

# Optigo CS

## Instruction manual



CS300



CS200

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

ORIGINAL INSTRUCTIONS

AHE00045EN 2001  
IM100540EN-01

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# 1 Important information



## 1.1 Disclaimer

This Instruction Manual applies to all Optigo CS 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 intended for incorporation in cooling systems.

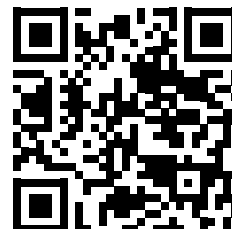
Declarations of Incorporation are available on [alfa.luvegroup.com](http://alfa.luvegroup.com). The units may not be put into operation until the conformity of the complete machine or cooling system has been declared according to the following standards and directives:

- 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](http://alfa.luvegroup.com). This includes:

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



Optigo CS

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](http://alfa.luvegroup.com).

## 2 Product description

### 2.1 General information and application

Optigo CS are commercial slim line air coolers for general application in small to medium-sized cooling and freezing rooms. CS200 are mini coolers with capacities up to 1.8 kW (SC2), whereas the CS300 line has a different casing geometry and offers cooling capacities up to 6.8 kW (SC2). All CS models are characterised by a low silhouette (only 15 cm for CS200) for the efficient use of cold room space.

- Refrigerants: HFO/HFC DX refrigerants (CSE) and CO<sub>2</sub> DX (CSX)
- Room temperatures: +10 to -30 °C
- Capacity range (SC2): 550 up to 6850 W
- Air volume: 380 up to 3800 m<sup>3</sup>/h

Model	Refrigerant	Design pressure	Test pressure
CSE	HFO/HFC	40 bar	57 bar
CSX	CO <sub>2</sub>	80 bar	114 bar

### 2.2 Standard configuration

- Innovative coil manufactured from internally grooved Cu tubes, aluminium fins and dedicated thicker tubes for CO<sub>2</sub> application. Tube pitch is 30x26 mm staggered, standard fin spacings 4 and 7 mm. All models fitted with a T-connection for better refrigerant distribution. This T-connection is also suitable as a hot gas defrost connection.
- Standard fitted with plug-in dual fan speed EC motors in two diameters (200 and 300 mm). Power supply 230/50-60/1.
- Durable aluminium alloy casing, white epoxy coated RAL 9002. Hinged driptray construction, inspection panel for CS200 and removable side panels for CS300. Sufficient room for mounting of expansion valve inside casing. Pre-cut passages for multiple choice connections on both sides and top.
- All Optigo CS models are delivered in wood-reinforced cardboard boxes, suitable for safe stacking.





## 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 CS consists of stainless steel heater elements mounted against the bottom plate of the coil. The defrost element can be accessed after opening the drip tray. The defrost element are connected to separate terminals in the terminal box. Electric defrost is mounted as default for 7 mm models, optional as a separate kit for 4 mm models.

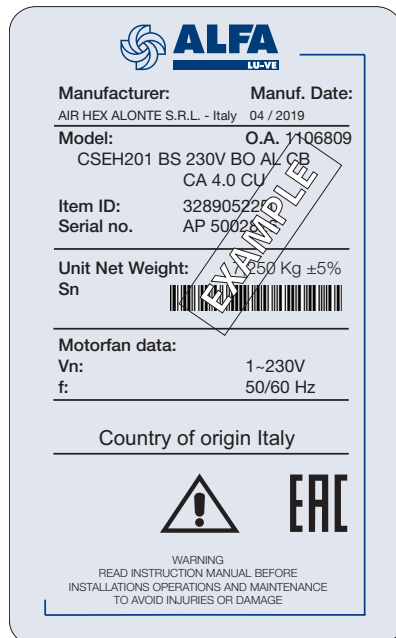
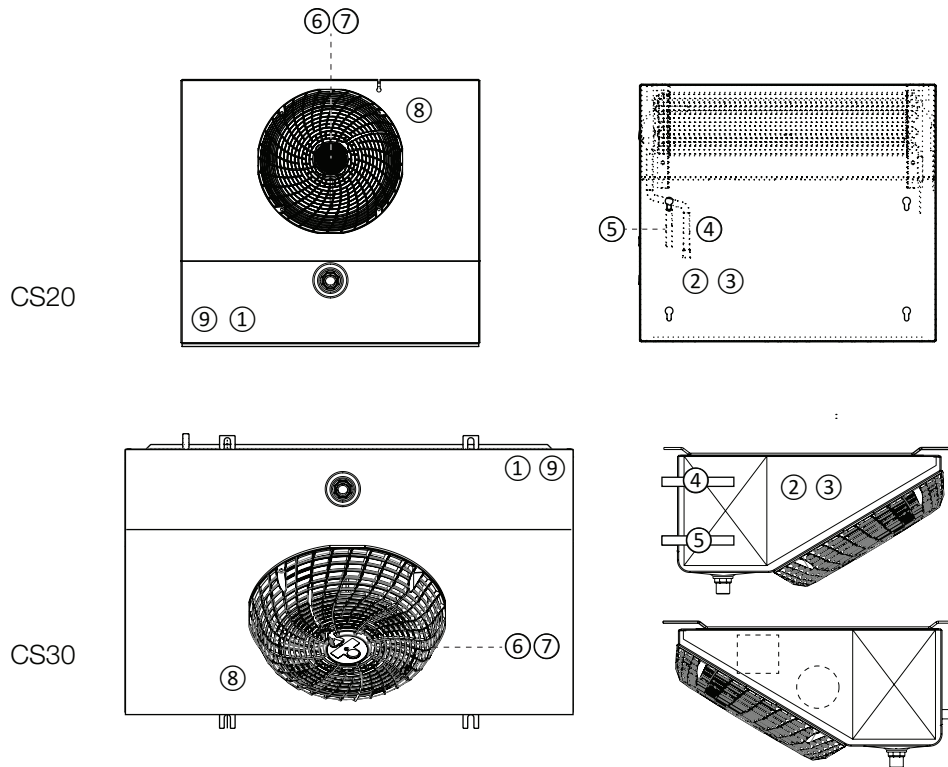
Optigo model	Watt	Power supply
CS201	410	230/50-60/1
CS202	890	230/50-60/1
CS301	580	230/50-60/1
CS302	1110	230/50-60/1
CS303	1640	230/50-60/1
CS304	2170	230/50-60/1
CS305	2700	230/50-60/1

## 2.4 Code description

CS	E	H	20	2	B	S	230V	BO	AL	E	CB	-	AL	7.0	CU
1	2	3	4	5	6	7	8	9	10	11	12		13	14	15

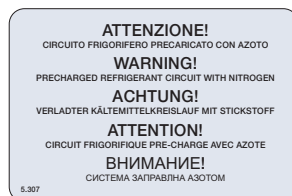
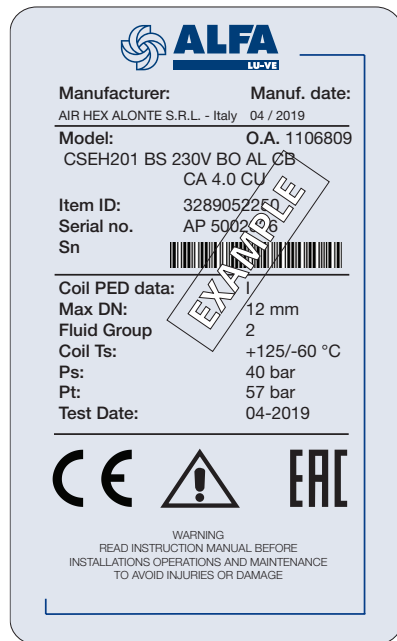
- Commercial unit cooler - slim line
- Refrigerant system (E=HFO/HFC DX, X=CO<sub>2</sub> DX)
- Fan speed (H=high speed, L=low speed)
- Fan diameter (20=200, 30=300 mm)
- Number of fans (1 to 5)
- Tube rows code (B, C)
- No. of phases (S=1)
- Motor voltage
- Packing (BO=box)
- Casing material (AL=epoxy coated aluminium)
- Defrost system (E=electric defrost, blank=air defrost)
- Connection box (CB)
- Fin material (AL=aluminium)
- Fin spacing (4.0, 7.0 mm)
- Tube material (CU=copper)

### 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 the 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

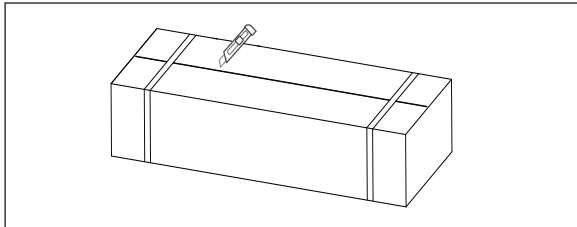
Warning: moving parts.  
Switch off power supply before any maintenance or installation activities.

## 4 Unpacking and lifting

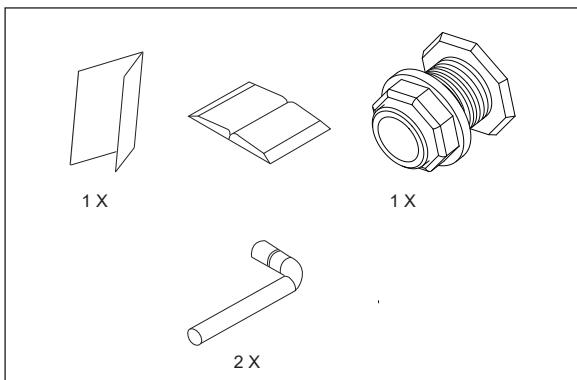
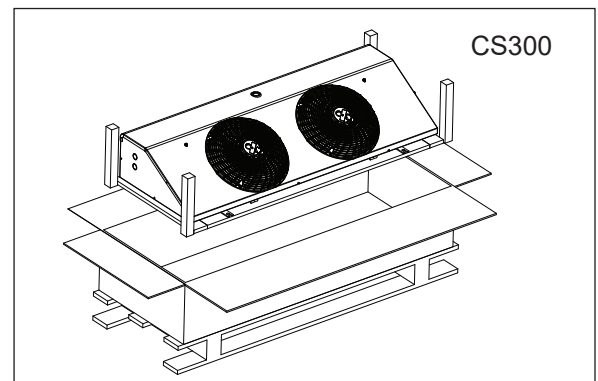
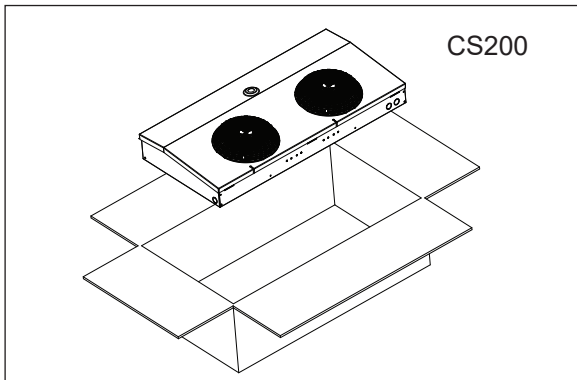


Always follow guidelines and instructions as given in the air cooler product manual AHE00042.

Optigo CS air coolers are delivered in a reinforced cardboard box. For CS300 models this box is fixed on a wooden support pallet. Handling and positioning can take place manually. When more units are delivered in a single shipment, packed air coolers may be stacked during transportation.



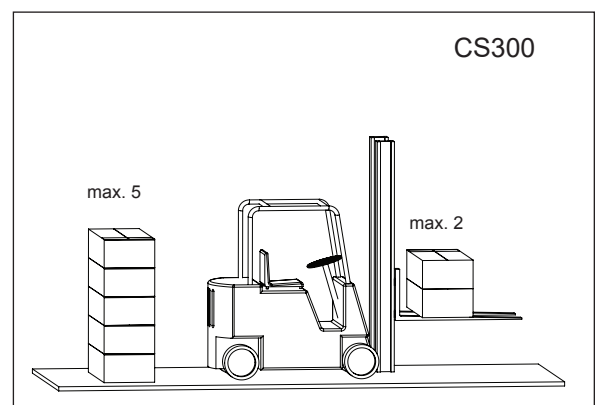
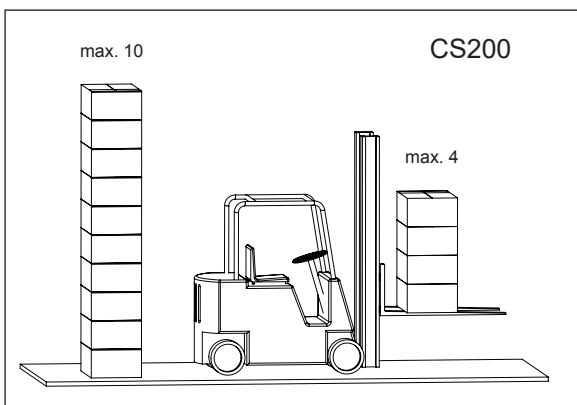
Open cardboard box and take out cooler unit.



Additional box content:

- Drilling mould (1x, CS200 only)
- Manual
- PVC driptray drain connection
- Cu tube bends for 90° refrigerant in/out connections (2x, CS200 only)

Respect the maximum number of stacked air cooler units.



## 5 Installation

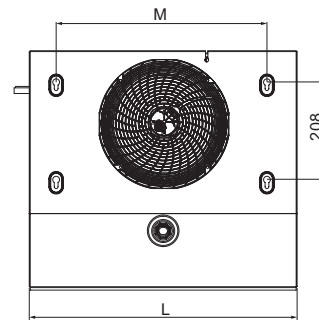
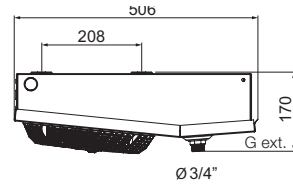


Always follow guidelines and instructions as given in the air cooler product manual AHE00042.

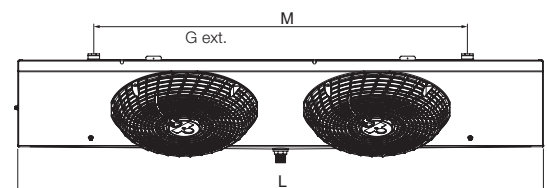
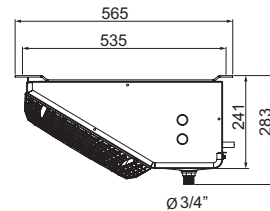
### 5.1 Mounting

model	Dimensions			Connections	
	Length	Mounting	Shipping	OD in/out	
	L	M	volume	CSE	CSX
201B	566	450	0.04	12/12	12/12
202B	1016	900	0.12	12/12	12/12
301B	865	470	0.26	12/12	12/12
301C	865	470	0.26	12/12	12/12
302B	1365	970	0.39	12/14	12/14
302C	1365	970	0.39	16/16	12/14
303B	1865	1470	0.51	16/16	12/14
303C	1865	1470	0.51	16/18	12/14
304C	2365	1970	0.64	16/20	12/14
305C	2865	2470	0.76	16/22	12/14

CS200



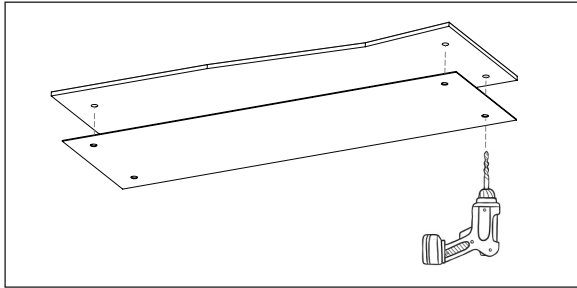
CS300



Drawings showing all required mounting and refrigerant connection dimensions are available for download on [alfa.luvegroup.com](http://alfa.luvegroup.com).

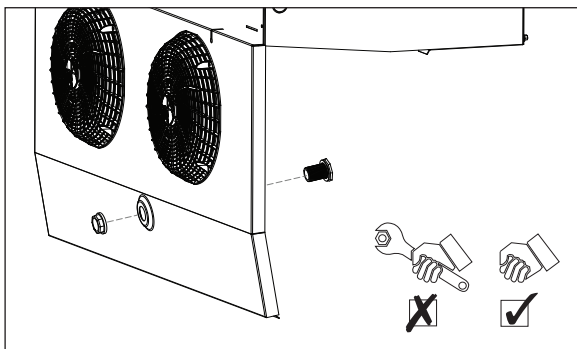
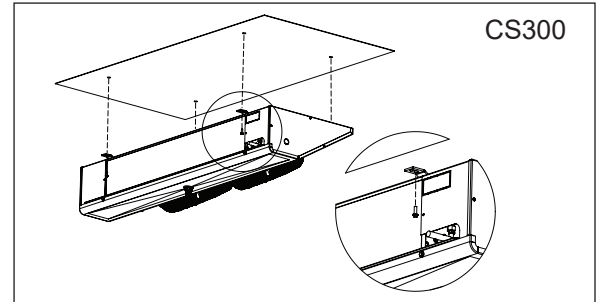
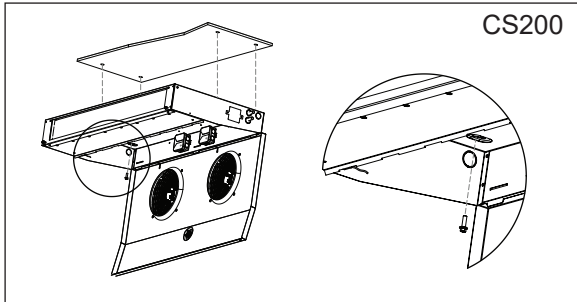


Dimensional drawings

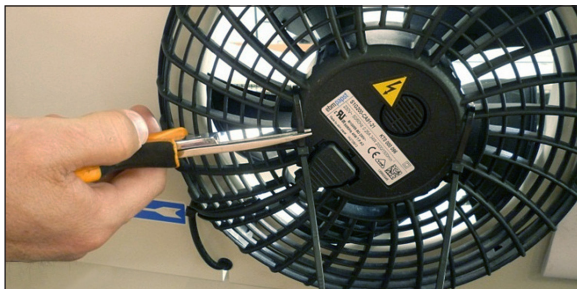


Use drilling mould to mark mounting positions (included for CS200 only).

Fix cooler unit to the ceiling using the fixing materials provided. Use extra wide washers (ISO 7093) when mounting the unit to the ceiling. For CS200 the integrated fan plate/drip tray must be opened to access the fixing points.

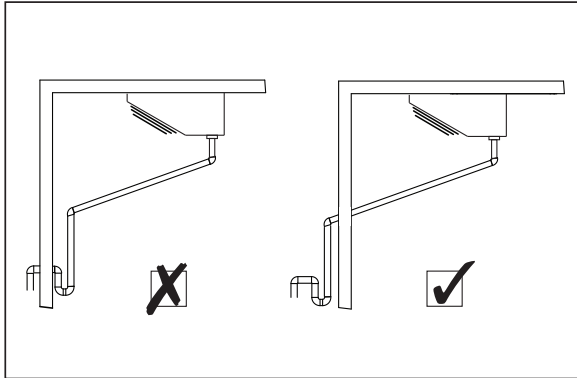


Mount PVC drip tray drain.  
Tighten by hand only.



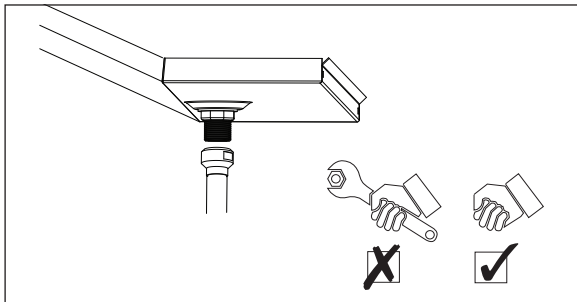
Remove the plastic strips that secure the EC fan unit during transport and handling. The air cooler is now ready to be installed.

## 5.2 Drain line



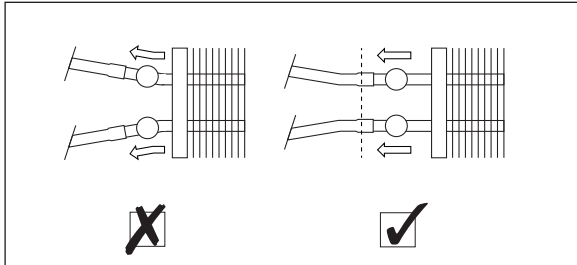
The drain line diameter must be at least the size of the drip tray drain diameter and should be laid with an adequate slope. For room temperatures below 0° C drain line insulation and defrosting are required.

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



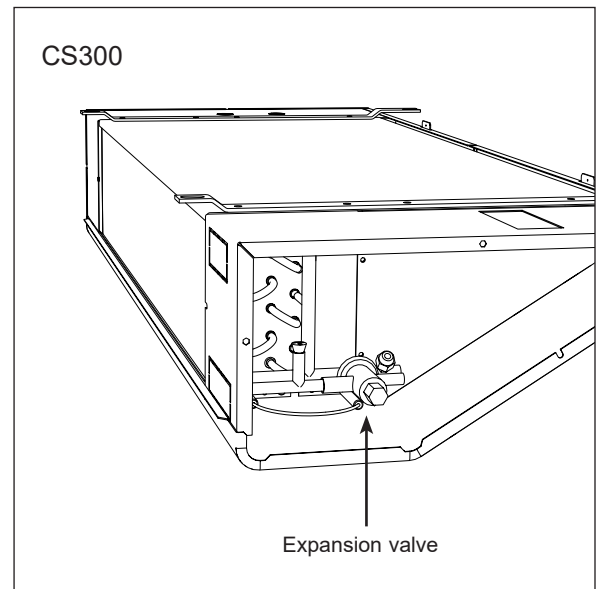
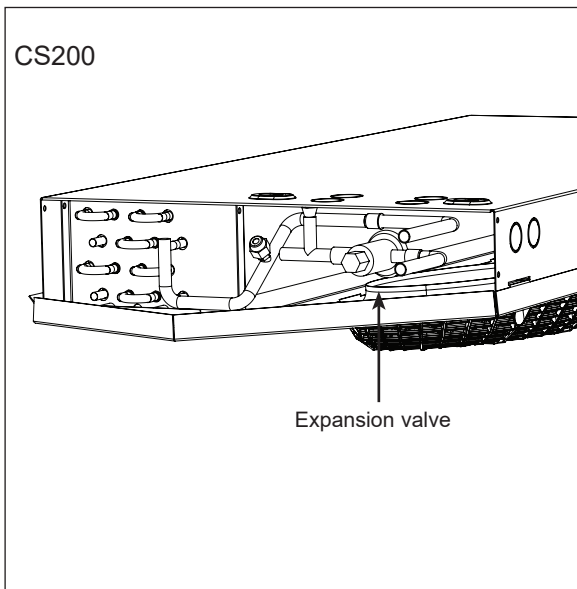
Tighten drain connection by hand only.

## 5.3 Refrigerant connections



Never bend the air cooler refrigerant connection tubes. Bends in refrigerant pipework are only allowed in the external piping section.

For both CS200 and CS300 there is sufficient space for mounting the expansion valve inside the cooler casing. Casing cutaways available on all cooler sides for refrigerant piping.





#### 5.4 Electrical connections

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

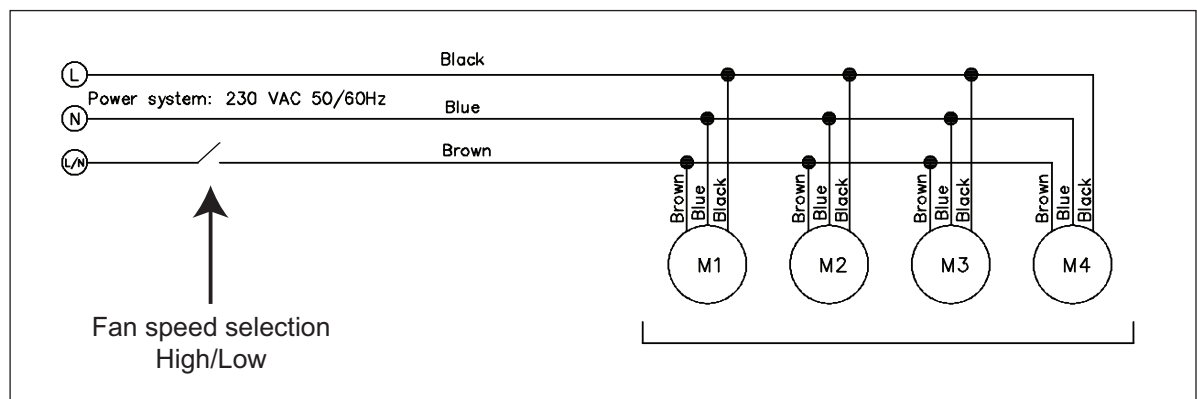
- Heat exchanger model indication
- Electrical options

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

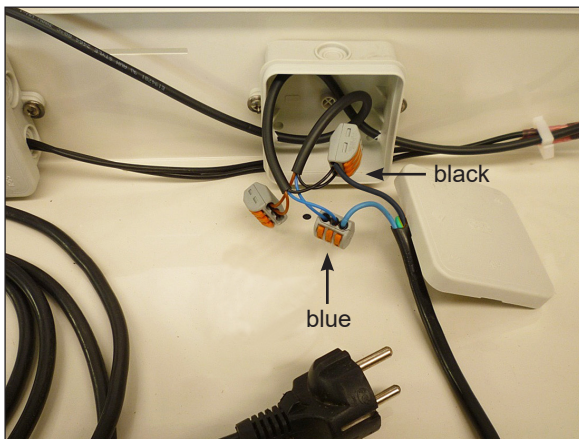


Electrical connections

#### Electrical connections 2-speed EC fan motors



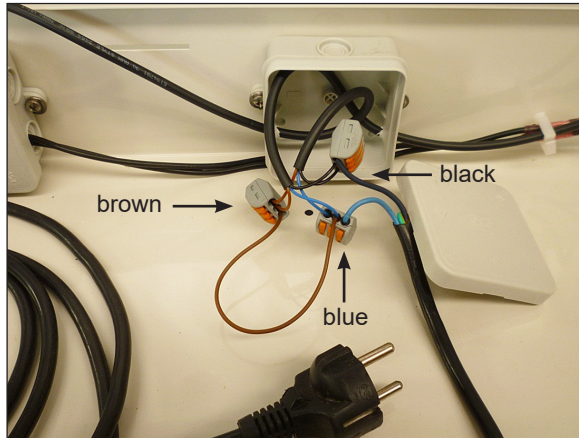
Open the diptray and consequently the fan motor connection box. You will find the electric wiring diagram inside.



#### High speed connection

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





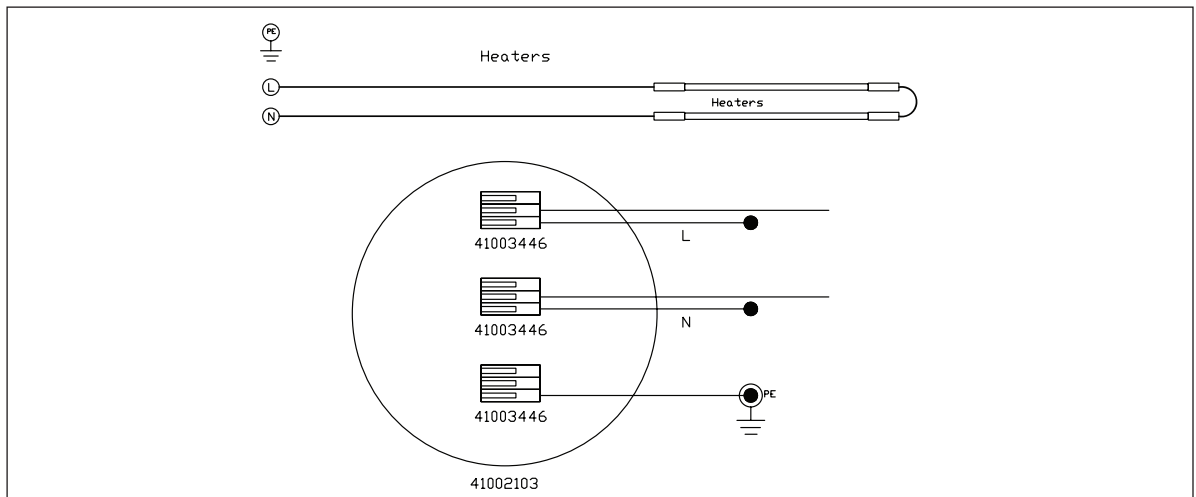
### Low speed connection

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 and the blue wires. This extra piece of cable is not supplied with the unit.

### Electric defrost heater connection (optional)



### Electric defrost heaters

Heater 230V/50-60Hz	
Power	
model	W
CS201	410
CS202	890
CS301	580
CS302	1110
CS303	1640
CS304	2170
CS305	2700



## 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.

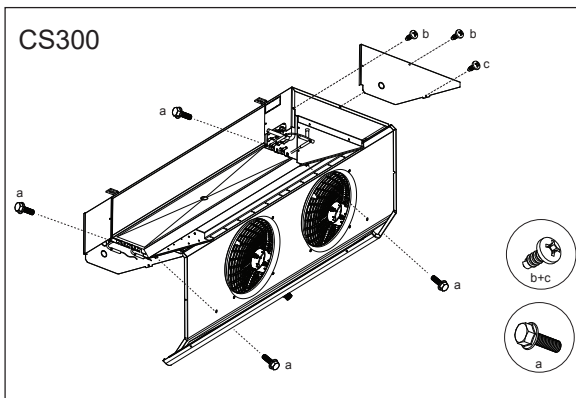
### 6.1 Fan replacement



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

Replace power cable connector when the new fan has been mounted.

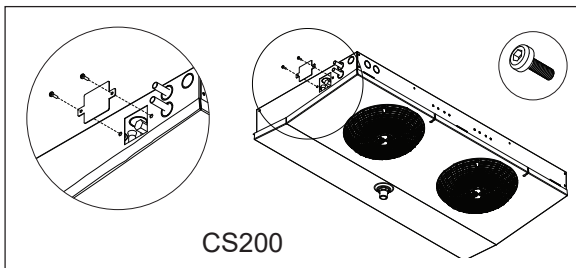
### 6.2 Drip tray and side covers



Drip trays can be opened for inspection, cleaning and maintenance purposes. Always disconnect drain line before opening the drip tray.

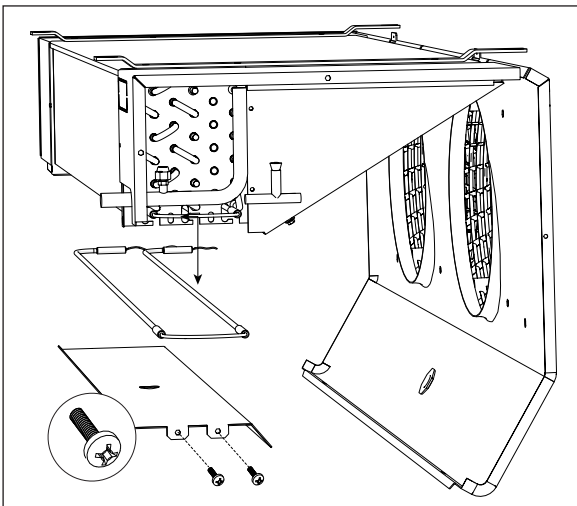
Prior to opening, run a full defrost cycle to remove any ice in the drip tray. Ensure the drip tray is empty before opening. The weight of any leftover water could injure the service operator if the drip tray fell open accidentally.

Both CS200 and CS300 models are fitted with an integrated fan plate/drip tray. To open this drip tray, first loosen screws 'c' (CS300 only) and remove bolts 'a'. Then lower the drip tray. Respect the maximum opening angle (90°) to avoid damage to the drip tray hinges.



For CS300 models, side covers can be removed for inspection, cleaning and maintenance purposes. To remove side covers, open drip tray and loosen fixing screws 'b'. CS200 models are fitted with a removable side hatch to access the expansion valve.

### 6.3 Defrost heater elements replacement



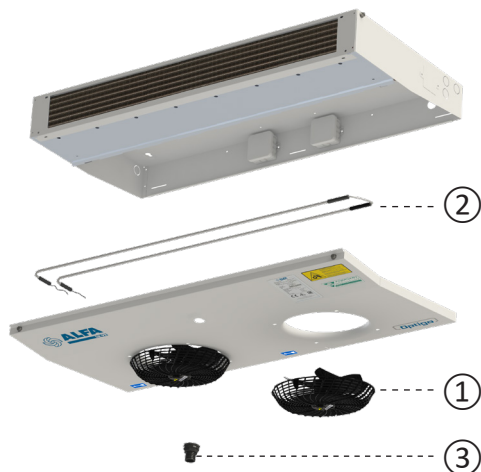
The replacement procedure for defrost heater elements is identical for all Optigo CS models.

To replace defrost elements, open integrated fan plate/drip tray, remove coil bottom plate and take defrost heater element out of its slots.

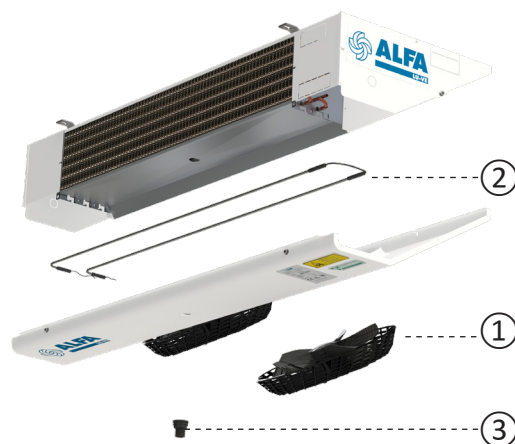
Mount new element in reverse order and restore electrical connections as originally set.

## 7 Spare parts

CS200



CS300



### Spare parts for Optigo CS

1 Fan motors

2 Electrical defrost heater KIT

3 Drip tray drain

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



[alfa.luvegroup.com](http://alfa.luvegroup.com)