

9124971

SERVICE MANUAL Multi Deck Display; MDD 3, 4, 5 Level - Series EU

Applicable from serial number 100133012



- NOTICE -

This service manual is intended for use 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 as of serial number 100133012,
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.

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Version	Issue date	Remarks
0	July 2025	Release MDD as off serial 100133012
1	October 2025	Several updates

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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.
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Modifications:

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

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

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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 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
- Frequency
- Model
- Voltage
- Power consumption

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 to 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

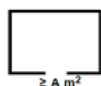


Recycling symbol.



Part of manual

Under construction



Minimum room floor area.



Pictures or photos

To be added



Cleaning

On regularly interval

1.0 Introduction

1.4 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, and have to be clearly visible during the entire lifetime of the unit. Immediately repair or replace damaged or illegible pictograms, warnings and instructions.



The pictograms, labels, instructions and warning signs may never be covered or removed.

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.



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

1.5 Moving



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

1.6 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

1.7 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 °C.



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



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

1.8 Service and technical support

The electrical schematics of the unit are included at the end of this manual. Also the schematics are found in every unit attached to the storage compartment in the base of the unit.

In case of malfunctions which are not fixable by you, please contact your supplier.

Make sure you have the following data from the identification plate is available:

- Model.
- Serial number.

1.9 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.

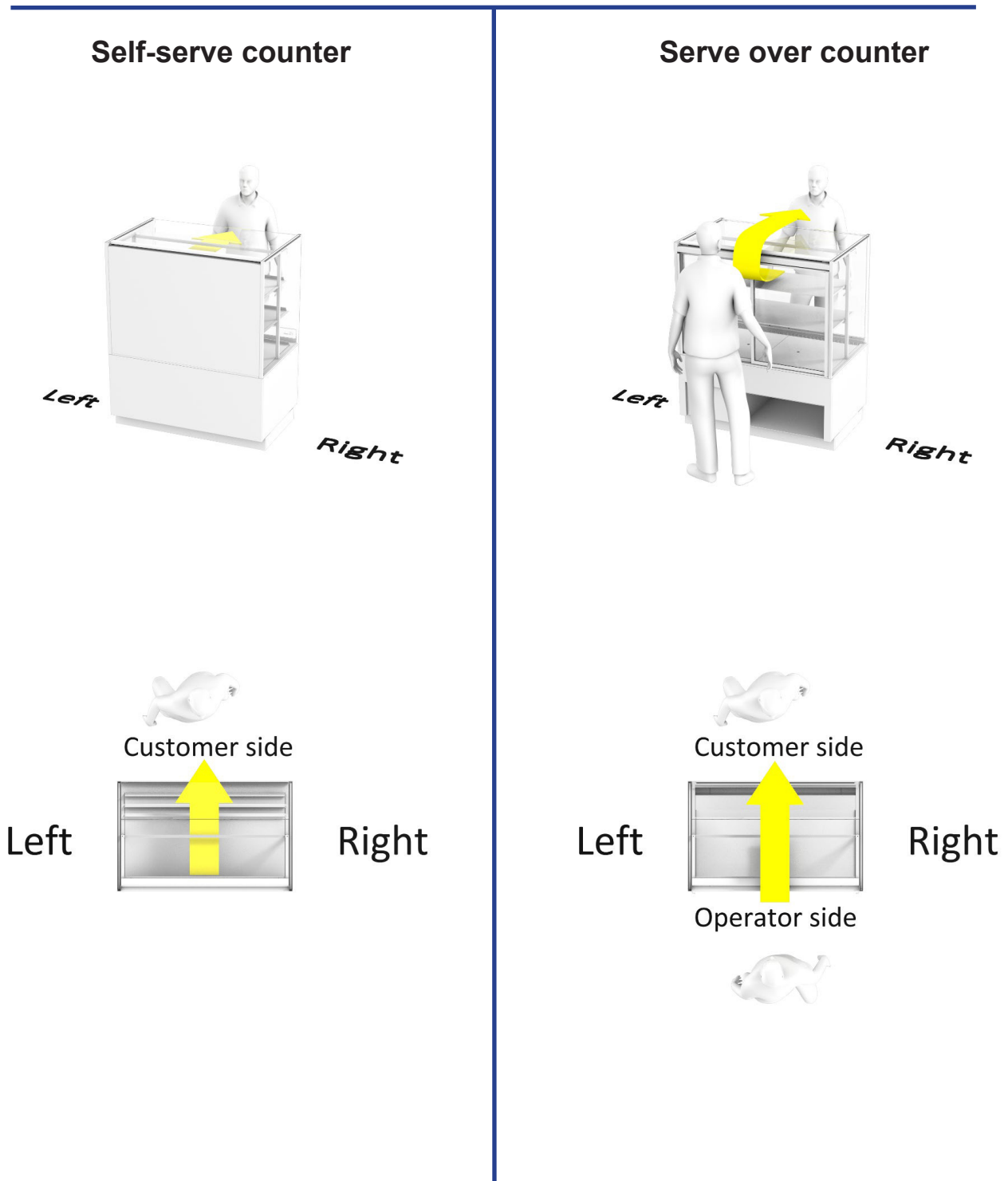
1.10 Disposal



- Remove any components or lubricants before disposing the machine safely in accordance with all local and national safety and environment rules and requirements.

1.11 Definition of left and right side merchandisers

Within Fri-Jado the definition of the left and right side of merchandisers is determined by looking at the direction in which the products are moving . (indicated by the yellow arrow).



2.0 Detailed description

2.1 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.

2.0 Detailed description

2.2 Connection to main voltage



Warning

Electrical shock hazard

Only connect the appliance:



on: an alternating current,



on: a grounded wall socket,



on: a power supply with GDCI (Ground Fault Circuit Interrupter),

with a mains voltage in accordance with the information indicated on the identification plate of the appliance,



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.

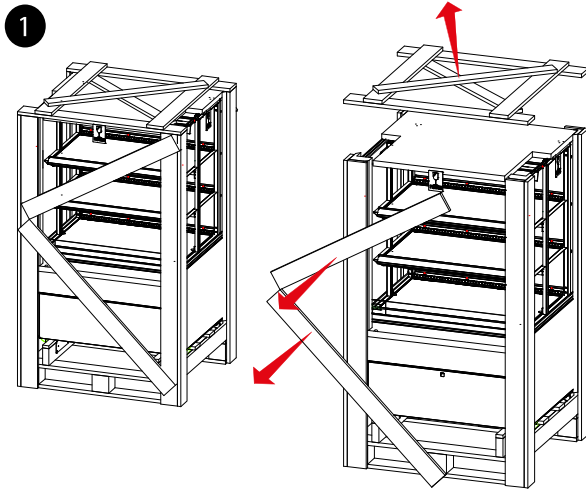


It is the consumer's responsibility to make sure the electrical installation conforms with current national and local codes and wiring regulations.

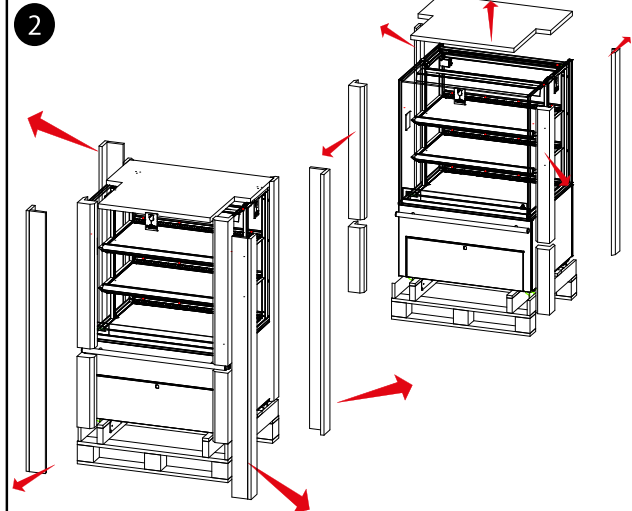
3.0 Unpacking

UNPACKING INSTRUCTION MDD/MCC

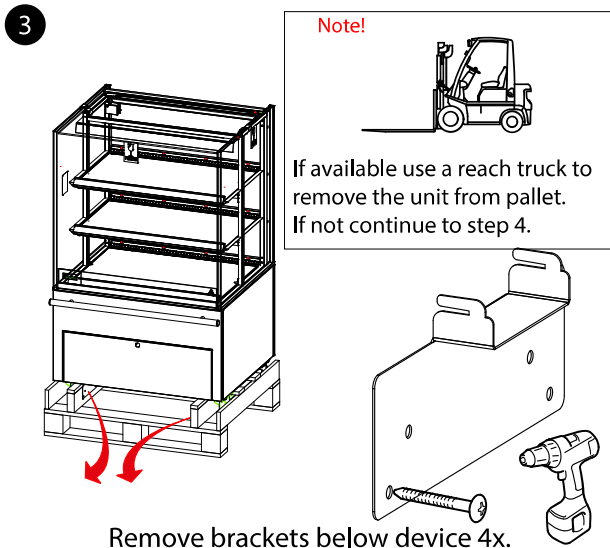
9124672 rev. 04/2022



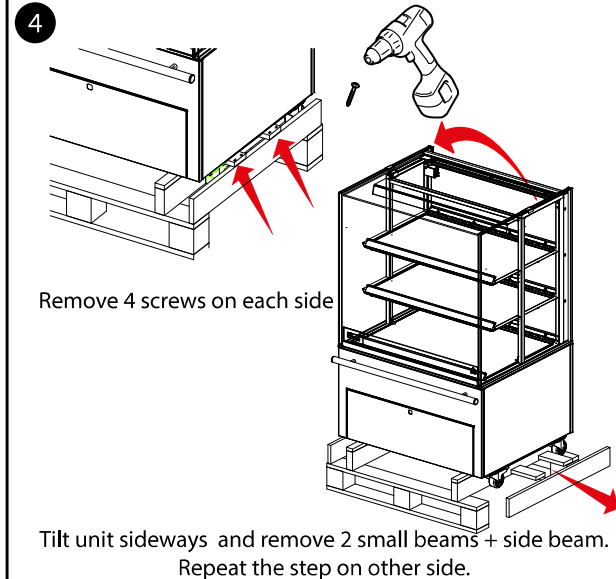
Remove the top 1x and beams 4x.



Remove side beams + eps
Note: side beams must be used later

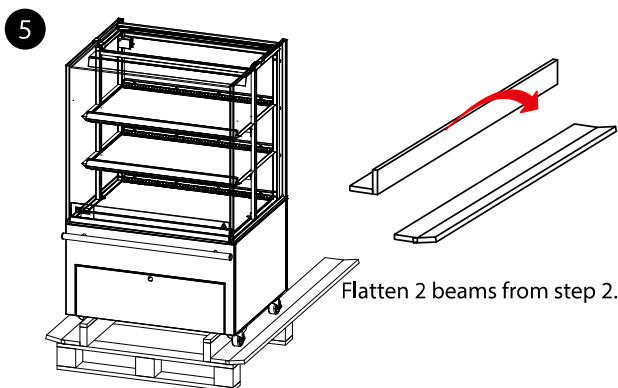


Remove brackets below device 4x.

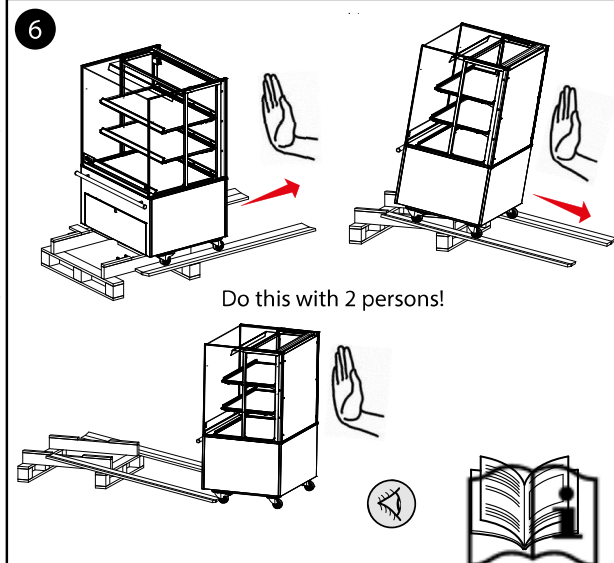


Remove 4 screws on each side

Tilt unit sideways and remove 2 small beams + side beam.
Repeat the step on other side.



Place flatten beams under unit.



Do this with 2 persons!

4.0 Installation

4.1 Placement of unit

- Position the MDD 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 MDD 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 MDD 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 °C (68 °F) ambient temperatures.
- The unit has a mains plug, and must be connected to a earthed wall socket with the proper mains voltage. (see identification plate)
- The wall outlet must be installed by a certified electrician.
- Always lock the front wheels with the brake after installation.

4.2.1 Installation of air blockers



When air blockers are not in position, please place those.
Without the air blockers in position, the performance of the MDD cannot be guaranteed.

No air blockers on the bottom shelf.

For instructions see next page.

4.0 Installation

4.2.2 Installation of air blockers instruction

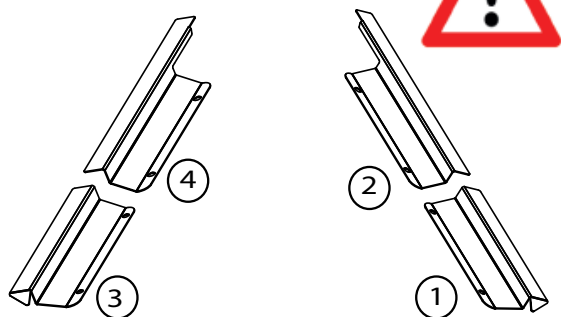
INSTALL INSTRUCTION AIRBLOCKERS MDD

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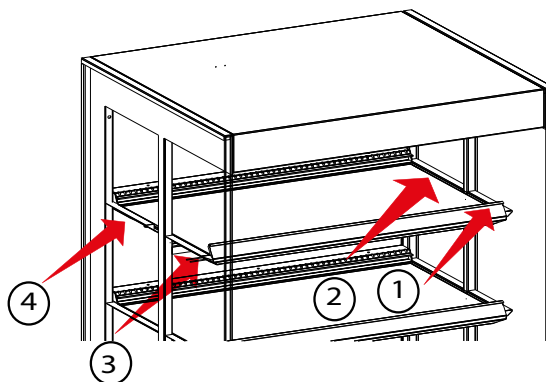
1

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

The airblockers have the following numbers:

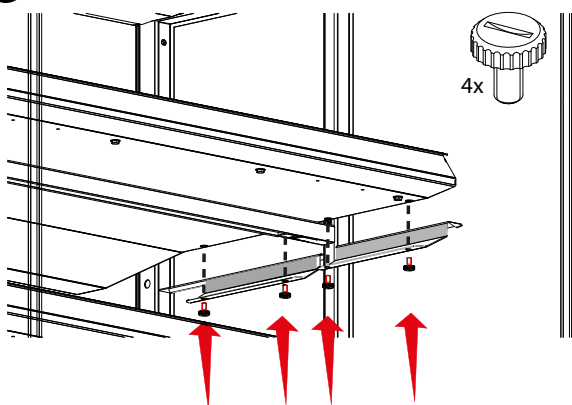


2



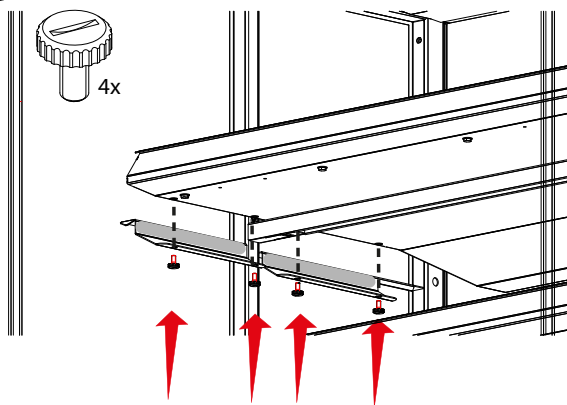
Mount the airblockers under the shelves.

3



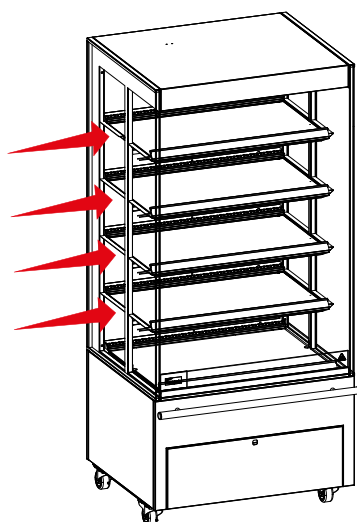
Mount airblocker 1 & 2 on the right hand side of the shelf with 4 screws (hand tight).

4



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

5



Repeat step 3 & 4 for all shelves.

6

EN - Read the manual before proceeding.
 NL - Lees de handleiding voordat u verder gaat.
 DE - Lesen Sie die Gebrachsanleitung, bevor Sie Fortfahren.
 FR - Lire le manuel avant 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 fortsätter.
 FI - Lue käyttöohje ennen kuin otat laitteen käyttöön.



5.0 Operation



Using the (multi)temperature controller(s)

The shelf(s) can be controlled individually or even turned off completely.

In this way, optimal holding conditions for different food groups can be achieved

(dependent on holding time, required product quality, packaging and accessories used).

When set to the same temperature, uniform temperatures can be attained throughout the cabinet and energy can be saved.

Although every combination of settings is possible (ranging from completely off to a set-point between 40°C and 70°C), certain settings may influence the time it takes for a shelf to reach operating temperature.

For example, if only one shelf is turned on it may take over 60 minutes instead of approx. 30 minutes when shelves are all set to the same temperature.

The unit is set at 65°C intake air temperature. If required, this temperature can be adjusted.

With an ambient temperature of 20°C and an initial product core temperature of 85°C, the factory settings of the unit's temperature ensure a constant product core temperature of at least 65°C for 4 hours.

Temperature controller



Power on/off button*



Up-button



Down-button



Set-button

*Switch on/off: hold for several seconds



Set temperature
(temperature on display)



Product temperature

Switching-on the unit

1. Switch on the power switch
2. Switch the heating on, by means of the temperature controller.
3. Preheat the unit (may take between 30 and 90 minutes depending on controller settings).

Switching-off

1. Remove all products from the unit.
In order to avoid temperature drop of the products, store them in another warm holding unit.
2. Switch the heating off.
3. Switch the main power off.

5.0 Operation

5.1 Loading and adjusting



Temperature controller

	Power on/off button*
	Up-button
	Down-button
	Set-button

*Switch on/off: hold for several seconds



Set temperature
(temperature on display)



Product temperature

Loading temperature

Strongly advised product core temperature **85°C!**

This means the core temperature of the products loaded into the MDD should be 85°C.

This preferred temperature is dependent on product type and packaging. To determine optimal storage conditions for different product/packaging/accessory combinations, please contact your supplier.

Checking the temperature in the unit

- During operation, the display of the thermostat shows the temperature at the probe in the unit.
NOT THE PRODUCT TEMPERATURE
The indication ON will be lit when the elements are active.

Checking the set temperature

- Scroll through the folders with the **UP**-button and the **DOWN**-button until you find the folder **Pb1**, **Pb2** or **Pb3**.
- Press **SET** to view the value measured by the corresponding probe.

Adjusting the set temperature

- During operation, the display of the temperature controller shows the temperature in the unit. (Not product temperature)
- Push once on the **SET**-button. The set temperature will appear on the display.
- Push the **UP**-button and **DOWN**-button within 15 seconds.
- Adjust the set temperature by means of the **UP**-button and the **DOWN**-button.
- Push once on the **SET**-button to store the new set temperature.

5.0 Operation

5.2 Parameter settings

Parameter setting, different from default.

User parameters

SP1	Temperature set point	65	°C
df1	Differential	1	K
HS1	Max. set point limitation	70	°C
LS1	Min. set point limitation	40	°C
LoC	Keypad lock n(0)=lock disabled / y(1)=lock enabled	n	
ndt	Display with decimal point, n(0)=no / y(1)=yes	y	
CA1	Display offset	0	°C
H00	Sensor type, 0 = ptc / 1 = ntc, / 2 =pt1000	0	

Installer parameters:

rE1	HC1	Cold "C"(0) or Hot "H"(1) operation	H	
	HA1	Max. Temp. Alarm	100	°C
CnF	dro	Unit of Measurement (0=C 1=F)	0	

6.0 Maintenance

6.1 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 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.	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.

7.0 Troubleshooting

7.1 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 Ground Fault Circuit Interrupter (GFCI) 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. • 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.

7.2 Replace the mains cord



WARNING

Hazardous electrical voltage.

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

7.3 Testing PTC sensor



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	677
14	-10	740
32	0	807
50	10	877
68	20	951
77	25	990

7.0 Troubleshooting

7.4 Testing heating element



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 table.

Current

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

		MDD60	
Shelf	Power	Current	Resistance
	<i>Watt</i>	<i>Ampere</i>	<i>Ohm</i>
	-5% + 10%	-5% + 10%	-5% + 10%
Top	570	2,48	92,8
Shelf 1	570	2,48	92,8
Shelf 2	570	2,48	92,8
Shelf 3	570	2,48	92,8
Bottom	750	3,26	70,5
		MDD90	
Shelf	Power	Current	Resistance
	<i>Watt</i>	<i>Ampere</i>	<i>Ohm</i>
	-5% + 10%	-5% + 10%	-5% + 10%
Top	850	3,70	62,6
Shelf 1	850	3,70	62,2
Shelf 2	850	3,70	62,2
Shelf 3	850	3,70	62,2
Bottom	1125	4,89	47,0
		MDD120	
Shelf	Power	Current	Resistance
	<i>Watt</i>	<i>Ampere</i>	<i>Ohm</i>
	-5% + 10%	-5% + 10%	-5% + 10%
Top	1130	4,91	46,8
Shelf 1	1130	4,91	46,8
Shelf 2	1130	4,91	46,8
Shelf 3	1130	4,91	46,8
Bottom	1500	6,52	35,3

7.0 Trouble shooting

7.5 Symptoms and causes

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 present).
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 V dc power supply malfunction.

7.0 Trouble shooting

7.6 Symptoms and solutions

Description of part	Symptoms	Possible causes	Solution / Check / Action
Contactor (only applicable for single temp.)	Contactor does not work	Wiring Coil malfunction Contact burned	Check wiring Check resistance of coil +/- 525Ω Check the contacts Replace contactor
Heating element	Unit is not reaching the set temperature	Wiring Element malfunction No air flow. Fan's not turning	Check wiring Check power on elements per shelf Check current with AC current tester Check resistance Replace element Check wiring Check power on fans per shelf Replace fan box/power supply
Tumble switch	Unit, light or heating 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 sensor	The unit is not reaching the set temperature or does not heat up at all The unit becomes too hot	Loose sensor Broken Sensor	Check resistance Check sensor wiring Replace sensor

7.7 Alarms

ALARM CODE	POSSIBLE SOLUTION
E1 / E2	Probe error
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
AH1	Alarm for high value (Probe 1)
AL!	Alarm for low value (Probe 2)

Alarm Reset

Power controller OFF and power controller ON again.

Switch unit OFF and ON again via main switch.

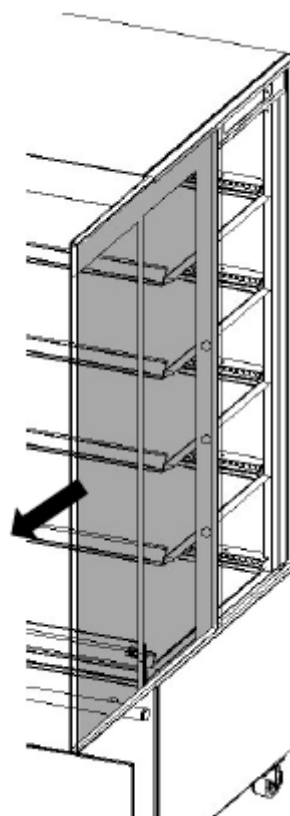
8.0 Replacements

8.1 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 entirely out of the unit.



CAUTION:

Once past the middle, the glass pane might tilt forward when not properly held.

Be aware of the weight of the glass pane!

Hence, do not leave the glass 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.

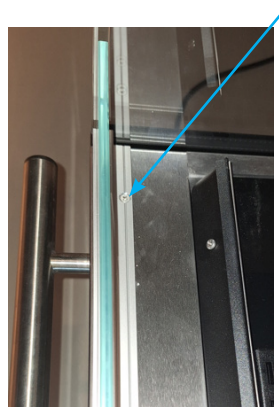
2. Before placing a new side pane, clean the guiding rails. (Top, bottom and back).
3. Before sliding the new pane into the rails, ensure the black screening side of the pane is facing backwards.
4. Slide it all the way back until the front of the pane is in line with the front plating.

8.0 Replacements

8.2 Child guard glass including profile replacement



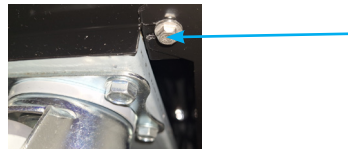
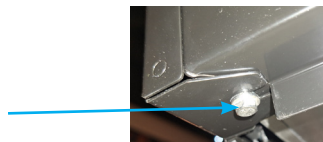
1. Unscrew mounting screws of child guard glass profile,
2. Take old child guard glass and profile,
3. Place new child guard glass and profile,
4. Remount mounting screws,



8.3.1 Front and back panel



1. Loosen the mounting bolt underneath the unit, one in the left and one in the right bottom corner,
2. Pull panel slightly downwards and take it off.



8.3.2 Side panel

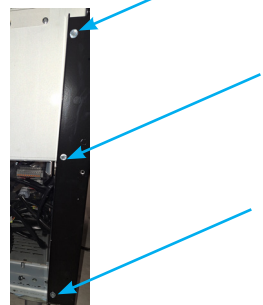
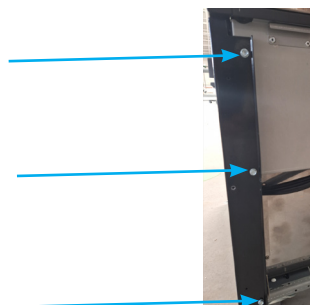


Warning:

When side panel is removed, unit is not stable any longer. Unit cannot be moved.



1. Remove front and back panel as described,
2. Remove mounting bolts of the panel

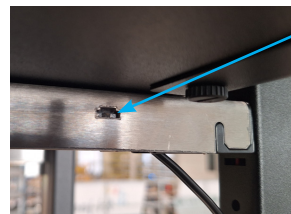


8.0 Replacements

8.4.1 LED replacement, shelf



1. Remove side glass (Refer 8.1),
2. Remove column cover (one screw)
3. Disconnect LED connection (Wago) in column, Note the placement of the red and black wire in the connector.
4. Use flat screwdriver to push the LED mounting bracket(s),
5. Lower LED from armature,
6. Place new LED, push mounting brackets into position,
7. Reconnect LED wires in column. verify the placement of the red and black wire, as noted before,
8. Replace in reverse order.



8.4.2 LED replacement, top



1. Remove top cover, 3 screws at the back, 3 screws in the front,



2. Disconnect LED wires in top compartment, Note the placing of the red and black wire in the connector,
3. Loosen LED mounting brackets, using a flat screwdriver,
4. Place new LED,
5. Reconnect LED wires in column. verify the placement of the red and black wire, as noted before,
6. Replace top cover

8.0 Replacements

8.5.1 Shelf glass replacement



1. Remove fan box top cover. (# screws depending on unit length),
2. Remove glass pane clamp. (# bolts depending on unit length),
3. Remove Shelf Glass pane, by lifting it upwards.

8.5.2 Shelf heating element replacement

1. Remove side glass panes,
2. Remove Shelf Glass pane,
3. Remove fan box,
4. Remove column cover (back right column cover, seen from customer side),
5. Loosen Element holders, fastened with screws. (1 screw each),
6. Take off the top element holders,
Heating Element is now free to take out,

Make a note of the placement of the wiring,

7. Take out element,

If possible, follow the wires going down in the column,
make a connection to the wires from the new element, **inside the column.**



NEVER make a connection underneath the heating element

Connect the wires in the column,
using a wago connector,



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.



8. Replace in reverse order.

8.0 Replacements

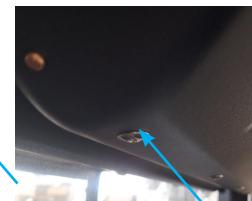
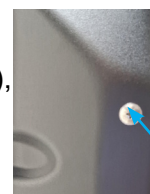
8.5.3 Shelf fan-box replacement



1. Remove side glass panes, both sides,
2. Remove column covers,
3. Remove fan-box top cover (# screws depending on unit length),



4. Remove glass pane clamp. (4 or more bolts depending on unit length),
5. Remove shelf glass pane,
6. Remove fan-box, (box is screwed from bottom side),
7. Disconnect wiring, (in column)
8. Replace in reverse order.



8.5.4 Shelf PT sensor replacement



1. Remove fan-box,
2. Remove sensor from tulle,
3. Remove sensor,
4. Remove sensor from fan box,



5. Open electrical box,
6. Follow sensor cable trough back side column into electrical box, or cut the wire and make a connection to the wire in the column
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.

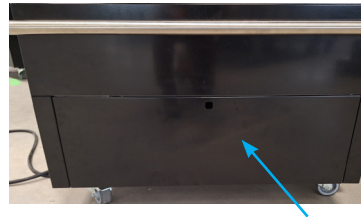


8.0 Replacements

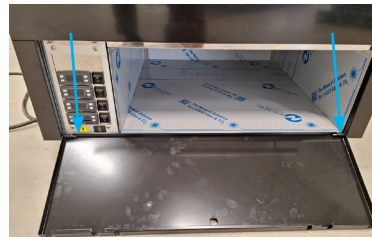
8.6.1 Replacement parts electrical box



1. Open controller cover,



2. Remove controller cover by pulling hinge pins,



3. Remove 2 screws holding electrical box,

4. Pull out (slide out) electrical box,

5. Open electrical box cover,

6. Find item to be replaced.



8.6.2 Controller replacement

1. Locate controller which has the problem (multi temp can have up to 5 controllers),



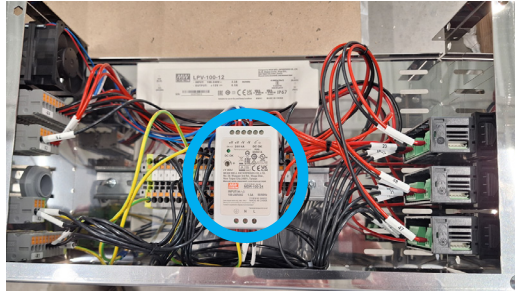
2. Check wiring of controller, make a note of the wires (numbers) and their placing (numbers on controller),
3. Disconnect controller and take out. Note connection points,
4. Mount new controller and re-connect wiring.

8.0 Replacements

8.6.3 PSU 24V dc 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.

8.6.4 LED driver replacement



1. Locate LED driver.



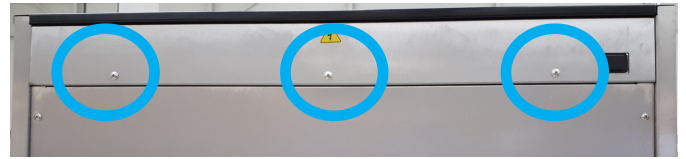
2. Check wiring of LED driver, make a note of the wires (numbers) and their placing (numbers on LED driver).
3. Disconnect LED driver and take out.
4. Mount new LED driver and re-connect wiring according notes from point 2

8.0 Replacements

8.7.1 Main switch replacement back 4 - 5 level



1. Remove top back panel.
3 screws, depending on unit
Length
2. Remove top back panel
3. Remove old switch
4. Connect new switch.



8.7.2 Main switch replacement front



1. Remove top back panel.
3 screws
2. Remove panel
3. Remove top panel 3 screws
4. Slightly lift top panel at back
side, and push slightly
forward.
5. When top panel is taken off,
you can reach the front main
switch.
6. Replace in reverse order.



9.0 Specifications

9.1 Specifications MDD - 3



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	m ²	0,75	1,20	1,65
Usable display volume	l	132	211	290

Performance		60-3	90-3	120-3
Shelf display area	m ²	0,75	1,20	1,65
TEC at climate class 0*	kWh/h	0,95	1,51	2,08
TEC at climate class 0*	kWh/day	22,68	36,29	49,90
TEC/TDA at climate class 0*	kWh/day/m ²	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 (single temp)	W	2447	3370	4609
Maximum power (multi temp)	W	2287	3161	4211
Nominal current (single temp)	A	10,2	14,0	7,2
Nominal current (multi temp)	A	9,5	13,1	7,2
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 middle shelves power	W	650 (-0/+10%)	850 (-0/+10%)	1390 (-0/+10%)
Heating element upper shelves power (single temp)	W	795 (-0/+10%)	1040 (-0/+10%)	1130 (-0/+10%)
Heating element upper shelves power (multi temp)	W	650 (-0/+10%)	850 (-0/+10%)	1130 (-0/+10%)
LED lighting power	W	21	37	35

** Standard Plug

9.0 Specifications

9.2 Specifications MDD - 4



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	m ²	0,99	1,58	2,17
Usable display volume	l	161	257	354

Performance		60-4	90-4	120-4
Shelf display area	m ²	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/m ²	30,24		
Sound pressure	dB(A)	< 55		
Minimum ambient temperature	°C	20		
Maximum ambient temperature	°C	30		
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 Specifications

9.3 Specifications MDD - 5



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	750		
Depth incl. bump rail	mm	810		
Height on wheels	mm	1973		
Height on leveling legs	mm	1950(-0/+15)		
Under frame height	mm	580		
Plinth height	mm	100		
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	m ²	1,23	1,96	2,70
Usable display volume	l	199	319	439

Performance		60-5	90-5	120-5
Shelf display area	m ²	1,23	1,96	2,70
TEC at climate class 0*	kWh/h	1,65	2,47	3,29
TEC at climate class 0*	kWh/day	37,20	59,28	81,65
TEC/TDA at climate class 0*	kWh/day/m ²	30,24		
Sound pressure	dB(A)	< 55		
Minimum ambient temperature	°C	20		
Maximum ambient temperature	°C	30		
Maximum relative air humidity	%	60		

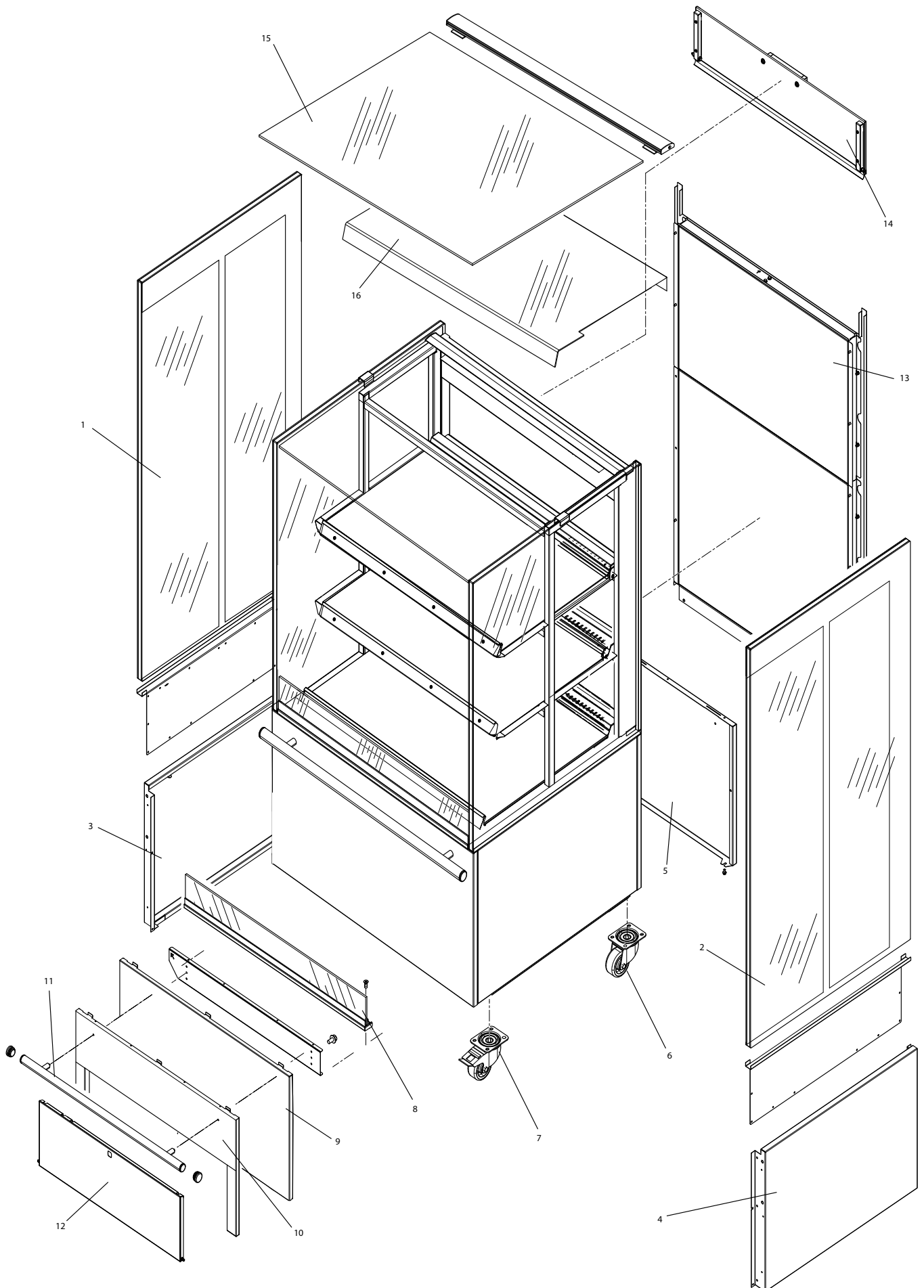
* According to ISO 23953

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

10.0 Exploded view 3 Level

10.1 Exploded view 3 level



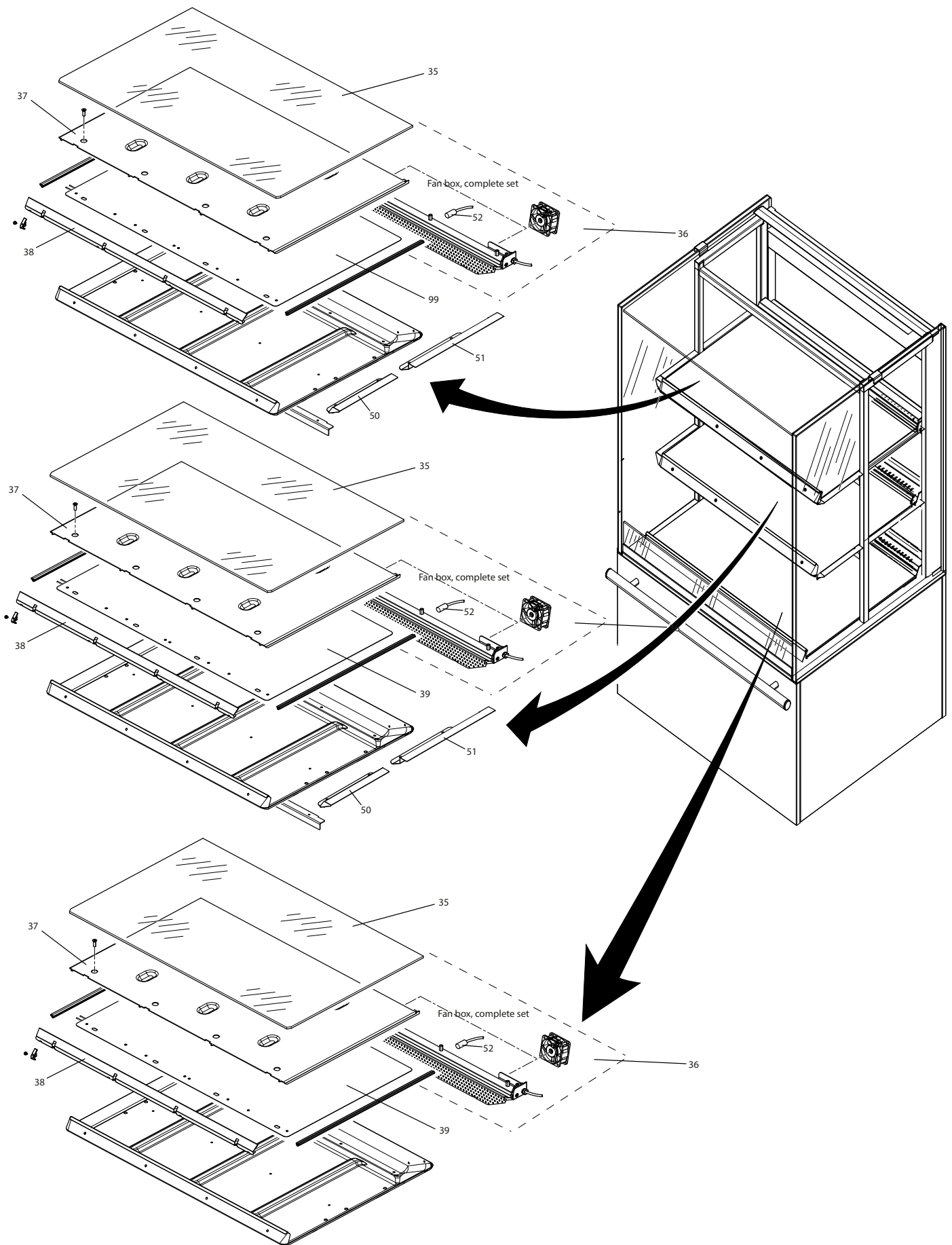
10.0 Exploded view Level

10.2 Exploded view 3 level parts

Number	Description	Article number	Quantity
1	Side glass MDD 3 level (right)	900012398	1
2	Side glass MDD 3 level (left)	900012396	1
3	Side panel right	900012534	1
4	Side panel left		1
5	Back panel MDD 60	900012535	1
	Back panel MDD 90	900012536	1
	Back panel MDD 120	900012537	1
6	Swivel castor	900012405	2
7	Swivel castor with brake	900012403	2
8	Child guard MDD 60	900012419	1
	Child guard MDD 90	900012423	1
	Child guard MDD 120	900012426	1
9	Cladding closed MDD 60	900012535	1
	Cladding closed MDD 90	900012536	1
	Cladding closed MDD 120	900012537	1
10	Cladding open MDD 60	900012538	1
	Cladding open MDD 90	900012539	1
	Cladding open MDD 120	900012542	1
11	Bumper MDD 60	900012544	1
	Bumper MDD 90	900012545	1
	Bumper MDD 120	900012547	1
12	Hatch panel MDD 60	900012625	1
	Hatch panel MDD 90	900012624	1
	Hatch panel MDD 120	900012623	1
13	Solid back MDD 60 3 level	900012517	1
	Solid back MDD 90 3 level	900012519	1
	Solid back MDD 120 3 level	900012523	1
14	PT door MDD 60	900012548	3
	PT door MDD 90	900012549	3
	PT door MDD 120	900012550	3
15	Top glass MDD 60	900012781	1
	Top glass MDD 90	900012782	1
	Top glass MDD 120	900012784	1
16	Top air guide MDD 60	900012786	1
	Top air guide MDD 90	900012787	1
	Top air guide MDD 120	900012788	1

10.0 Exploded view 3 Level

10.3 Exploded view 3 level parts



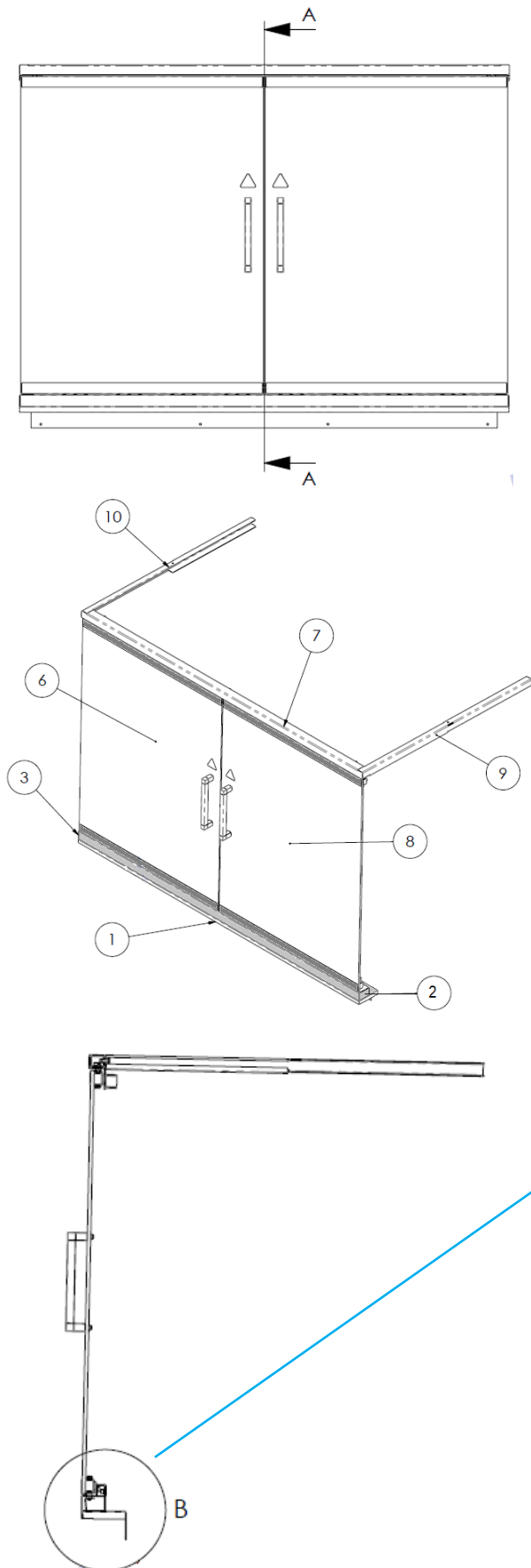
10.0 Exploded view 3 Level

10.4 Exploded view 3 level parts

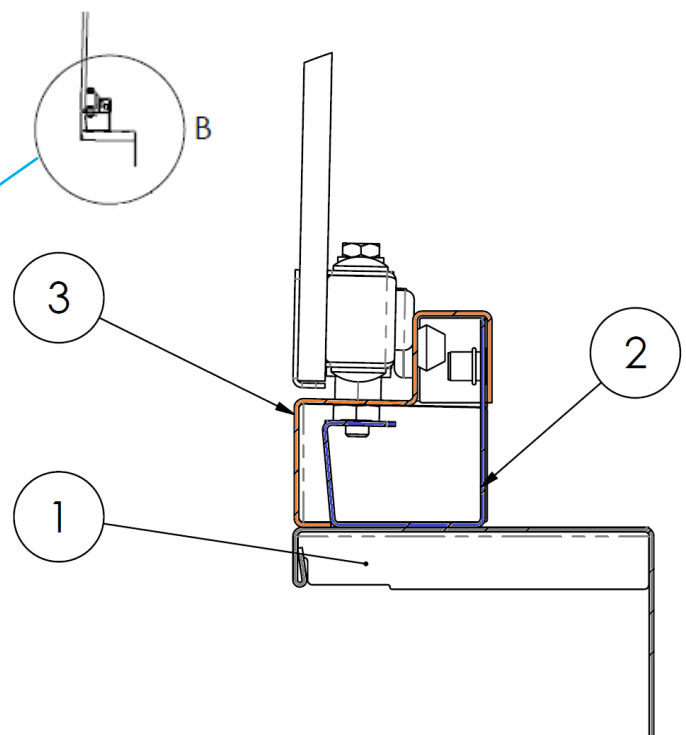
Number	Description	Article number	1Quantity1
35	Shelf Glass pane MDD 60	900012348	1
	Shelf Glass pane MDD 90	900012350	1
	Shelf Glass pane MDD 120	900012351	1
36	Fan box MDD 60	900012206	1
	Fan box MDD 90	900012207	1
	Fan box MDD 120	900012209	1
37	Heat conducting plate MDD 60 Medium	N/A	1
	Heat conducting plate MDD 90 Medium	N/A	1
	Heat conducting plate MDD 120 Medium	N/A	1
38	Nozzle profile MDD 60 Medium	N/A	1
	Nozzle profile MDD 90 Medium	N/A	1
	Nozzle profile MDD120 Medium	N/A	1
39	Heating element MDD 60 Medium 650W 230V	900012355	1
	Heating element MDD 90 Medium 850W 230V	900012357	1
	Heating element MDD 120 Medium 1130W 230V	900012367	1
40	Glass pane MDD 60 Large	900012352	1
	Glass pane MDD 90 Large	900012353	1
	Glass pane MDD 120 Large	900012354	1
41	Fan box MDD 60	900012206	1
	Fan box MDD 90	900012207	1
	Fan box MDD 120	900012208	1
42	Heating element MDD 60 Large 750W 230V	900012369	1
	Heating element MDD 90 Large 1125W 230V	900012372	1
	Heating element MDD120 Large 1500W 230V	900012374	1
43	Heat conducting plate Large MDD 60	N/A	1
	Heat conducting plate Large MDD 90	N/A	1
	Heat conducting plate Large MDD 120	N/A	1
44	Nozzle profile MDD 60 Large	N/A	1
	Nozzle profile MDD 90 Large	N/A	1
	Nozzle profile MDD 120 Large	N/A	1
50	Set of 4 containing: Airblocker right front and Airblocker right back Airblocker left front and Airblocker left back	900012429	1
51	Set of 4 containing: Airblocker right front and Airblocker right back Airblocker left front and Airblocker left back	900012429	1
52	Sensor PT-1000	900012409	1 each shelf
99	Heating element top shelf MDD 60 Medium 650W 208V	900012356	1
	Heating element top shelf MDD 90 Medium 850W 208V	900012365	1
	Heating element top shelf MDD 120 Medium 1130W 208V	900012368	1

10.0 Exploded view

10.5 Exploded view front doors 3 level



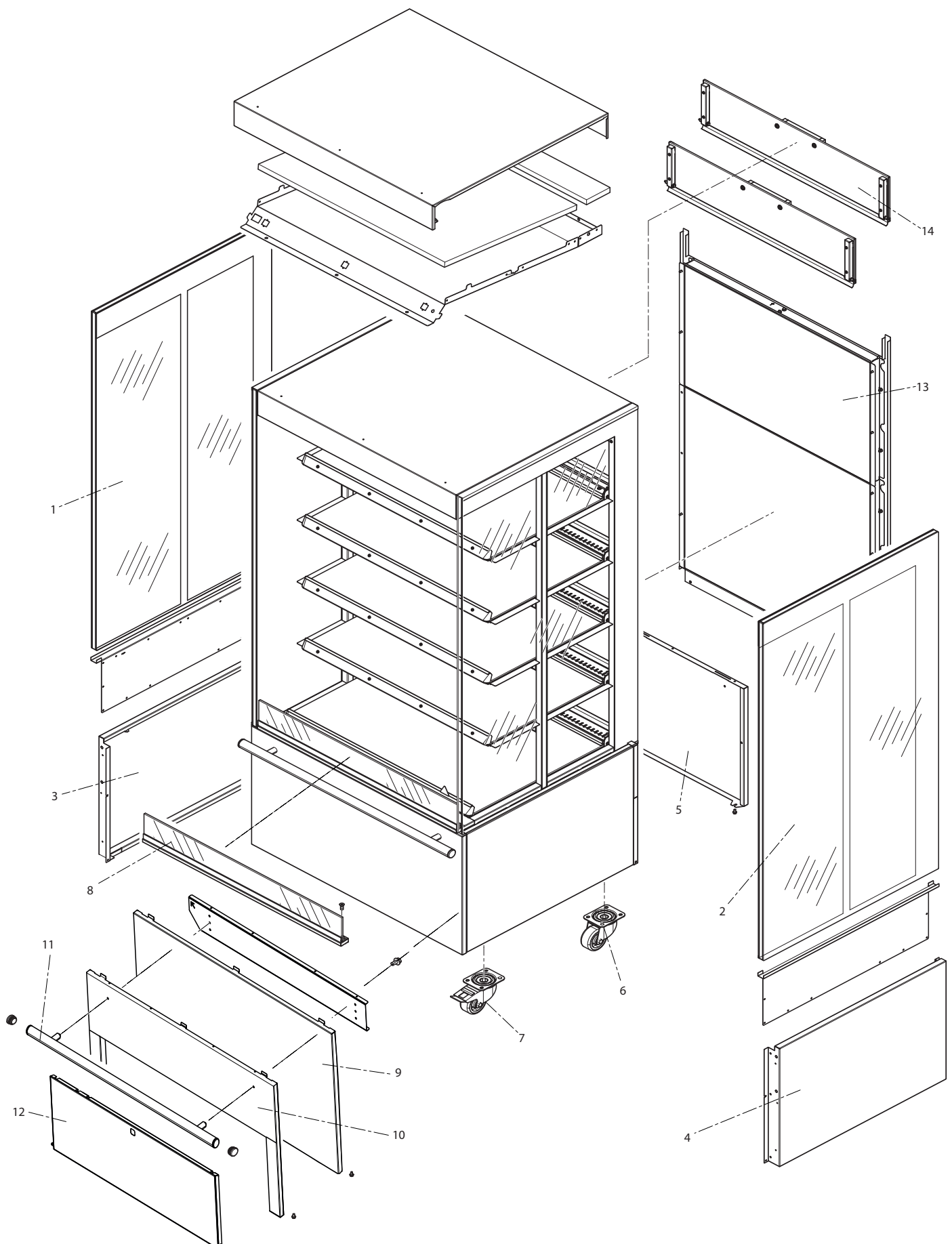
1	Front cover MDD 60 Front cover MDD 90 Front cover MDD 120	500011001 500011000 500010656
2	Front door support inner + + outer section	
3	MDD 60 MDD 90 MDD 120	900012621 900012619 900012618
6	Front door right MDD 60-3 MDD 90-3 MDD 120-3	900012551 900012555 900012561
7	Top frame front door MDD 60 MDD 90 MDD 120	900012661 900012662 900012665
8	Front door left MDD 60-3 MDD 90-3 MDD 120-3	N/A 900012554 900012260
9	Front door top cover left	500012140
10	Front door top cover right	500012139



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10.0 Exploded view

10.6 Exploded view 4 - 5 level



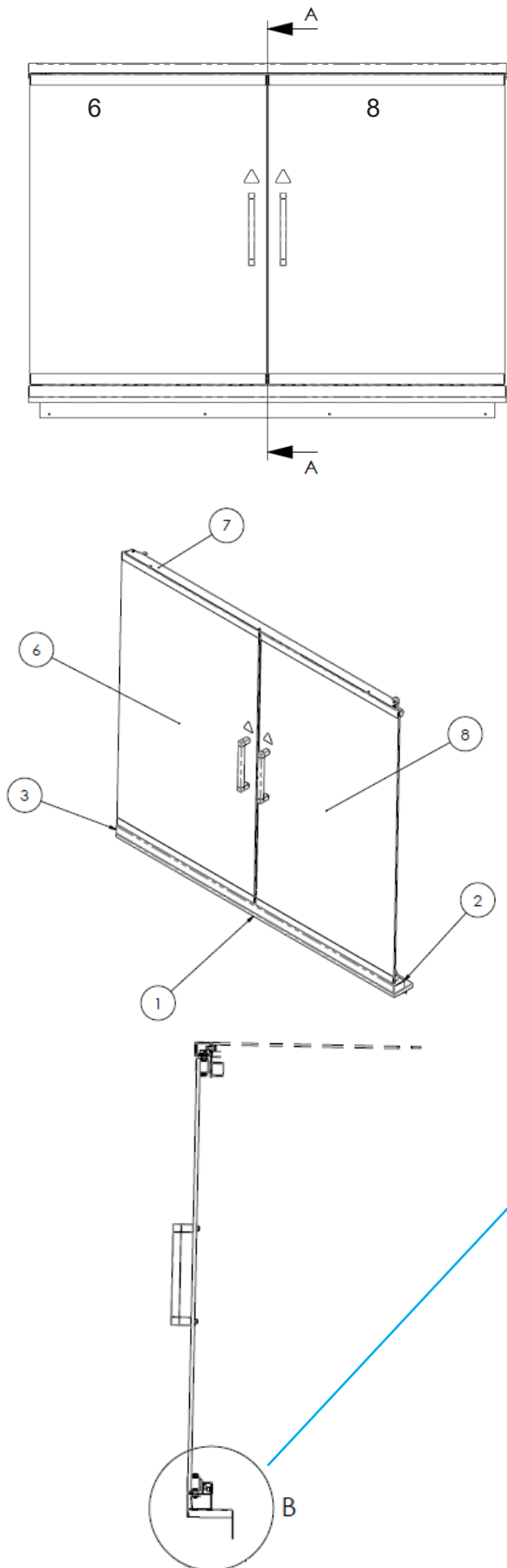
10.0 Exploded view

10.7 Exploded view 4 - 5 level parts

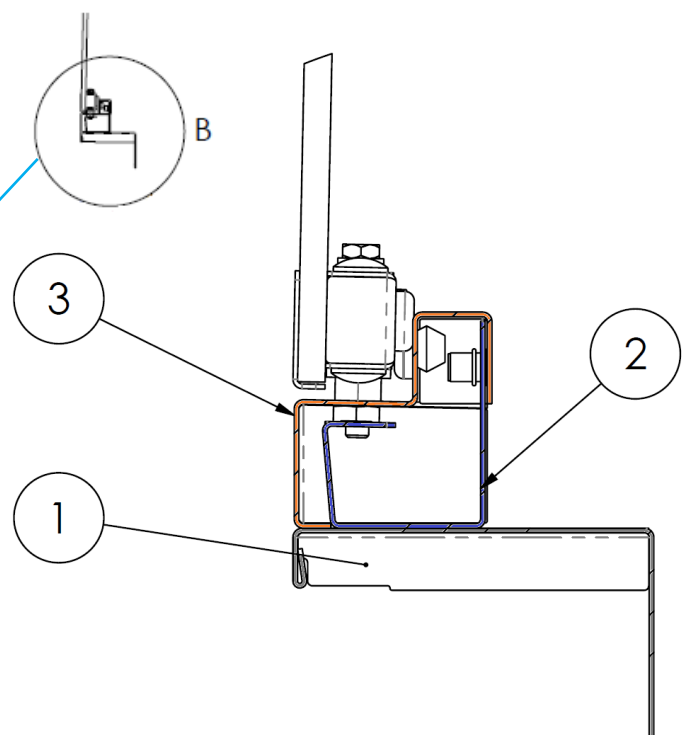
Number	Description	Article number	Quantity
1	Side glass MDD 4 level (right)	900012400	1
	Side glass MDD 5 level (right)	900012402	1
2	Side glass MDD 4 level (left)	900012399	1
	Side glass MDD 5 level (left)	900012401	1
3	Side panel right	900012534	1
4	Side panel Left		1
5	Back panel MDD 60	900012535	1
	Back panel MDD 90	900012536	1
	Back panel MDD 120	900012537	1
6	Swivel castor	900012405	2
7	Swivel castor with brake	900012403	2
8	Child guard MDD 60	900012419	1
	Child guard MDD 90	900012423	1
	Child guard MDD 120	900012426	1
9	Cladding closed MDD 60	900012535	1
	Cladding closed MDD 90	900012536	1
	Cladding closed MDD 120	900012537	1
10	Cladding open MDD 60	900012538	1
	Cladding open MDD 90	900012539	1
	Cladding open MDD 120	900012542	1
11	Bumper MDD 60	900012544	1
	Bumper MDD 90	900012545	1
	Bumper MDD 120	900012547	1
12	Front hatch panel MDD 60	900012625	1
	Front hatch panel MDD 90	900012624	1
	Front hatch panel MDD 120	900012623	1
13	Solid back MDD 60 4 level	900012525	2
	Solid back MDD 60 5 level	90001225 + 900012517	1
	-----	-----	----
	Solid back MDD 90 4 level	900012526	2
	Solid back MDD 90 5 level	90001226 + 900012519	1
	-----	-----	----
	Solid back MDD 120 4 level	900012531	2
	Solid back MDD 120 5 level	900012531 + 900012523	1
14	PT door MDD 60	900012548	dep. on levels
	PT door MDD 90	900012549	dep. on levels
	PT door MDD 120	900012550	dep. on levels

10.0 Exploded view

10.8 Exploded view front doors 4 - 5 level



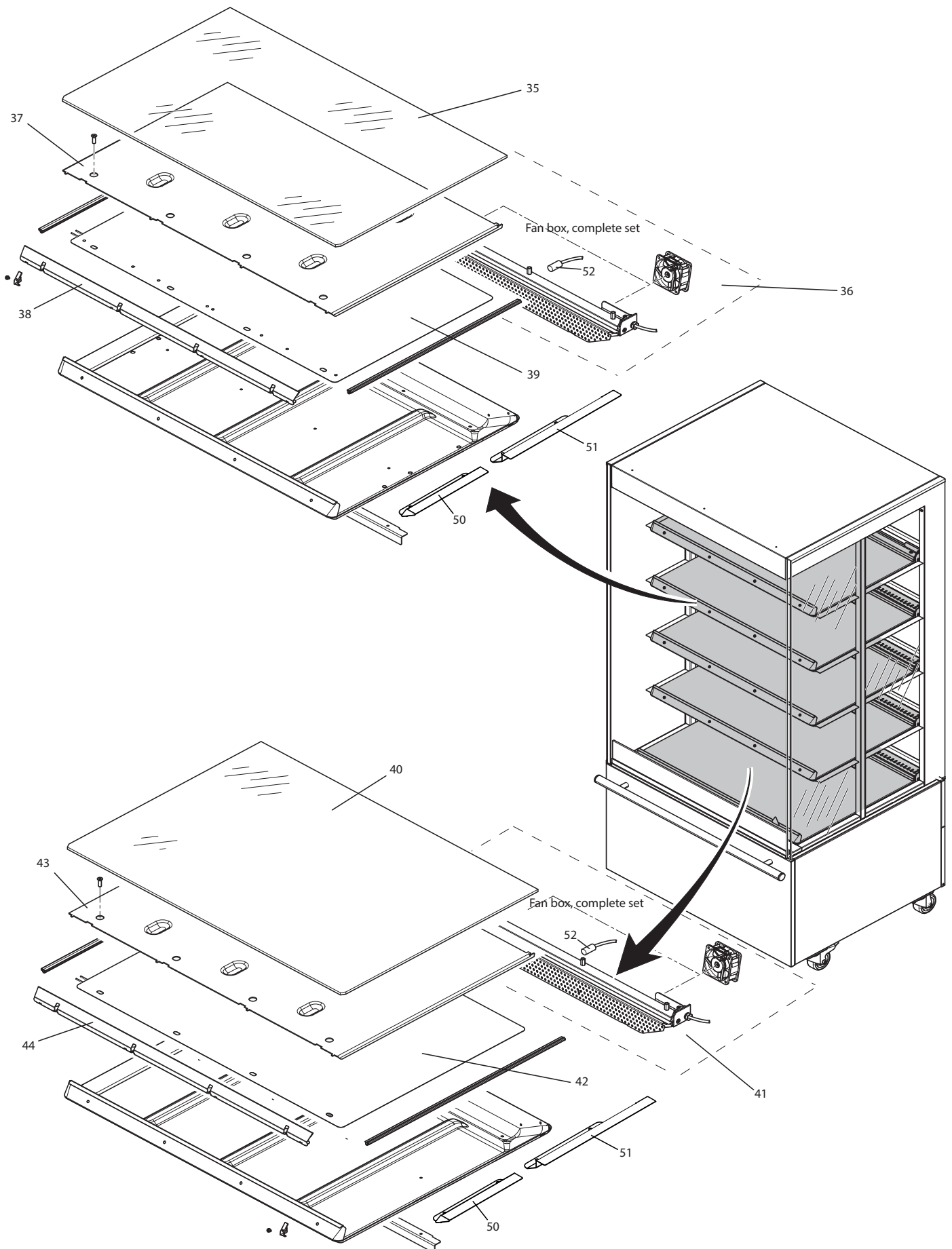
1	Front cover MDD 60 Front cover MDD 90 Front cover MDD 120	-- -- 500010656
2	Front door support inner + outer section	
3	MDD 60 MDD 90 MDD 120	900012621 900012619 900012618
6	Front door Right MDD 60 - 4 MDD 60 - 5 MDD 90 - 4 MDD 90 - 5 MDD 120 - 4 MDD 120 - 5	900012552 900012553 900012557 900012559 900012563 900012565
7	Top frame front door MDD 60 4-5 MDD 90 4-5 MDD 120 4-5	500012159 500012052 500012162
8	Front door Left MDD 60 - 4 MDD 60 - 5 MDD 90 - 4 MDD 90 - 5 MDD 120 - 4 MDD 120 - 5	N/A N/A 900012556 900012558 900012562 900012564



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10.0 Exploded view

10.9 Exploded view shelves



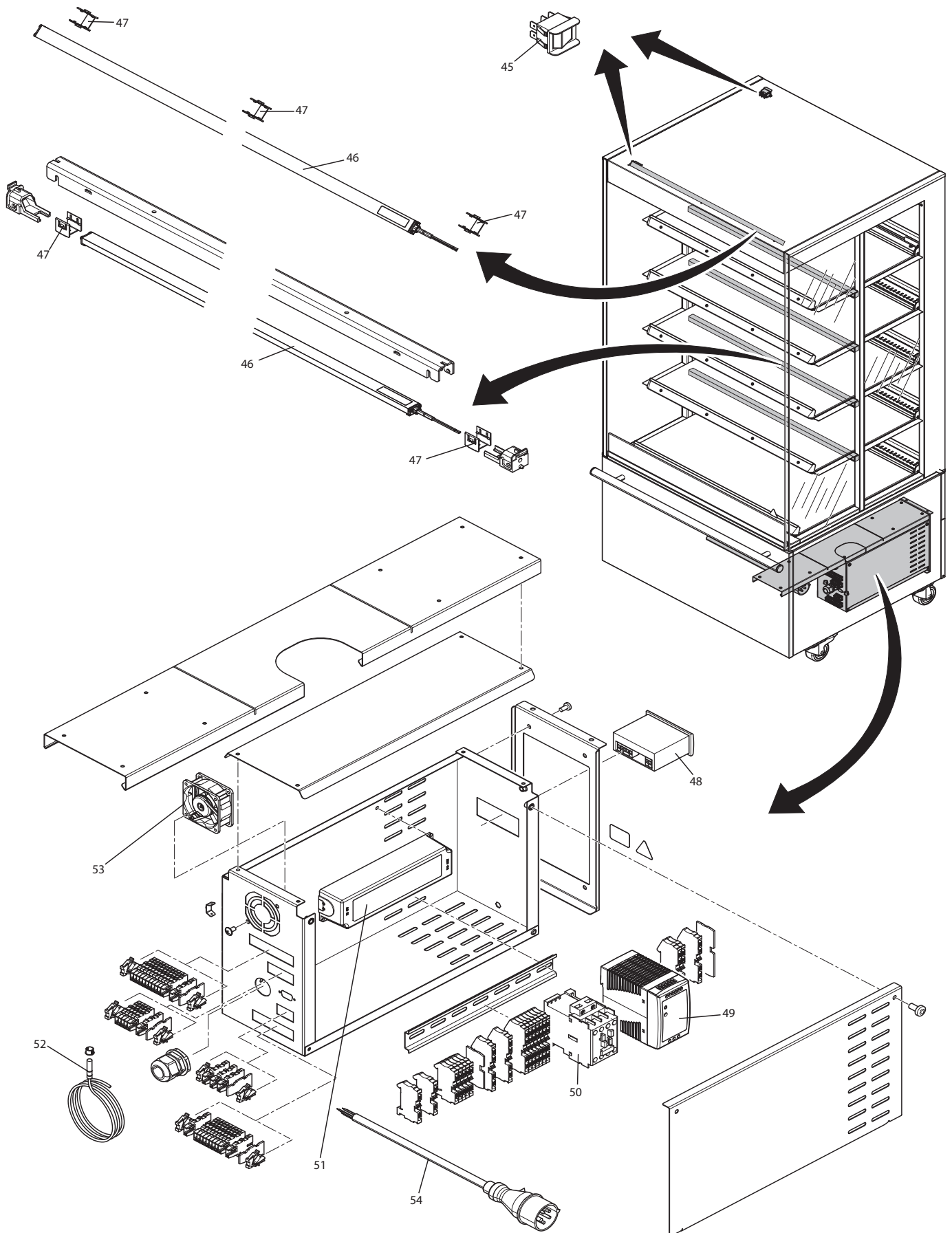
10.0 Exploded view

10.10 Exploded view shelves parts

Number	Description	Article number	Quantity
35	Shelf Glass pane MDD 60	900012348	1
	Shelf Glass pane MDD 90	900012350	1
	Shelf Glass pane MDD 120	900012351	1
36	Fan box MDD 60	900012206	1
	Fan box MDD 90	900012207	1
	Fan box MDD 120	900012209	1
37	Heat conducting plate MDD 60 Medium	N/A	1
	Heat conducting plate MDD 90 Medium	N/A	1
	Heat conducting plate MDD 120 Medium	N/A	1
38	Nozzle profile MDD 60 Medium	N/A	1
	Nozzle profile MDD 90 Medium	N/A	1
	Nozzle profile MDD120 Medium	N/A	1
39	Heating element MDD 60 Medium 650W 230V	900012355	1
	Heating element MDD 90 Medium 850W 230V	900012357	1
	Heating element MDD 120 Medium 1130W 230V	900012367	1
40	Glass pane MDD 60 Large	900012352	1
	Glass pane MDD 90 Large	900012353	1
	Glass pane MDD 120 Large	900012354	1
41	Fan box MDD 60	900012206	1
	Fan box MDD 90	900012207	1
	Fan box MDD 120	900012208	1
42	Heating element MDD 60 Large 750W 230V	900012369	1
	Heating element MDD 90 Large 1125W 230V	900012372	1
	Heating element MDD120 Large 1500W 230V	900012374	1
43	Heat conducting plate Large MDD 60	N/A	1
	Heat conducting plate Large MDD 90	N/A	1
	Heat conducting plate Large MDD 120	N/A	1
44	Nozzle profile MDD 60 Large	N/A	1
	Nozzle profile MDD 90 Large	N/A	1
	Nozzle profile MDD 120 Large	N/A	1
50	Set of 4 containing: Airblocker right front and Airblocker right back Airblocker left front and Airblocker left back	900012429	1
51	Set of 4 containing: Airblocker right front and Airblocker right back Airblocker left front and Airblocker left back	900012429	1
52	Sensor PT-1000	900012409	1 each shelf

10.0 Exploded view

10.11 Exploded view electrical ST (single temp)



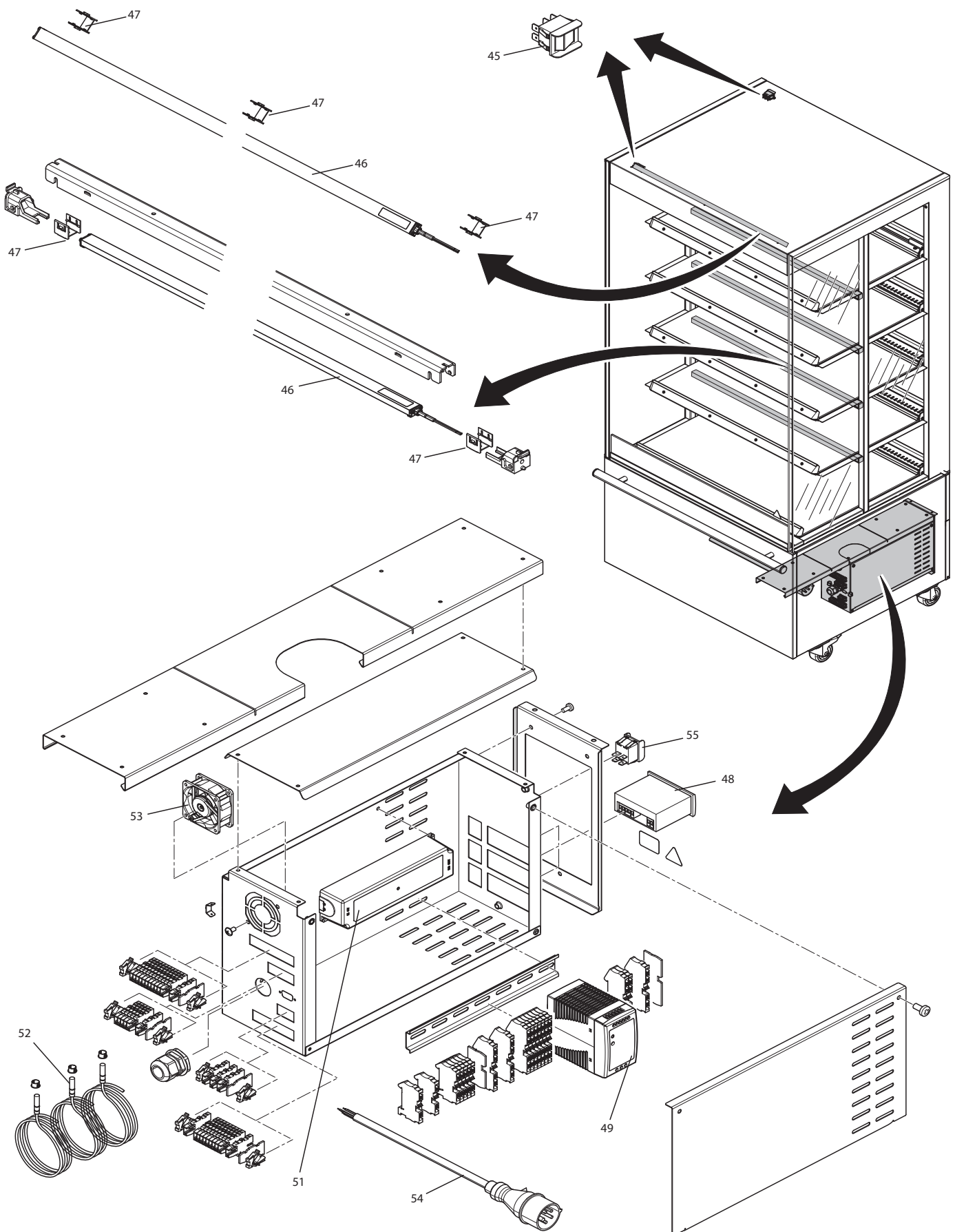
10.0 Exploded view

10.12 Exploded view electrical ST (single temp) parts

Number	Description	Article number	Quantity
45	MDD 3 Level Switch with guard ON-OFF	900012414	1
		----	----
	MDD 4 Level Switch with guard ON-ON	900012148	2
	MDD 5 Level Switch with guard ON-ON	900012148	2
46	MDD 60; LED, right 3000K 12V L=400mm With Clips	900012406	dep. on levels
	MDD 90; LED, right 3000K 12V L=800mm With Clips	900012407	dep. on levels
	MDD 120; LED, right 3000K 12V L=1000mm With Clips	900012408	dep. on levels
47	LED mounting clip (set of 6)	900012594	dep. on levels
48	Controller Eliwel IC Plus 902	900012413	dep. ST or MT
49	Power supply 24V DC 40W	900012412	1
50	Contactor (Single temp only)	900012567	1
51	Led driver LPV 100-12	900012410	1
52	Sensor PT-1000	900012409	dep. on levels
53	Fan	900012566	1
54	Power cable	-----	----
	Power Cord CE 2,5QMM 3M 16A Leads	900012568	1
	Power cord CE 2,5QMM 3M CEE7_Leads	900012569	1
	Power cord UL 14 AWG 100" 06-20P Leads	900012571	1
	Power Cord UL 12 AWG 100" 15-30P Leads	900012572	1
	Power Cord UK 10 AWG 100" 06-30P Leads	900012573	1

10.0 Exploded view

10.13 Exploded view electrical MT (multi temp)

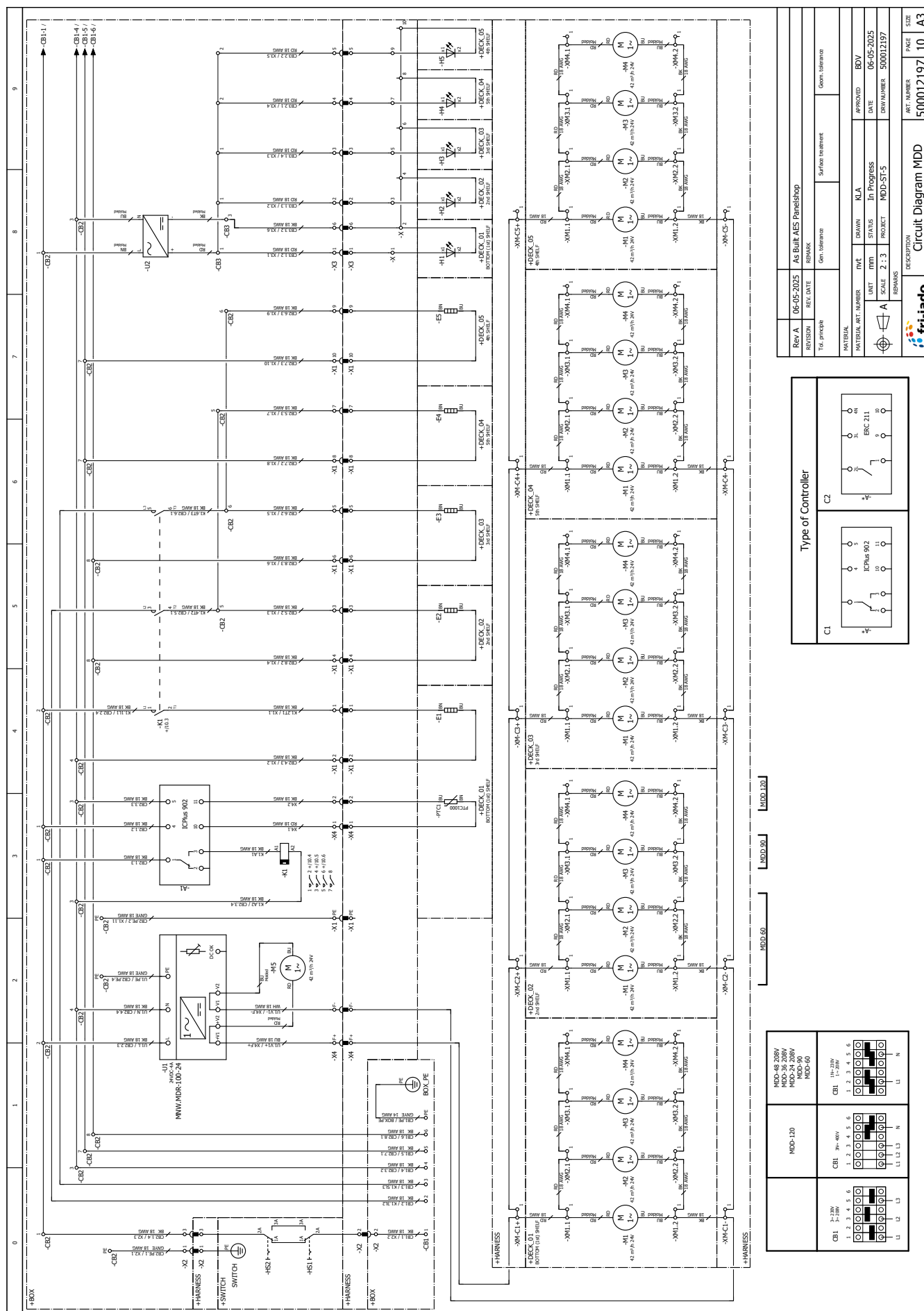


10.0 Exploded view

10.14 Exploded view electrical MT (multi temp) parts

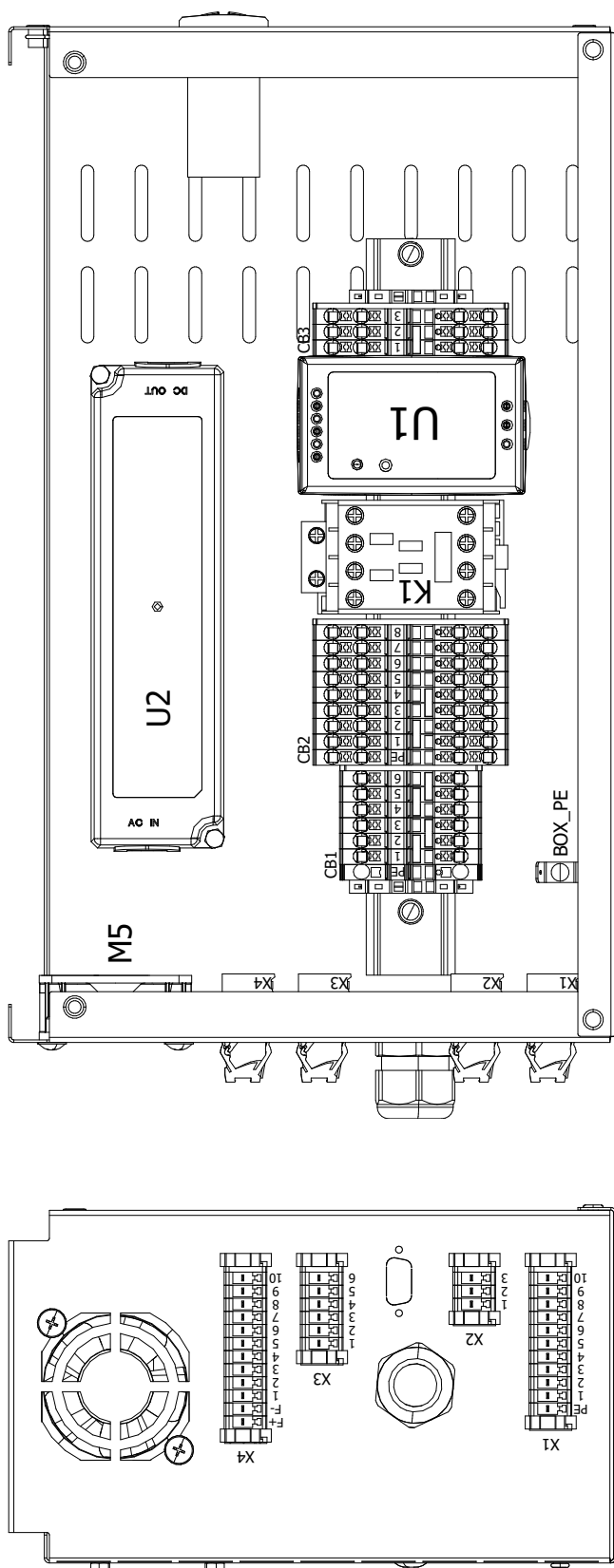
Number	Description	Article number	Quantity
45	MDD 3 Level Switch with guard ON-OFF	900012414	1
		-----	----
	MDD 4 Level Switch with guard ON-ON	900012148	2
	MDD 5 Level Switch with guard ON-ON	900012148	2
46	MDD 60; LED, right 3000K 12V L=400mm With Clips	900012406	dep. on levels
	MDD 90; LED, right 3000K 12V L=800mm With Clips	900012407	dep. on levels
	MDD 120; LED, right 3000K 12V L=1000mm With Clips	900012408	dep. on levels
47	LED mounting clip (set of 6)	900012594	dep. on levels
48	Controller Eliwel IC Plus 902	900012413	dep. ST or MT
49	Power supply 24V DC 40W	900012412	1
51	Led driver LPV 100-12	900012410	1
52	Sensor PT-1000	900012409	dep. on levels
53	Fan	900012566	1
54	Power cable	-----	----
	Power Cord CE 2,5QMM 3M 16A Leads	900012568	1
	Power cord CE 2,5QMM 3M CEE7_Leads	900012569	1
	Power cord UL 14 AWG 100" 06-20P Leads	900012571	1
	Power Cord UL 12 AWG 100" 15-30P Leads	900012572	1
	Power Cord UK 10 AWG 100" 06-30P Leads	900012573	1

11.1 Electrical schematic MDD ST 3 - 4 - 5 level



11.0 Electrical schematic

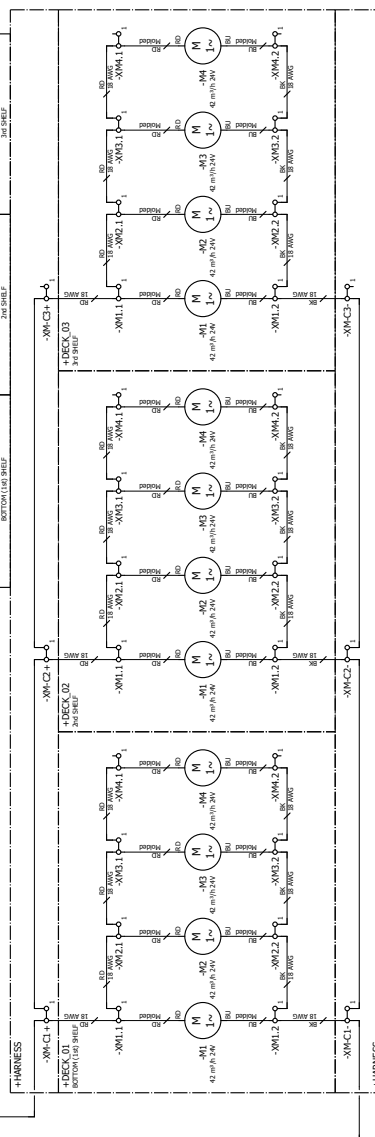
11.2 Electrical schematic MDD ST 3 - 4 - 5 level connections



Device tag	Qty.	Designation
+BOX-A1	1	Electronic Controller
+BOX-BOX	1	Cable gland nut M25
+BOX-BOX	1	Cable gland M25
+BOX-BOX_PE	1	POP Copper Coated,
+BOX-CB1	1	End bracket for terminal block
+BOX-CB1	4	Cross-connector for terminal block
+BOX-CB1	1	Push-in Clamp, grounded
+BOX-CB1	6	Push-in Clamp
+BOX-CB1	1	End cover
+BOX-CB2	2	Cross-connector for terminal block
+BOX-CB2	1	Ground modular terminal block
+BOX-CB2	8	Feed-through terminal block
+BOX-CB2	1	End cover
+BOX-CB3	1	Cross-connector for terminal block
+BOX-CB3	3	Feed-through terminal block
+BOX-CB3	1	End cover
+BOX-CB3	1	End bracket for terminal block
+BOX-K1	1	IEC Contactor
+BOX-M5	1	Ventilation
+BOX-RAIL1	1	Mounting rail
+BOX-U1	1	DC power supply
+BOX-U2	1	AC-DC Single output LED driver
+BOX-X1	2	Panel feed-through
+BOX-X1	1	End and partition plate for terminal block
+BOX-X2	11	COMBI receptacle
+BOX-X2	2	Panel feed-through
+BOX-X2	1	End and partition plate for terminal block
+BOX-X2	3	COMBI receptacle
+BOX-X3	2	Panel feed-through
+BOX-X3	1	End and partition plate for terminal block
+BOX-X3	6	COMBI receptacle
+BOX-X4	2	Panel feed-through
+BOX-X4	1	End and partition plate for terminal block
+BOX-X4	12	COMBI receptacle

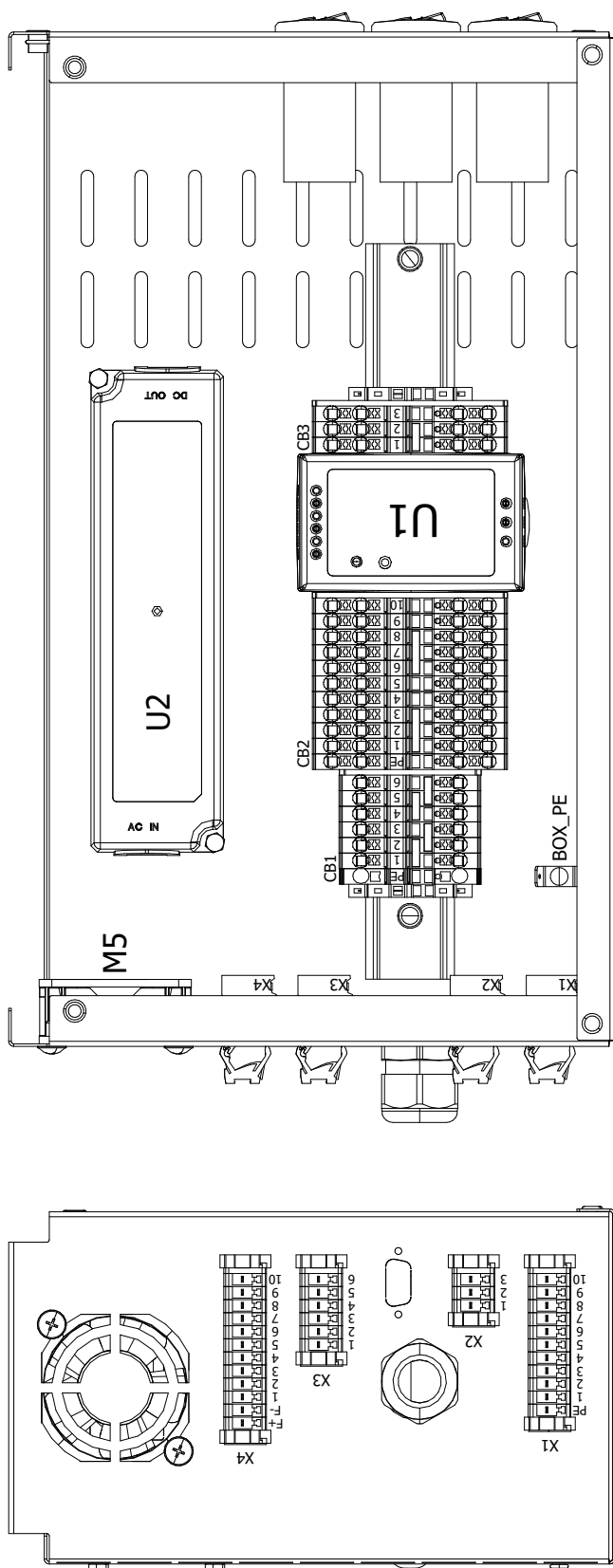
The diagram illustrates the electrical control circuit for a three-phase motor. It shows the connection between a power source (+BOX) and a load (-BOX) through a switch and several protective devices.

- Power Source (+BOX):** Provides three-phase power (CB1-1, CB1-2, CB1-3) and a neutral line (CB1-4).
- Switch:** A three-phase switch (SWITCH) controlled by a stop button (HSE1) and a start button (HSE2).
- Motor:** A three-phase motor (M) rated at 42 kW, 380 V, 50 Hz.
- Control Circuit Components:**
 - KMW/MKR-100-24:** A thermal relay or contactor used for motor protection.
 - ICPlus 902:** Three digital input modules (A1, A2, A3) connected to various sensors and switches.
 - PTC1000:** Three temperature controllers (Q1, Q2, Q3) monitoring the motor's temperature.
 - Fuses:** Fuses are placed throughout the circuit to protect against overcurrent.
- Terminology:**
 - +BOX:** Power supply terminal block.
 - BOX:** Load terminal block.
 - SWITCH:** Motor control switch.
 - HSE1, HSE2:** Stop and Start push buttons.
 - CB1-1, CB1-2, CB1-3, CB1-4:** Main power lines.
 - CB2-1, CB2-2, CB2-3, CB2-4:** Control lines.
 - CB3-1, CB3-2, CB3-3, CB3-4:** Sensor lines.
 - CB4-1, CB4-2, CB4-3, CB4-4:** Temperature sensor lines.

[illegible]

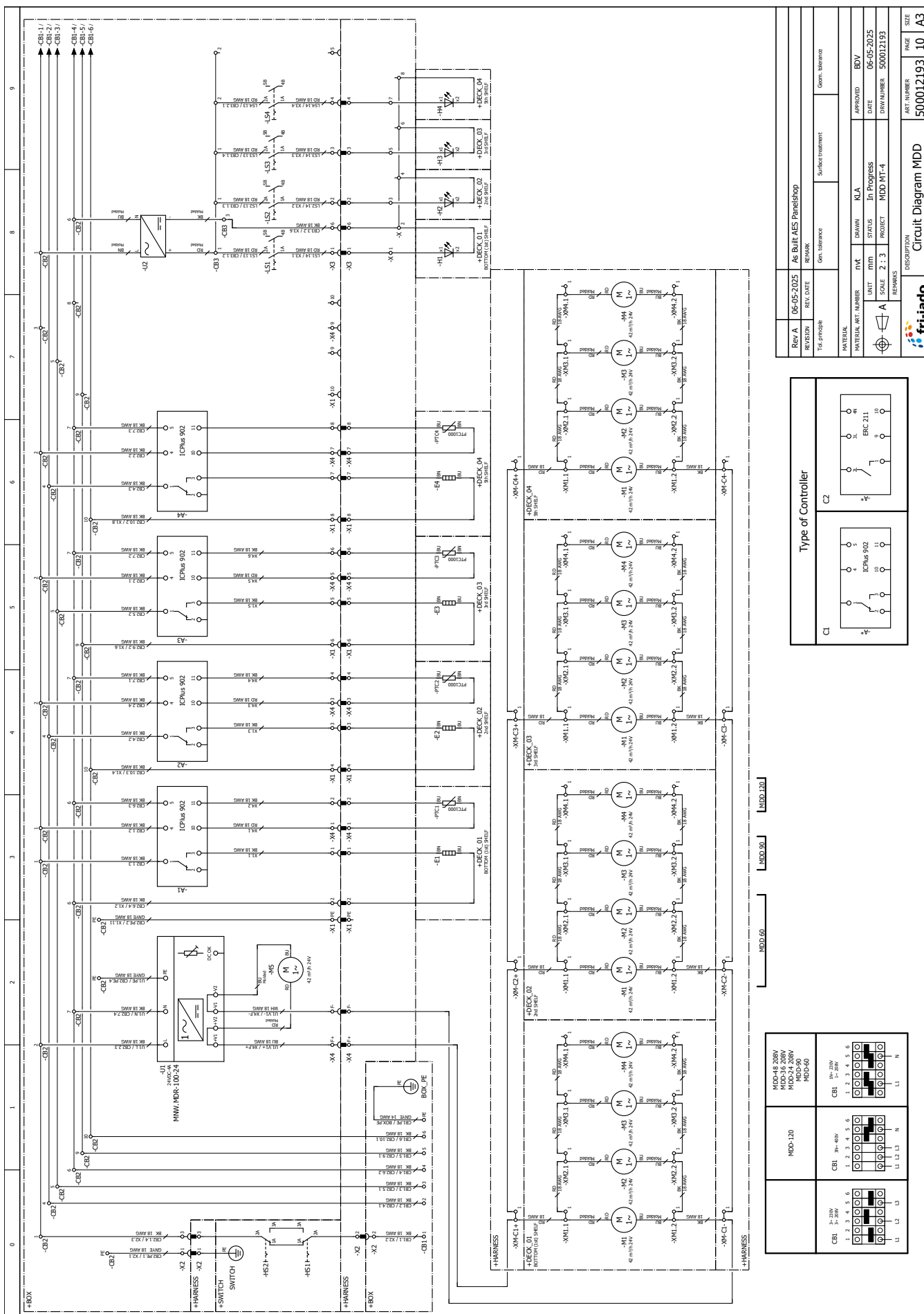
11.0 Electrical schematic

11.4 Electrical schematic MDD MT 3 level connections



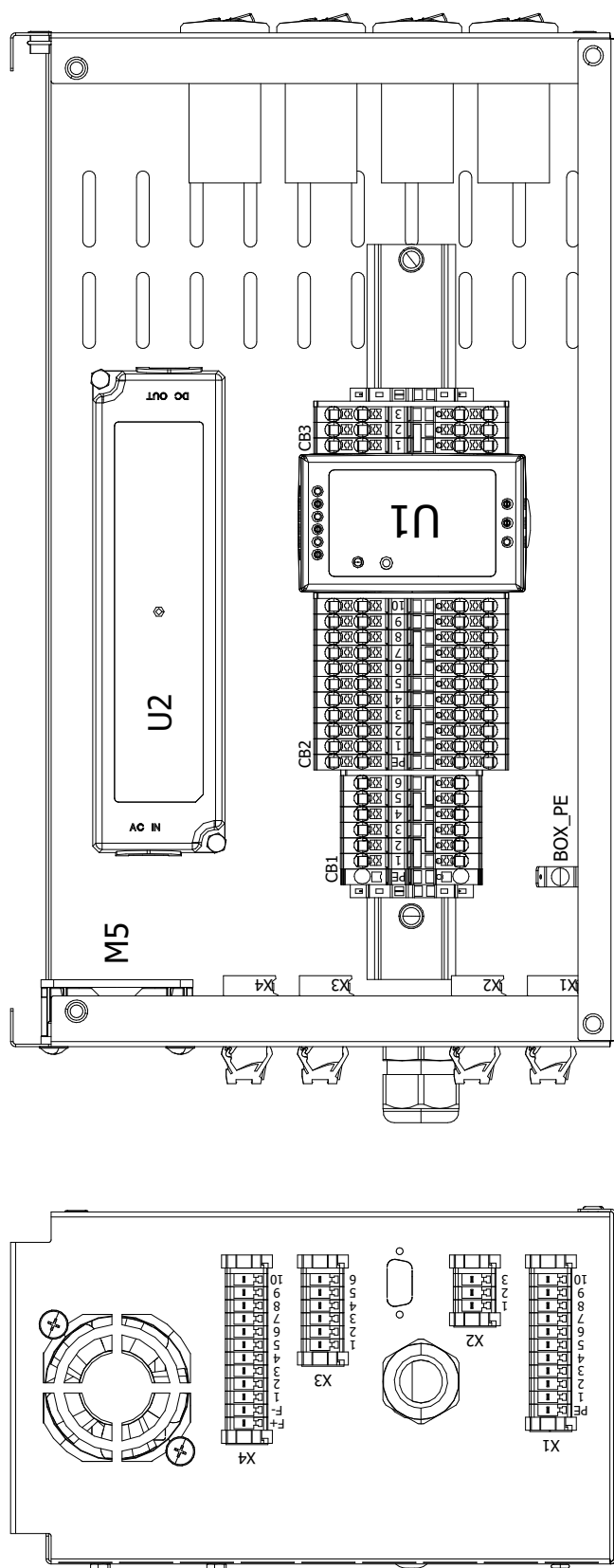
Device tag	Qty.	Designation
+BOX-A1	1	Electronic Controller
+BOX-A2	1	Electronic Controller
+BOX-A3	1	Electronic Controller
+BOX-BOX	1	Cable gland nut M25
+BOX-BOX	1	Cable gland M25
+BOX-BOX_PE	1	POP Copper Coated,
+BOX-CB1	1	End bracket for terminal block
+BOX-CB1	4	Cross-connector for terminal block
+BOX-CB1	1	Push-in Clamp, grounded
+BOX-CB1	6	Push-in Clamp
+BOX-CB1	1	End cover
+BOX-CB2	2	Cross-connector for terminal block
+BOX-CB2	1	Ground modular terminal block
+BOX-CB2	10	Feed-through terminal block
+BOX-CB2	1	End cover
+BOX-CB3	1	Cross-connector for terminal block
+BOX-CB3	3	Feed-through terminal block
+BOX-CB3	1	End cover
+BOX-CB3	1	End bracket for terminal block
+BOX-LS1	1	Rocker Switches
+BOX-LS2	1	Rocker Switches
+BOX-LS3	1	Rocker Switches
+BOX-M5	1	Ventilation
+BOX-RAIL1	1	Mounting rail
+BOX-U1	1	DC power supply
+BOX-U2	1	AC-DC Single output LED driver
+BOX-X1	2	Panel feed-through
+BOX-X1	1	End and partition plate for terminal block
+BOX-X1	11	COMBI receptacle
+BOX-X2	2	Panel feed-through
+BOX-X2	1	End and partition plate for terminal block
+BOX-X2	3	COMBI receptacle
+BOX-X3	2	Panel feed-through
+BOX-X3	1	End and partition plate for terminal block
+BOX-X3	6	COMBI receptacle
+BOX-X4	2	Panel feed-through
+BOX-X4	1	End and partition plate for terminal block
+BOX-X4	12	COMBI receptacle

11.5 Electrical schematic MDD MT 4 level



11.0 Electrical schematic

11.6 Electrical schematic MDD MT 4 level connections

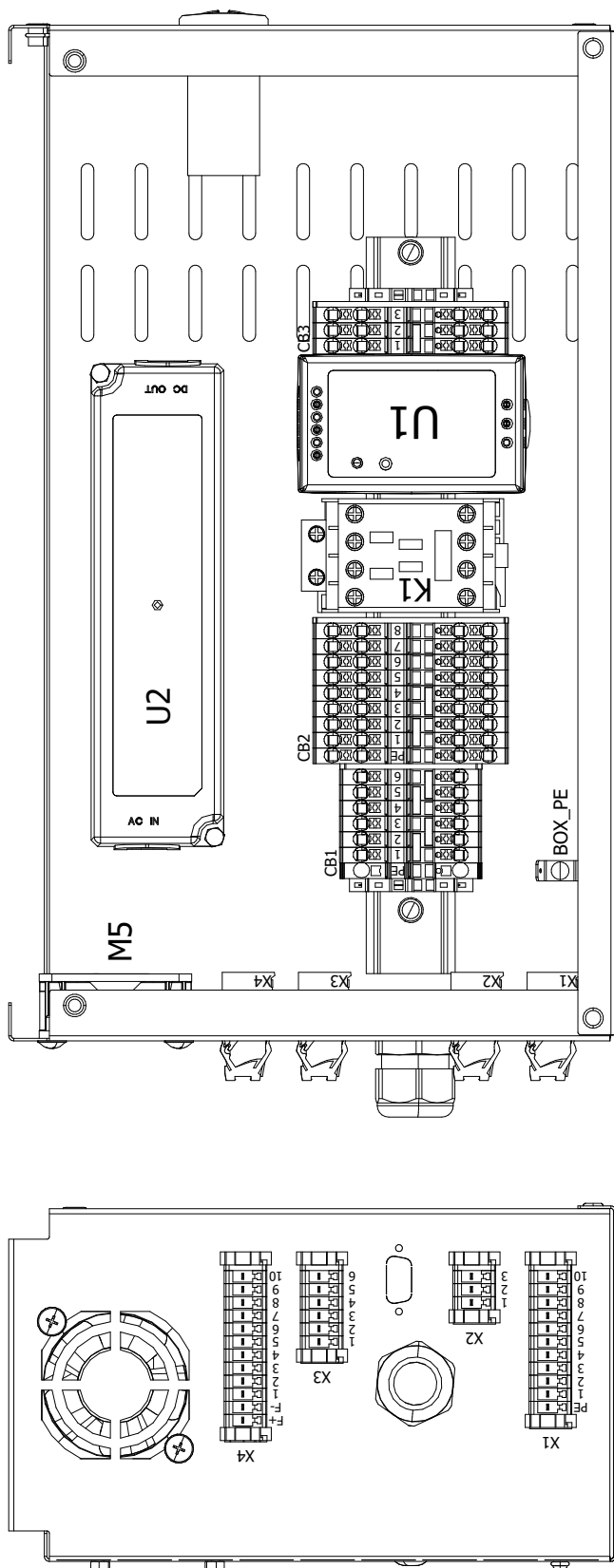


Device tag	Qty.	Designation
+BOX-A1	1	Electronic Controller
+BOX-A2	1	Electronic Controller
+BOX-A3	1	Electronic Controller
+BOX-A4	1	Electronic Controller
+BOX-BOX	1	Cable gland nut M25
+BOX-BOX	1	Cable gland M25
+BOX-BOX_PE	1	POP Copper Coated,
+BOX-CB1	1	End bracket for terminal block
+BOX-CB1	4	Cross-connector for terminal block
+BOX-CB1	1	Push-in Clamp, grounded
+BOX-CB1	6	Push-in Clamp
+BOX-CB1	1	End cover
+BOX-CB2	2	Cross-connector for terminal block
+BOX-CB2	1	Ground modular terminal block
+BOX-CB2	10	Feed-through terminal block
+BOX-CB2	1	End cover
+BOX-CB3	1	Cross-connector for terminal block
+BOX-CB3	3	Feed-through terminal block
+BOX-CB3	1	End cover
+BOX-CB3	1	End bracket for terminal block
+BOX-LS1	1	Rocker Switches
+BOX-LS2	1	Rocker Switches
+BOX-LS3	1	Rocker Switches
+BOX-LS4	1	Rocker Switches
+BOX-M5	1	Ventilation
+BOX-RAIL1	1	Mounting rail
+BOX-U1	1	DC power supply
+BOX-U2	1	AC-DC Single output LED driver
+BOX-X1	2	Panel feed-through
+BOX-X1	1	End and partition plate for terminal block
+BOX-X1	11	COMBI receptacle
+BOX-X2	2	Panel feed-through
+BOX-X2	1	End and partition plate for terminal block
+BOX-X2	3	COMBI receptacle
+BOX-X3	2	Panel feed-through
+BOX-X3	1	End and partition plate for terminal block
+BOX-X3	6	COMBI receptacle
+BOX-X4	2	Panel feed-through
+BOX-X4	1	End and partition plate for terminal block
+BOX-X4	12	COMBI receptacle

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11.0 Electrical schematic MDD MT 5

11.8 Electrical schematic MDD MT 5 level connections



Device tag	Qty.	Designation
+BOX-A1	1	Electronic Controller
+BOX-A2	1	Electronic Controller
+BOX-A3	1	Electronic Controller
+BOX-A4	1	Electronic Controller
+BOX-A5	1	Electronic Controller
+BOX-BOX	1	Cable gland nut M25
+BOX-BOX	1	Cable gland M25
+BOX-BOX_PE	1	POP Copper Coated,
+BOX-CB1	1	End bracket for terminal block
+BOX-CB1	4	Cross-connector for terminal block
+BOX-CB1	1	Push-in Clamp, grounded
+BOX-CB1	6	Push-in Clamp
+BOX-CB1	1	End cover
+BOX-CB2	2	Cross-connector for terminal block
+BOX-CB2	1	Ground modular terminal block
+BOX-CB2	10	Feed-through terminal block
+BOX-CB2	1	End cover
+BOX-CB3	1	Cross-connector for terminal block
+BOX-CB3	3	Feed-through terminal block
+BOX-CB3	1	End cover
+BOX-CB3	1	End bracket for terminal block
+BOX-LS1	1	Rocker Switches
+BOX-LS2	1	Rocker Switches
+BOX-LS3	1	Rocker Switches
+BOX-LS4	1	Rocker Switches
+BOX-LS5	1	Rocker Switches
+BOX-M5	1	Ventilation
+BOX-RAIL1	1	Mounting rail
+BOX-U1	1	DC power supply
+BOX-U2	1	AC-DC Single output LED driver
+BOX-X1	2	Panel feed-through
+BOX-X1	1	End and partition plate for terminal block
+BOX-X1	11	COMBI receptacle
+BOX-X2	2	Panel feed-through
+BOX-X2	1	End and partition plate for terminal block
+BOX-X2	3	COMBI receptacle
+BOX-X3	2	Panel feed-through
+BOX-X3	1	End and partition plate for terminal block
+BOX-X3	6	COMBI receptacle
+BOX-X4	2	Panel feed-through
+BOX-X4	1	End and partition plate for terminal block
+BOX-X4	12	COMBI receptacle



Fri-Jado B.V.
Blauwhekken 2
4751 XD Oud Gastel
The Netherlands
Tel: +31 (0) 76 50 85 400

Fri-Jado Inc.
1401 Davey Road, Suite 100
Woodridge IL 60517
USA
Tel: +1-630-633-7950

<https://www.frijado.com>