Optigo CD

Instruction manual

- Product description
- Product labels
- Unpacking & lifting
- Installation
- Maintenance
- Spare parts

ORIGINAL INSTRUCTIONS

AHE00046EN 2002
IM100535EN-02

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1 Important information

1.1 Disclaimer

This Instruction Manual applies to all Optigo CD air cooler products and is supplied in combination with the Air Cooler Product Manual AHE00042. Both manuals must be carefully examined and instructions should be followed up at all times. Alfa LU-VE does not accept liability for any damage resulting from non-compliance to the instructions as given in the manuals and order-related documents.

1.2 Intended use

Air coolers are partly completed machinery according to Machine Directive 2006/42/EC and are intended for incorporation in cooling systems. Declarations of Incorporation are available on alfa.luvegroup.com. The units may not be put into operation until the conformity of the complete machine or cooling system has been declared according to the following standards and directives:

- Pressure Equipment Directive 2014/68/EU
- Machine Directive 2006/42/EC
- Low Voltage Directive 2014/35/EU
- Electrical Equipment of Machines IEC 60204-1
- Electro Magnetic Compatibility 2014/30/EU
- Any applicable local or national legislation

1.3 Where to find product information

Detailed technical data for individual product models are available in order related documents, on the product label and in product data sheets. Comprehensive technical information for all Alfa LU-VE air heat exchanger products is available on-line on alfa.luvegroup.com. This includes:

- Product manuals
- Instruction manuals
- Product leaflets & brochures
- Product data sheets (selection software)
- Dimensional drawings
- Electrical wiring diagrams
- Certificates

Optigo CD

Alfa LU-VE offers world-wide service and support. In case of any questions or uncertainty please contact your local Alfa LU-VE representative. Contact addresses are available at alfa.luvegroup.com.

2 Product description

2.1 General information and application

Optigo CD are commercial dual discharge air coolers for general application in small to medium-sized cooling, freezing and working rooms. Low air velocity and noise level make them especially suitable for refrigerated working and processing rooms.

- Refrigerants: CO_2 DX (CDX) and brine (CDW).
- Room temperatures: +10 to -30 °C.
- Capacity range (SC2): 0.8 up to 16.5 kW.
- Air volume: 600 up to 8400 m^3/h.

Model	Refrigerant	Design pressure	Test pressure
CDX	CO_2	80 bar	114 bar
CDW	Brine	10 bar	14.3 bar

2.2 Standard configuration

- Innovative coil manufactured from internally grooved Cu tubes and aluminium fins, smooth tubing for brine applications and dedicated thicker tubes for CO_2 application.
- Optigo CD coolers are available with 1 to 4 fans. Fan diameters 300 or 400 mm blowing through the coil. All models are standard fitted with AC fan motors in two fan speed executions (noise levels) H/L. EC fan motors optional.
  Motors with dynamically and statically balanced external rotors, manufactured in accordance with VDE 0530/12.84. Integrated thermo contacts (Clixon) standard for 3-phase AC motors. All single phase motors protected by an integrated internal overload switch. Electronically integrated overload protection for EC fan motors.
- Durable aluminium alloy casing, powder epoxy coated RAL 9002. Hinged lateral driptrays with dismountable central drain box. Fully dismountable and openable casing for cleaning purposes. Pre-cut passages for multiple choice connections. Internal air deflectors enhance coil efficiency.
- All CD300 are delivered in wood-reinforced cardboard boxes, suitable for safe stacking. All CD400 models are delivered in wooden crates in mounting position.
- Fitted with schräder valve on the suction connection for testing purposes.

2.3 Options

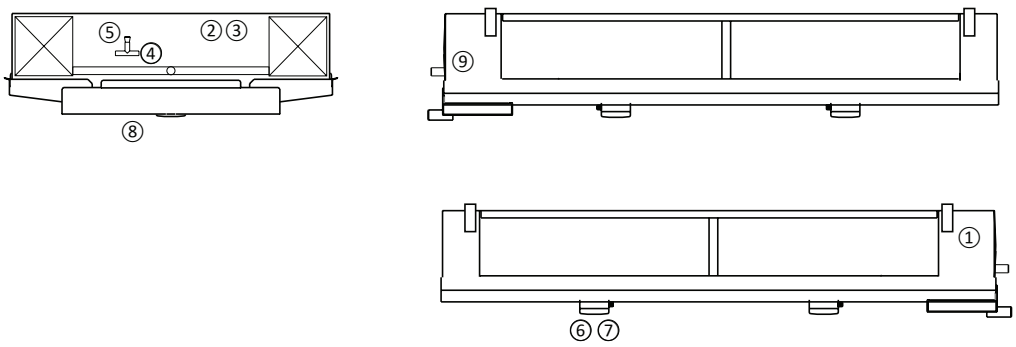
- Electric defrost (E)
  For cold rooms with room temperatures below 4 °C and frost build-up is likely, the application of a defrosting system is advised. Electric defrost for Optigo CD consists of stainless steel heater elements mounted in both coil and driptray (CD300 driptray only). The defrost elements are con-nected to separate terminals in the terminal box.
- Driptray insulation 12 mm + cladding (IS)
  Available for CD400 only.
- Coil protection
  - Pre-coated aluminium fins (EP)
  - Cataphoresis treatment (CA)
- Stainless steel casing and frame (SS)
- Re-heating coil (RH)
  Available for CD300 only.
- Switch on/off (SW)
- Fan motors wired to connection box (CB)

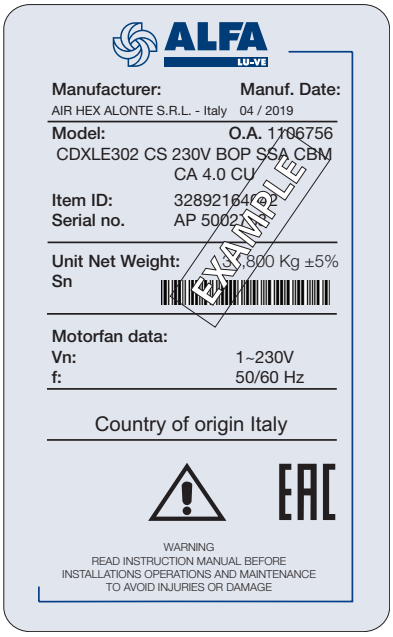
2.4 Code description

CD	W	H	E	40	2	.2	B	S	*	BOP	PC	A	CB	-	AL	4.0	CU	IS
1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18

1 Commercial air cooler - dual discharge
2 Refrigerant system (W=brine, X=CO_2 DX)
3 Fan speed (H=high speed, L=low fan speed)
4 Fan motor type (blank=AC, E=EC)
5 Fan diameter (30=300, 40=400 mm)
6 Number of fans (1 to 4)
7 CD version
8 Tube rows code (B, C)
9 No. of phases (S=1, T=3)
10 No. of circuits
11 Packing (BOP=box + pallet, CR=crate)
12 Casing material (PC=epoxy coated aluminium, SS=stainless steel)
13 Defrost system (A=air defrost, E=electric defrost)
14 Connection box (blank=without connection box, CB/CBM=with connection box)
15 Fin material (AL=aluminium, EP=epoxy coated aluminium, CA=cataphoresis)
16 Fin spacing (4, 5.5, 7, 10 mm)
17 Tube material (CU=copper)
18 Options

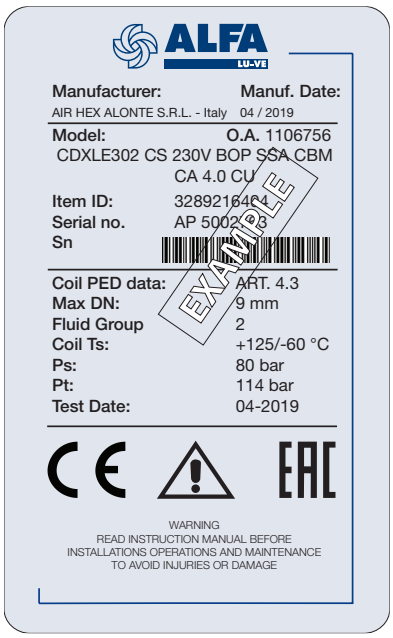
3 Product labels





1. Product label

Model	Refer to paragraph "Code description"
Item ID Serial no.	Communicate these when ordering spare parts as they identify the unit.
O.A.	Order Acknowledgement number
Unit Net Weight	Check before any lifting operation to ensure that proper lifting tools are used



2. Product label - coil

Model	Refer to paragraph "Code description"
Item ID Serial no.	Communicate these when ordering spare parts as they identify the unit.
Max DN	Maximum diameter of the distributor tube
Fluid Group	According to PED
Coil Ts	Range of operating temperatures for the coil
Ps	Design pressure
Pt	Test pressure
Test date	Date on which the coil has been pressure tested in the factory

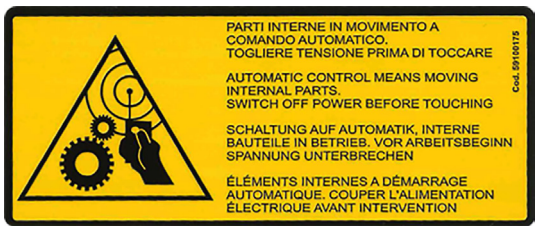
3. Nitrogen precharge warning
Units are delivered from the manufacturer with an overpressure. Check pressure on the Schrader valve. With unpressurised unit: Immediate report to manufacturer and note on bill of delivery.

4/5. In/Out
Refrigerant connections inlet and outlet.

6. Fan motor
Fan motor item number.

7. Electrical warning
Electrically powered component. Switch off power supply before any maintenance or installation activity.

8. Fan direction
Sticker indicates fan rotation direction.



9. Moving parts
Warning: moving parts.
Switch off power supply before any maintenance or installation activities.

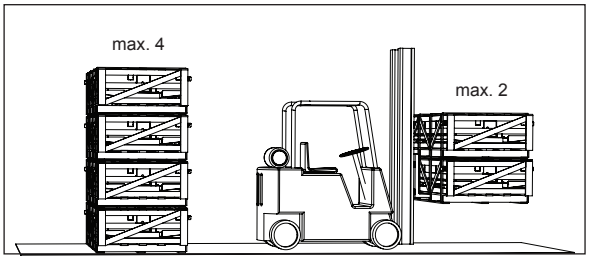
4 Unpacking and lifting



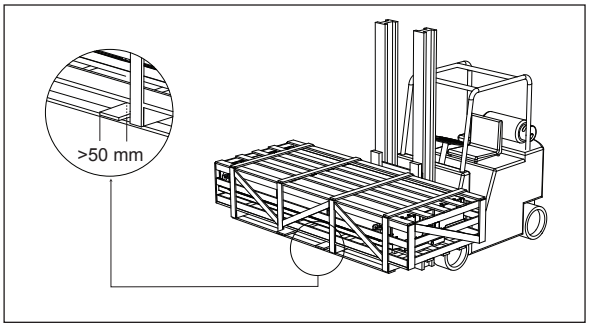



Always follow guidelines and instructions as given in the air cooler product manual AHE00042.

Optigo CD air coolers are delivered on a wooden pallet, either covered with a reinforced cardboard box (CD300) or a wooden crate (CD400). Handling and positioning can take place manually (smaller models) or with use of a forklift. Packed air coolers may be stacked during transportation and storage.

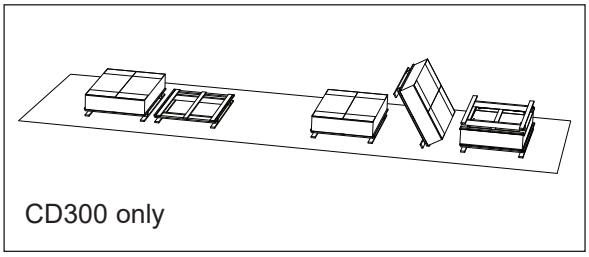


Respect the maximum number of stacked air cooler units.



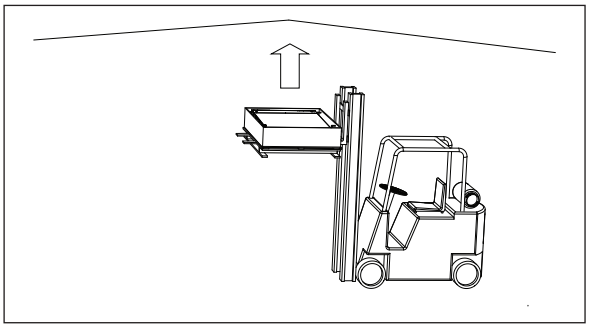
In order to avoid damage to the air cooler or falling of the unit, ensure that the lifting forks cover all beams from the lower support pallet.

CD400 models are supplied in mounting position. Prior to lifting and mounting, the top crate panel must be removed and the mounting brackets must be turned 90° and fixed with the supplied fixing materials.

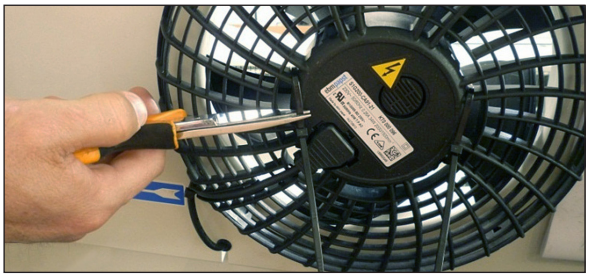


CD300 only

The smaller CD300 models must be turned. Place the unit on the ground and manually turn the air cooler into mounting position on a second wooden pallet. Keep the packaging material in place to prevent the drip trays from damaging. Remove the original support pallet (now on top) and remove the cardboard top sheet. The cooler is now ready to be lifted to mounting position.



Lift the unit to mounting position and secure following instructions given in chapter "Installation". After having secured the cooler, the forks may be lowered and the remaining packaging materials can be removed (cardboard CD300, crate for CD400).



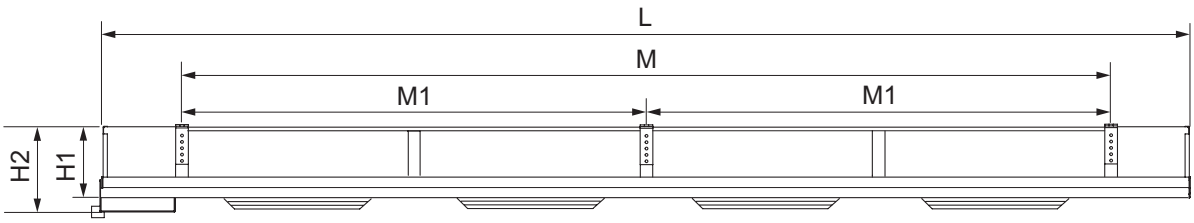
CD300 only
Remove the plastic strips that secure the EC fan unit during transport and handling. The air cooler is now ready to be installed.

5 Installation

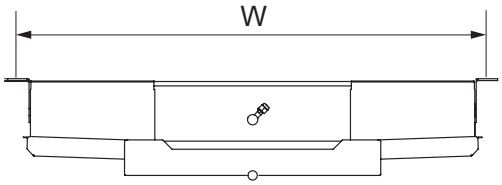
Always follow guidelines and instructions as given in the air cooler product manual AHE00042.

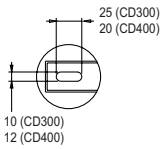
5.1 Mounting dimensions

cooler model	Dimensions (mm)						Shipping volume m^3
	L	W	H1	H2	M	M1	
CD 301	949	1012	170	203	550	-	0.5
CD 302	1499	1012	170	203	1100	-	0.8
CD 303	2049	1012	170	203	1650		1.0
CD 304	2599	1012	170	203	2200	1100	1.5
CD 401	1121	1160	350	400	820	-	1.1
CD 402	1910	1160	350	400	1609	-	1.8
CD 403	2700	1160	350	400	2399	-	2.6



ø 1" G ext.

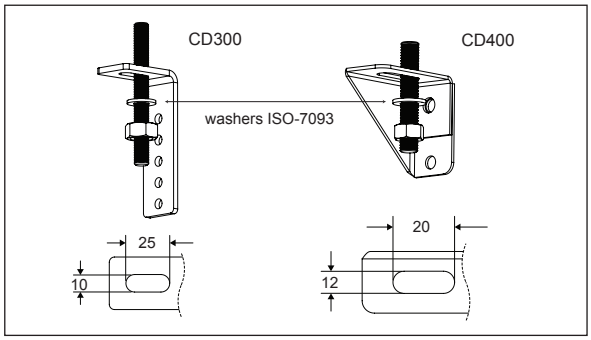




Detailed drawings showing all required mounting and refrigerant connection dimensions are available for download on alfa.luvegroup.com.

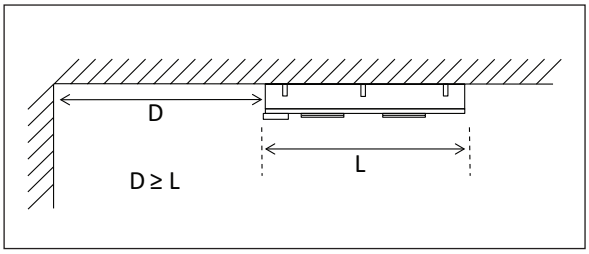
Dimensional drawings

5.2 Mounting bracket



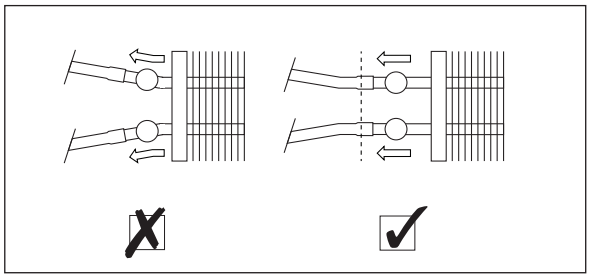
Use extra wide washers (ISO 7093) when mounting the unit to the ceiling.

5.3 Technical spaces



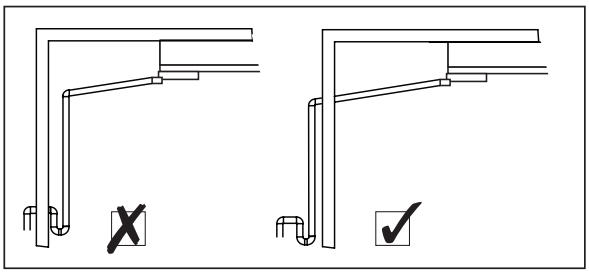
Respect the required minimum space for defrost heater replacement.

5.4 Refrigerant connections



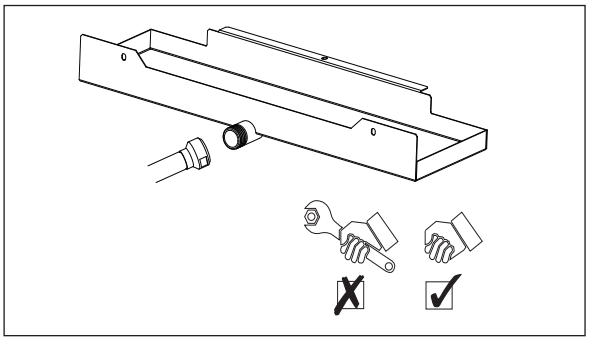
Never bend the air cooler refrigerant connection tubes.

5.5 Drain line



The drain line diameter must be at least the size of the driptray drain diameter and should be laid with an adequate slope. For room temperatures below 0 °C drain line insulation and defrosting are required.

A syphon must be installed on the drain line, outside the cold room



Tighten drain connection by hand only.

5.6 Electrical connections

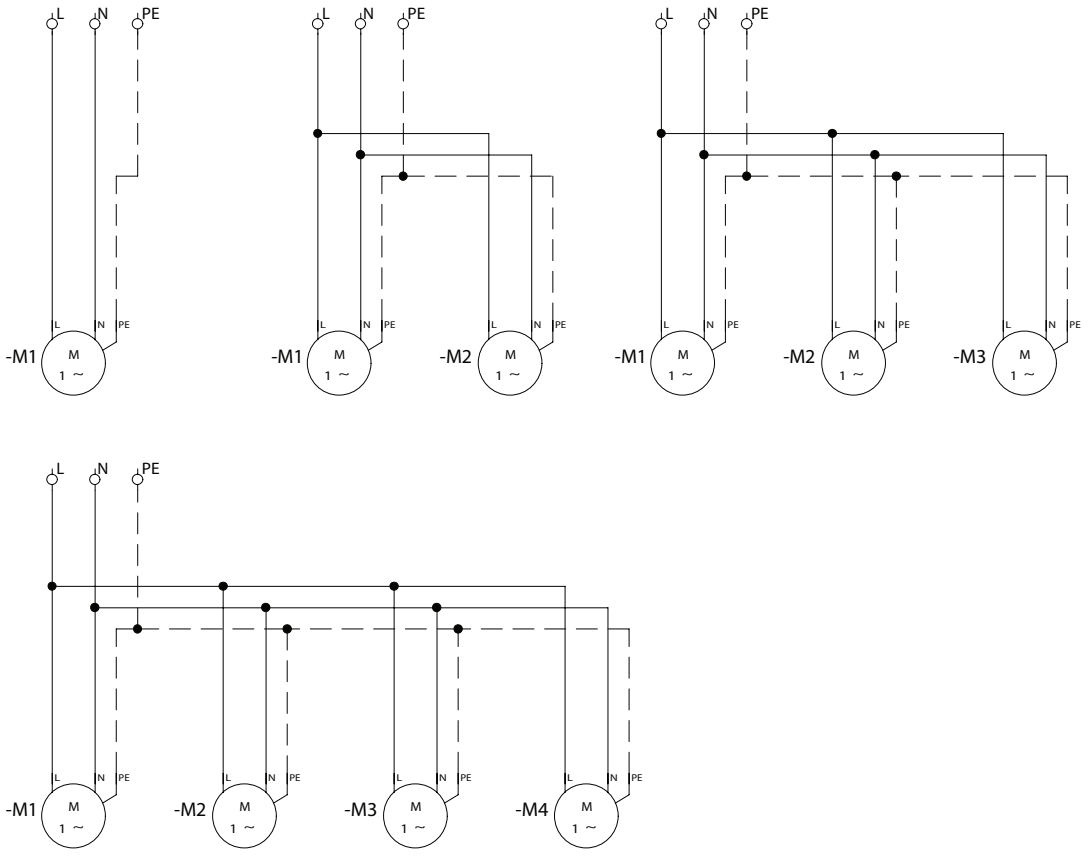
The following data determine which connection diagram is to be selected and respected for electrical installation:

- Heat exchanger model indication
- Fan motor type
- Electrical options

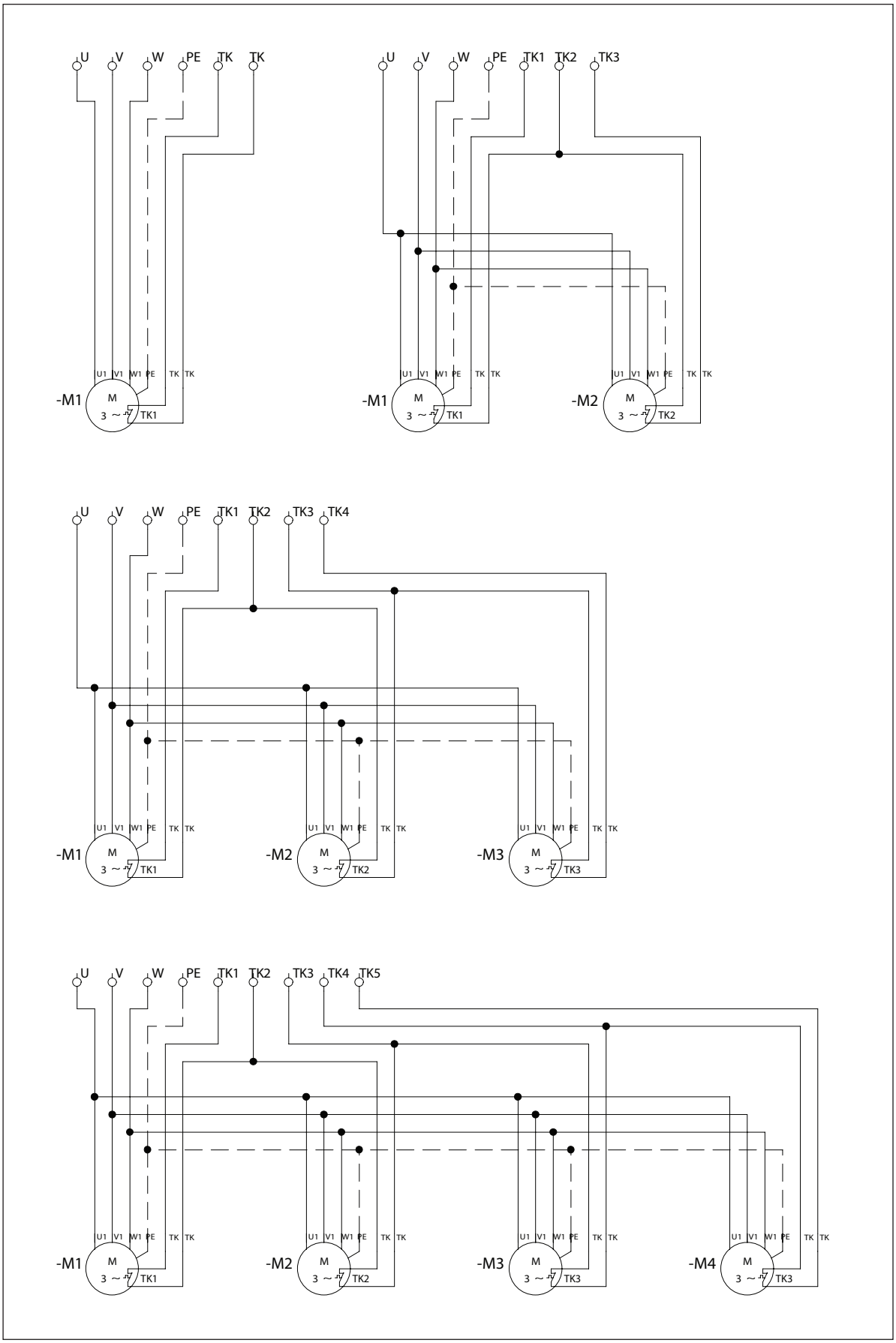
Electrical connections

Detailed electrical connection diagrams are available for download on alfa.luvegroup.com.
When in doubt always contact your local supplier or Alfa LU-VE representative for assistance.

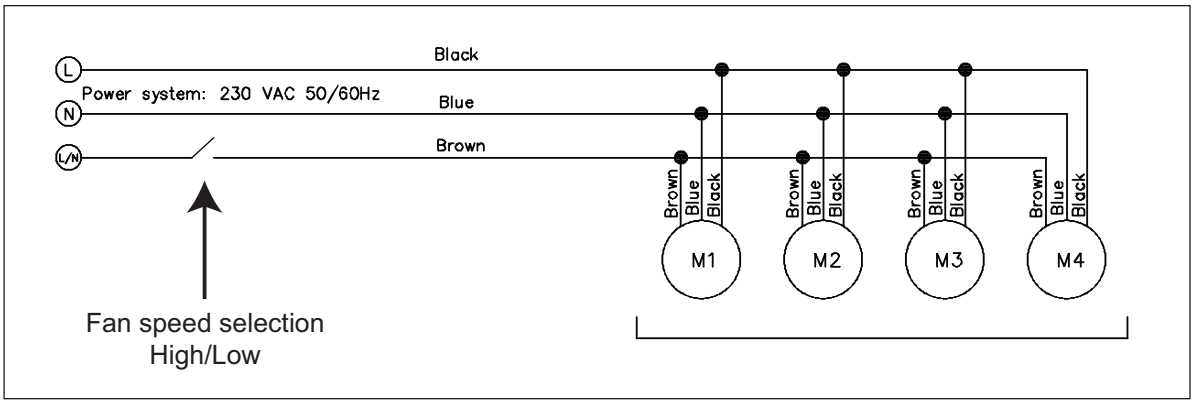
Electrical connections 1-4 fan motors 1 phase AC



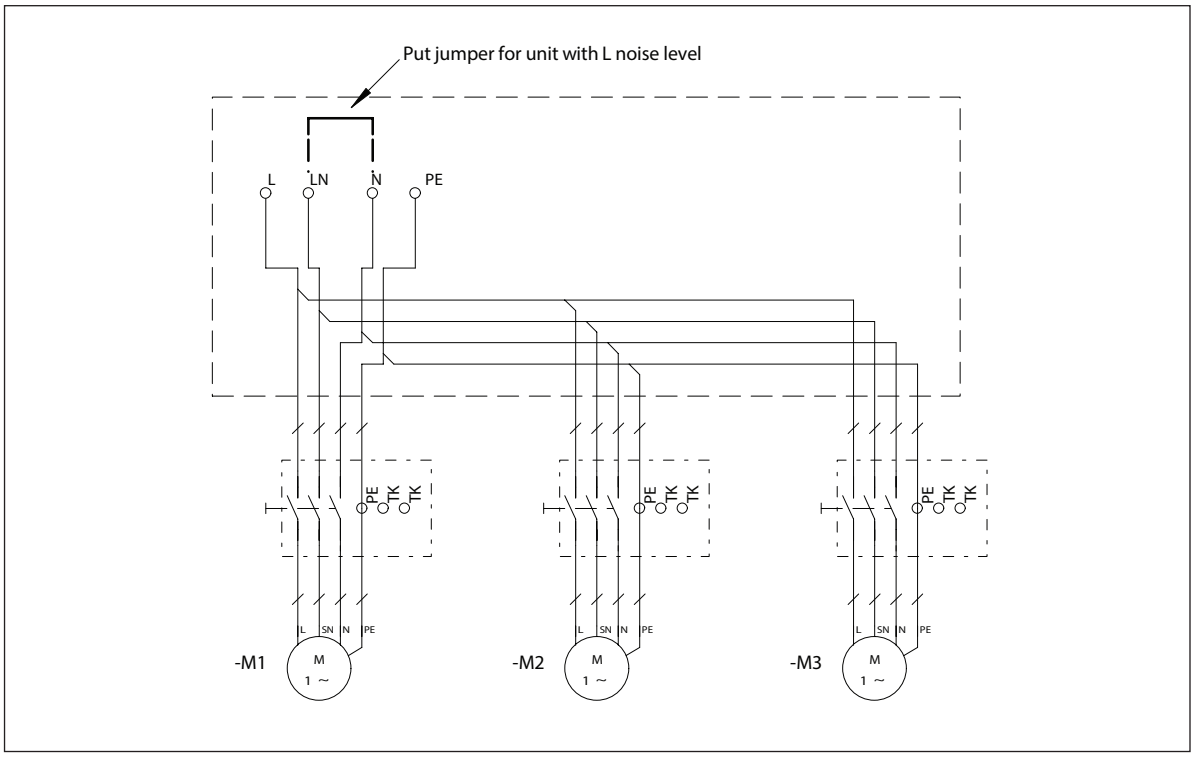
Electrical connections 1-4 fan motors 3 phase AC



Electrical connections 2-speed EC fan motors CD300

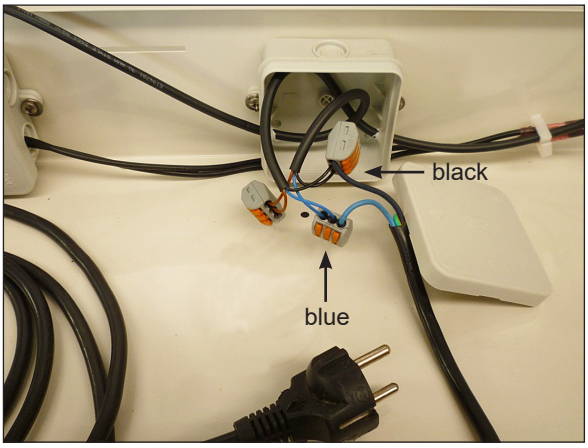


Electrical connections 2-speed EC fan motors CD400

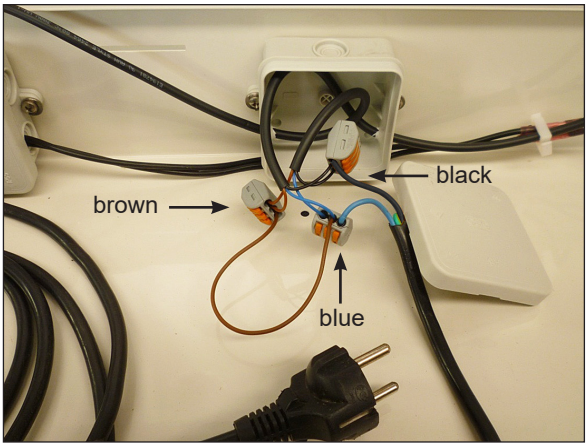


Speed selection

Open the connection box, located at the end plate opposite the refrigerant connections.
You will find the electric wiring diagram inside the connection box.

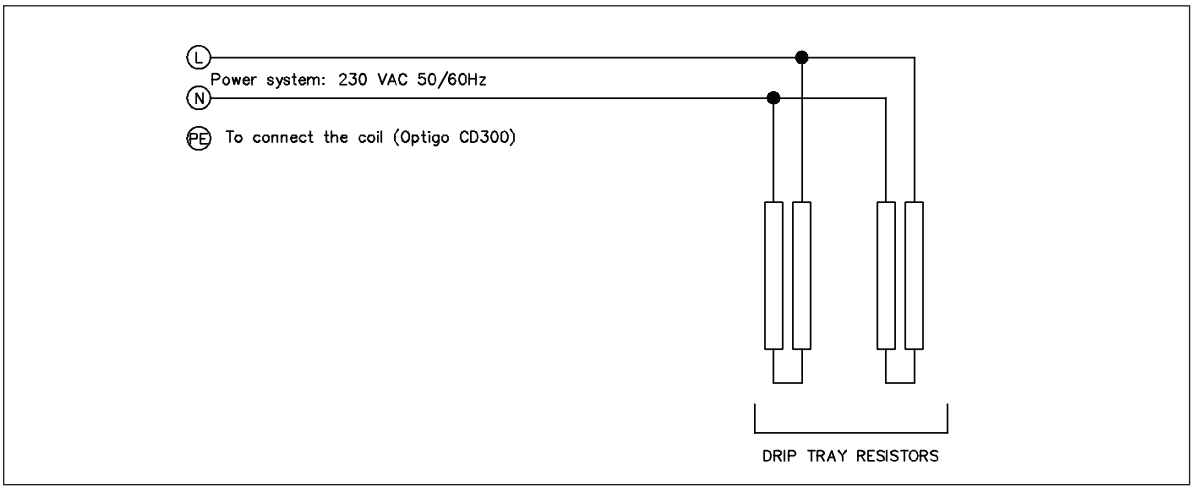


High speed connection
Connect blue wire (N) to neutral.
Connect black wire (L) to power supply.

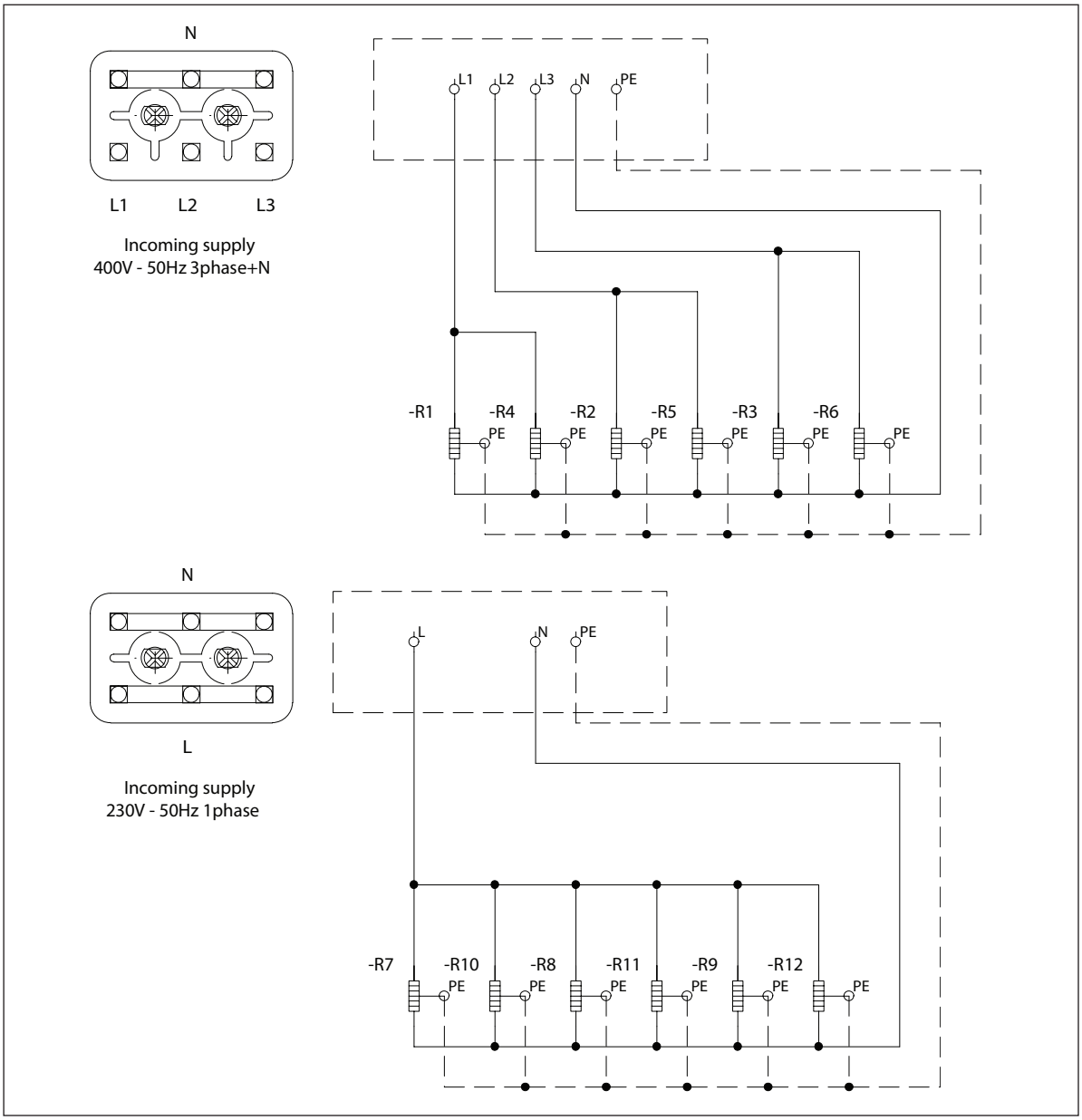


Low speed connection
Connect blue wire to neutral (N) and black wire to power supply (L).
Open the orange clamps from the blue and brown wires.
Create a jumper connection between the brown (SN) and the blue (N) wires. This extra piece of cable is not supplied with the unit.

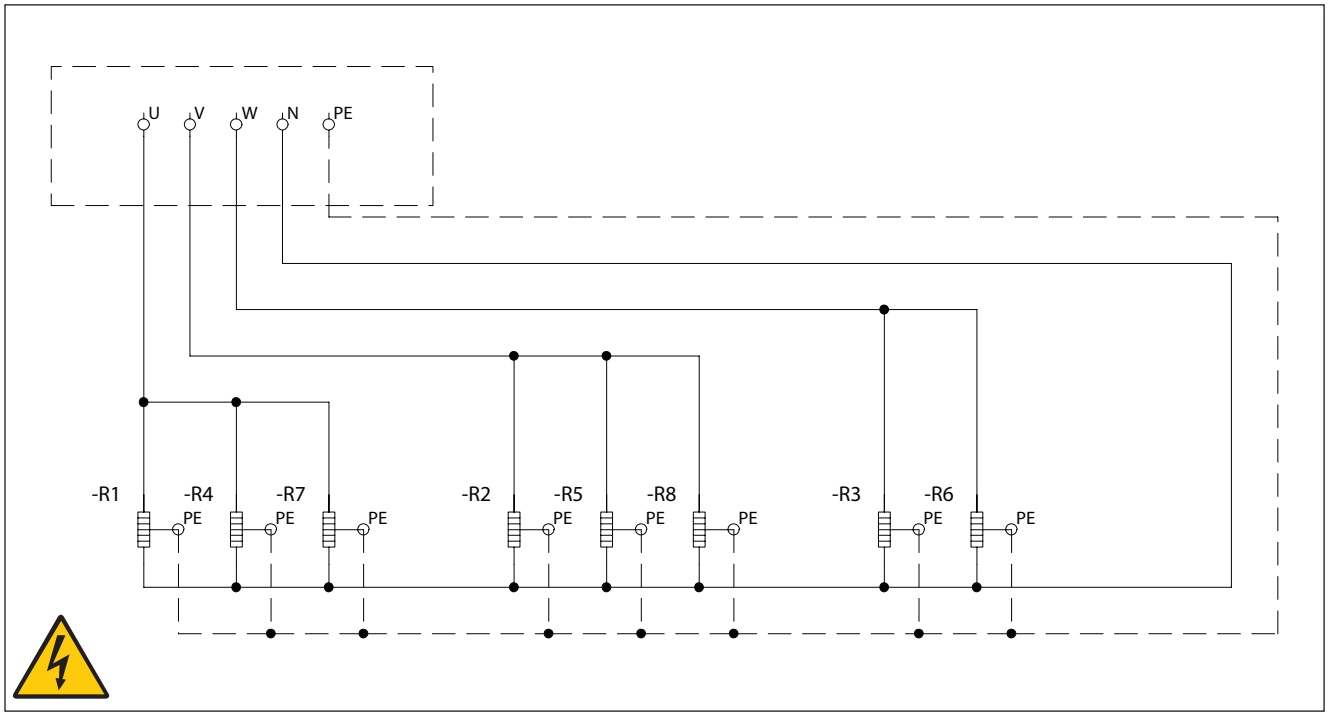
Electrical connections driptray defrost heater elements CD300



Electrical connections coil defrost heater elements CD400B (4+2 heaters)



Electrical connections coil defrost heater elements CD400C (6+2 heaters)



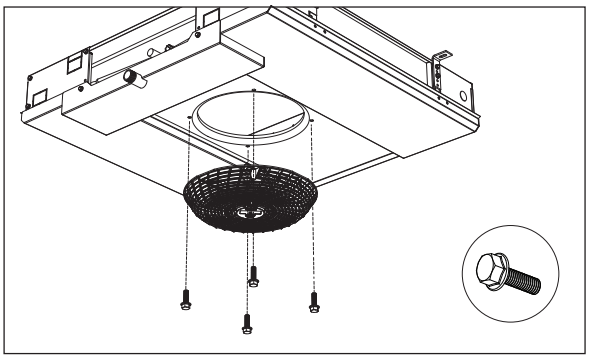
5.7 Electric defrost capacities

Model	Tube rows no.	Coil defrost			Driptray defrost		
		heater elements no.	power per heater W	total power W	heater elements no.	power per heater W	total power W
CD301	4/6	-	-	-	2	475	950
CD302	4/6	-	-	-	2	800	1600
CD303	4/6	-	-	-	2	1300	2600
CD304	4/6	-	-	-	2	1600	3200
CD401 B	4	4	500	2000	2	400	800
CD401 C	6	6	500	3000	2	400	800
CD402 B	4	4	1200	4800	2	800	1600
CD402 C	6	6	1200	7200	2	800	1600
CD403 B	4	4	1700	6800	2	1200	2400
CD403 C	6	6	1700	10200	2	1200	2400

6 Maintenance

Ensure complete electrical isolation before performing any maintenance activity and always follow guidelines and instructions as given in the air cooler product manual AHE00042.

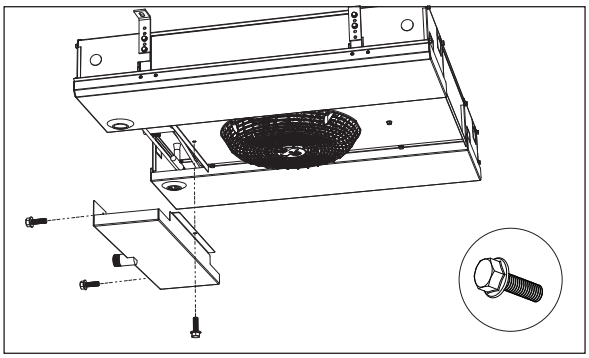
6.1 Fan replacement



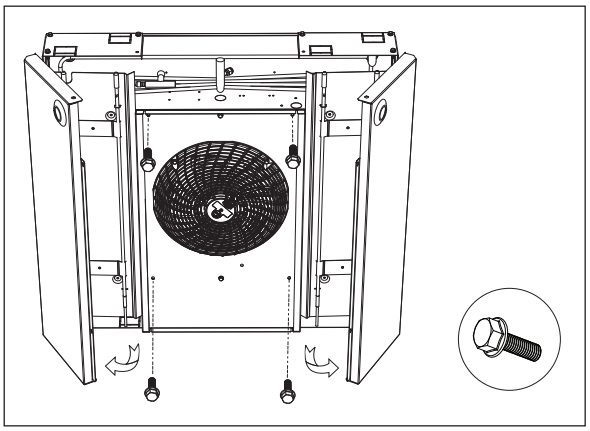
Unscrew fixing bolts and remove old fan. Mount new fan in identical position. Use an anti-corrosion compound when remounting the fixing bolts.

Restore electric connection when the new fan has been mounted.

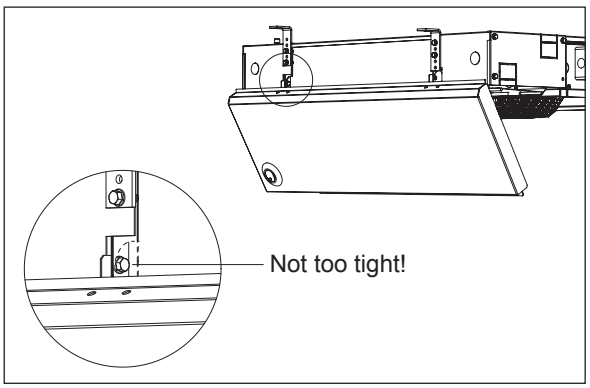
6.2 Driptray



Driptrays can be opened for inspection, cleaning and maintenance purposes. To open the driptrays, the central connecting driptray needs to be removed first. Disconnect drain line and remove central driptray.

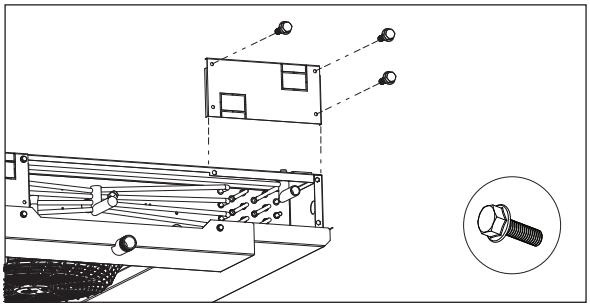


To open both primary driptrays, first loosen and remove fixing bolts and then lower the driptrays. Respect the maximum opening angle (90°) to avoid damage to the driptray hinges.



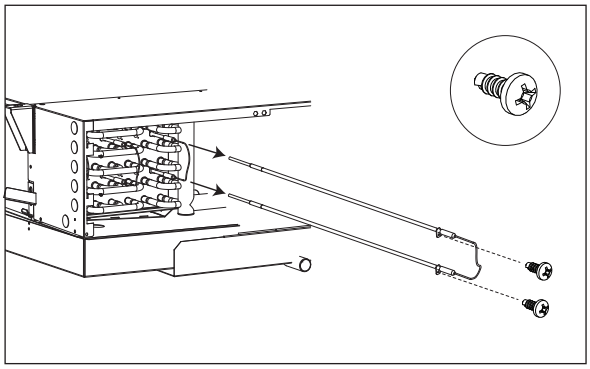
When (re)mounting the primary driptrays, the hinge fasteners should NOT be fully tightened, to allow the driptray hinges to function properly.

6.3 Side covers



All side covers can be opened for inspection, cleaning and maintenance purposes. This can be done only by qualified personnel. To open side covers, loosen fixing bolts.

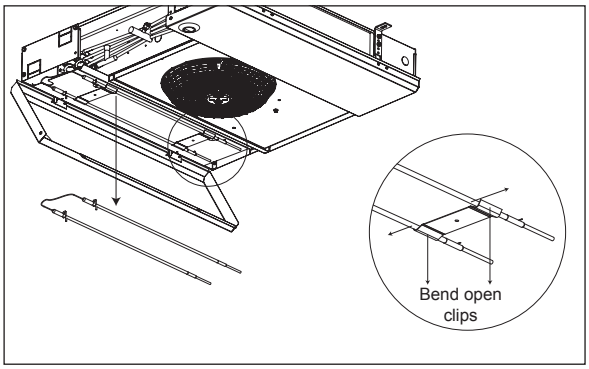
6.4 Coil heater elements replacement



Always disconnect power supply before handling heater elements.

To remove coil heater elements, open side covers on both sides. Disconnect heater elements, remove fixing screws and extract elements from coil.
Mount new elements in reverse order, close side covers and restore electrical connections.

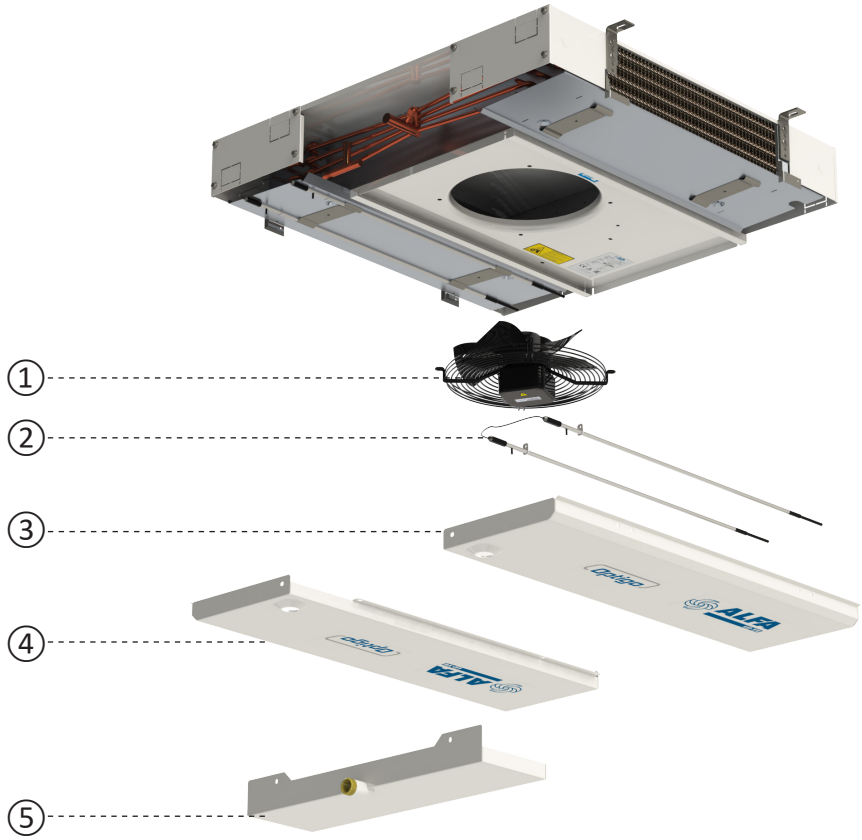
6.5 Driptray heater elements replacement



Always disconnect power supply before handling heater elements.

To remove driptray heater elements, remove central driptray and open primary driptray. Disconnect heater element and remove element from bottom plate while slightly bending open the fixing clips. Mount new element in reverse order, close driptray, remount central driptray and restore electrical connections.

7 Spare parts



Spare parts Optigo CD	
1	Fan motors
2	Defrost heater kits (all heaters, conn. box & fixing materials)
3	Driptray left
4	Driptray right
5	Driptray central

Contact your local Alfa LU-VE representative for spare parts order and assistance.

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