement and adjustment

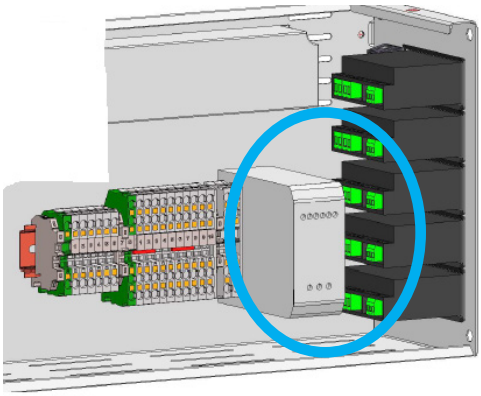
8.8 Replacement parts electrical box:

1. Open controller cover
2. Open controller cover by removing holding screws (2)
3. Remove 2 screws holding electrical box
4. Open electrical box.
5. Find item to be replaced.

Controller replacement:

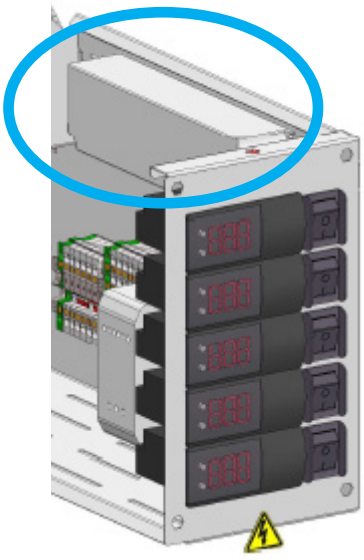
1. Locate controller which is the problem (Multi temp can have up to 5 controllers).
2. Check wiring of controller, make a note of the wires (numbers) and their placing (numbers on controller).

3. Disconnect controller and take out. Note connection points
4. Mount new controller (as seen on drawing) and re-connect wiring.



PSU 24 volt replacement:

1. Locate 24V power supply (PSU for fans).
2. Check wiring of psu, make a note of the wires (numbers) and their placing (numbers on psu).
3. Disconnect psu and take out.
4. Mount new power supply and re-connect wiring.



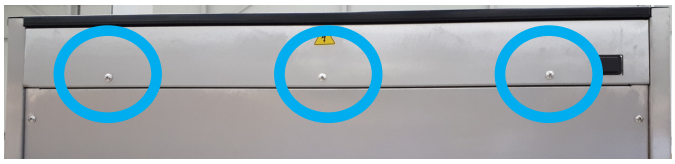
Led driver replacement:

1. Locate LED driver.
2. Check wiring of LED driver, make a note of the wires (numbers) and their placing (numbers on LED driver).
3. Disconnect LED driver and take out.
4. Mount new LED driver and re-connect wiring according notes from point 2

8.0 Replacement and adjustment

8.9 Replacement back main switch:

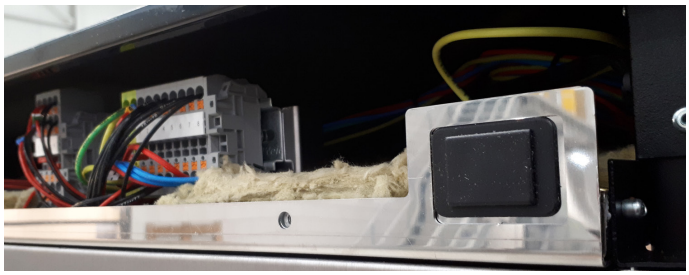
1. Remove top back panel.
   3 screws, depending on unit length



2. Remove top back panel

3. Remove old switch

4. Connect new switch according left wiring.



main switches

	S1			S2	
3	3A	6B	3	3A	6B
76	2A	5B	77	2A	5B
2	1A	4B	2	1A	4B

8.10 Replacement front main switch:

1. Remove top back panel.
   3 screws, refer 8.9.

2. Remove panel, refer 8.9.

3. Remove top panel 3 screws

4. Remove two bolts at back side, holding down the top panel.

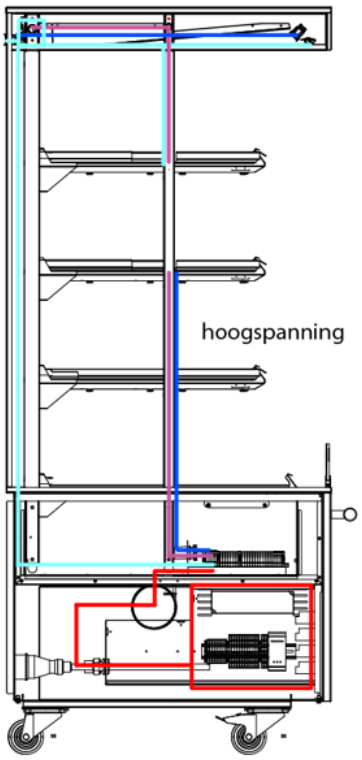
5. Slightly lift top panel at back side, and push slightly forward.

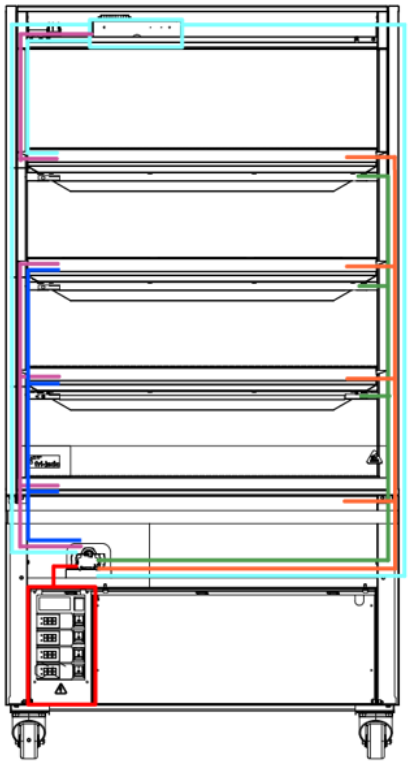
6. When top panel is taken off, you can reach the front main switch.

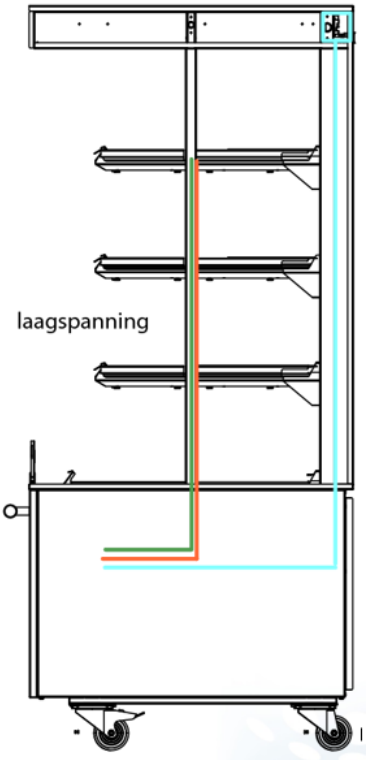
7. Replace in reverse order.

8.1 Wiring location through MDD.

	Wiring Supply Voltage
	Wiring LED, each LED has separate wiring
	Wiring ON/Off switch + PE bottom side
	Wiring top connection block, LED top + PE top
	Wiring fans
	Wiring heating elements







9.0.0 Specifications MDD - 3 Metric

Specification		60-3	90-3	120-3
Length incl. end walls	mm	600	900	1200
Length excl. end walls	mm	550	850	1150
Depth excl. bump rail	mm	750		
Depth incl. bump rail	mm	810		
Height on wheels	mm	1443		
Height on leveling legs	mm	1420 (-0/+15)		
Under frame height	mm	580		
Plinth height	mm	100		
Weight (net)	kg	157	187	217
Weight (gross)	kg	185	221	257
Packaging dimensions (W x D x H)	mm	720 x 933 x 1478	1020 x 933 x 1478	1320 x 933 x 1478
No. of presentation levels		3		
Dimensions bottom shelf	mm	550 x 500	550 x 800	550 x 1100
Dimensions upper shelves	mm	475 x 500	475 x 800	475 x 1100
Shelf display area	m2	0,75	1,20	1,65
Usable display volume	l	132	211	290

Performance		60-3	90-3	120-3
Shelf display area	m2	0,75	1,20	1,65
TEC at climate class 0*	kWh/h	0,95	1,51	2,08
TEC at climate class 0*	kHh/day	22,68	36,29	49,90
TEC/TDA at climate class 0*	kWh/day/m2	30,24		
Sound pressure	dB(A)	<70		
Minimum ambient temperature	°C	20		
Maximum ambient temperature	°C	30		
Maximum relative air humidity	%	60		

* According to ISO 23953

Electrical		60-3	90-3	120-3
Electrical connection		Two-pole earthed plug 16A**		CEE-form 16A**
Nominal voltage	V	1N~ 230		3N~ 400/230
Nominal Frequency	Hz	50/60		
Maximum power	W	2287	3161	4211
Required fuses		1 x 16A		3 x 16A
Heating fan power	W	11	16	22
Nr. of heating fans (total)	#	6	9	12
Heating element bottom shelf power	W	750 (-0/+10%)	1125 (-0/+10%)	1500 (-0/+10%)
Heating element upper shelves power	W	650 (-0/+10%)	850 (-0/+10%)	1130 (-0/+10%)
LED lighting power	W	21	37	35

** Standard Plug

9.0.1 Specifications MDD - 4 Metric

Specification		60-4	90-4	120-4
Length incl. end walls	mm	600	900	1200
Length excl. end walls	mm	550	850	1150
Depth excl. bump rail	mm	750		
Depth incl. bump rail	mm	810		
Height on wheels	mm	1723		
Height on leveling legs	mm	1700 (-0/+15)		
Under frame height	mm	580		
Plinth height	mm	100		
Weight (net)	kg	190	220	250
Weight	lbs	419	485	551
Weight (gross)	kg	227	265	303
Packaging dimensions (W x D x H)	mm	750 x 875 x 1753	1020 x 875 x 1753	1320 x 875 x 1753
No. of presentation levels		4		
Dimensions bottom shelf	mm	550 x 500	550 x 800	550 x 1100
Dimensions upper shelves	mm	475 x 500	475 x 800	475 x 1100
Shelf display area	m2	0,99	1,58	2,17
Usable display volume	l	161	257	354

Performance		60-4	90-4	120-4
Shelf display area	m2	0,99	1,58	2,17
TEC at climate class 0*	kWh/h	1,25	1,99	2,73
TEC at climate class 0*	kHh/day	29,94	47,48	65,62
TEC/TDA at climate class 0*	kWh/day/m2	30,24		
Sound pressure	dB(A)	<70		
Minimum ambient temperature	ºC	20 (68 ºF)		
Maximum ambient temperature	ºC	30 (86 ºF)		
Maximum relative air humidity	%	60		

* According to ISO 23953

Electrical		60-4	90-4	120-4
Electrical connection		Two-pole earthed plug 16A**	CEE-form 16A**	
Nominal voltage	V	1N~ 230V	3N~ 400/230	
Nominal Frequency	Hz	50/60		
Max. Nominal Current	A	11,3	7,7	10,2
Maximum power	W	2742	4104	5463
Required fuses		1 x 16A	3 x 16A	
Heating fan power	W	14	22	30
Nr. of heating fans (total)	#	8	12	16
Noise Level (at workplace)	dB(A)	<70	<70	<70
Heating element bottom shelf power	W	750 (-0/+10%)	1125 (-0/+10%)	1500 (-0/+10%)
Heating element upper shelves power	W	570 (-0/+10%)	850 (-0/+10%)	1130 (-0/+10%)
LED lighting power	W	22	39	54

** Standard Plug

9.0.2 Specifications MDD - 5 Metric

Specification		60-5	90-5	120-5
Length incl. end walls	mm	600	900	1200
Length excl. end walls	mm	550	850	1150
Depth excl. bump rail	mm			
Depth incl. bump rail	mm			
Height on wheels	mm		1973	
Height on leveling legs	mm		1950(-0/+15)	
Under frame height	mm			
Plinth height	mm			
Weight (net)	kg	209	254	300
Weight	lbs	461	560	661
Weight (gross)	kg	246	299	353
Packaging dimensions (W x D x H)	mm	720 x 875 x 2003	1020 x 875 x 2003	1320 x 875 x 2003.
No. of presentation levels			5	
Dimensions bottom shelf	mm	550 x 500	550 x 800	550 x 1100
Dimensions upper shelves	mm	475 x 500	475 x 800	475 x 1100
Shelf display area	m2	1,23	1,96	2,70
Usable display volume	l	199	319	439

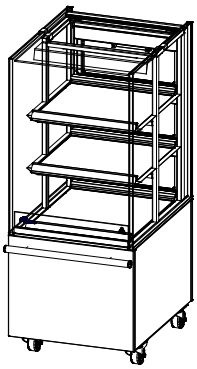
Performance		60-5	90-5	120-5
Shelf display area	m2	1,23	1,96	2,70
TEC at climate class 0*	kWh/h	1,65	2,47	3,29
TEC at climate class 0*	kHh/day	37,20	59,28	81,65
TEC/TDA at climate class 0*	kWh/day/m2			
Sound pressure	dB(A)			
Minimum ambient temperature	ºC			
Maximum ambient temperature	ºC			
Maximum relative air humidity	%			

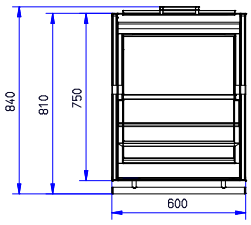
* According to ISO 23953

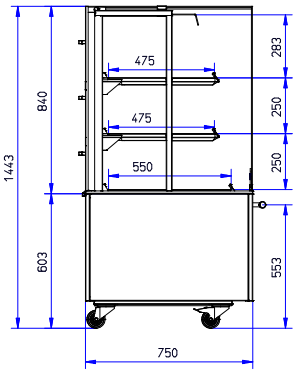
Electrical		60-5	90-5	120-5
Electrical connection		Two-pole earthed plug 16A	CEE-form 16A**	
Nominal voltage	V	1N~ 230V	3N~ 400/230	
Nominal Frequency	Hz			
Max. Nominal Current	A	13,9	7,7	10,2
Maximum power	W	3378	5054	6726
Required fuses		1 x 16A	3 x 16A	
Heating fan power	W	18	27	36
Nr. of heating fans (total)	#	10	15	20
Noise Level (at workplace)	dB(A)	<70	<70	<70
Heating element bottom shelf power	W	750 (-0/+10%)	1125 (-0/+10%)	1500 (-0/+10%)
Heating element upper shelves power	W	570 (-0/+10%)	850 (-0/+10%)	1130 (-0/+10%)
LED lighting power	W	27	49	68

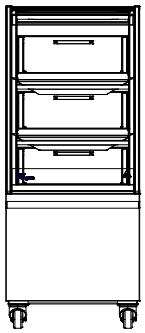
** Standard Plug

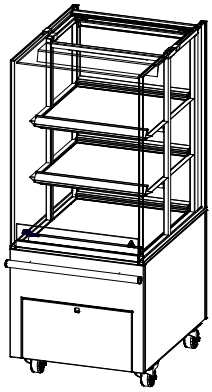
9.1 Specifications MDD 60 - 3 Metric PT - SB

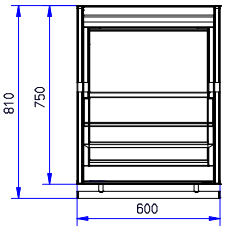


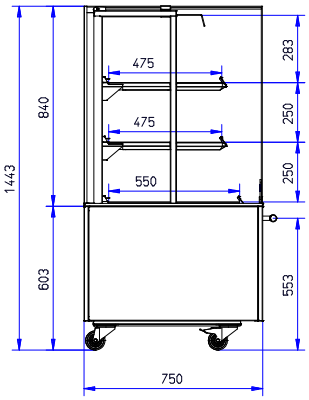


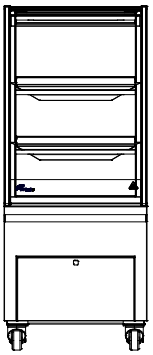




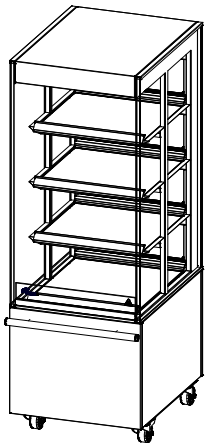


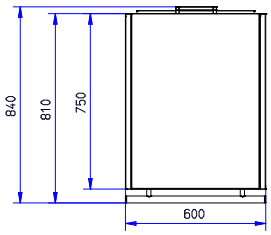


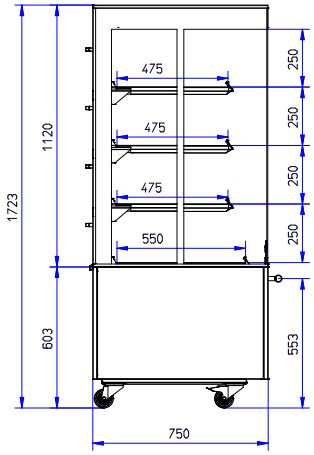


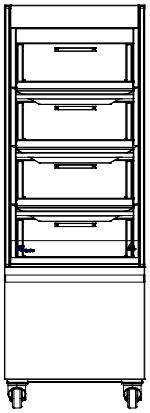


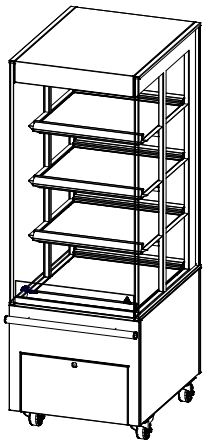
9.2 Specifications MDD 60 - 4 Metric PT - SB

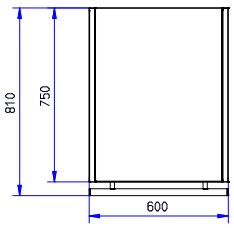


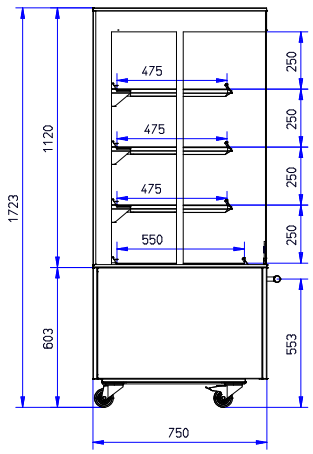


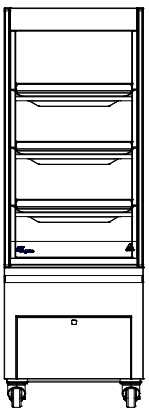




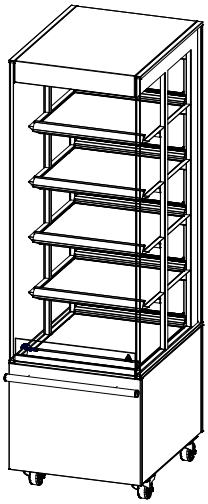


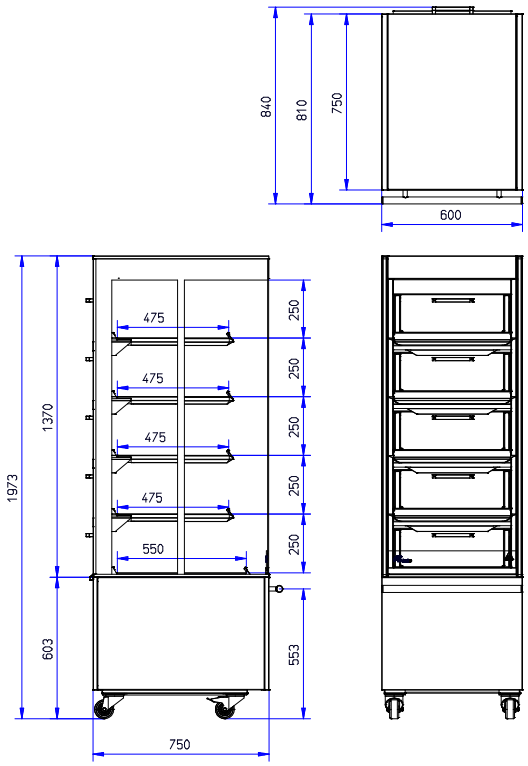


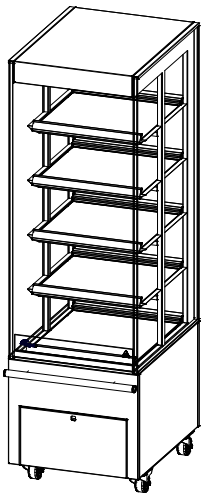


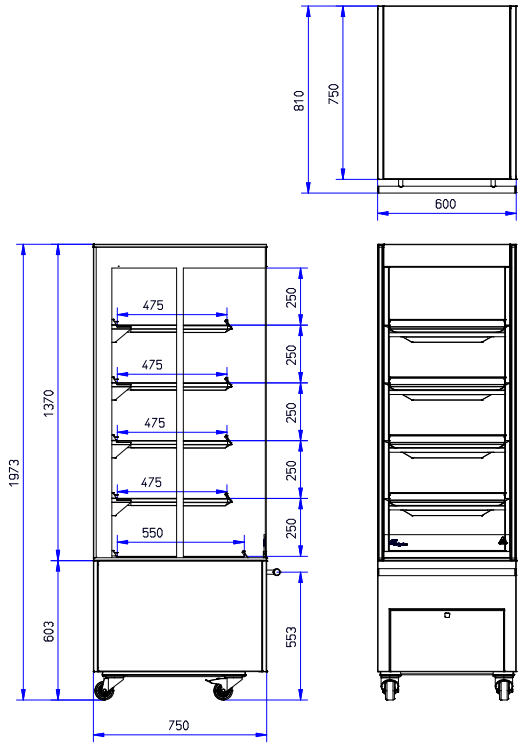


9.3 Specifications MDD 60 - 5 Metric PT - SB

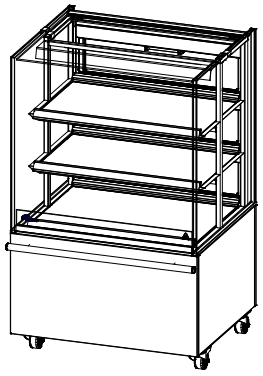


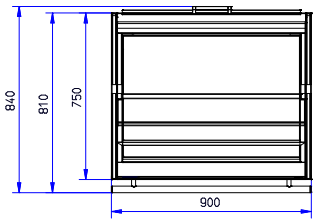


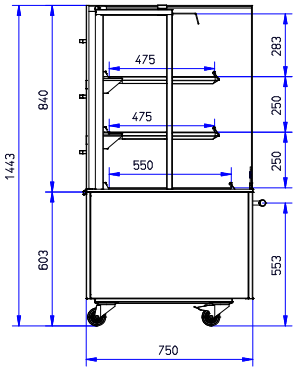


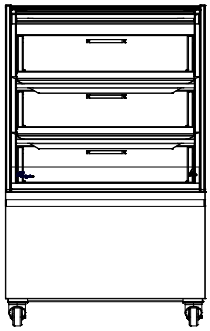


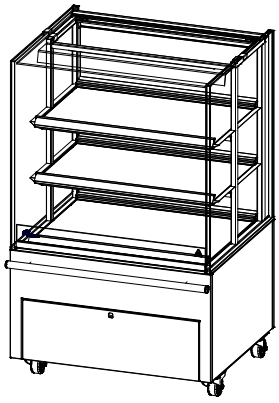
9.4 Specifications MDD 90 - 3 Metric PT - SB

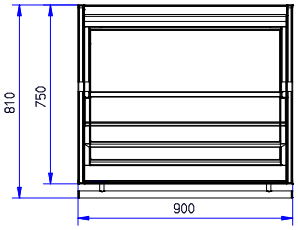


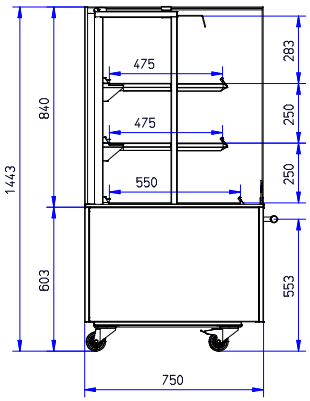


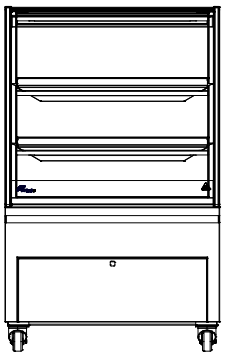




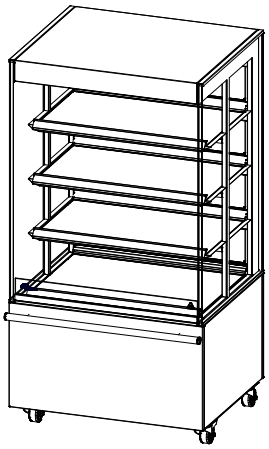


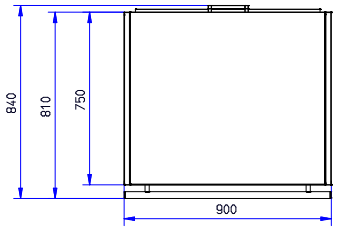


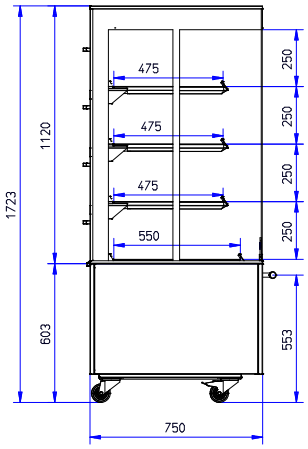


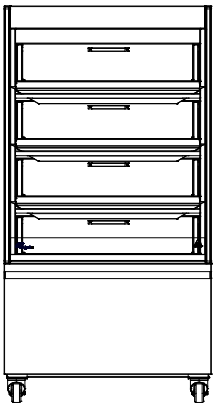


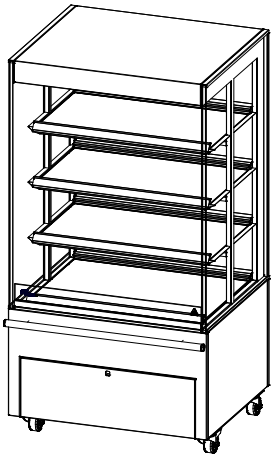
9.5 Specifications MDD 90 - 4 Metric PT - SB

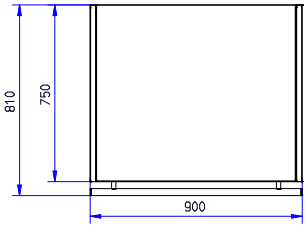


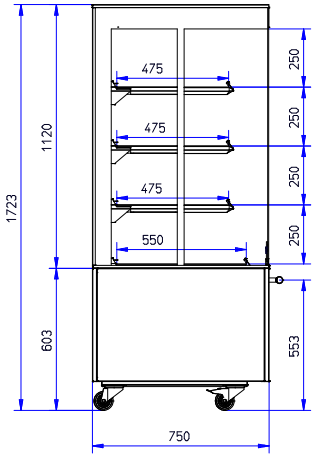


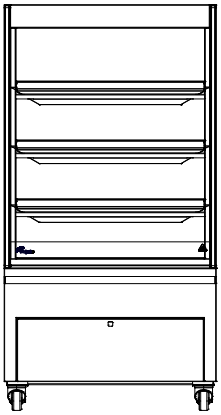




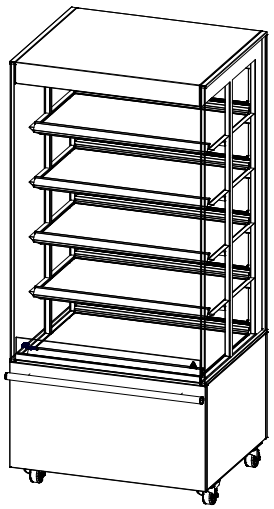


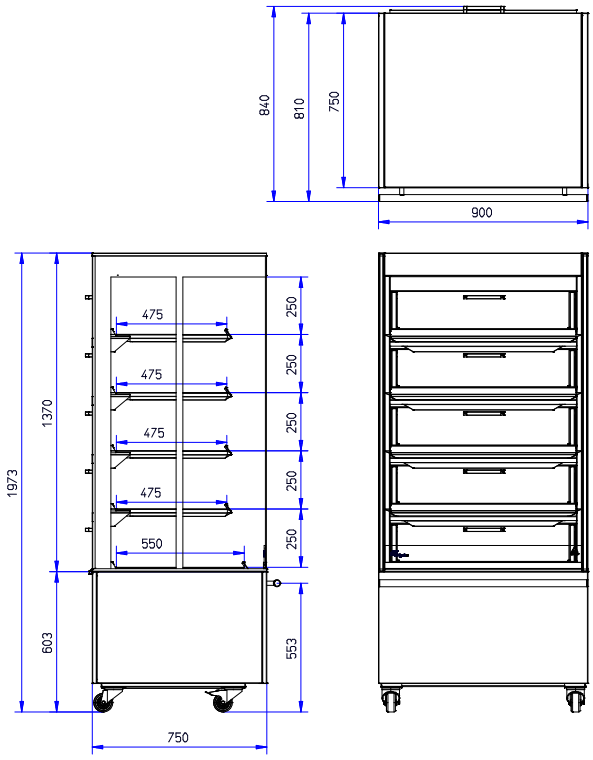


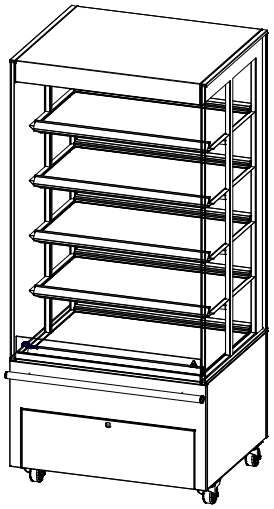


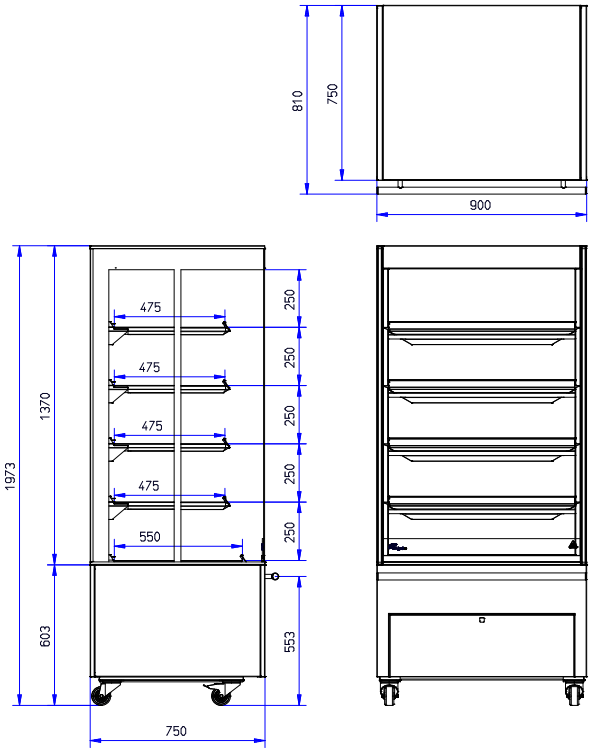


9.6 Specifications MDD 90 - 5 Metric PT - SB

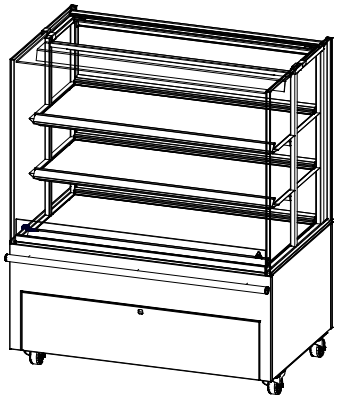


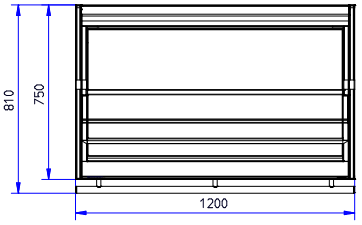


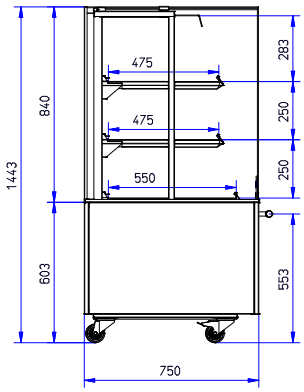


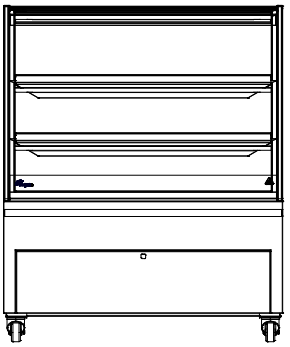


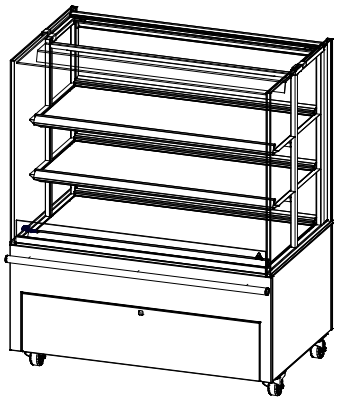
9.7 Specifications MDD 120 - 3 Metric PT - SB

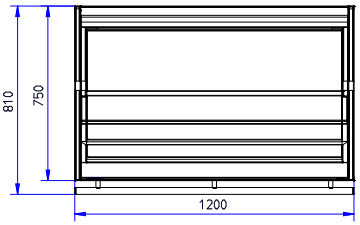


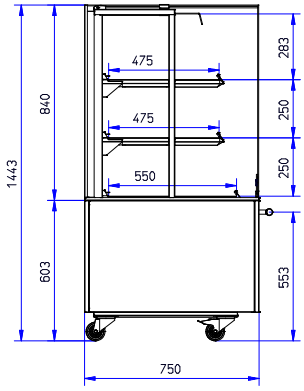


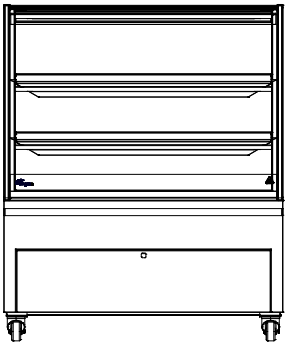




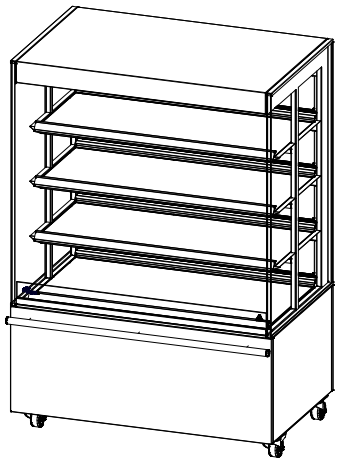


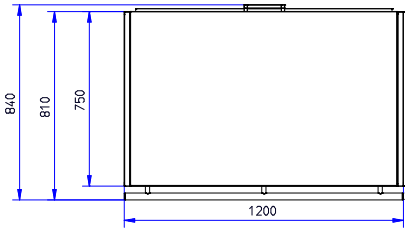


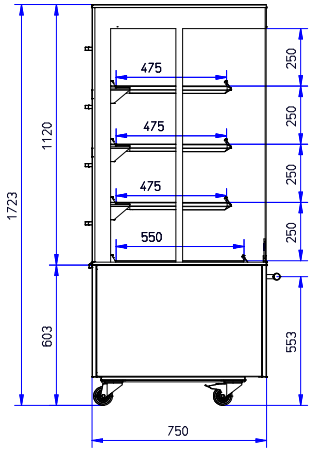


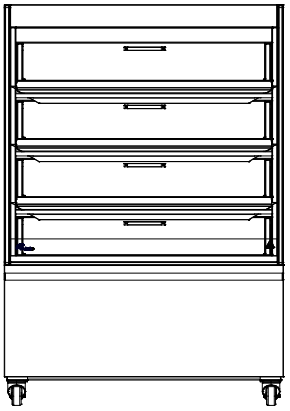


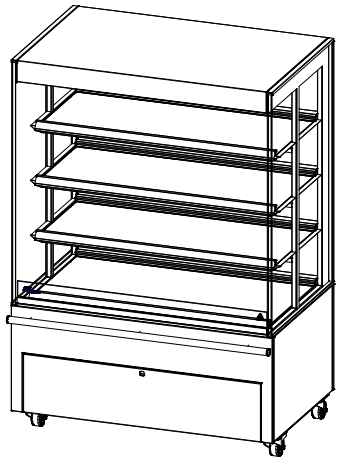
9.8 Specifications MDD 120 - 4 Metric PT - SB

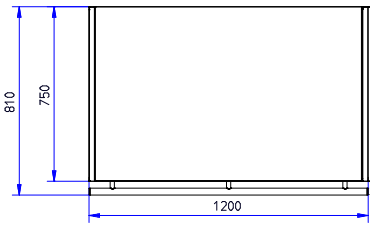


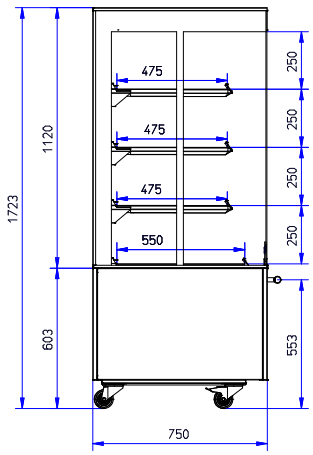


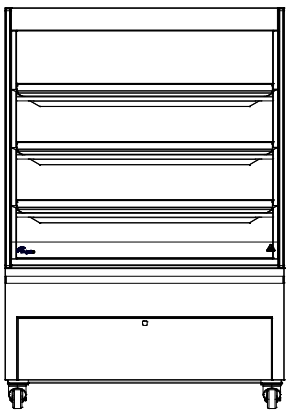




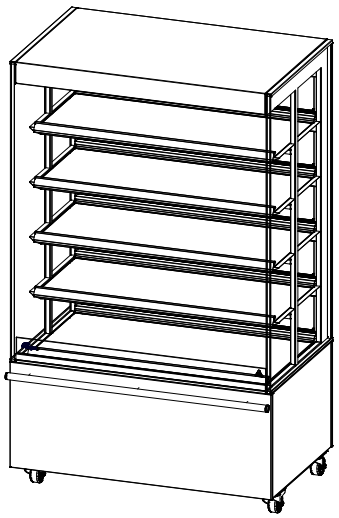


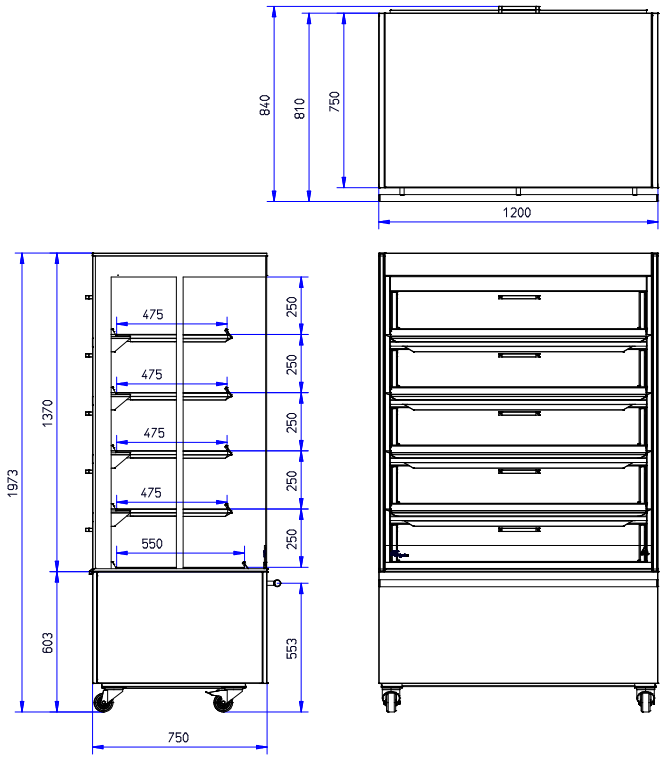


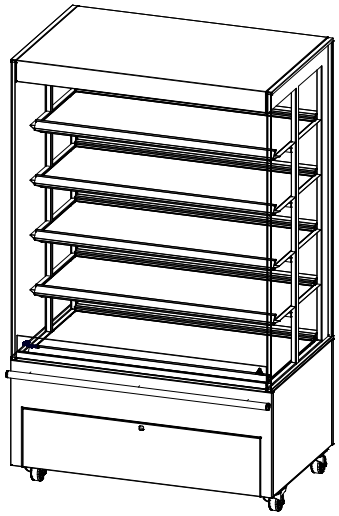


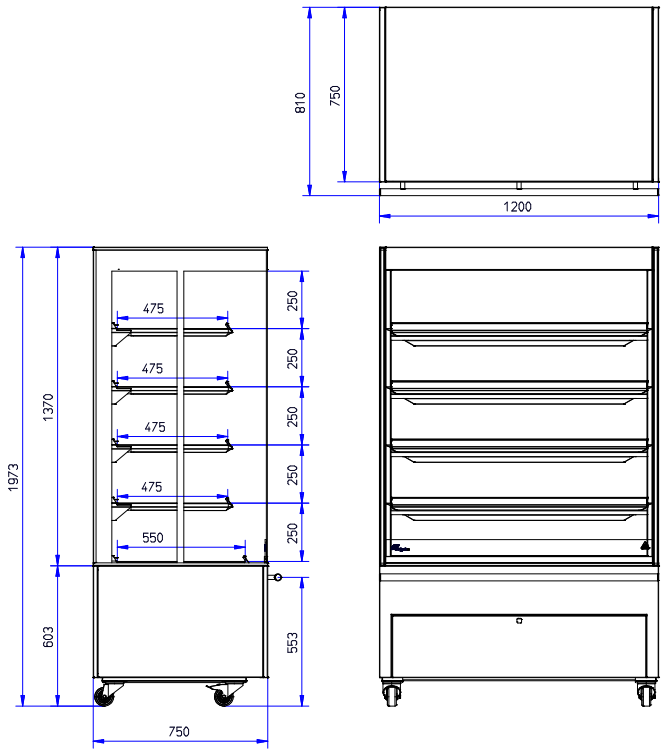


9.9 Specifications MDD 120 - 5 Metric PT - SB









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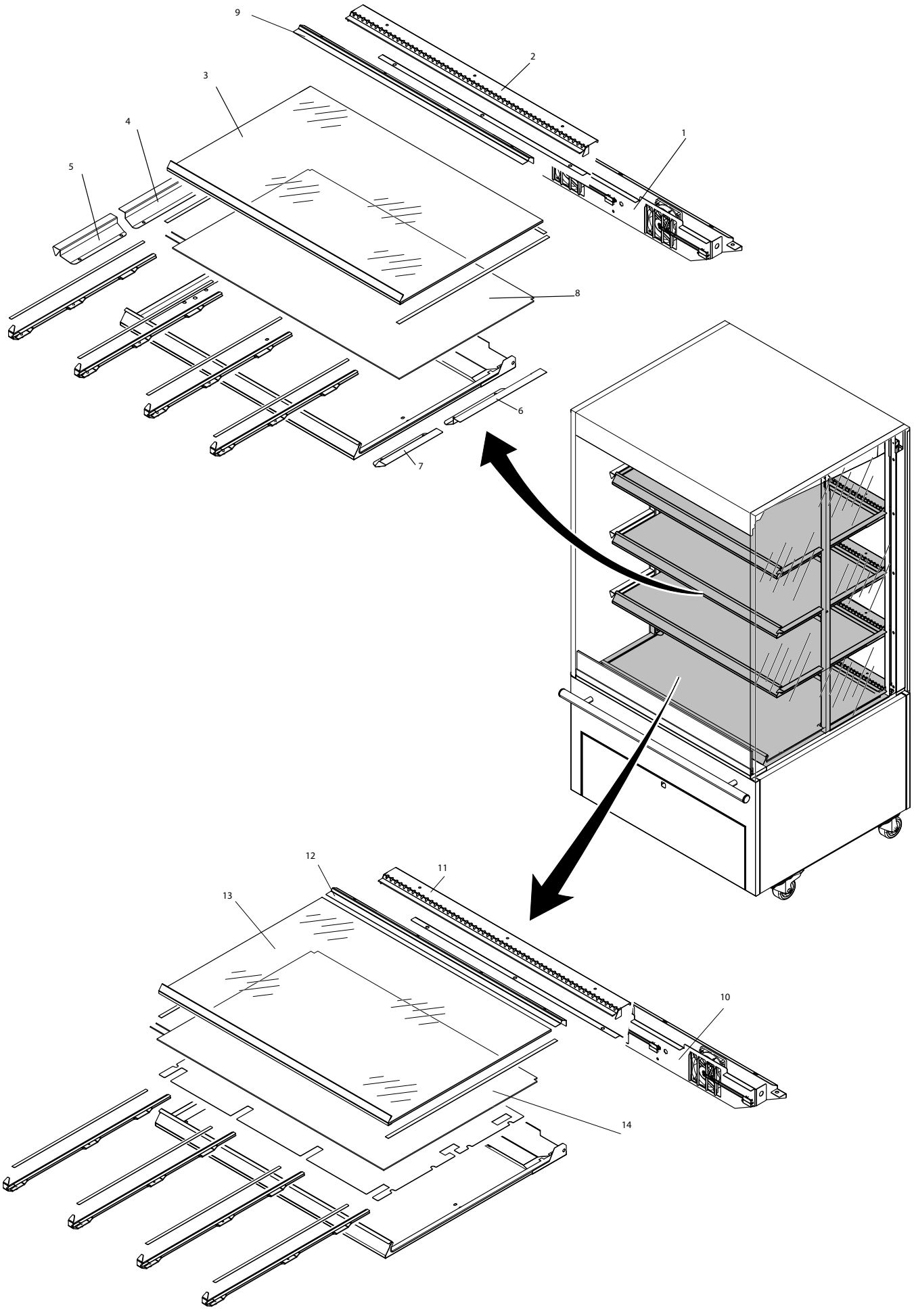
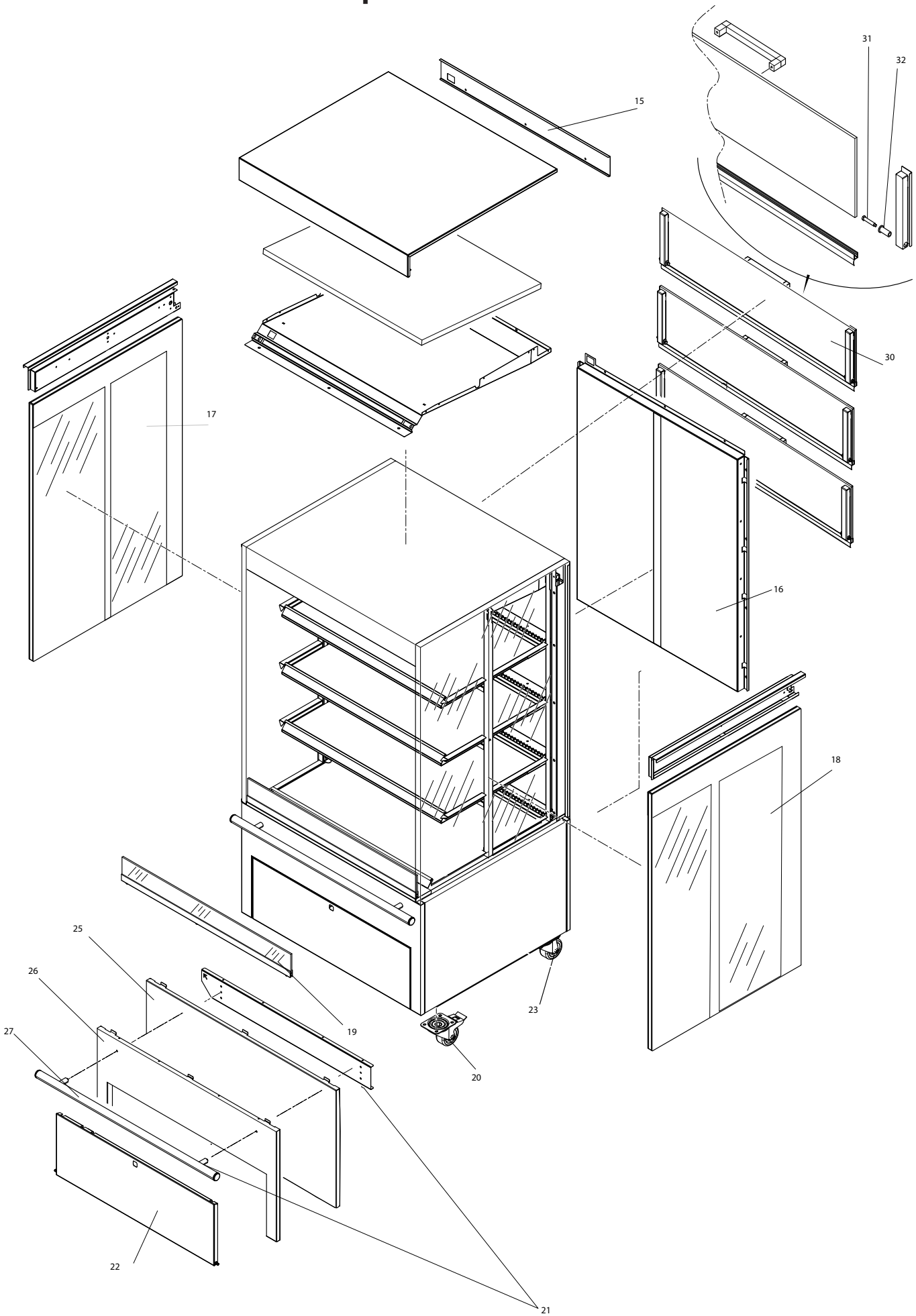
10.0 Exploded view 4 - 5 level



10.0 Exploded view 4 - 5 level

Number	Description	Article number	Quantity
1	Fan box MDD 60 Fan box MDD 90 Fan box MDD 120	9380310 9380308 9380306	4 - 5
2	Rear cover Shelf MDD 60 Rear cover Shelf MDD 90 Rear cover Shelf MDD 120	9384393 9384394 9384395	4 - 5
3	Shelf Glass pane MDD 60 Shelf Glass pane MDD 90 Shelf Glass pane MDD 120	9382036 9382039 9382080	3 - 4
4	Air blocker Left rear	9394045	3 - 4
5	Air blocker Left Front	9384068	3 - 4
6	Air blocker Right rear	9394044	3 - 4
7	Air blocker Right Front	9384069	3 - 4
8	Shelf Heating Element MDD 60: 475x470 570W Shelf Heating Element MDD 90: 775x400 850W Shelf Heating Element MDD 120: 1075x470 1130W	9382089 9382092 9382095	3 - 4
9	Glass clamp shelf MDD 60 Glass clamp shelf MDD 90 Glass clamp shelf MDD 120	9384359 9384322 9384360	4 - 5
10	Bottom Fan box MDD 60 Bottom Fan box MDD 90 Bottom Fan box MDD 120	9380310 9380308 9380306	1
11	Rear cover Shelf MDD 60 Rear cover Shelf MDD 90 Rear cover Shelf MDD 120	9384393 9384394 9384395	4 - 5
12	Glass clamp shelf MDD 60 Glass clamp shelf MDD 90 Glass clamp shelf MDD 120	9384359 9384322 9384360	4 - 5
13	Bottom Shelf Glass pane MDD 60 Bottom Shelf Glass pane MDD 90 Bottom Shelf Glass pane MDD 120	9382037 9382040 9382081	3 - 4
14	Bottom Heating Element MDD 60: 475x540 750W Bottom Heating Element MDD 90: 775x540 1125W Bottom Heating Element MDD 120: 1075x540 1500W	9382090 9382093 9382096	1 1 1

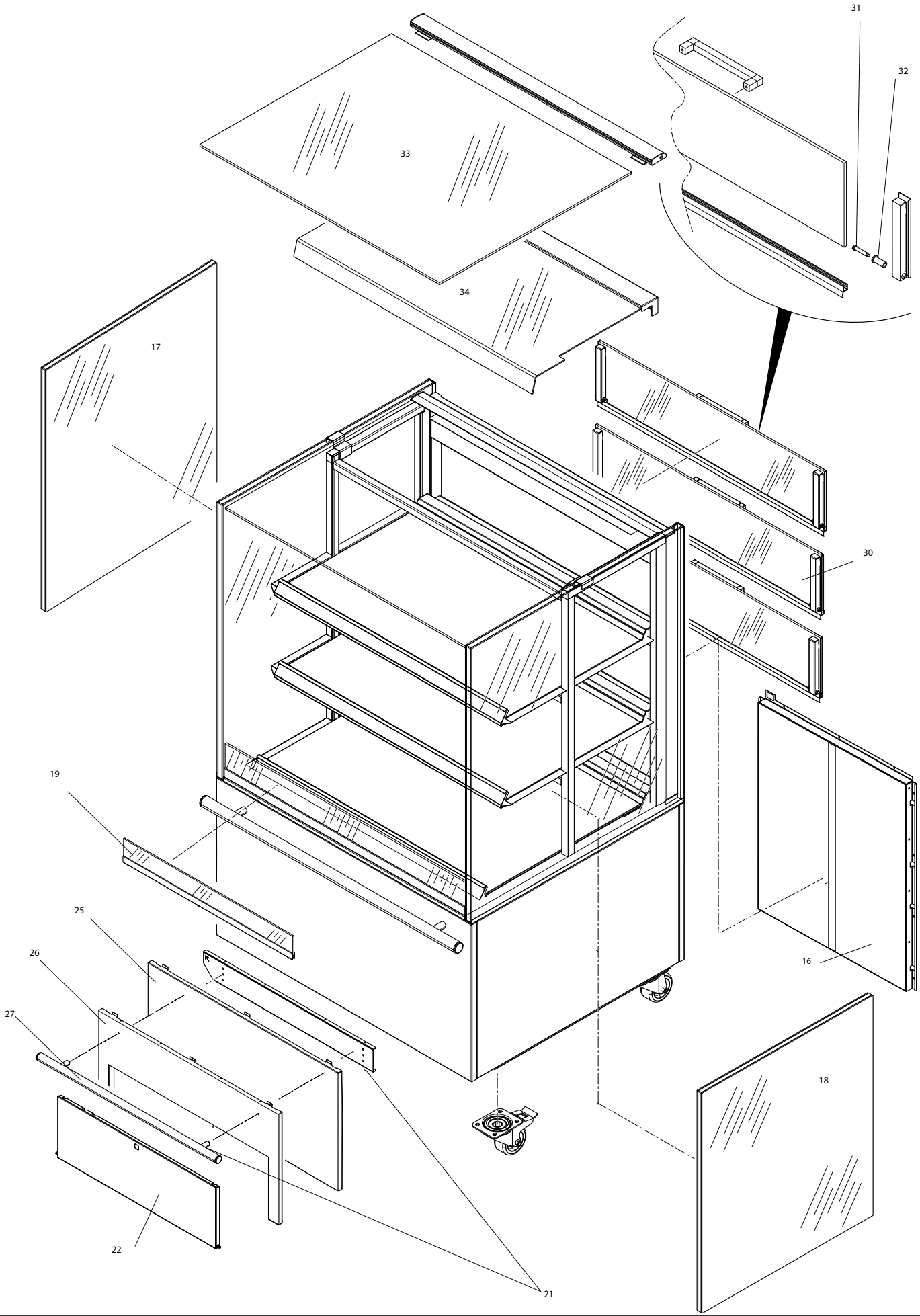
10.0 Exploded view 4 - 5 level



10.0 Exploded view 4 - 5 level

Number	Description	Article number	Quantity
15	Back panel top MDD 60 Back panel top MDD 90 Back panel top MDD 120	9394053 9394051 9394050	1
16 4 layer	Solid back panel MDD 60-4 Solid back panel MDD 90-4 Solid back panel MDD 120-4	9390031 9390029 9390053	1
16 5 layer	Solid back panel MDD 60-5 Solid back panel MDD 90-5 Solid back panel MDD 120-5	9390032 9390030 9390028	1
17	Glass pane Left MDD 4 layer Glass pane Left MDD 5 layer	9394001 9392002	1
18	Glass pane Right MDD 4 layer Glass pane Right MDD 5 layer	9392006 9392007	1
19	Child guard glass MDD 60 Child guard glass MDD 90 Child guard glass MDD 120	9380017 9380018 9380019	1
20	Swivel castor with brake	9172066	2
21	Bumper set MDD 60 Bumper set MDD 90 Bumper set MDD 120	9380206 9380207 9380205	1
22	Front panel MDD 60 Front panel MDD 90 Front panel MDD 120	*9390050x *9390047x *9390051x	1
23	Swivel castor	9172065	2
30	Assy flap door 60 Assy flap door 90 Assy flap door 120	9390092 9390091 9390075	4 - 5
31	Hinge pin (bolt)	9382261	2
32	Bearing	9382763	2
		* x stands for Ral color	

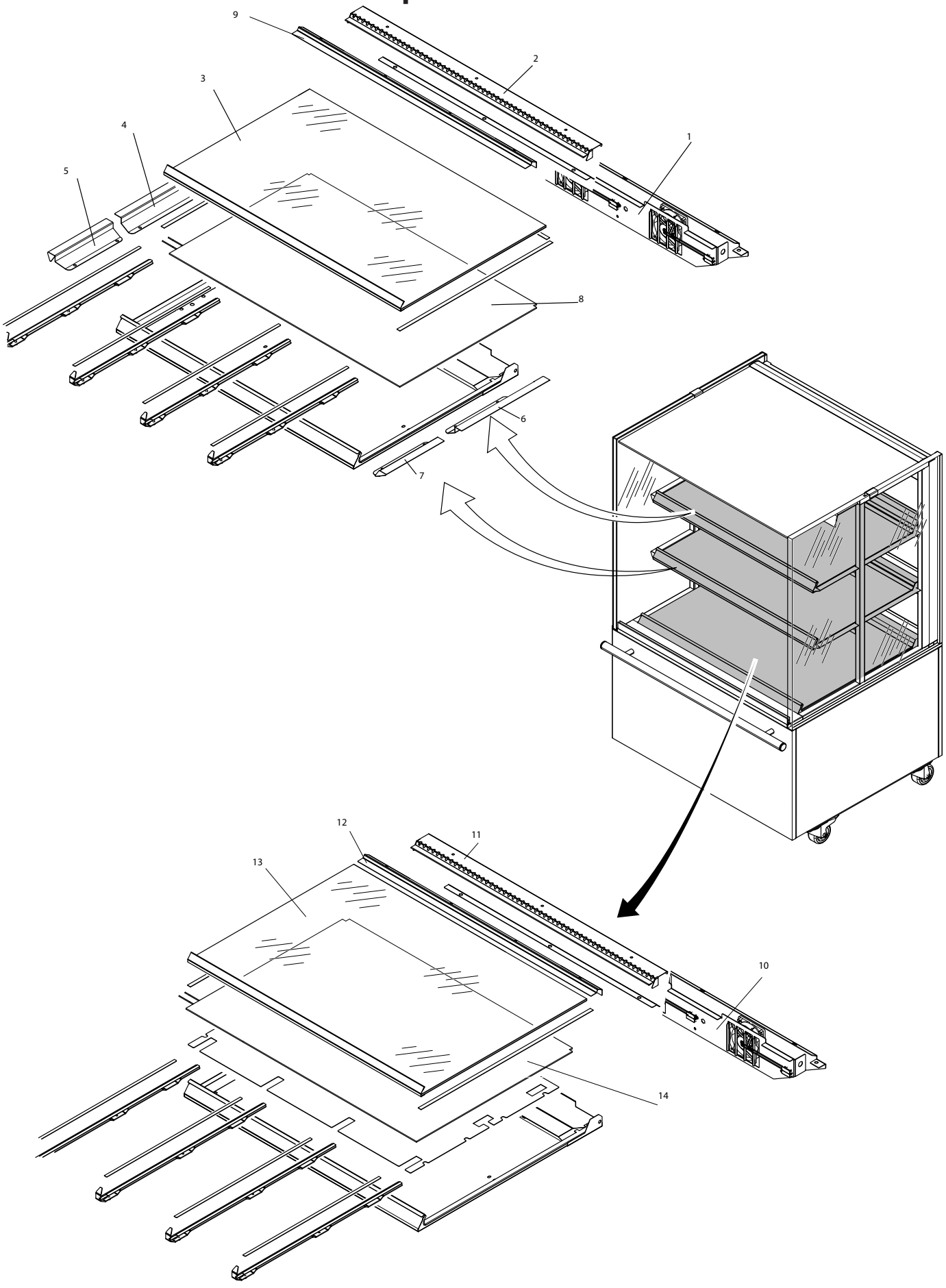
10.1 Exploded view 3 level



10.1 Exploded view 3 level

Number	Description	Article number	Quantity
15	Back panel top MDD 60 Back panel top MDD 90 Back panel top MDD 120	9394053 9394051 9394050	1 1 1
16	Solid back panel MDD 60-3 Solid back panel MDD 90-3 Solid back panel MDD 120-3	9390115 9390112 9390076	1 1 1
17	Glass pane Left MDD 3 layer	9382030	1
18	Glass pane Right MDD 3 layer	9382030	1
19	Child guard glass MDD 60 Child guard glass MDD 90 Child guard glass MDD 120	9380017 9380018 9380019	1 1 1
20	Swivel castor with brake	9172066	2
21	Bumper set MDD 60 Bumper set MDD 90 Bumper set MDD 120	9380206 9380207 9380205	1 1 1
22	Front panel MDD 60 Front panel MDD 90 Front panel MDD 120	*9390050x *9390047x *9390051x	1 1 1
23	Swivel castor	9172065	2
30	Flap door 60 Flap door 90 Flap door 120	9390092 9390091 9390075	1 1 1
31	Hinge pin (bolt)	9382261	6
32	Bearing	9382763	6
33	Top glass 60 Top glass 90 Top glass 120	9382165 9382164 9382166	1 1 1
34	Air guide 60 Air guide 90 Air guide 120	9382062 9382061 9382063	1 1 1
		* x stands for Ral color	

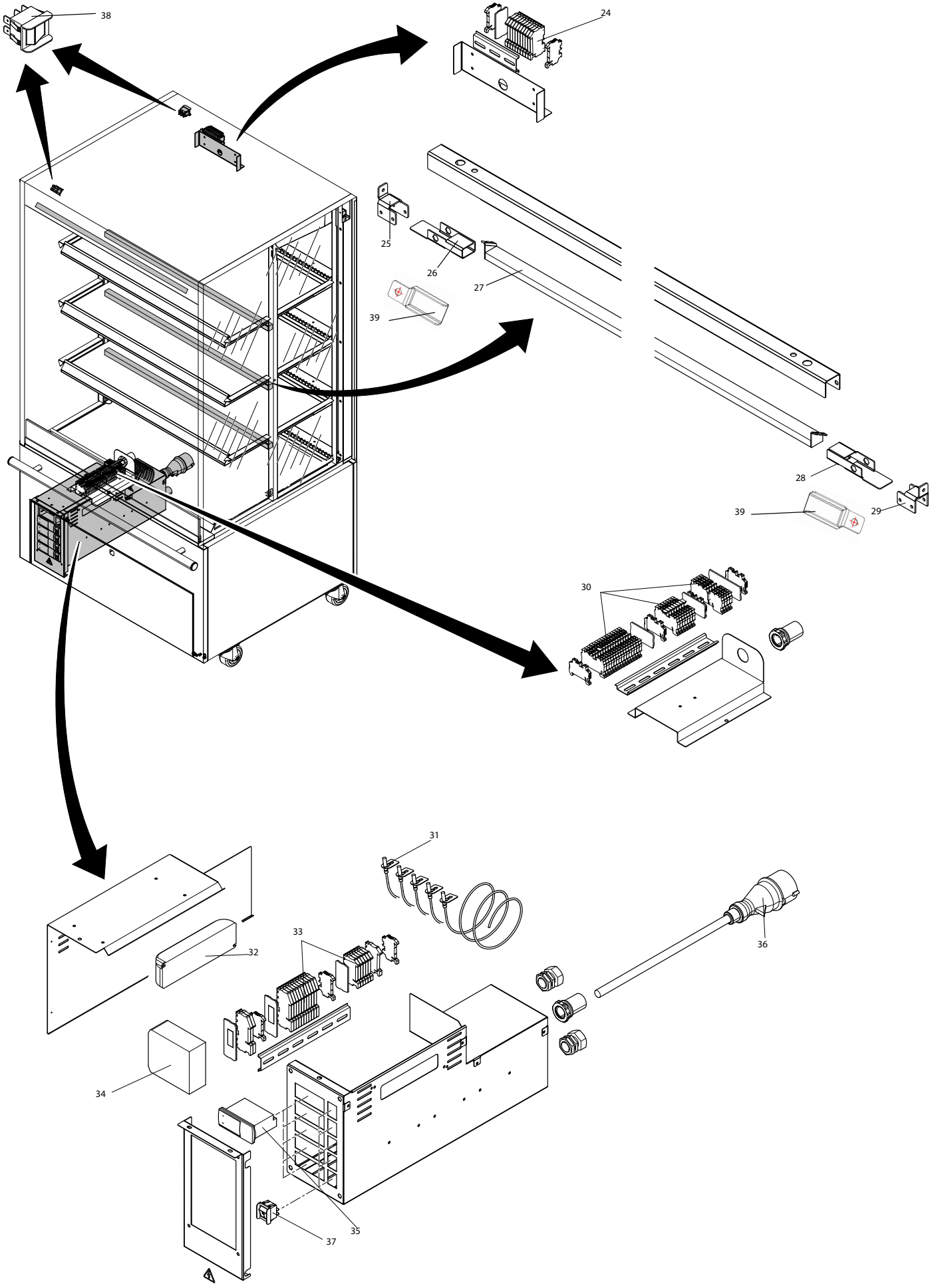
10.1 Exploded view 3 level



10.1 Exploded view 3 level

Number	Description	Article number	Quantity
1	Fan box MDD 60 Fan box MDD 90 Fan box MDD 120	9380310 9380308 9380306	4 - 5
2	Rear cover Shelf MDD 60 Rear cover Shelf MDD 90 Rear cover Shelf MDD 120	9384393 9384394 9384395	4 - 5
3	Shelf Glass pane MDD 60 Shelf Glass pane MDD 90 Shelf Glass pane MDD 120	9382036 9382039 9382080	3 - 4
4	Air blocker Left rear	9394045	3 - 4
5	Air blocker Left Front	9384068	3 - 4
6	Air blocker Right rear	9394044	3 - 4
7	Air blocker Right Front	9384069	3 - 4
8	Shelf Heating Element MDD 60: 475x470 570W Shelf Heating Element MDD 90: 775x400 850W Shelf Heating Element MDD 120: 1075x470 1130W	9382089 9382092 9382095	3 - 4
9	Glass clamp shelf MDD 60 Glass clamp shelf MDD 90 Glass clamp shelf MDD 120	9384359 9384322 9384360	4 - 5
10	Bottom Fan box MDD 60 Bottom Fan box MDD 90 Bottom Fan box MDD 120	9380310 9380308 9380306	1
11	Rear cover Shelf MDD 60 Rear cover Shelf MDD 90 Rear cover Shelf MDD 120	9384393 9384394 9384395	4 - 5
12	Glass clamp shelf MDD 60 Glass clamp shelf MDD 90 Glass clamp shelf MDD 120	9384359 9384322 9384360	4 - 5
13	Bottom Shelf Glass pane MDD 60 Bottom Shelf Glass pane MDD 90 Bottom Shelf Glass pane MDD 120	9382037 9382040 9382081	3 - 4
14	Bottom Heating Element MDD 60: 475x540 750W Bottom Heating Element MDD 90: 775x540 1125W Bottom Heating Element MDD 120:1075x540 1500W	9382090 9382093 9382096	1

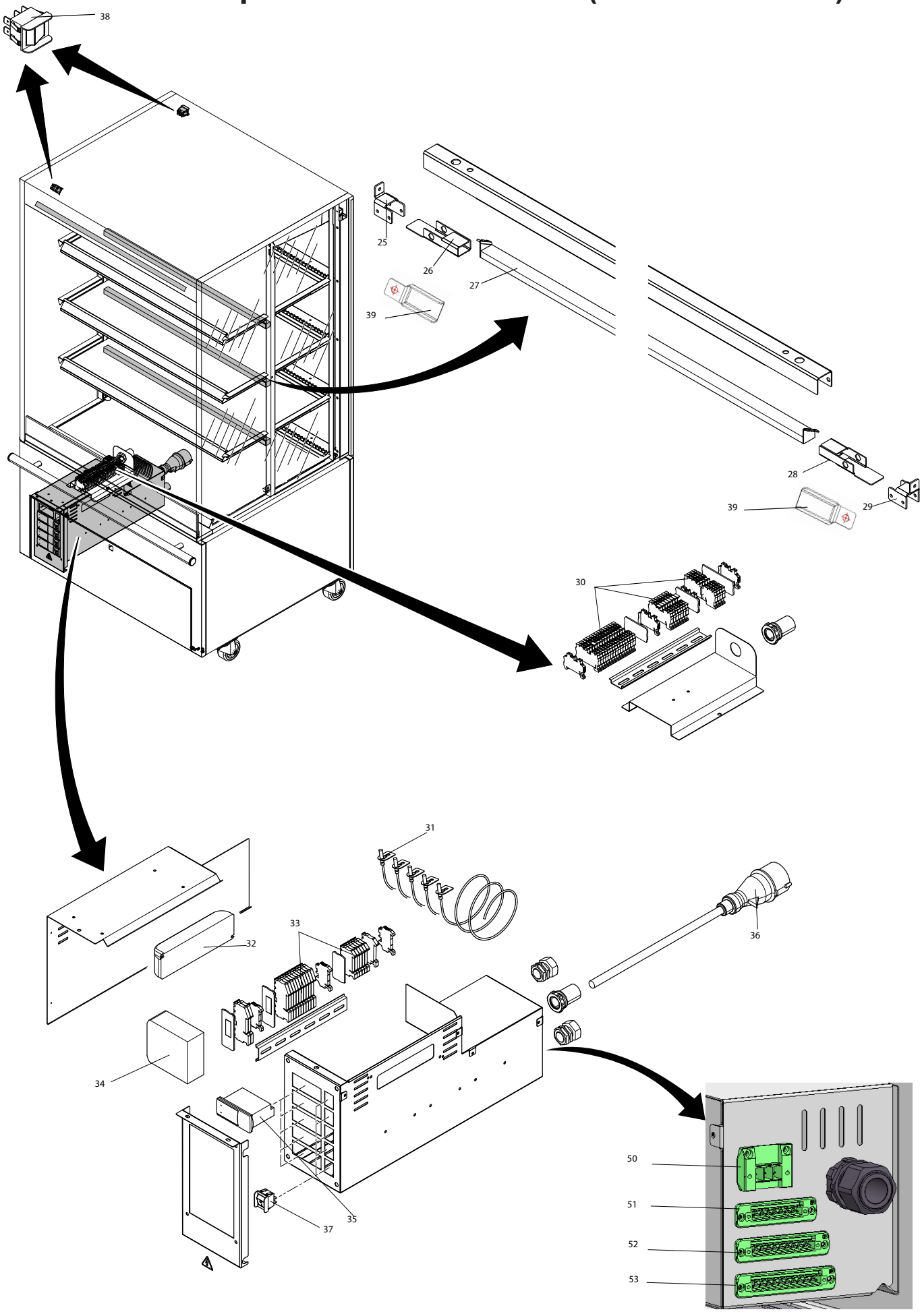
10.2 Exploded view Electrical (first version)



10.2 Exploded view Electrical

Number	Description	Article number	Quantity
24	Terminal PT 4 GY 4 way Terminal PT 4 GN/YE 4 way Terminal PT 4 BU	9191240 9191239 9191241	
25	LED Armature Support Bracket Shelf	9384091	6 - 8
26	LED mounting bracket Shelf	9384093	6 - 8
27	LED MDD 60 3000k 12V 400mm LED MDD 90 3000k 12V 700mm LED MDD 120 3000k 12V 1000mm	9382075 9382067 9382068	4 - 5
28	LED mounting bracket Shelf	9384093	6 -8
29	LED Armature Support Bracket Shelf	9384091	6 - 8
30	Terminal PT 4 GY 2 way Terminal PT 4 GN/YE 2 way	9191232 9191233	
30	Terminal PT 4 GY 4 way Terminal PT 4 GN/YE 4 way Terminal PT 4 BU	9191240 9191239 9191241	
31	Sensor PTC1000	9221011	1 - 5
32	LED Driver	9381038	1
33	Terminal PT 4 GY 2 way Terminal PT 4 GN/YE 2 way	9191232 9191233	
33	Terminal PT 4 GY 4 way Terminal PT 4 GN/YE 4 way Terminal PT 4 BU	9191240 9191239 9191241	
34	Power supply 24V DC 40W	9381012	
35	Thermostat ERC211	9221109	1 - 5
36	Power cord	9091383	1
37	Switch black 1-0 250V Guarded	9281036	1 - 5
38	Switch on-on 250V with guard	9391001	2
39	LED Holder Top LED	9394070	2

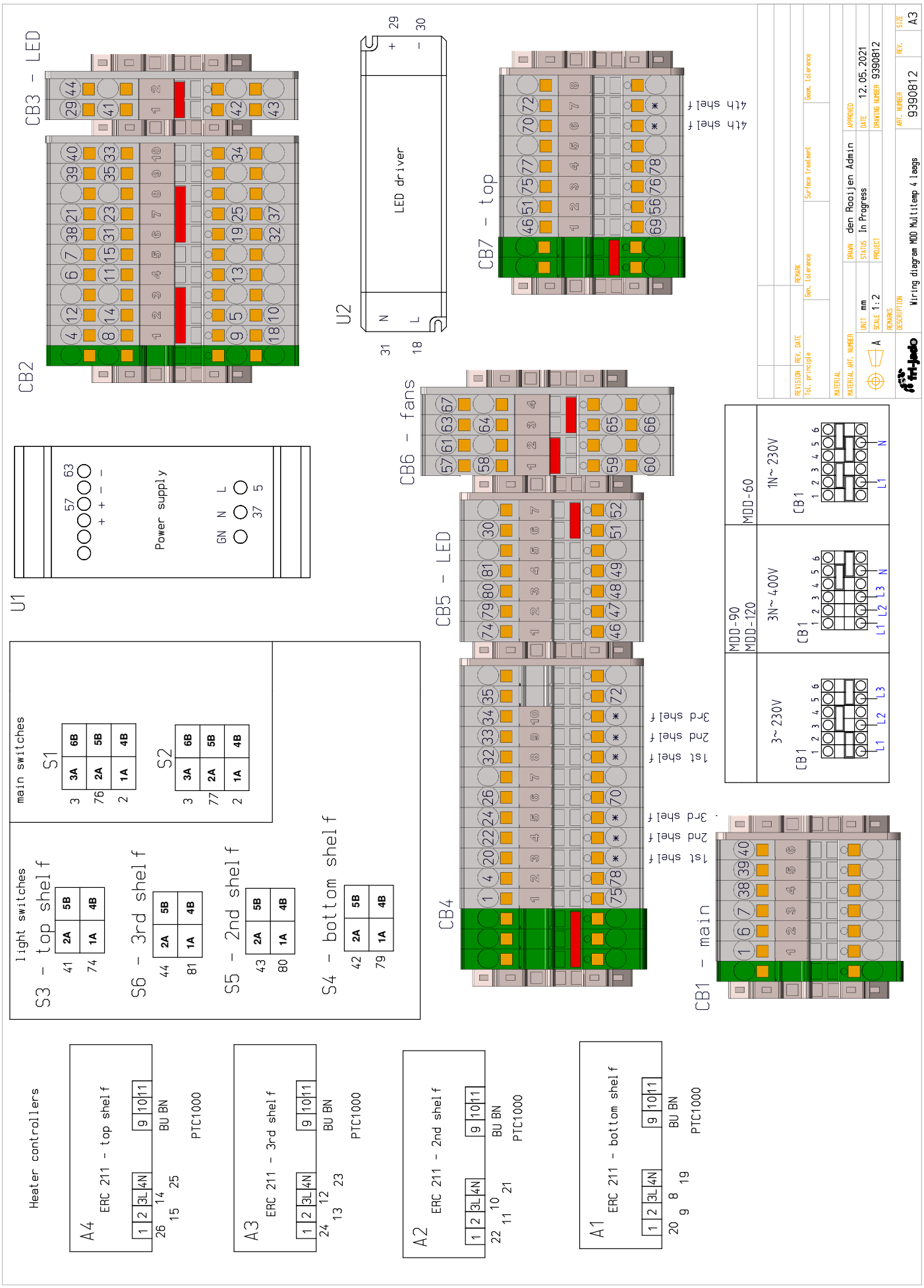
10.3 Exploded view Electrical (second version)



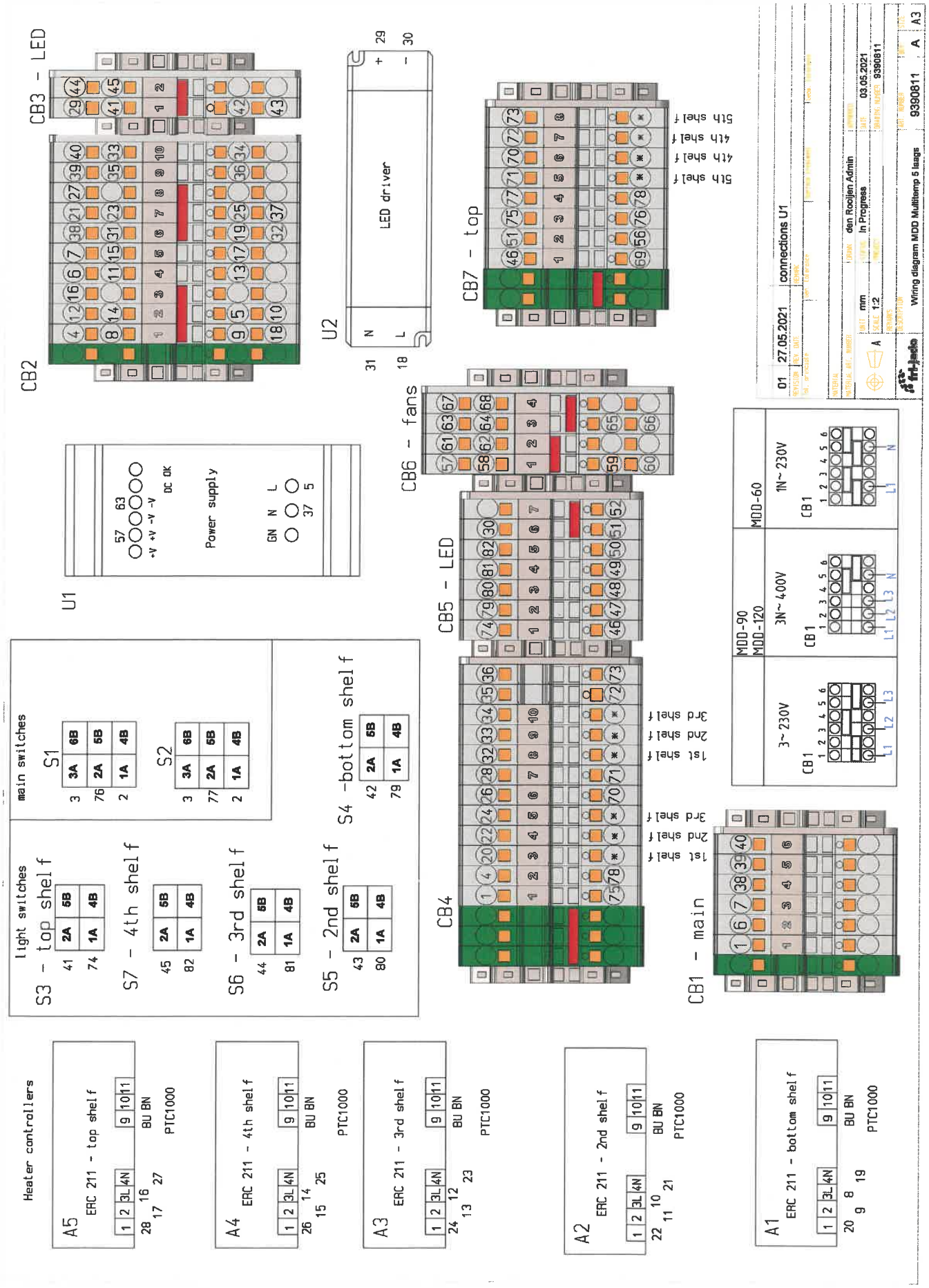
10.3 Exploded view Electrical (secondversion)

Number	Description	Article number	Quantity
24	Terminal PT 4 GY 4 way Terminal PT 4 GN/YE 4 way Terminal PT 4 BU	9191240 9191239 9191241	
25	LED Armature Support Bracket Shelf	9384091	6 - 8
26	LED mounting bracket Shelf	9384093	6 - 8
27	LED MDD 60 3000k 12V 400mm LED MDD 90 3000k 12V 700mm LED MDD 120 3000k 12V 1000mm	9382075 9382067 9382068	4 - 5
28	LED mounting bracket Shelf	9384093	6 -8
29	LED Armature Support Bracket Shelf	9384091	6 - 8
30	Terminal PT 4 GY 2 way Terminal PT 4 GN/YE 2 way	9191232 9191233	
30	Terminal PT 4 GY 4 way Terminal PT 4 GN/YE 4 way Terminal PT 4 BU	9191240 9191239 9191241	
31	Sensor PTC1000	9221011	1 - 5
32	LED Driver	9381038	1
33	Terminal PT 4 GY 2 way Terminal PT 4 GN/YE 2 way	9191232 9191233	
33	Terminal PT 4 GY 4 way Terminal PT 4 GN/YE 4 way Terminal PT 4 BU	9191240 9191239 9191241	
34	Power supply 24V DC 40W	9381012	
35	Thermostat ERC211	9221109	1 - 5
36	Power cord	9091383	1
37	Switch black 1-0 250V Guarded	9281036	1 - 5
38	Switch on-on 250V with guard	9391001	2
39	LED Holder Top LED	9394070	2
50	Connector		1
51	Connector		1
52	Connector		1
53	Connector		1

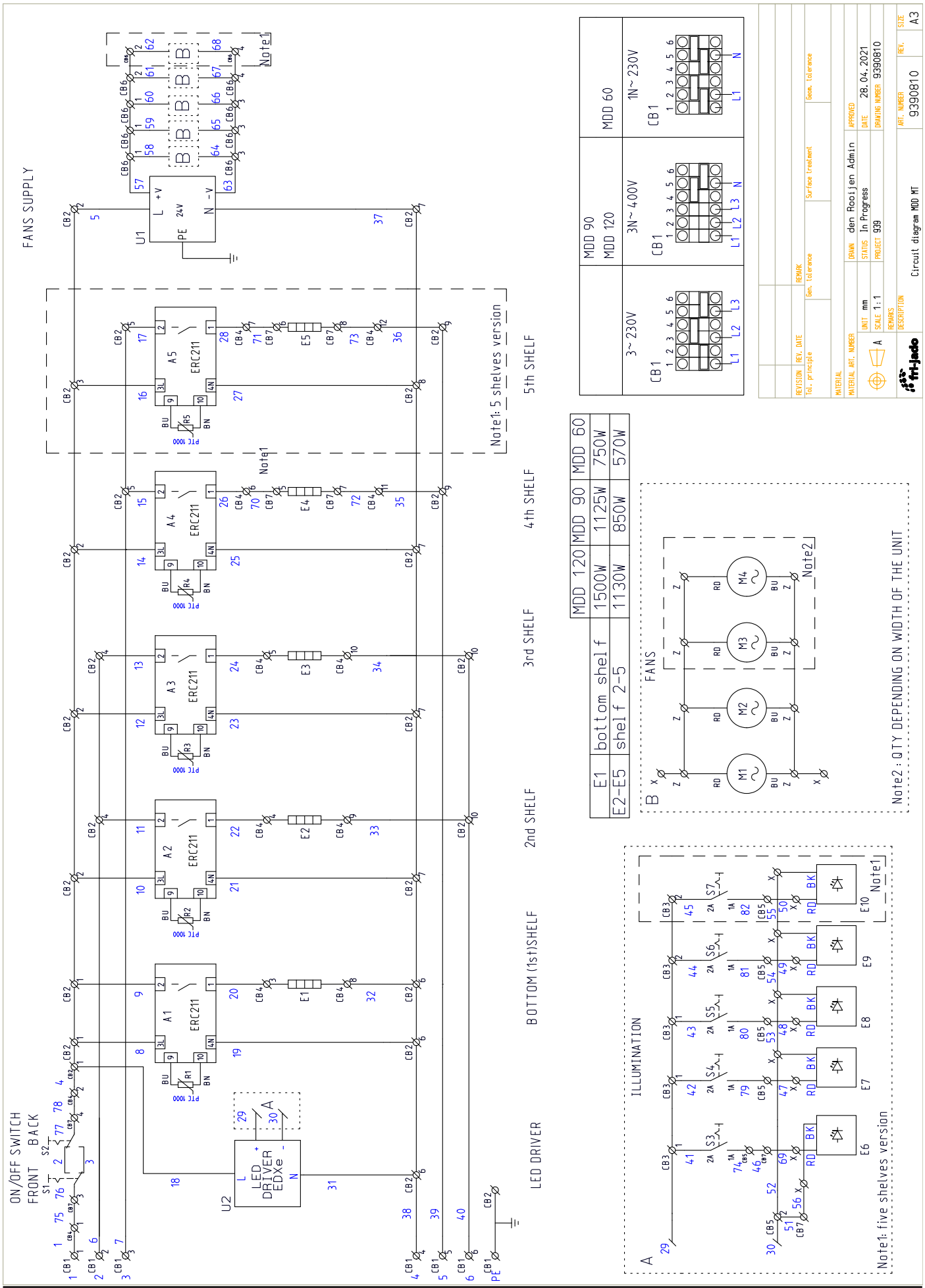
11.0 Electrical schematic wiring Multi Temp 4 layer I



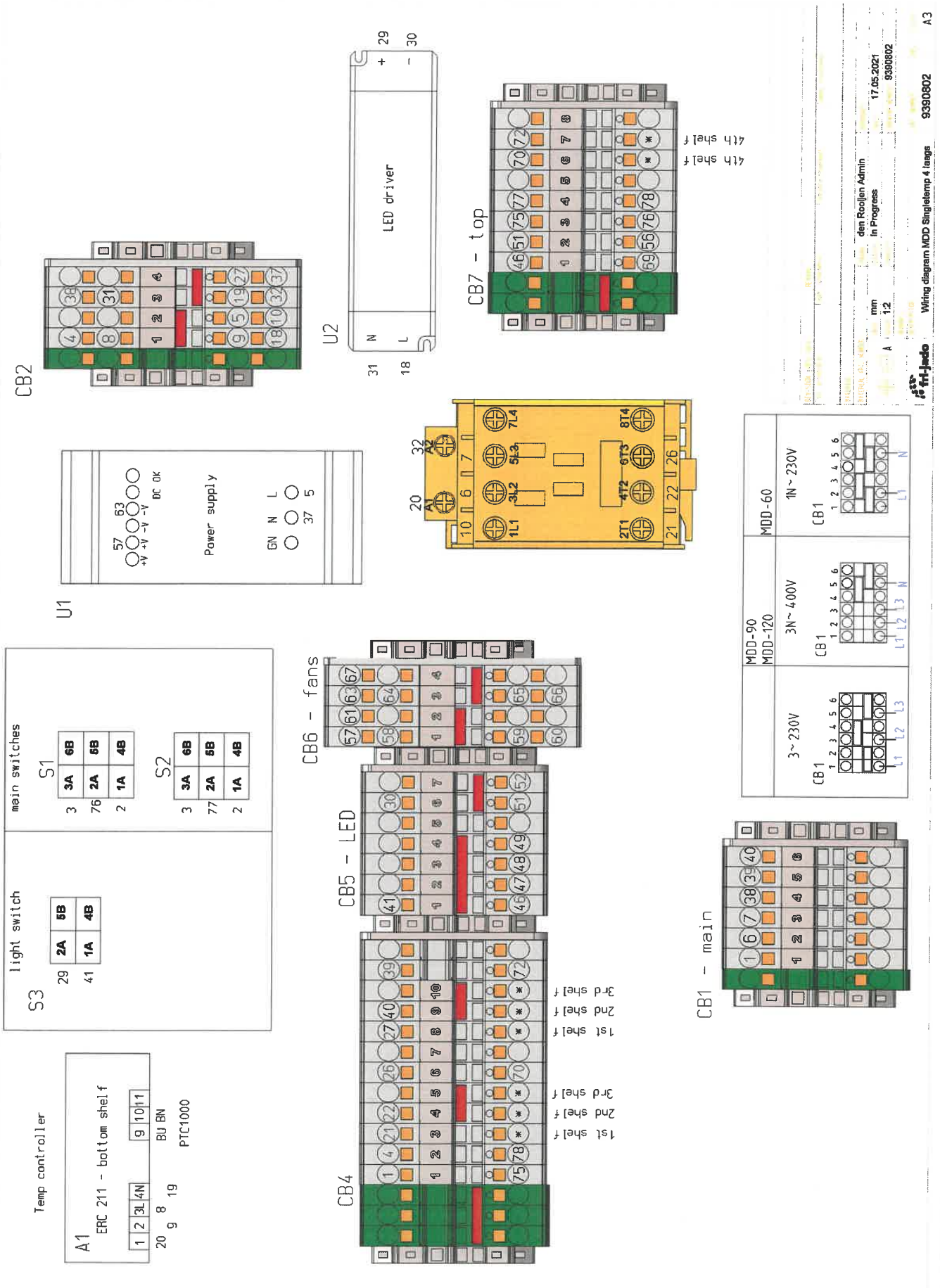
11.1 Electrical schematic wiring Multi Temp 5 layer I



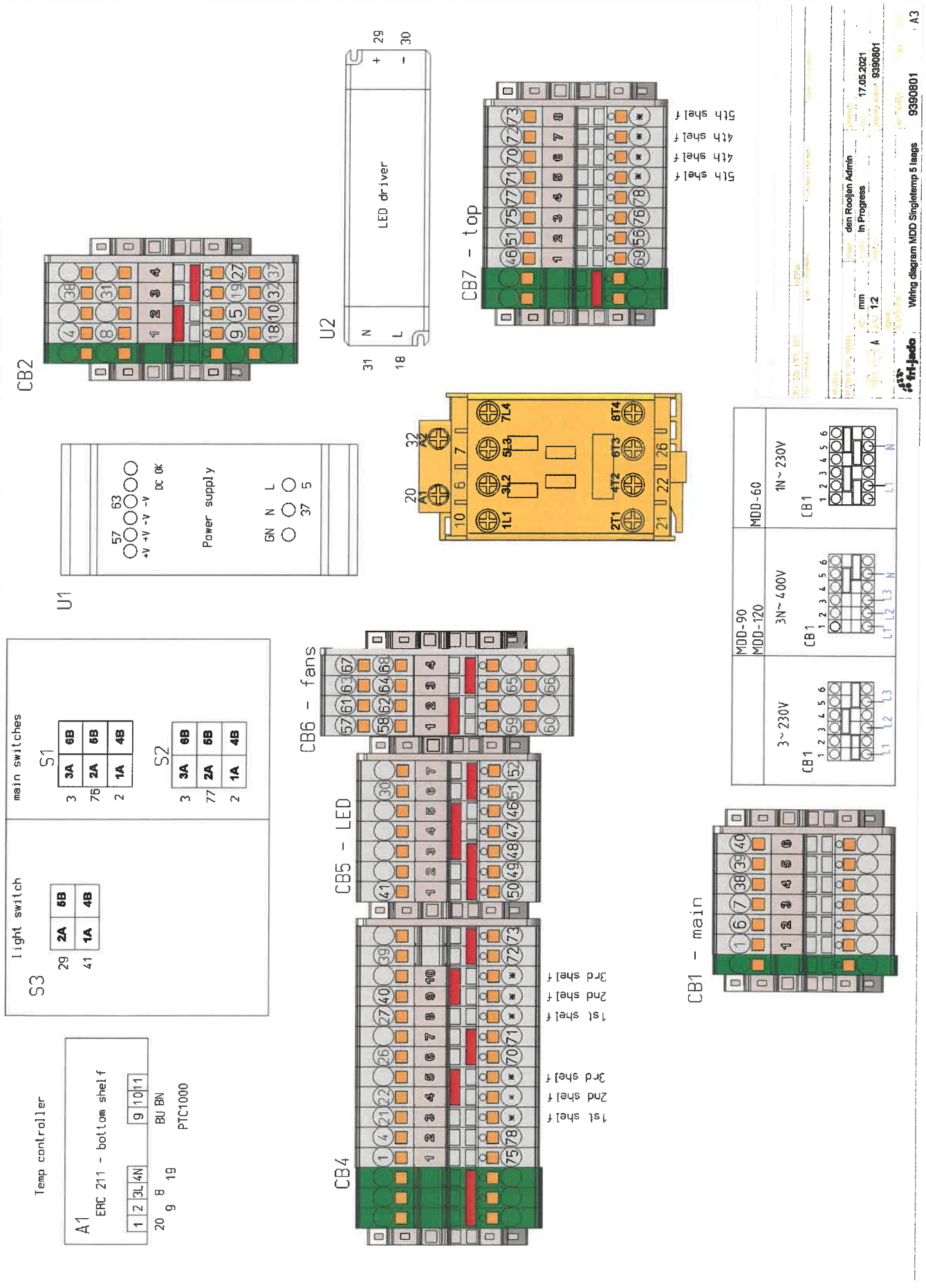
11.2 Electrical schematic circuit Multi Temp I



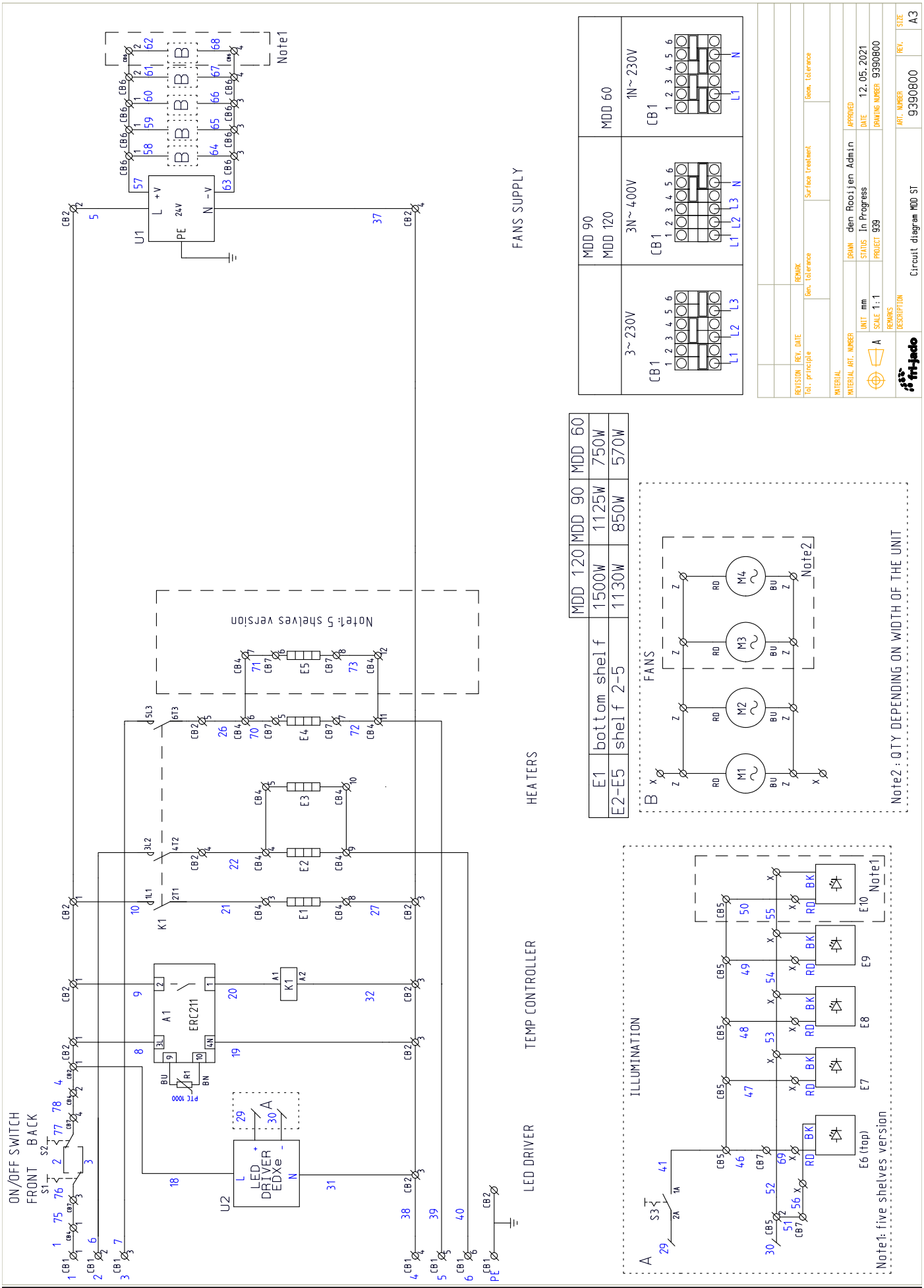
11.3 Electrical schematic wiring Single Temp 4 layer I



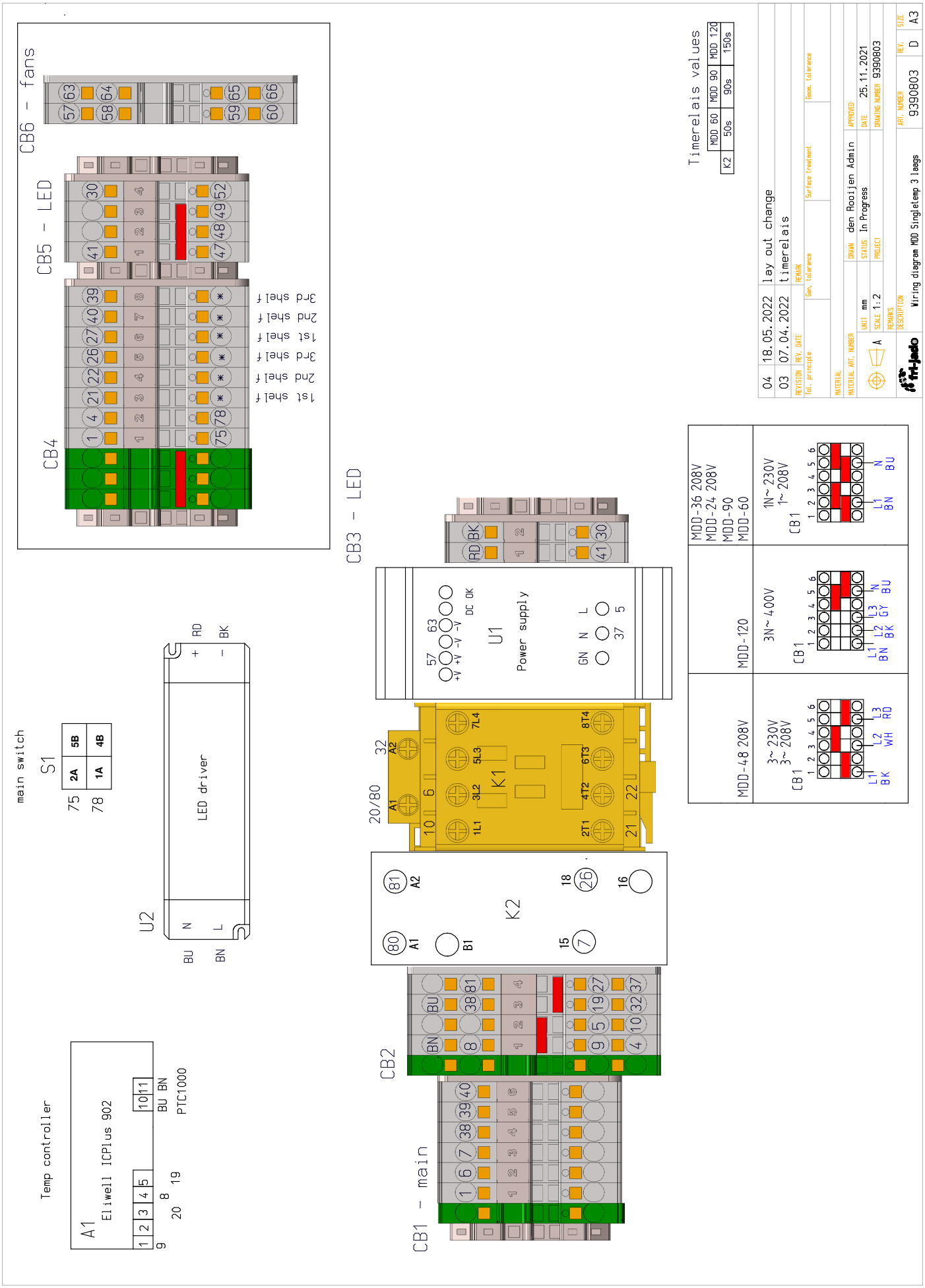
11.4 Electrical schematic wiring Single Temp 5 layer I



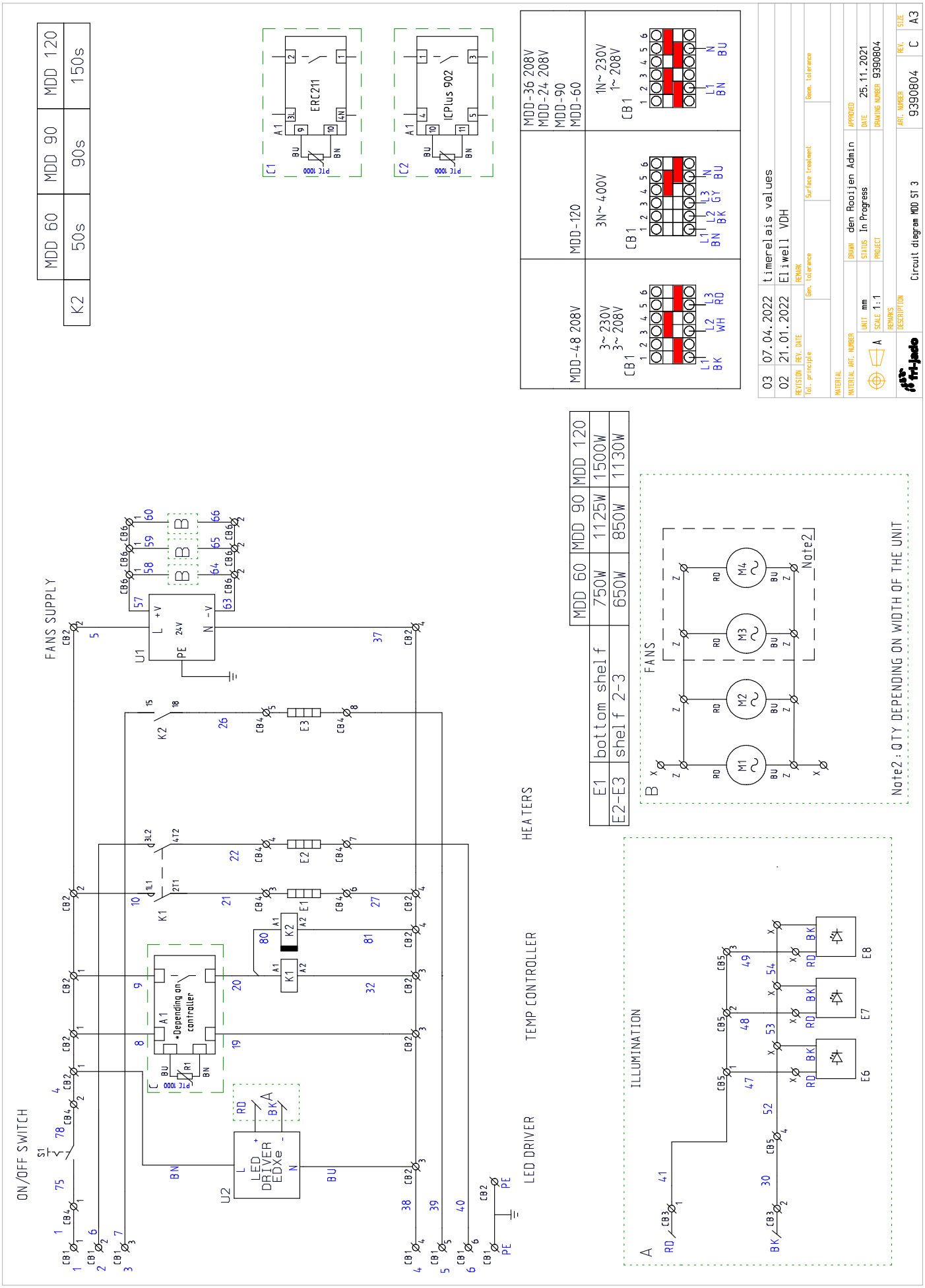
11.5 Electrical schematic circuit Single Temp I



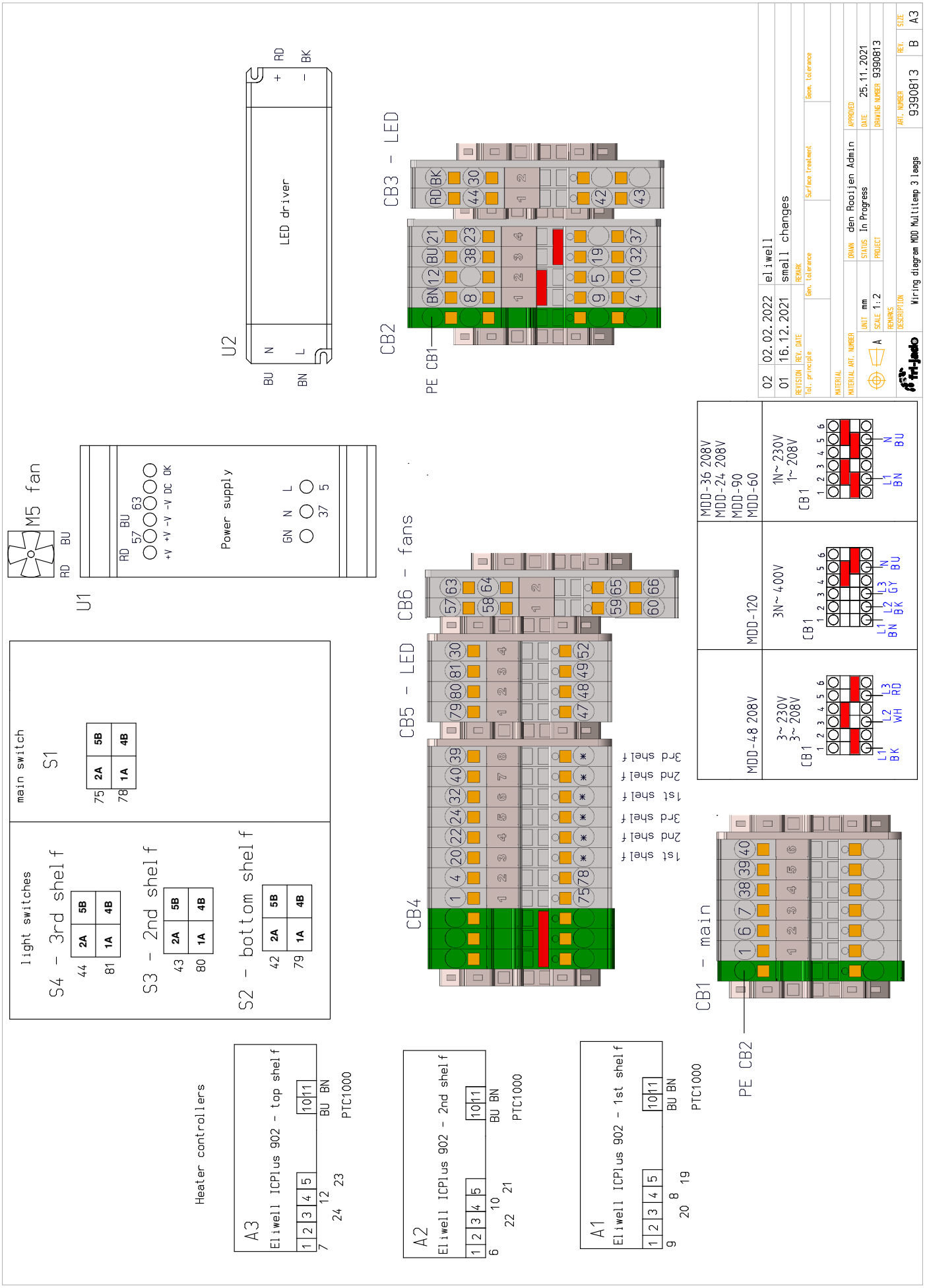
12.0 Electrical schematic wiring 3 layer single temp II



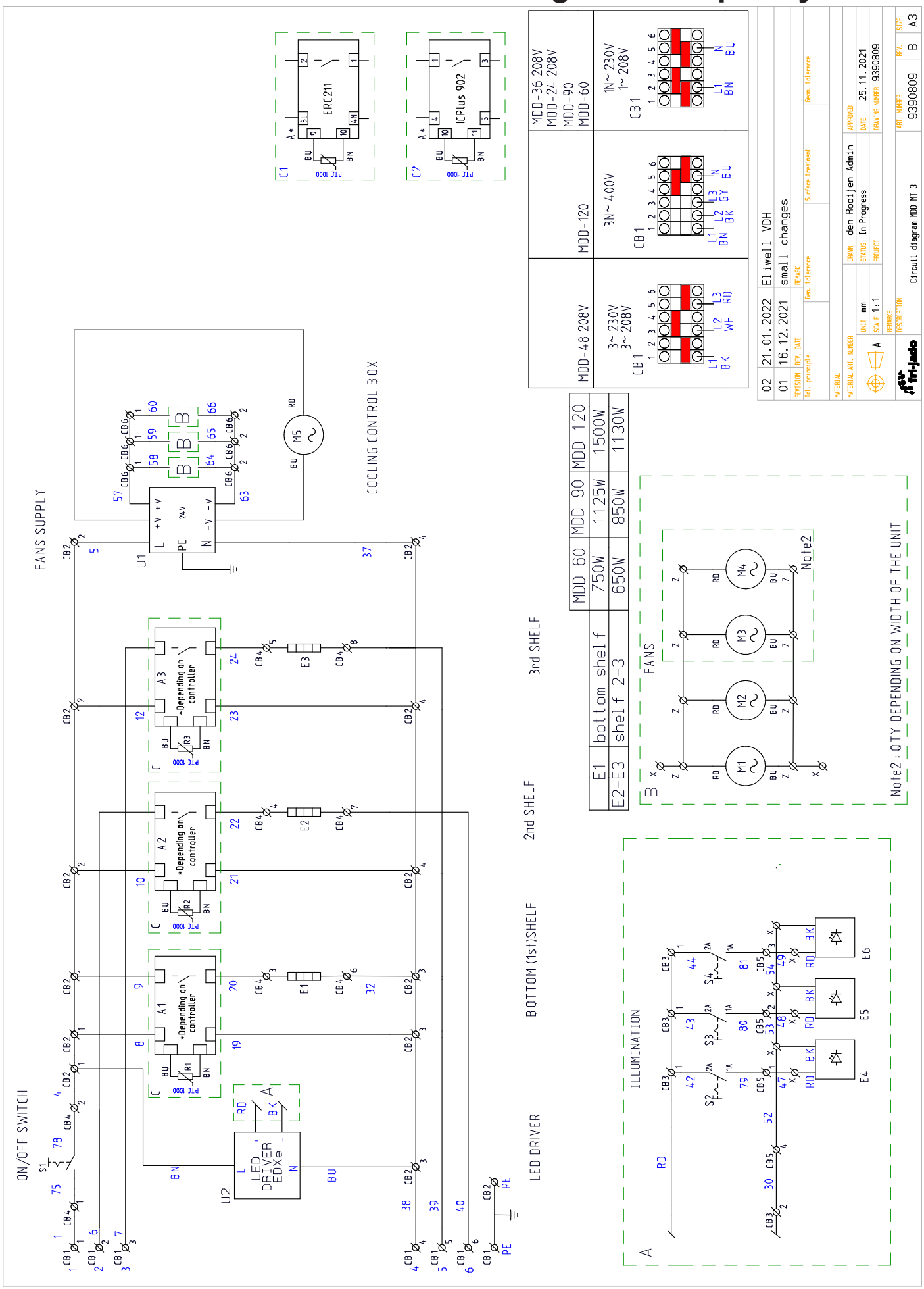
12.1 Electrical schematic circuit 3 layer single temp II



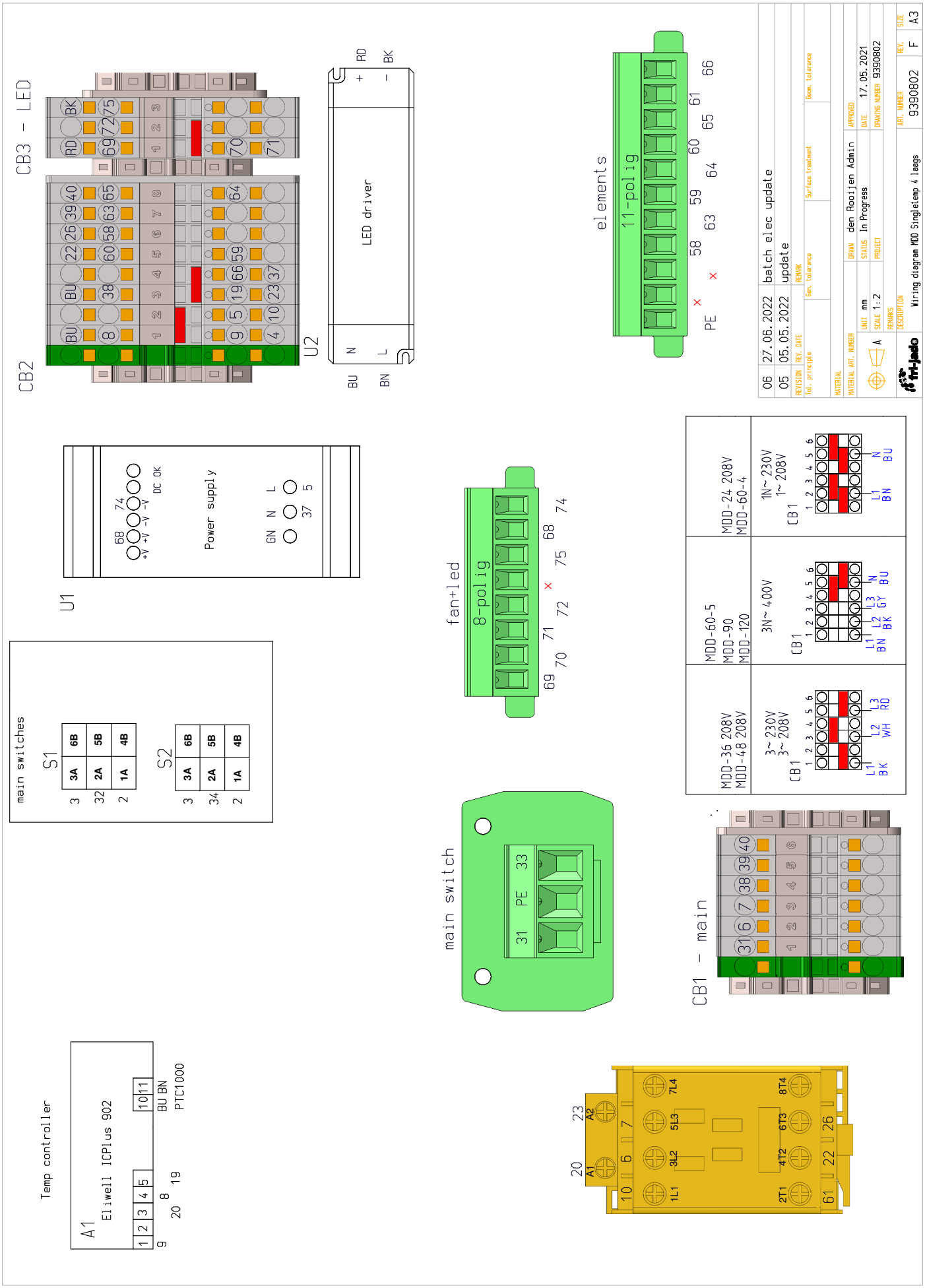
12.2 Electrical schematic circuit Multi Temp 3 layer II



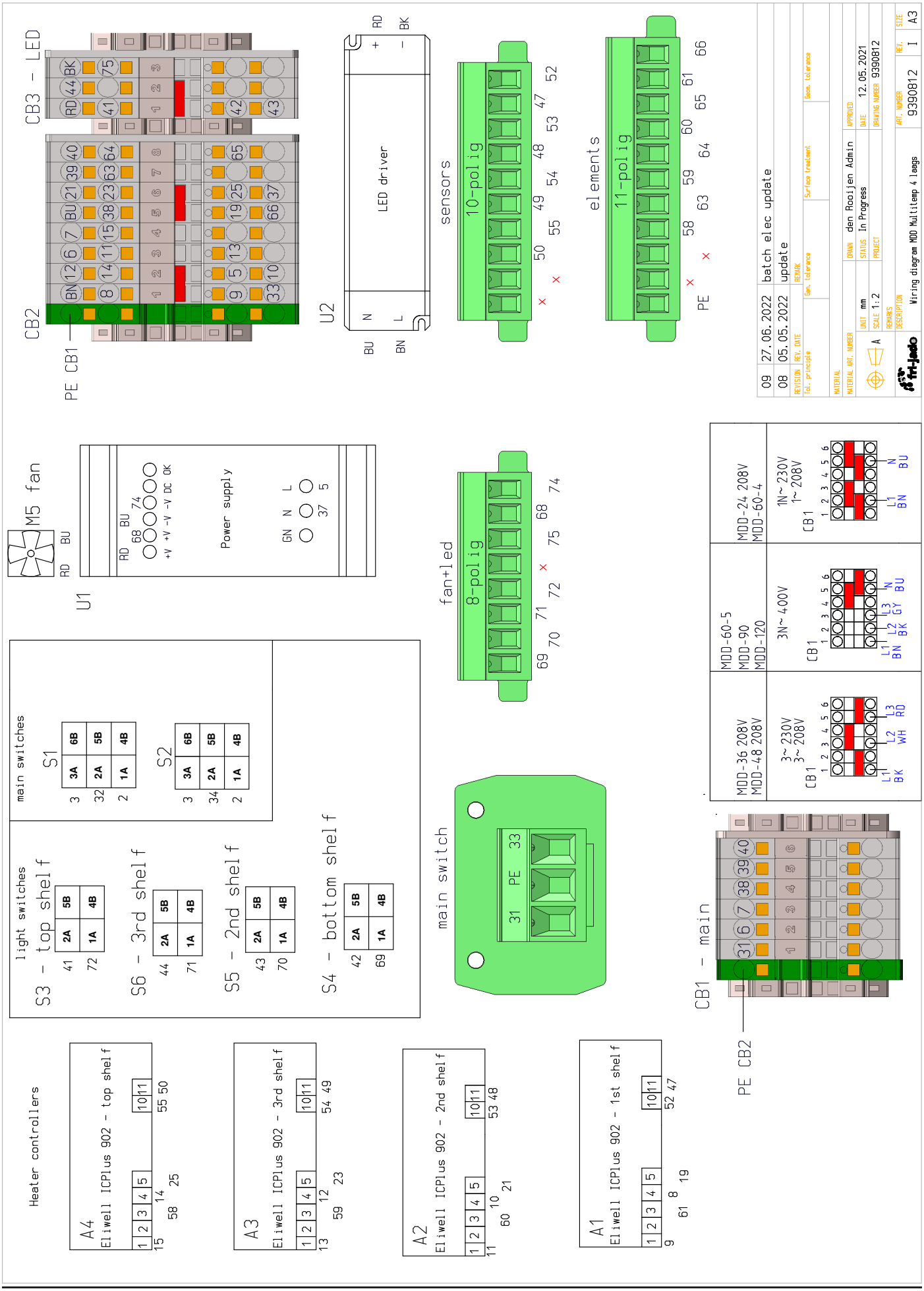
12.3 Electrical schematic wiring Multi temp 3 layer II



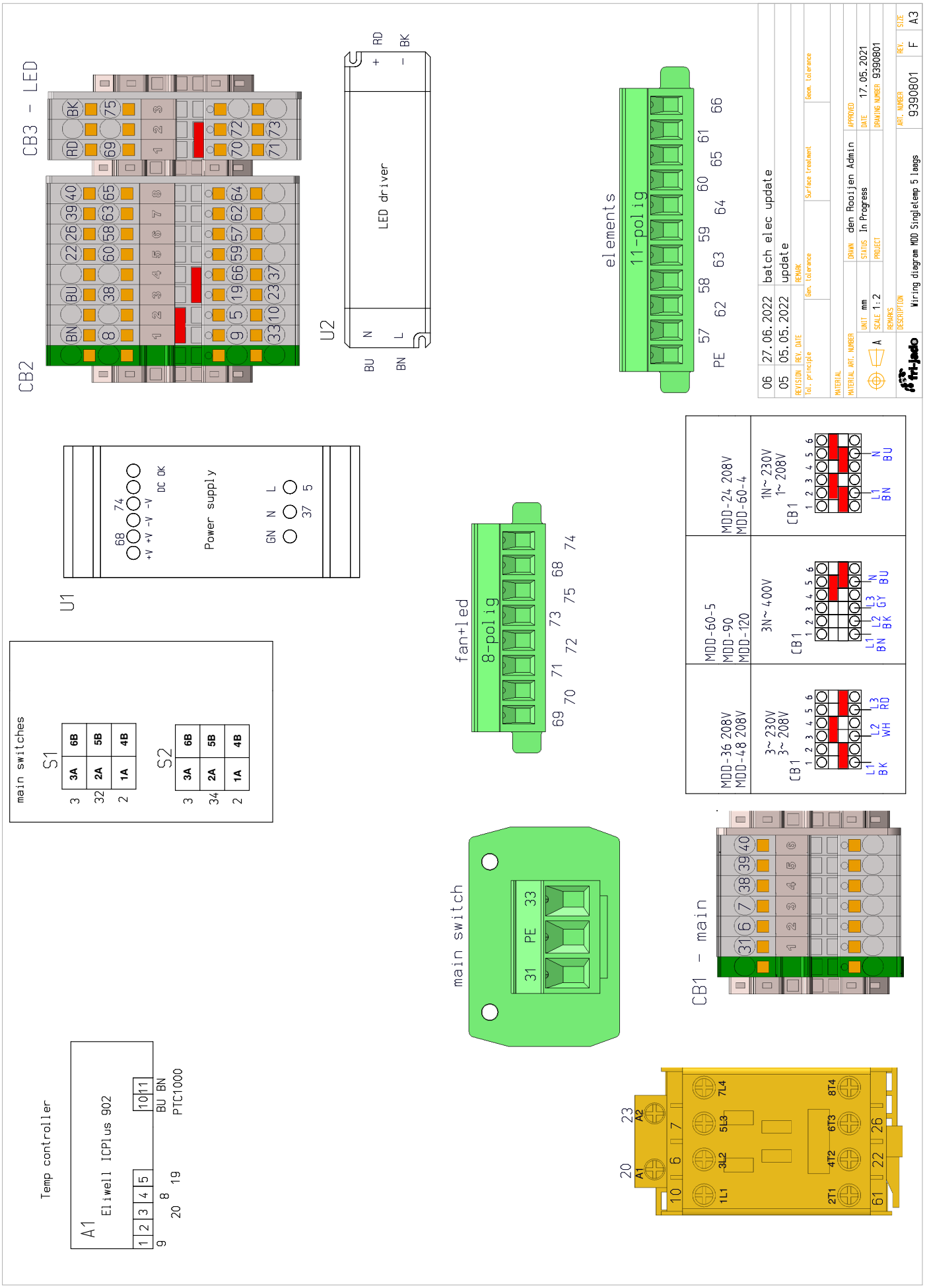
12.4 Electrical schematic wiring Single Temp 4 layer II



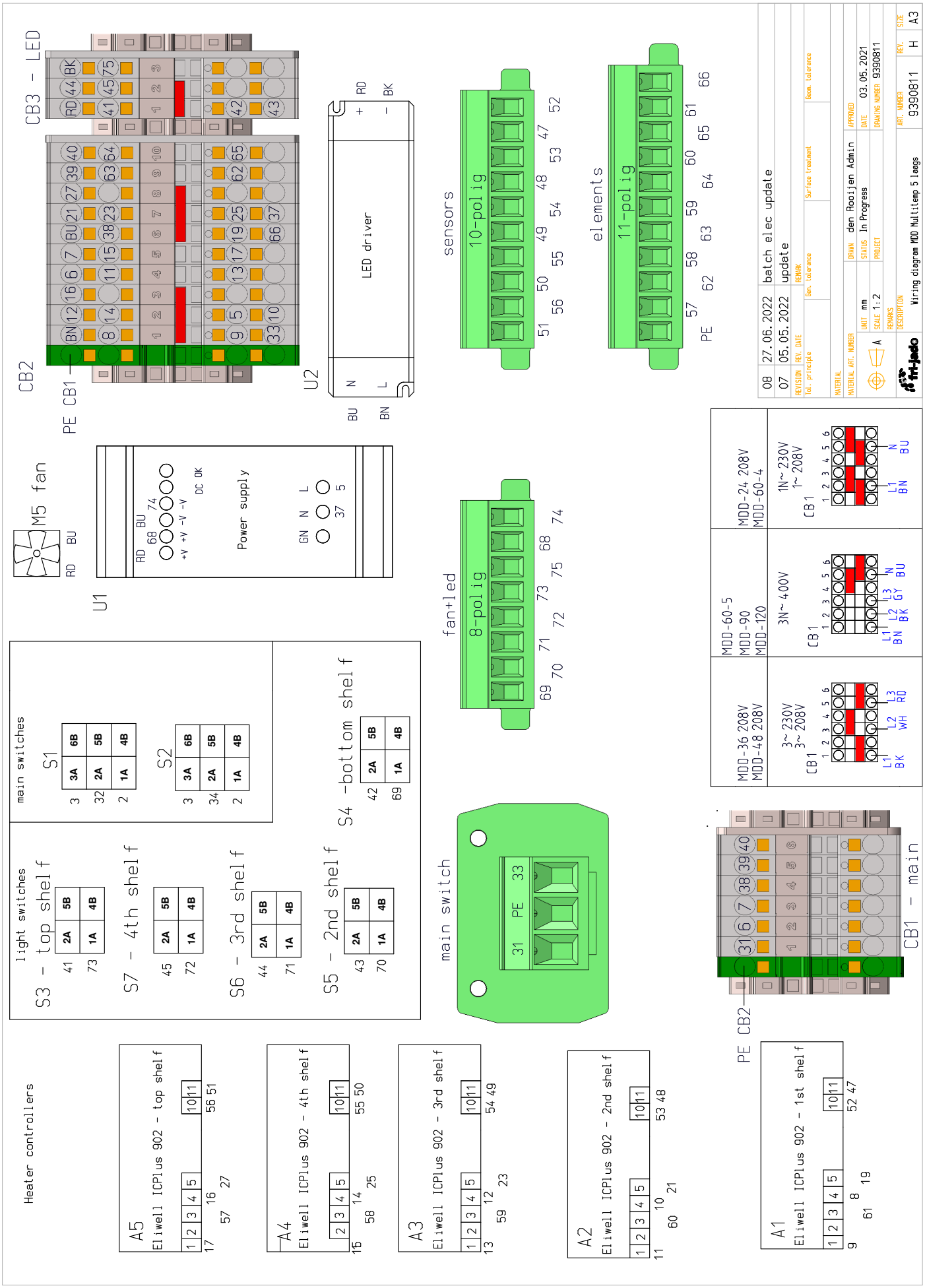
12.5 Electrical schematic wiring Multi Temp 4 layer II



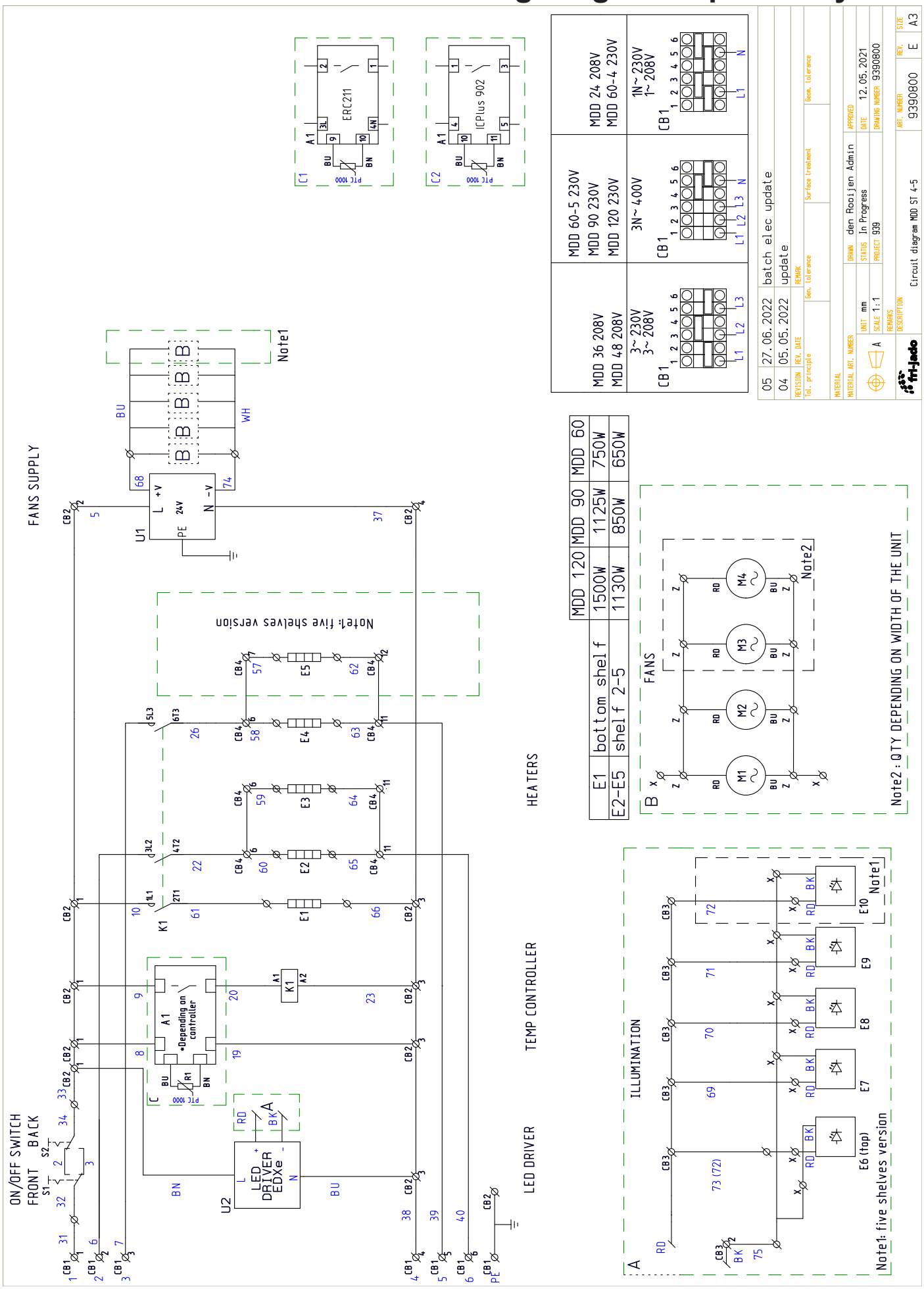
12.6 Electrical schematic wiring Single Temp 5 layer II



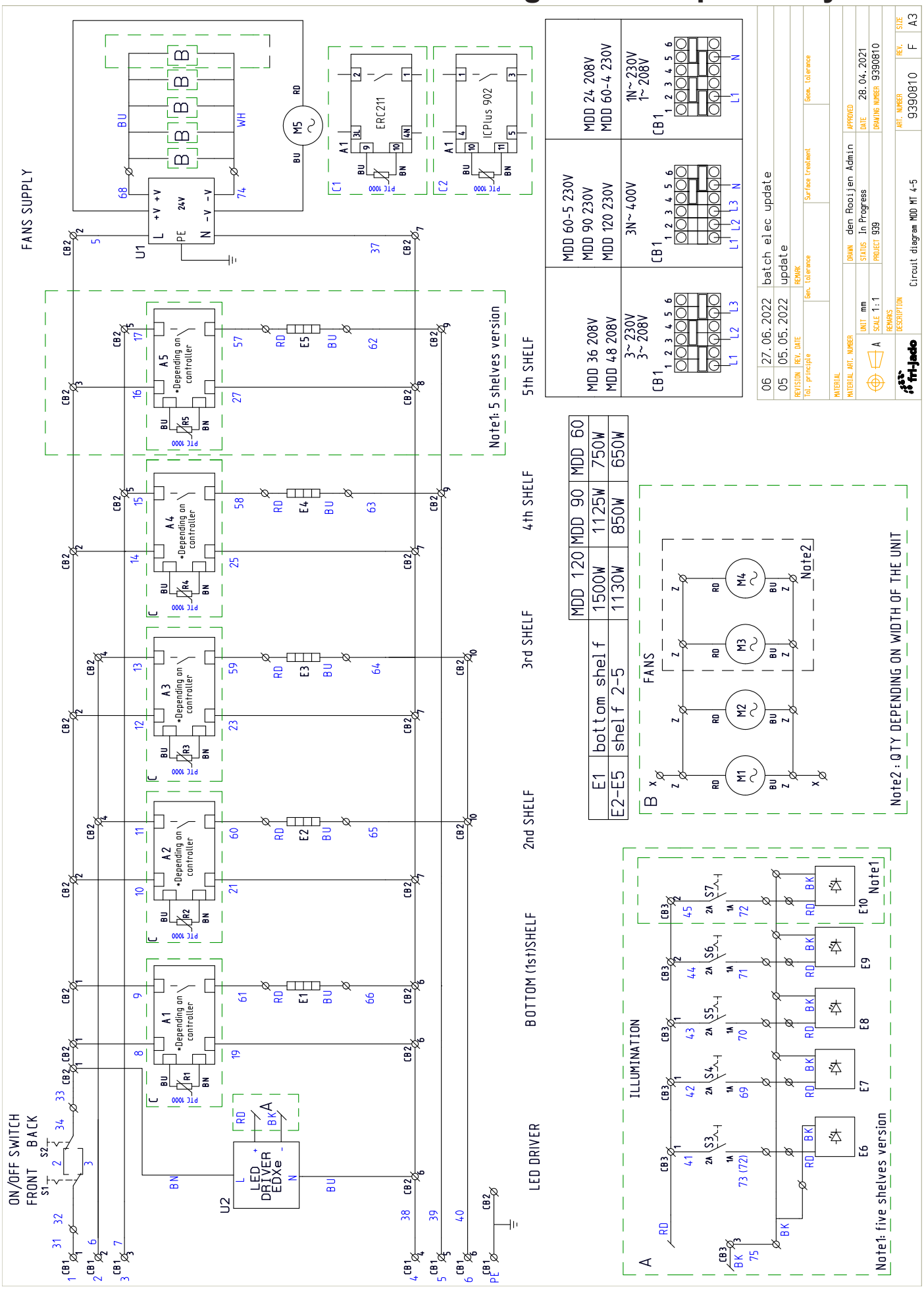
12.7 Electrical schematic wiring Multi Temp 5 layer II



12.8 Electrical schematic wiring Single Temp 4 - 5 layer II



12.9 Electrical schematic wiring Multi Temp 4 - 5 layer II



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