Arctigo ID

Industrial air coolers dual discharge

Instruction manual

ORIGINAL INSTRUCTIONS

31464586EN-02

Index

1 Important information

1.1 Disclaimer

This Instruction Manual applies to all Arctigo ID dual discharge industrial 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

Arctigo ID

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

Arctigo ID is a wide and flexible range of dual discharge industrial air coolers for both cooling and freezing applications in medium to large cold rooms, designed to keep fresh and frozen goods refrigerated from +20 to -35 °C, with either high or low humidity content.
The Arctigo range offers a wide variety of cooler configurations and a long list of options, always allowing to select the best model to suit all applications in industrial cooling installations. Arctigo cooler models are available for dedicated applications.

- Refrigerants: HFC, ammonia, brine, CO_2
- Capacity range (SC2): 3 up to 110 kW
- Air volume: 4,000 up to 50,000 m^3/h.

Refrigerant application	Design pressure
HFC	33 bar
Ammonia	30 bar
CO_2	33-40-60 bar
Brine	10 bar

2.2 Standard configuration

- Finned coil:
  - 3 coil block modules
  - 3, 4, 6 or 8 tube rows deep
  - Tubing ø 5/8” Cu ripple fin, smooth Cu tubing for brine or smooth stainless steel.
  - Tube pitch 50 mm square.
  - Corrugated Alu-fins
  - Fin spacings 4, 5, 6, 7, 8, 10 and 12 mm.
- 1 to 5 AC or EC fans, ø 450, 500 & 630 mm, blowing through the coil. Power supply AC/EC fan motors 400/50-60/3 or EC 230/50-60/1.
  Fan motors with dynamically and statically balanced external rotors, protection grade IP54 or IP55. Integrated thermo contacts (Clickson) provide reliable protection against thermal overload.
- Corrosion resistant materials: coil frame and casing pre-galvanized sheet steel, epoxy coated RAL 9003.
- Hinged side panels and driptray, drain(s) 1½" BSP external
- Fitted with schräder valve on the suction connection for testing purposes (brine units excluded).
- Suitable for dry expansion or pumped system.
- Stickers indicate fan direction and refrigerant in/out.
- Each heat exchanger is leak tested with dry air and finally supplied with a dry air pre-charge.
- Delivery in mounting position. Coolers are mounted on wooden beams. Installation can take place with use of a forklift.

2.3 Options

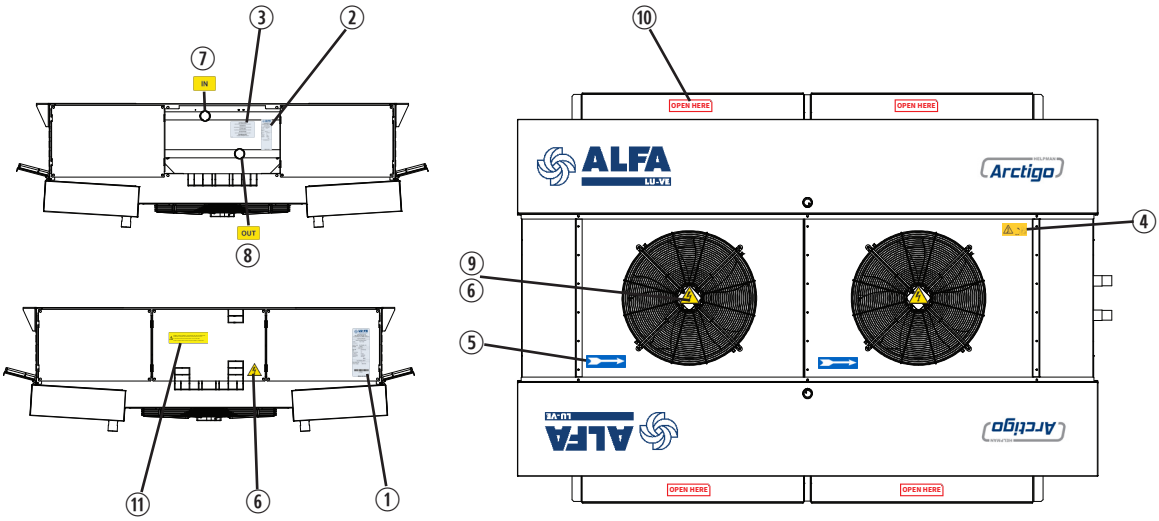
- Defrost systems (incl. connection box for all electric defrost systems)
  - Electric defrost in driptray (E1)
  - Electric defrost - heavy (E2)
  - Electric defrost - light (E4)
  - Hotgas defrost - light, not connected (HG1)
  - Hotgas defrost - heavy, not connected (HG2)
  - Hotgas defrost - light, connected (HG1C)
  - Hotgas defrost - heavy, connected (HG2C)
  - Hot glycol circuit defrost - heavy (HW2)
- Fan ring heater, connected (FRH)
- Hinged fan plate (HF)
- Driptray insulation 13 mm styropore + cladding (I2)
- Adapter 90° for horizontal driptray drain connection
- Export packing crate
- Coil protection
  - Pre-coated aluminium (EP)
  - AlMg2.5 sea water resistant aluminium fins (SWR)
- Slip-on flanges (F) for brine models only:
  -aluminium PN16 for copper tube units
  -stainless steel PN16 for stainless steel tube units
- Stainless steel casing and frame (SSC)
- Re-heating coil (RH)
  Two additional tube rows with separated fins and connection tubes.
  Only for 3, 4 and 6 tube rows models.
- Switch on/off (SW)
- Fan motors wired to connection box (CB)
- Central internal connection box wired to a single external switch (CB1)
- On special request only:
  - Draw-through fans for blast freezing applications.
  - Top mounted fans

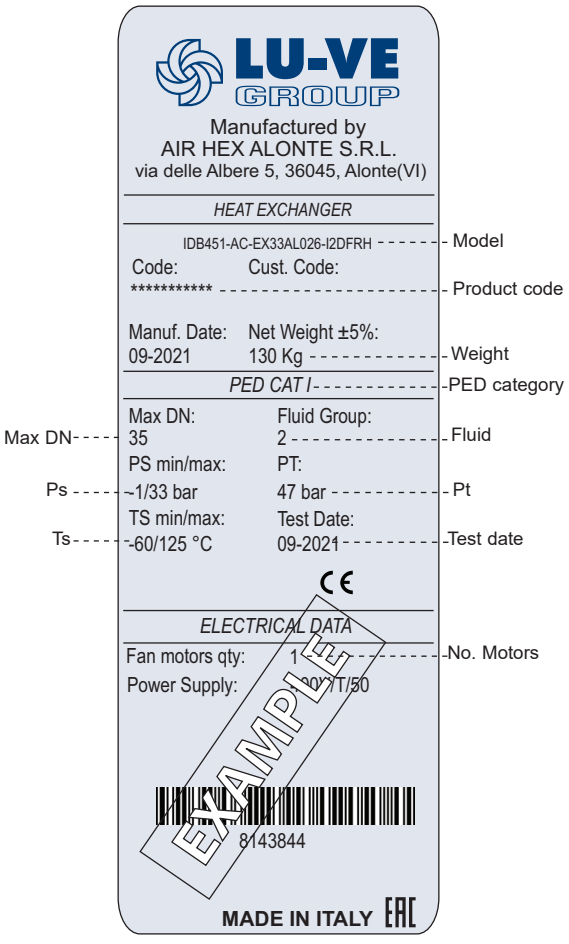
2.4 Code description

ID	B	45	1	-	A	C	-	E	X	33	AL	7	*	5	-	*	D	FRH
1	2	3	4		5	6		7	8	9	10	11	12	13		14	15	16

1 Arctigo industrial air cooler - dual discharge
2 Air direction (B=blow through)
3 Fan diameter (45=450 mm, 50=500 mm, 63=630 mm)
4 No. fans (1 to 5)
5 Tube rows code (A=3, B=4, C=6, D=8)
6 Tube material (C=copper, SS=stainless steel)
7 Application (E=direct expansion, PB=pumped bottom feed, PT=pumped top feed)
8 Refrigerant system (H=HFC, A=ammonia, W=brine, X=CO_2)
9 Maximum working pressure
10 Fin material (AL=aluminium, EP=precoated aluminium, SWR=sea water resistant aluminium)
11 Fin spacing (4=4 mm, 5=5 mm, 6=6 mm, 7=7 mm, 8=8 mm, 0=10 mm and 2=12 mm)
12 No. circuits
13 Capillary diameter (brine and pump: X; DX: 4, 5 or 6)
14 Fan motor code
15 Fan type (D or Y= AC 3ph, S=AC 1ph, E=EC)
16 Options

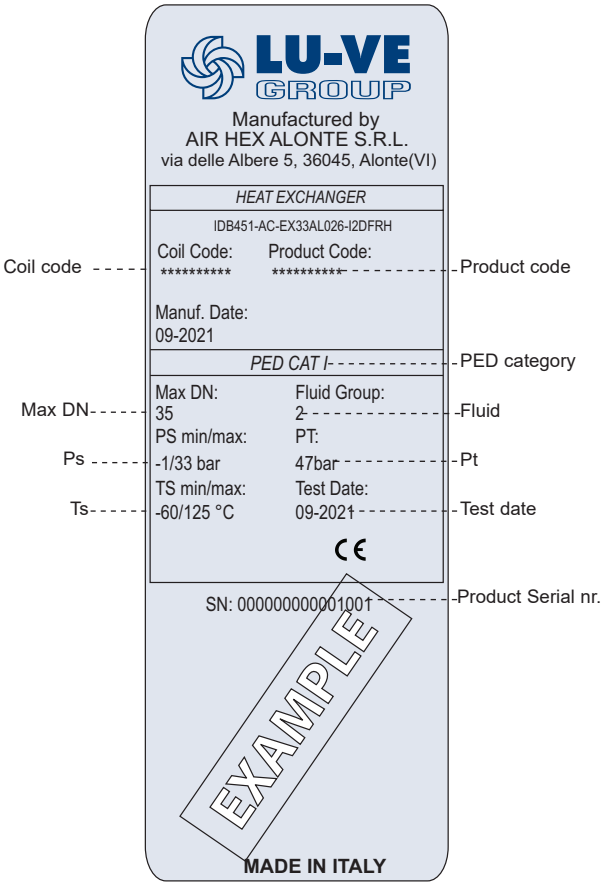
3 Product labels





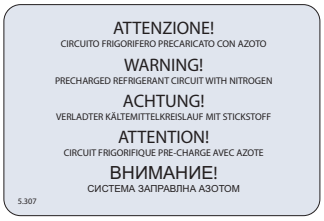
1. Product label

Model	Refer to paragraph "2.4 Code description"
Product code	Communicate this when ordering spare parts as they identify the unit
Unit Net Weight	Check before any lifting operation to ensure that proper lifting tools are used
PED Category	According to PED
Max DN	Maximum diameter of the distributor tube
Fluid	Refrigerant
Ps	Design pressure
Pt	Test pressure
Coil Ts	Range of operating temperatures for the coil
Test date	Date on which the coil has been pressure tested in the factory
No Motors	Number of fans



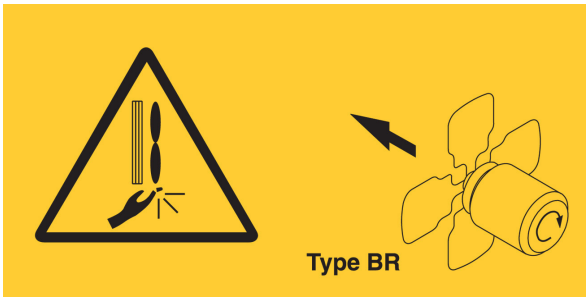
2. Product label - coil

Product code Product serial nr.	Communicate these when ordering spare parts as they identify the unit
PED Category	According to PED
Max DN	Maximum diameter of the distributor tube
Fluid	Refrigerant
Ps	Design pressure
Pt	Test pressure
Coil Ts	Range of operating temperatures for the coil
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. Warning sign for fans and fan type

Airflow direction:
B= blow-through

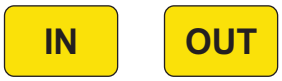
Rotation direction:
L= left
R= right

5. Fan direction

Sticker indicates fan rotation direction.

6. Electrical warning

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

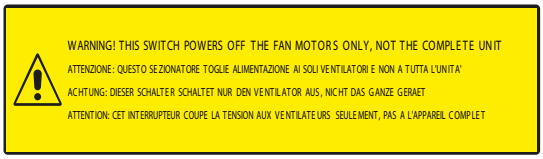


7/8. In/Out

Refrigerant connections inlet and outlet

9. Fan motor
Fan motor item number.

10. Open here
Removable sticker.
Gently pull down and open the sputter plates.

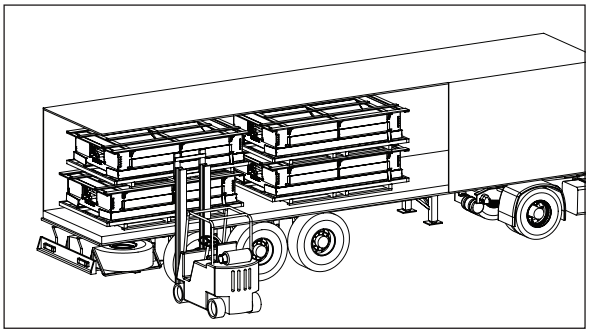


11. Fan motors switch off
In case CB1 option is present, the sticker indicates that this switch powers off the fan motors only, not the complete unit.

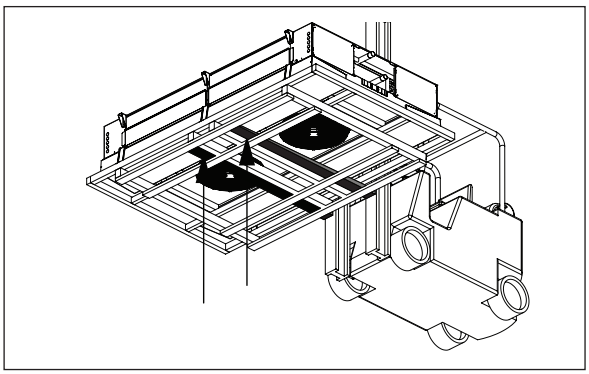
Grounding
Whenever electrical components supplied by Alfa LU-VE have this sticker, is mandatory to ground them. The yellow/green grounding wire must be left longer than the others, to ensure that it is the last one to be detached from the terminals in the event of the cable being pulled off. Grounding is designed for the electrical equipment supplied with the unit and is not to be intended as protection from external sources.

4 Unpacking and lifting

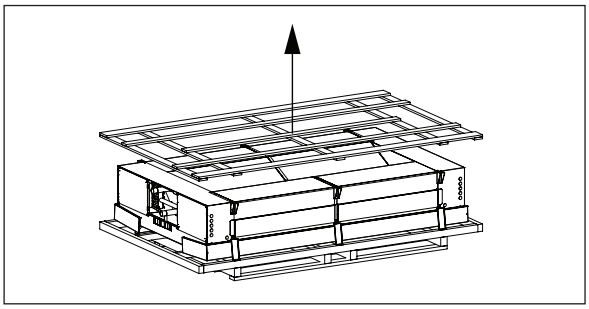
Always follow guidelines and instructions as given in the air cooler product manual AHE00042. Arctigo air coolers are delivered in mounting position, mounted on wooden beams and a wooden pallet on top. Handling and positioning can take place with use of a forklift. When more cooler units are delivered in a single shipment, packed air coolers may be stacked during transportation. Packed air coolers are to be unloaded one by one and lifted according to the following procedure:



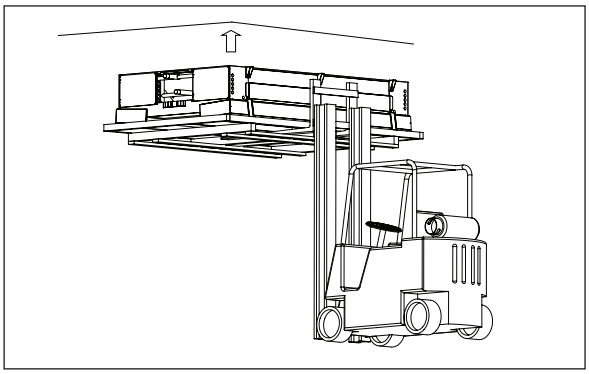
Units must be unloaded and handled only from the long side, one at a time.



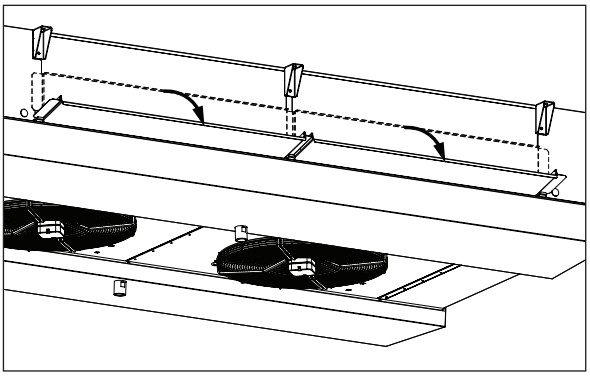
In order to avoid damage to the driptrays or falling of the unit, ensure that the lifting forks cover both inner support beams on the lower pallet.



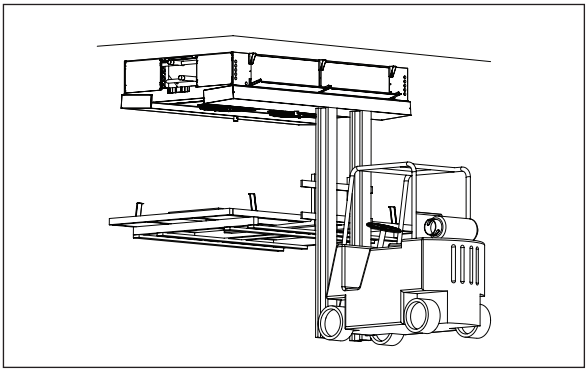
Place the unit on the ground and loosen the fixing materials from the top pallet. Remove the top pallet.



Lift the unit into mounting position and secure following instructions given in chapter "5 Installation".



Gently pull down and open the sputter plates.



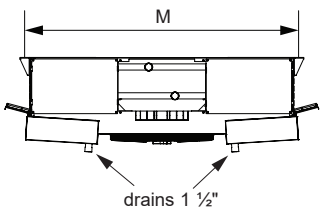
Once the unit is secured in the installation position, loosen the fixing materials from the lower support pallet and remove pallet.

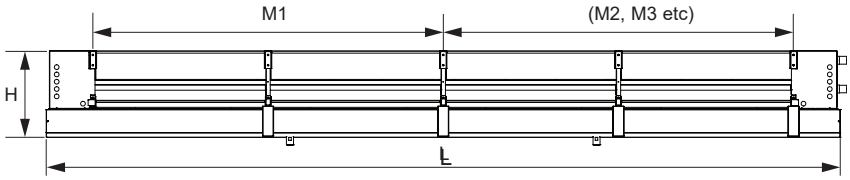
5 Installation

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

5.1 Mounting dimensions

Model	Dimensions (± 5 mm)							
	L	H	M	M1	M2	M3	M4	M5
ID 451	1438	487	1628	800	-	-	-	-
ID 452	2321	487	1628	1600	-	-	-	-
ID 453	3121	487	1628	2400	-	-	-	-
ID 454	3921	487	1628	1600	1600	-	-	-
ID 455	4721	487	1628	1600	800	1600	-	-
ID 501	1721	587	1628	1000	-	-	-	-
ID 502	2721	587	1628	2000	-	-	-	-
ID 503	3721	587	1628	3000	-	-	-	-
ID 504	4721	587	1628	2000	2000	-	-	-
ID 505	5721	587	1628	2000	1000	2000	-	-
ID 631	1921	587	1878	1200	-	-	-	-
ID 632	3121	587	1878	1200	1200	-	-	-
ID 633	4321	587	1878	1200	1200	1200	-	-
ID 634	5521	587	1878	1200	1200	1200	1200	-
ID 635	6721	587	1878	1200	1200	1200	1200	1200

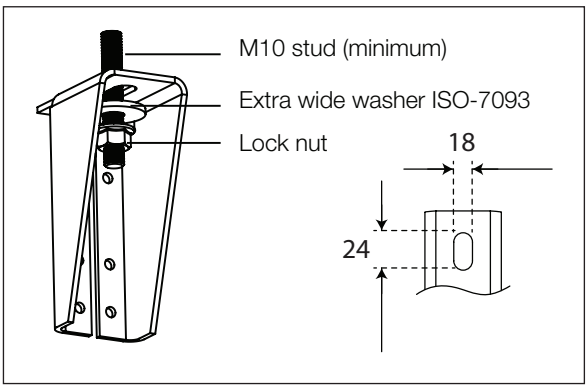




Drawings showing all required mounting and refrigerant connection dimensions are available for download on alfa.luvegroup.com.

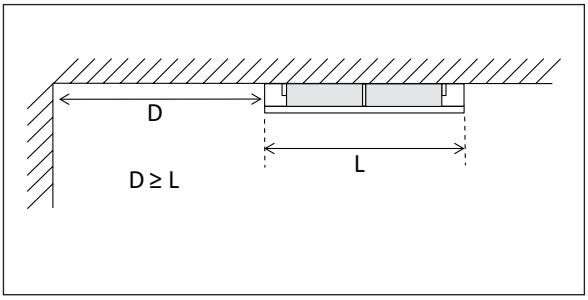
Dimensional drawings

5.2 Mounting bracket



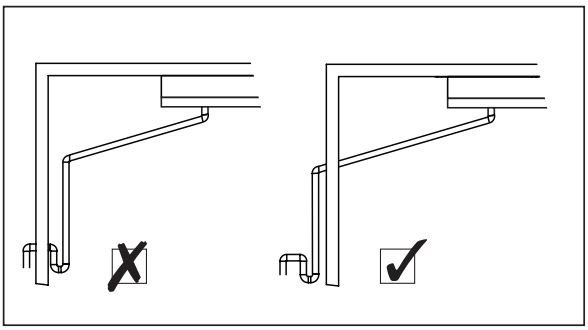
Use extra wide washer (ISO 7093) when mounting the unit to the ceiling. Avoid any lateral torque on the mounting brackets.

5.3 Technical spaces



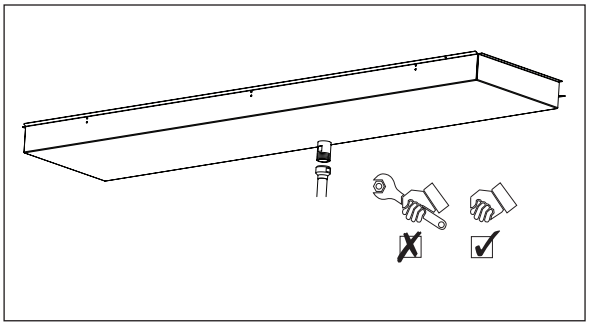
Respect the required minimum space for defrost heater replacement.

5.4 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 an internal or external heating element are required to prevent freezing.

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



Tighten drain connection by hand only.

5.5 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

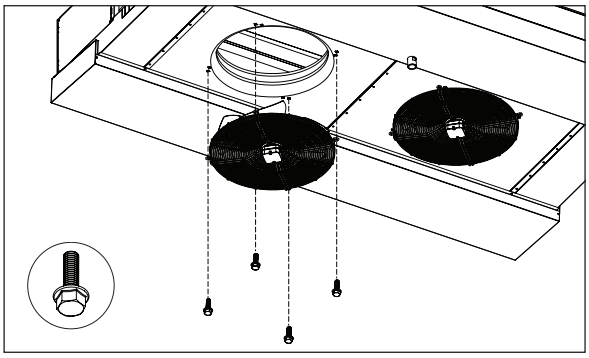
Electrical connection diagrams are available for download on alfa.luvegroup.com. When in doubt always contact your local supplier or Alfa LU-VE representative for assistance.

Electrical connections

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.

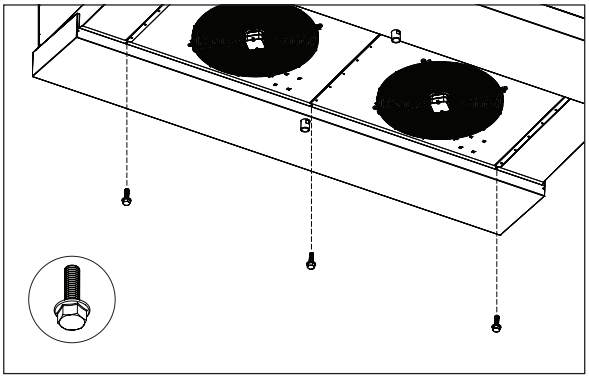
6.1 Fan replacement



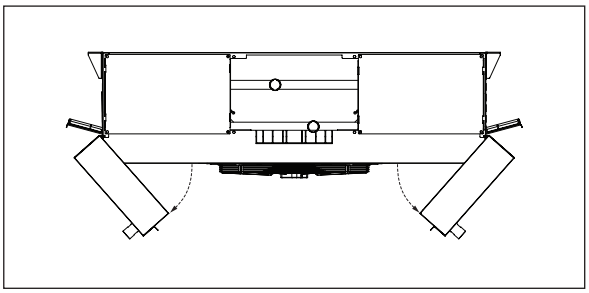
Unscrew fixing bolts and remove old fan. Mount new fan in identical position. Use an anti corrosion compound when remounting the fixing bolts.

Restore electric connection when the new fan has been mounted.

6.2 Driptray

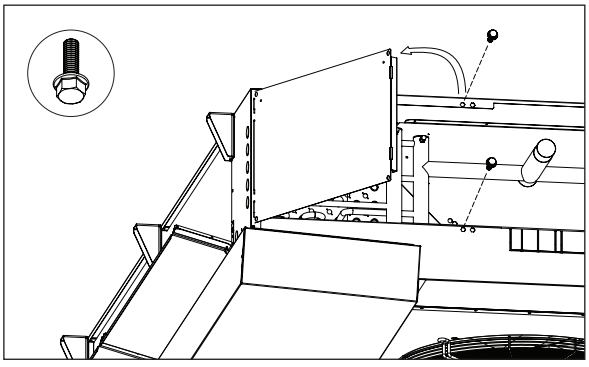


Always disconnect drain line before opening the driptray.
Prior to opening, run a full defrost cycle to remove any ice in the driptray.
Ensure the driptray is empty before opening.
The weight of any leftover water could injure the service operator if the driptray fell open accidentally.
To open tray, first loosen and remove fixing bolts and then lower the drip tray.



Respect the maximum opening angle (90°) to avoid damage to the driptray hinges.

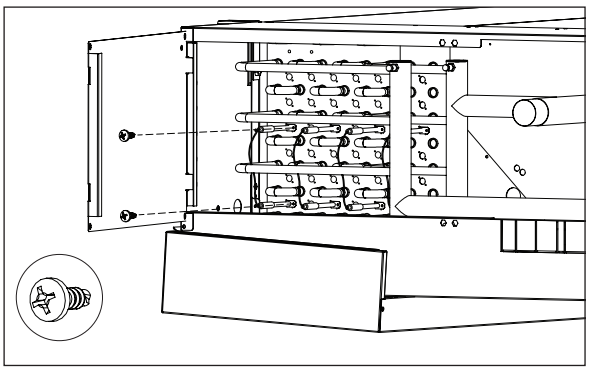
6.3 Side covers



Hinged side covers can be opened for inspection, cleaning and maintenance purposes. This can only be done by qualified personnel.

To open side covers, loosen fixing bolts.

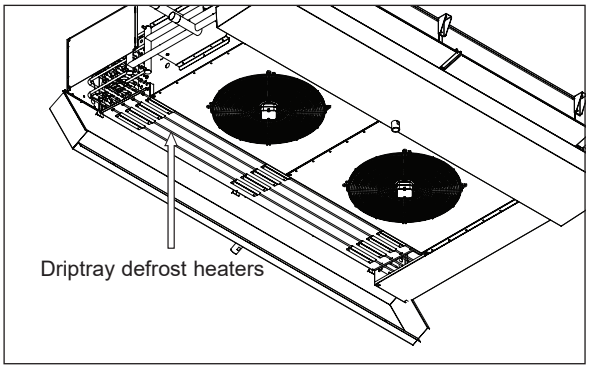
6.4 Coil heater elements replacement



Always disconnect power supply before handling heater elements. Attention: heater elements can be hot!

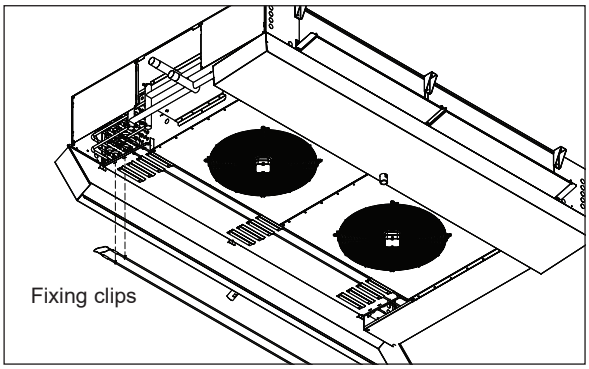
To remove coil heater elements, open side covers on both sides. Disconnect heater element, remove fixing screws and extract elements from coil. Mount new elements in reverse order, close side covers and restore electrical connections.

6.5 Driptray heater elements replacement



Always disconnect power supply before handling heater elements. Attention: heater elements can be hot!

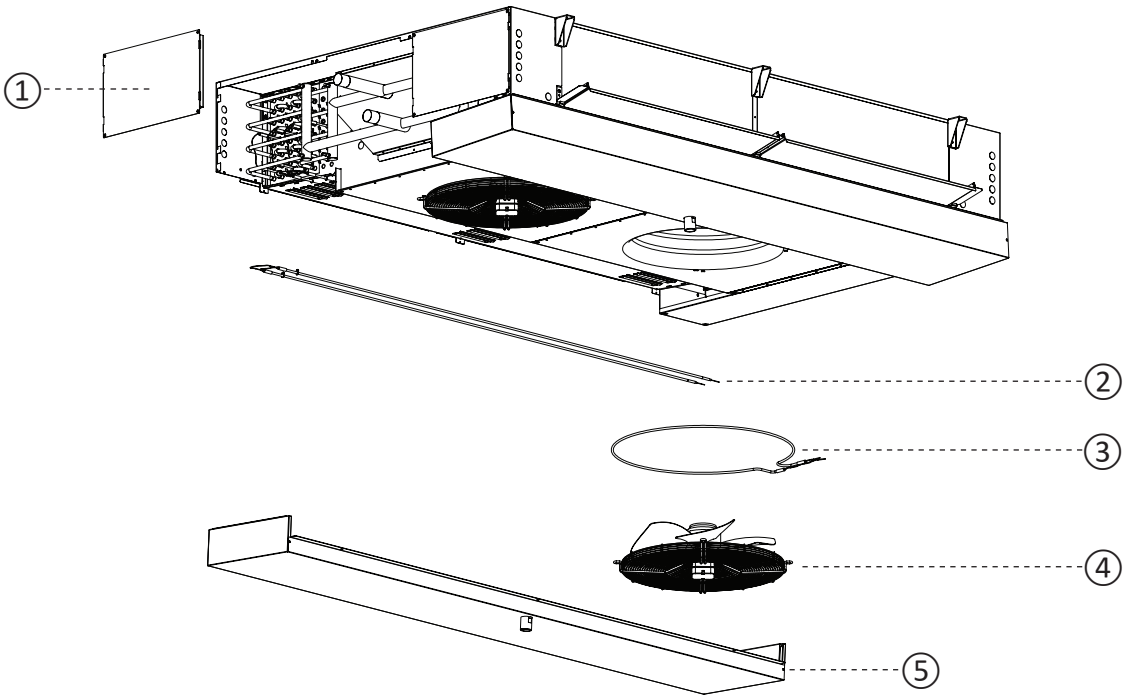
To remove driptray heater elements, open driptray.



Disconnect heater element. Bend slightly to take the fixing clips out of their slots and gently slide the heater element from under the clamps that hold it to the bottom plate.

Mount new element in reverse order, close driptray and restore electrical connections.

7 Spare parts



Spare parts for Arctigo ID

1	Side panels (5 x identical)
2	Electrical defrost element (identical for coil and driptray)
3	Fan ring heater
4	Fan unit complete
5	Driptray (2 x identical)

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

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