



Alfa Laval Arctigo IS/IST

Instruction manual



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

ORIGINAL INSTRUCTIONS

AHE00041EN 1911
9460102298EN-05



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1 Important information

1.1 Disclaimer

This Instruction Manual applies to all Alfa Laval Arctigo IS and IST industrial air cooler products and is supplied in combination with the Alfa Laval Air Cooler Product Manual AHE00042. Both manuals must be carefully examined and instructions should be followed up at all times. Alfa Laval 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 www.alfalaval.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 Laval air heat exchanger products is available on-line on www.alfalaval.com. This includes:

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



Arctigo IS

Alfa Laval offers world-wide service and support in over 55 countries. In case of any questions or uncertainty please contact your local Alfa Laval representative. Contact addresses are available at www.alfalaval.com.



2 Product description

2.1 General information and application

Arctigo IS/IST is a wide and flexible range of single 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 +10 to -40 °C, with either high or low humidity content.

The Alfa Laval 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: HFO/HFC, ammonia, brine, CO₂
- Capacity range (SC2): 3 up to 250 kW
- Air volume: 3,000 up to 120,000 m³/h.

Refrigerant application	Design pressure
HFO/HFC	33 bar
Ammonia	30 bar
CO ₂	33-40-60 bar
Brine	10 bar

2.2 Standard configuration

- Finned coil:
 - 8 coil block modules
 - 3, 4, 6, 8 or 10 tube rows deep
 - Tubing ø 5/8" Cu ripple fin, smooth Cu tubing for brine or smooth stainless steel.
 - Tube pitch 50 mm square or 48 mm triangular.
 - Corrugated Alu-fins
 - Fin spacings 4, 5, 6, 7, 8, 10 and 12 mm.
- 1 to 8 Fans, ø 450 mm up to ø 1000 mm, drawing or blowing trough the coil.
2-Speed fan motors 400/50-60/3 or 230/50-6-/1 (ø 450 only), two noise levels (D/Y).
AC/EC Fan motors with dynamically and statically balanced external rotors, manufactured in accordance with VDE 530/12.84 IP54 class F. Integrated thermo contacts (Clickson) provide reliable protection against thermal overload.
- Corrosion resistant materials: coil frame and casing pre-galvanized sheet steel, epoxy coated RAL 9002.
- Hinged side panels and drip tray, drain(s) 1½" BSP external
- Fitted with schröder valve on the suction connection for testing purposes.
- Refrigerant connections right or left (L=default).
- Sufficient room for fitting the expansion valve inside.
- Suitable for dry expansion or pumped system.
- Stickers indicate fan direction and refrigerant in/out.



2.3 Options

- Electric defrost systems (incl. connection box)
 - Electric defrost in drip tray (E1)
 - Electric defrost - heavy (E2)
 - Electric defrost - light (E4)
- Hotgas defrost systems
 - Hotgas defrost - light, not connected (HG1)
 - Hotgas defrost - heavy, not connected (HG2)
 - Hotgas defrost - light, connected (HG1C) for Arctigo IS only
 - Hotgas defrost - heavy, connected (HG2C) for Arctigo IS only



- Other defrost systems
 - Water defrost (W1) for Arctigo IS only
 - Water defrost - low temperatures (W2) for Arctigo IS only
 - Hot water/glycol defrost light/heavy (HW1/HW2)
- Hinged fan ring (HF)
- Inlet/discharge hood 90/45° (H1/H2) for Arctigo IS only
- Drip tray insulation 13 mm styropore + cladding (I2)
- Drain kit adapter, rubber O-ring and 45° 40 mm PVC connection, freely adjustable into either horizontal or vertical position.
- Streamer (ST) for Arctigo IS only
- Shutupsock (S) for Arctigo IS only
- Fan casing 90/45° (FC1/FC2) for Arctigo IS only
- Sockring (SR) for Arctigo IS only
- Coil protection
 - Pre-coated aluminium (EP)
 - AlMg2.5 sea water resistant aluminium fins (SWR)
- Slip-on flanges (F) for Arctigo IS brine models only:
 - aluminium PN16 for copper tube units
 - stainless steel PN16 for stainless steel tube units
- Dual fin spacing (DF) available on request
- Stainless steel casing and frame (SSC)
- Mounting feet (MF) optional for Arctigo IS, standard for Arctigo IST
- Fan ring heater (FRH)
- Switch on/off (SW)
- Fan motors wired to connection box (CB)

2.4 Code description

Arctigo IS

IS	B	3	5	-	2	s	H	8	CU	E	X	60	AL	7.0	-	2H5	-	*	-	D	-	L	FRH
1	2	3	4		5	6	7	8	9	10	11	12	13	14		15		16		17		18	19

- 1 Alfa Laval Arctigo industrial air cooler - single discharge
- 2 Air direction (B=blow-through, D=draw-through)
- 3 Cooler module size (1 to 7)
- 4 Number of fans (1 to 8)
- 5 Coil geometry (1=triangular, 2=square)
- 6 Short coil module (s)
- 7 Fan speed (H=high pressure fan)
- 8 Tube rows in air direction (3, 4, 6, 8 or 10 rows)
- 9 Tube material (CU=copper, SS=stainless steel)
- 10 Application (E=direct expansion, PB=pumped bottom feed, PT=pumped top feed)
- 11 Refrigerant system (H=HFO/HFC, A=ammonia, W=brine, X=CO2)
- 12 Maximum working pressure
- 13 Fin material (AL=aluminium, EP=precoated aluminium, SWR=sea water resistant aluminium)
- 14 Fin spacing (4, 5, 6, 7, 8, 10 and 12 mm)
- 15 Circuiting code (2H, 1H, 1/2H ... 2D, 1D, 1/2D...)
- 16 Fan motor code
- 17 Fan connection
- 18 Refrigerant connection side (R=right, L=left - fan side view)
- 19 Option code

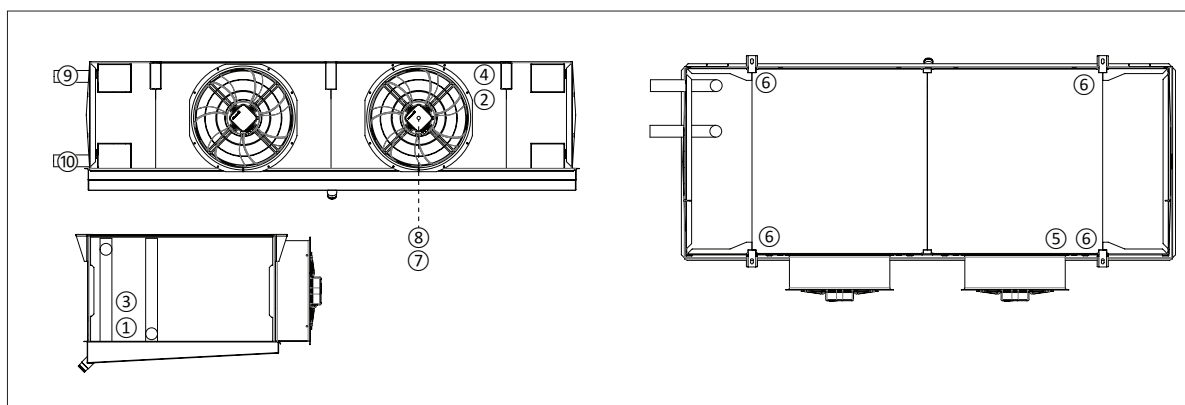


Arctigo IST

IST	B	3	5	-	2	s	H	8	CU	-	E	X	-	50	AL	-	7.0	2H5	-	L	-	*	-	D	FRH
1	2	3	4		5	6	7	8	9		10	11		12	13		14	15		16		17		18	19

- 1 Alfa Laval Arctigo industrial air cooler - tunnel cooler
- 2 Air direction (B=blow-through, D=draw-through)
- 3 Cooler module size (3, 3s, 4)
- 4 Number of fans (2x1 to 2x6)
- 5 Coil geometry (2=square)
- 6 Short coil module (s)
- 7 Fan speed (H=high pressure fan)
- 8 Tube rows in air direction (3, 4, 6, 8 or 10 rows)
- 9 Tube material (CU=copper, SS=stainless steel)
- 10 Application (E=direct expansion, PB=pumped bottom feed, PT=pumped top feed)
- 11 Refrigerant system (H=HFO/HFC, A=ammonia, X=CO2)
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- 14 Fin spacing (4, 5, 6, 7, 8, 10 and 12 mm)
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- 16 Refrigerant connection side (R=right, L=left - fan side view)
- 17 Fan motor code
- 18 Fan connection
- 19 Option code

3 Product labels



ATTENZIONE!
CIRCUITO FRIGORIFERO PRECARICATO CON AZOTO

WARNING!
PRECHARGED REFRIGERANT CIRCUIT WITH NITROGEN

ACHTUNG!
VERLADTER KÄLTEMITTELKREISLAUF MIT STICKSTOFF

ATTENTION!
CIRCUIT FRIGORIFIQUE PRE-CHARGE AVEC AZOTE

ВНИМАНИЕ!
СИСТЕМА ЗАПРАВЛЕНА АЗОТОМ

5.307

1. 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.




**ALFA
LAVAL**


Manufacturer: AIR HEX ALONTE S.R.L. - Italy **Manuf. date:** 04 / 2019

Model: ISD12-16CU-EH33-AL10.0-1/2H-4-GSE/E2

Item ID: 3289214612
Serial no. AA 23490
O.A. 387589/20

Unit Net Weight: 177 Kg ±5%
Sn 

Country of origin Italy


WARNING
READ INSTRUCTION MANUAL BEFORE
INSTALLATIONS OPERATIONS AND MAINTENANCE
TO AVOID INJURIES OR DAMAGE

EAC


2. 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



**ALFA
LAVAL**

Manufacturer: AIR HEX ALONTE S.R.L. - Italy **Manuf. date:** 04 / 2019

Model: O.A. 387589/20
 ISD12-16CU-EH33-AL10.0-1/2H-4-GSE/E2

Item ID: 3289214612
Serial no. AA 23490
Sn 

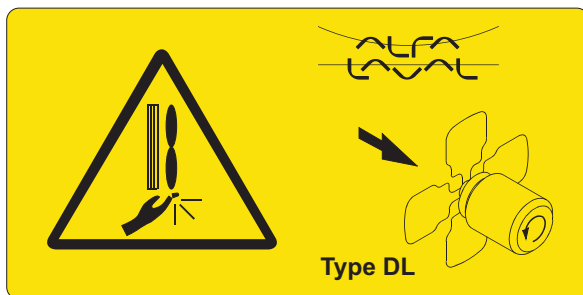
Coil PED data:
Max DN: 35
Fluid Group 2
Coil Ts: +125/-60 °C
Ps: 33 bar
Pt: 47 bar
Test Date: 04-2019



WARNING
READ INSTRUCTION MANUAL BEFORE
INSTALLATIONS OPERATIONS AND MAINTENANCE
TO AVOID INJURIES OR DAMAGE

EAC

3. 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



4. Warning sign for fans and fan type

Airflow direction:

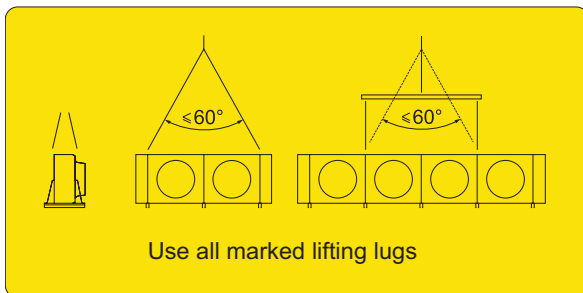
B= blow-through

D= draw-through

Rotation direction:

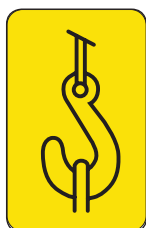
L= left

R= right



5. Lifting from above

Preferably use hoisting beams when lifting from above.



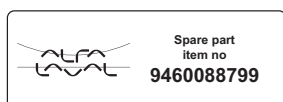
6. Lifting lug

Use all marked lifting lugs when lifting from above.



7. Electrical warning

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



8. Fan motor

Fan motor item number.



9/10. In/Out

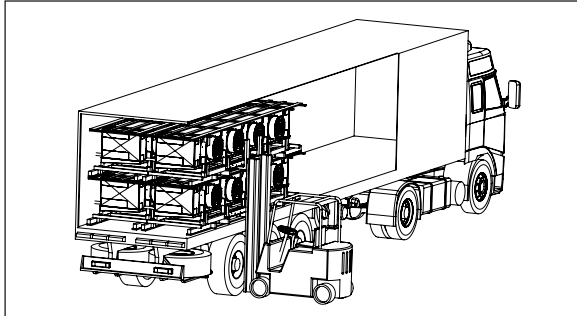
Refrigerant connections inlet and outlet.

4 Unpacking and lifting

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



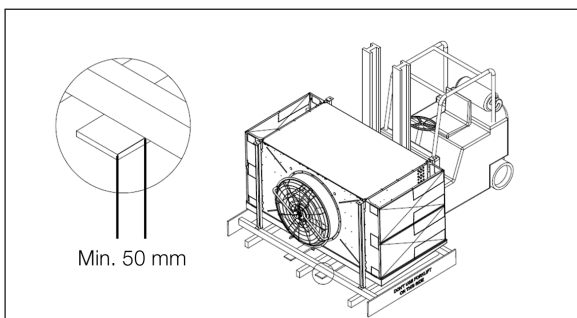
Arctigo air coolers are delivered in mounting position, mounted on wooden beams. Handling and positioning can take place with use of a forklift. When more coolers are delivered in a single shipment, packed air coolers may be stacked during transportation (max. 2 units). Packed air coolers are to be unloaded one by one and lifted according to the following procedure:



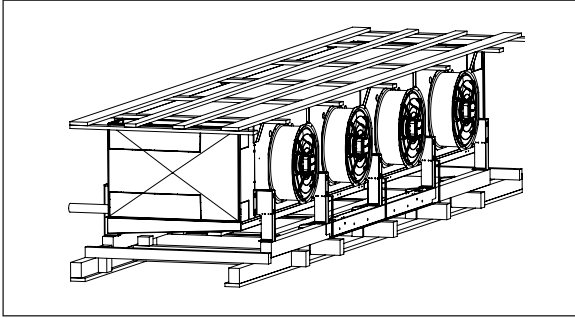
Units must be unloaded and handled only from the long side, one at a time.



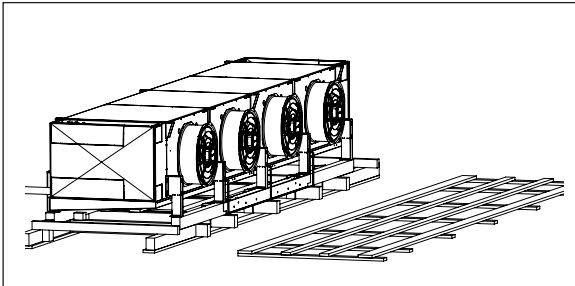
When possible, casing options are supplied mounted on the unit. In such cases this warning might be present on one side the unit packaging. In order to ensure safe lifting, the unit must be loaded on the heavier side i.e. the one where this warning sign is not present.



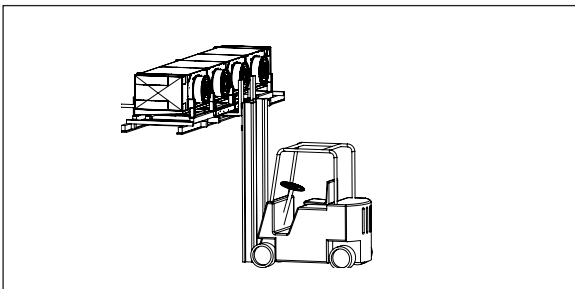
In order to avoid damage to the driptray or falling of the unit, ensure that the lifting forks cover all beams from the lower support pallet.



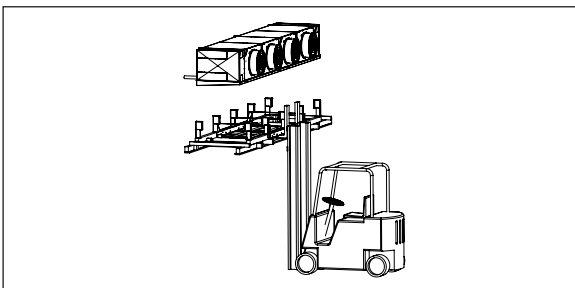
Place the unit on the ground and loosen the fixing materials from the top pallet.



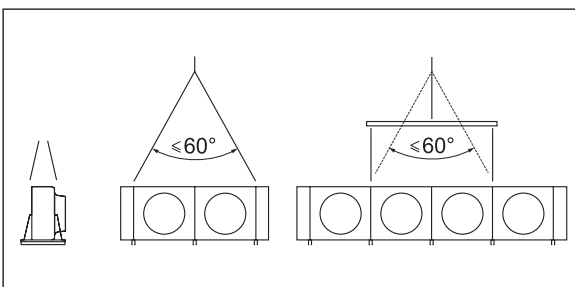
Remove the top pallet.



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



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



When unit lifting from above is required, follow the lifting instructions in the air cooler product manual AHE00042



5 Installation

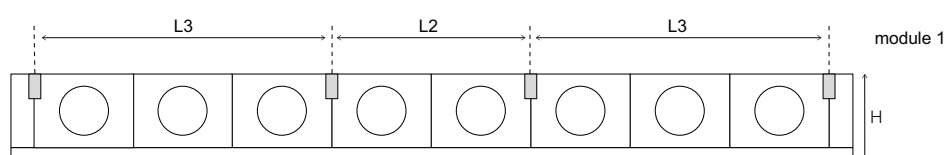
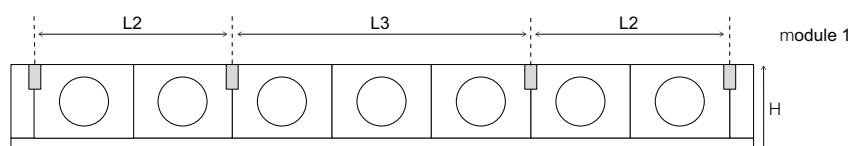
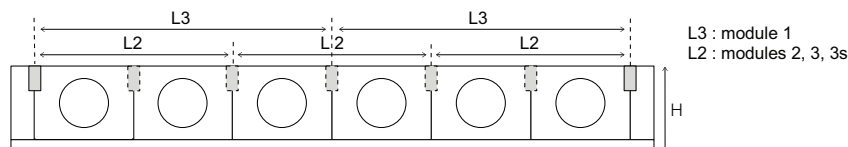
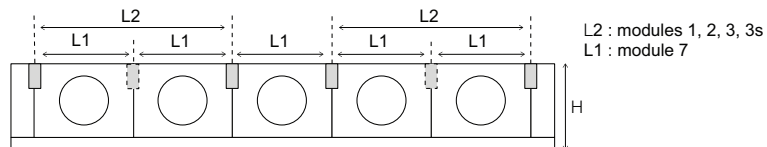
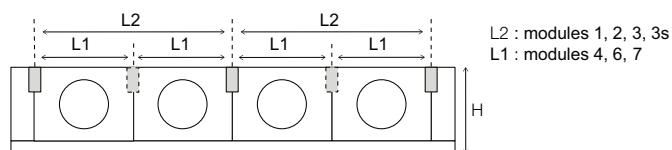
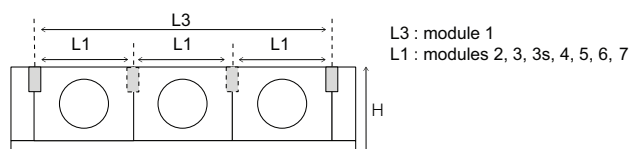
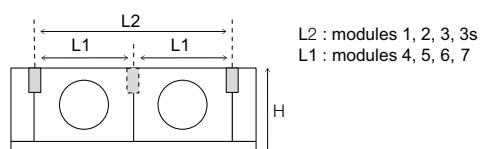
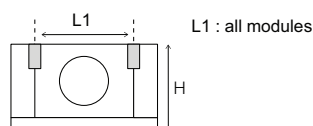


Always follow guidelines and instructions as given in the air cooler product manual AHE00042.

5.1 Assembly

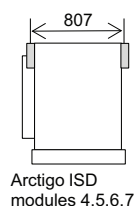
Air cooler units may be delivered as separate components that need to be assembled on site. This could occur when casing options like discharge diffusers and suction hoods are selected, causing the unit to exceed the maximum width for transportation by truck (240 cm). Depending on handling conditions on site, assembly should take place either before or after mounting the unit to the final installation position. When supplied in components, assembly instructions are included with the air cooler unit.

5.2 Mounting dimensions

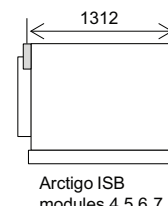


Tolerance on dimensions: ± 5 mm

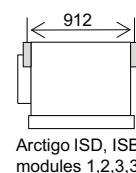
Module	H	L1	L2	L3
1	587	800	1600	2400
2	687	1000	2000	-
3	887	1200	2400	-
3s	887	1000	2000	-
4	1107	1600	-	-
5	1307	2000	-	-
6	1507	2000	-	-
7	1707	1600	-	-



Arctigo ISD
modules 4,5,6,7



Arctigo ISB
modules 4,5,6,7



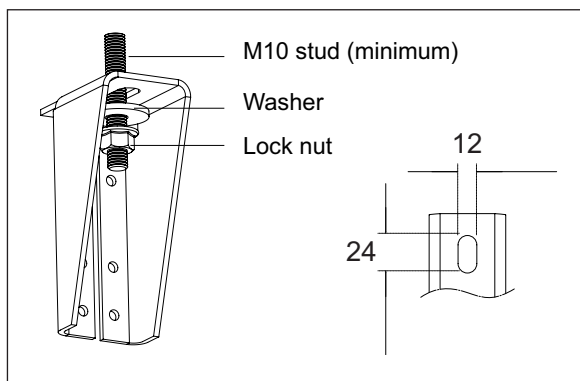
Arctigo ISD, ISB
modules 1,2,3,3s

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



Dimensional drawings

5.3 Mounting bracket

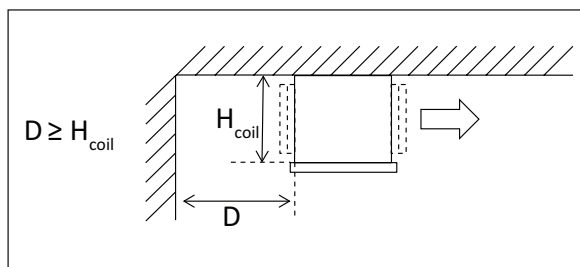


Use extra wide washer (ISO 7093) when mounting the unit to the ceiling.
Avoid any lateral torque on the mounting brackets.

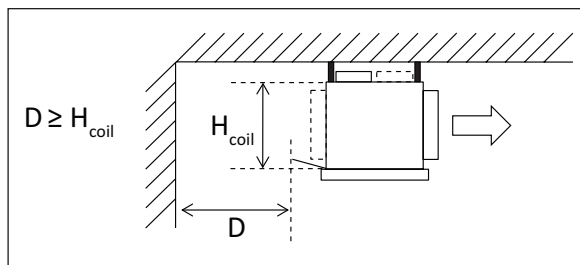


5.4 Technical spaces

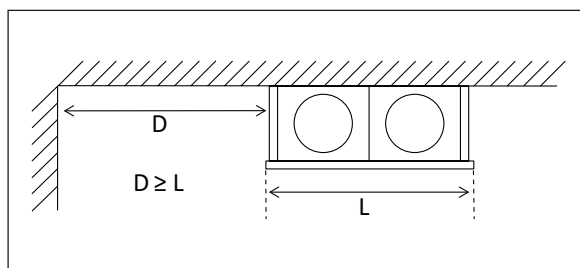
The following guidelines are to be respected when positioning air cooler units.



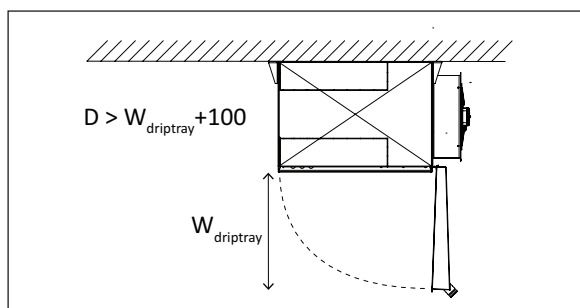
Minimum wall distance on suction side.



Minimum wall distance on suction side for air cooler models with water defrost system.



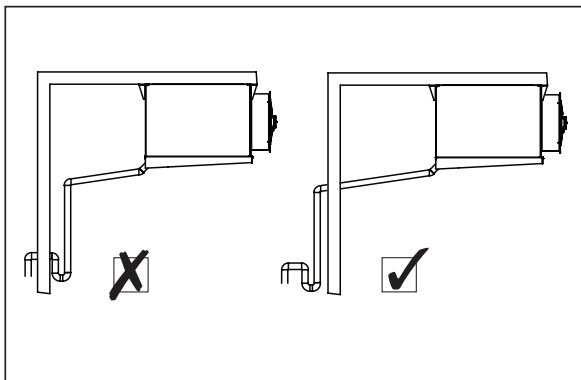
Minimum space for defrost heater replacement



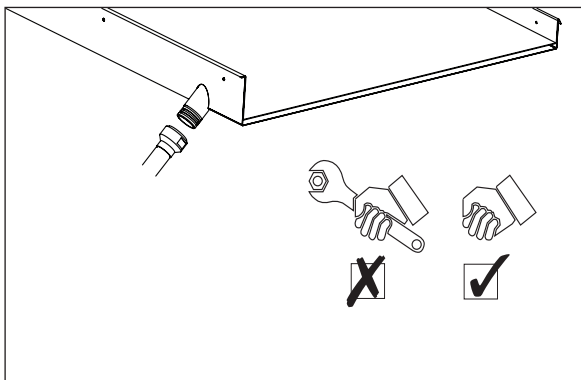
Adequate spacing for drip tray opening shall be left below the cooler.

5.5 Drain line

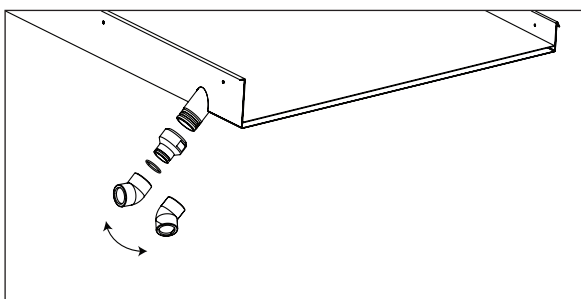
The drain line diameter must be at least the size of the driptray drain diameter and should be laid with an adequate slope. For room temperatures below 0° C drain line insulation and an internal or external heating element are required to prevent freezing.



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



Tighten drain connection by hand only.



Optional drain kit for PVC click-on connection including adapter, O-ring and 40 mm 45° PVC connection, freely adjustable into either horizontal or vertical position.

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 connection diagrams are available for download on www.alfalaval.com. When in doubt always contact your local supplier or Alfa Laval Market Support for assistance.

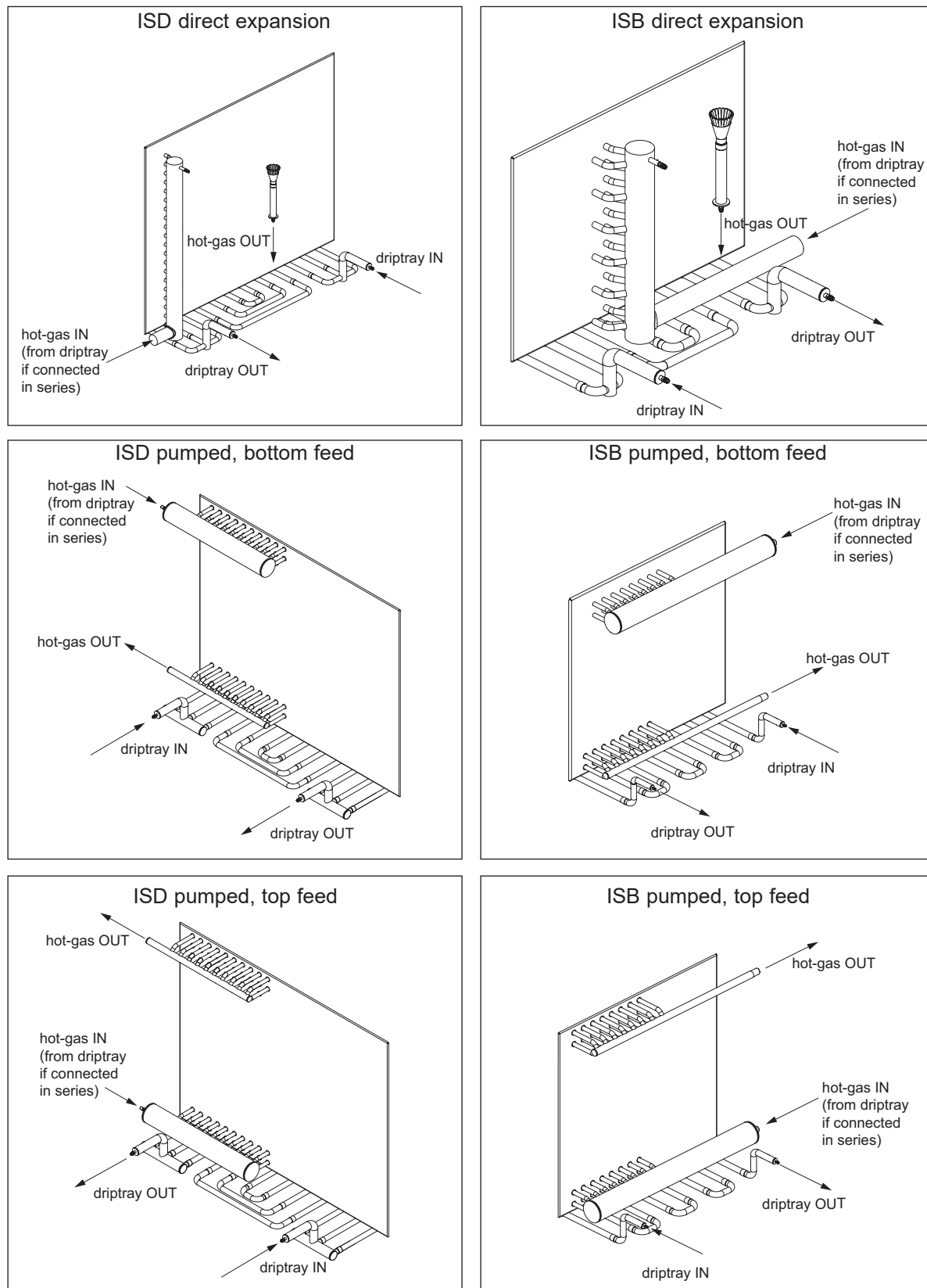


Electrical connections

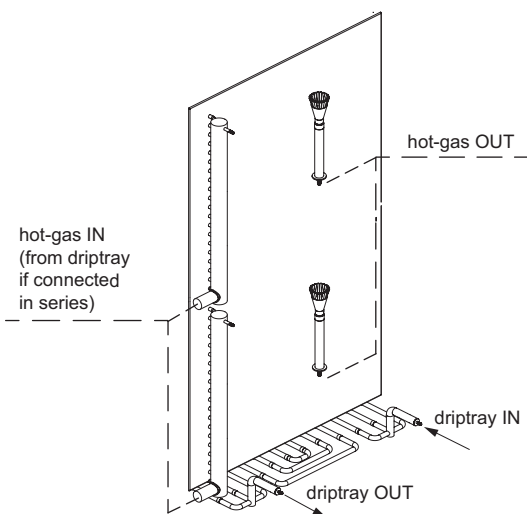
5.7 Hot-gas defrost

An oil separator (not included in the scope of supply) shall be installed in the piping before the hot-gas defrost inlet to avoid oil circulation and accumulation throughout the hot-gas circuit.

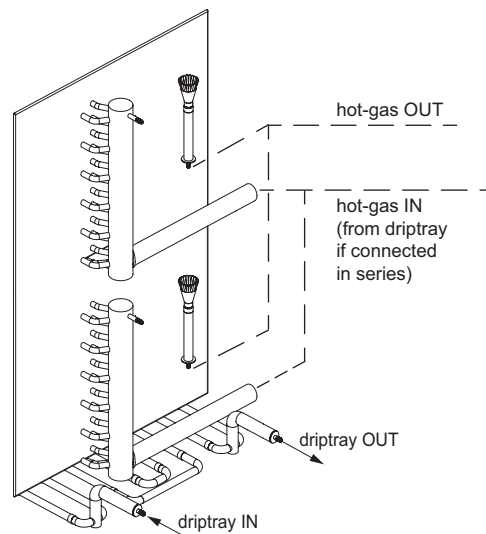
Whenever hot-gas defrost "not connected" (HG1, HG2) is selected, we recommend to connect it as shown below for optimal defrost.



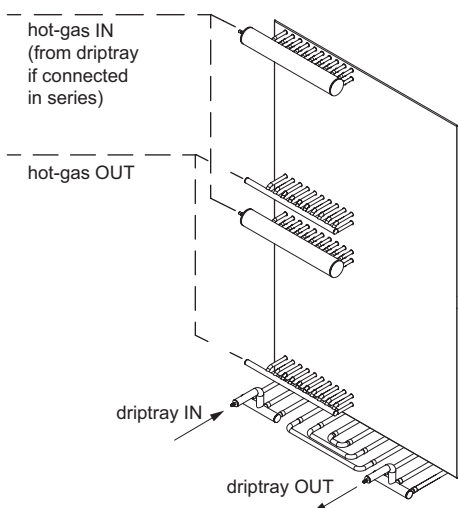
ISD direct expansion, 4 connections



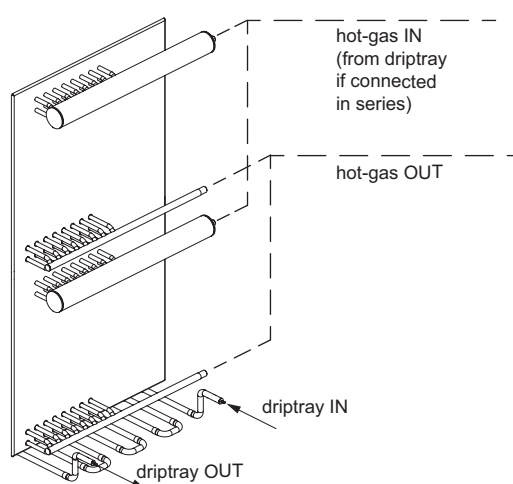
ISB direct expansion, 4 connections



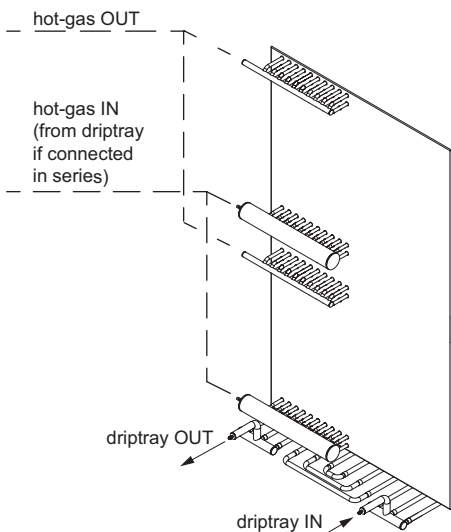
ISD pumped, bottom feed, 4 connections



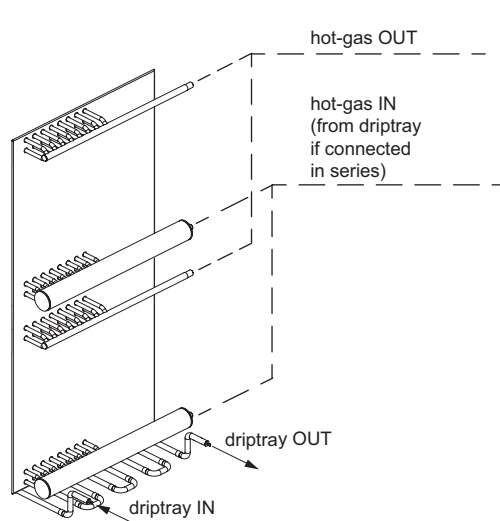
ISB pumped, bottom feed, 4 connections



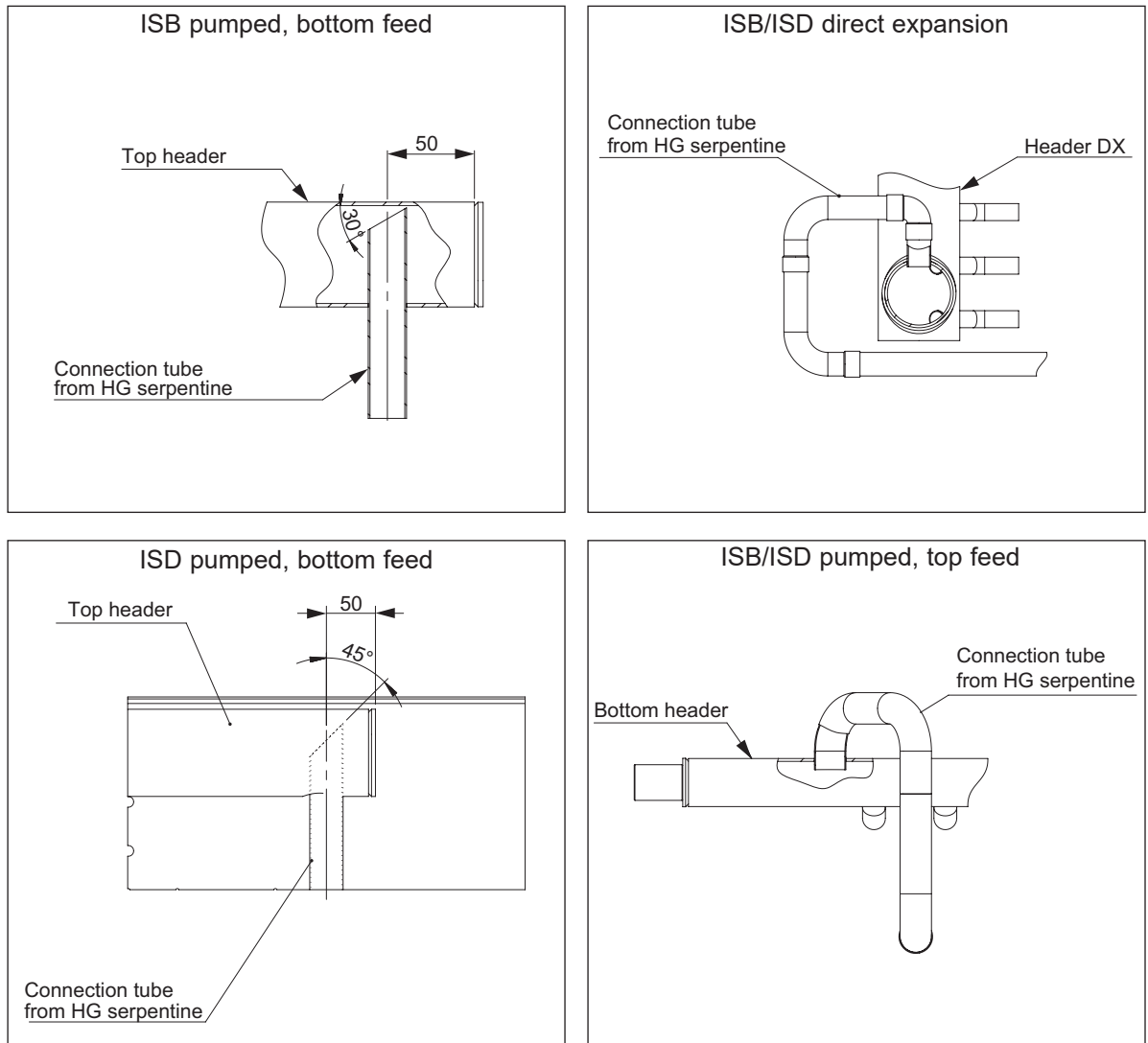
ISD pumped, top feed, 4 connections



ISB pumped, top feed, 4 connections



If drip tray and coil defrost are connected in series we recommend that hot-gas passes first through the drip tray. Connection as below are recommended to avoid liquid recirculation.



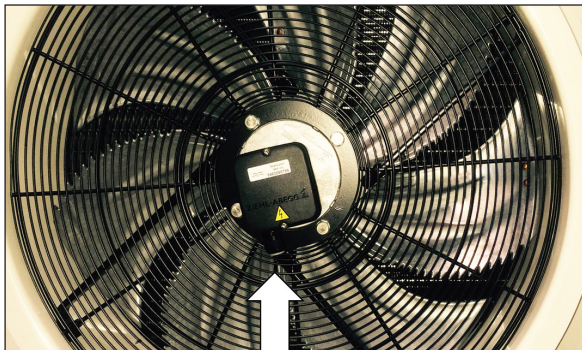
6 Maintenance



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



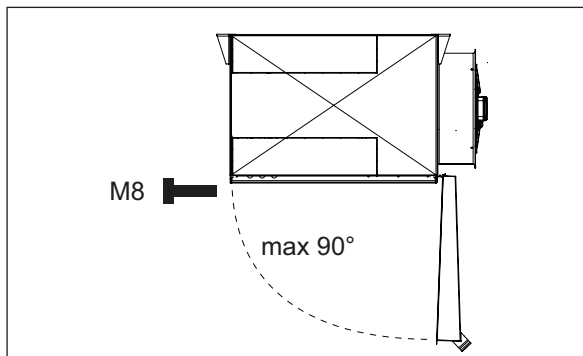
6.1 Fan replacement



Cable glands must be positioned downwards.

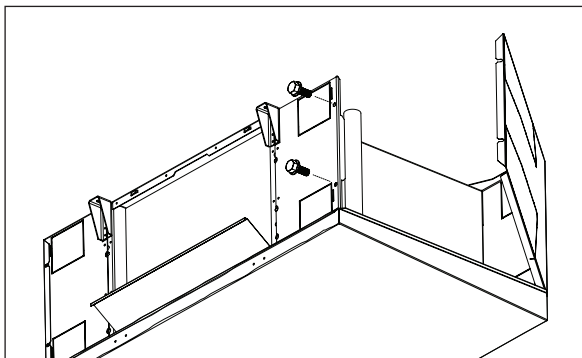
Use an anti-corrosion coating like Geomet or comparable when remounting using new fixing bolts.

6.2 Drip tray



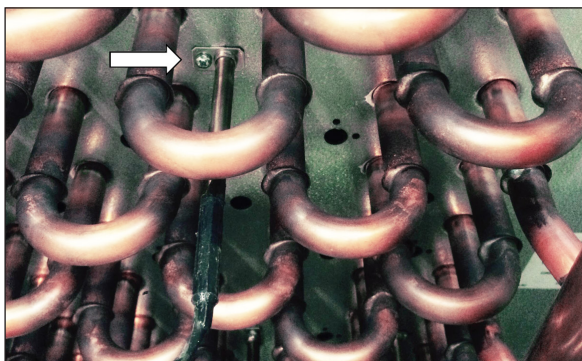
Always disconnect drain line before opening the drip tray. To open tray, first loosen and remove fixing bolts and then lower the drip tray. Respect the maximum opening angle to avoid damage to the drip tray hinges.

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.

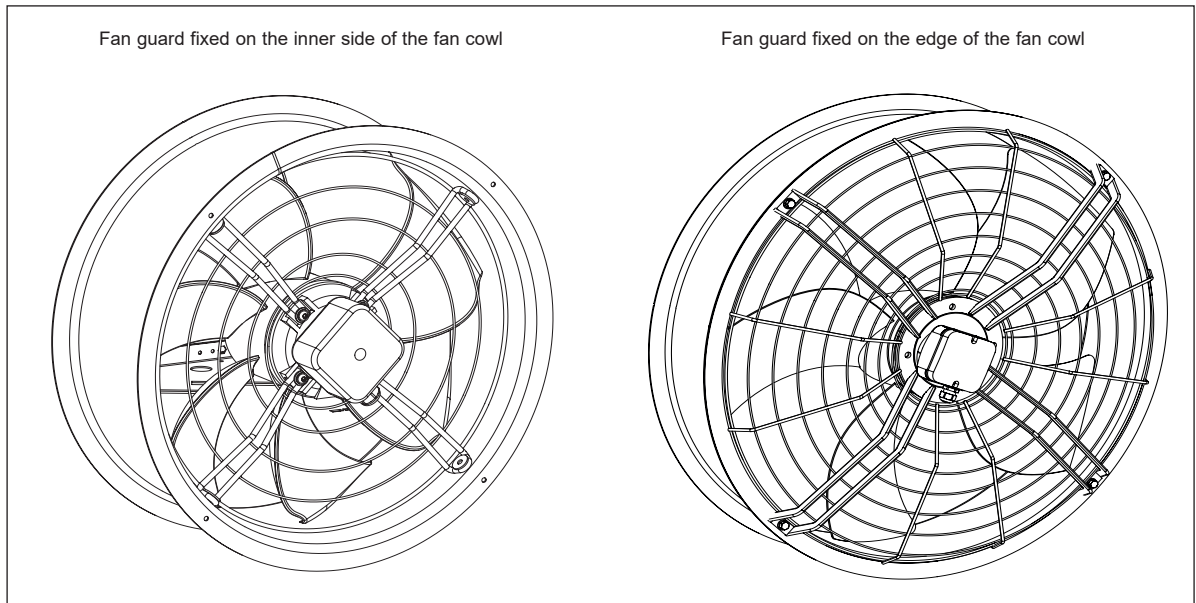
6.4 Defrost heater elements replacement



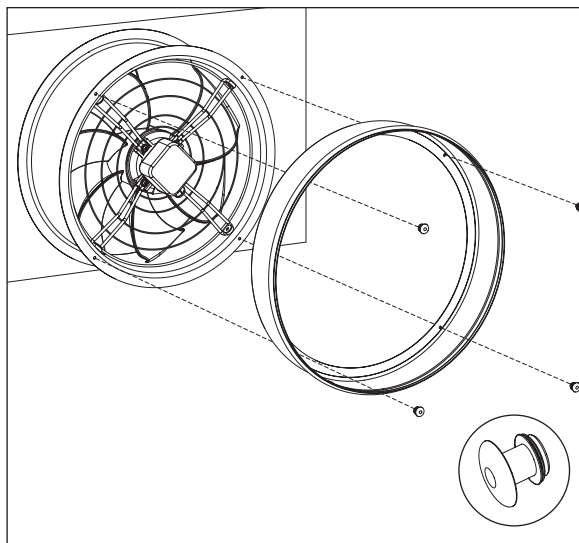
Always disconnect power supply before handling heater elements. To remove heater elements, remove fixing screw and extract element from coil. Mount new element in reverse order and restore electrical connections.

6.5 Sockring mounting

Fan guard can be fixed to the cowl in two different manners.



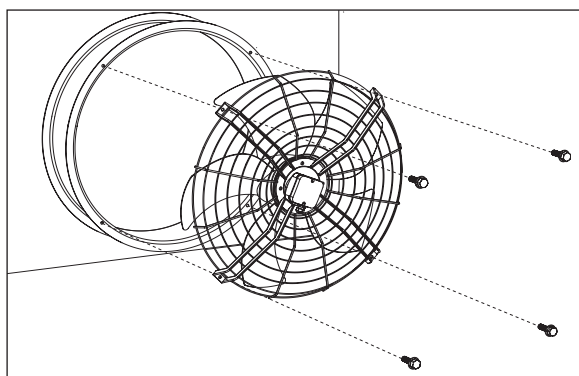
Fan guard fixed on the inner side of the fan cowl



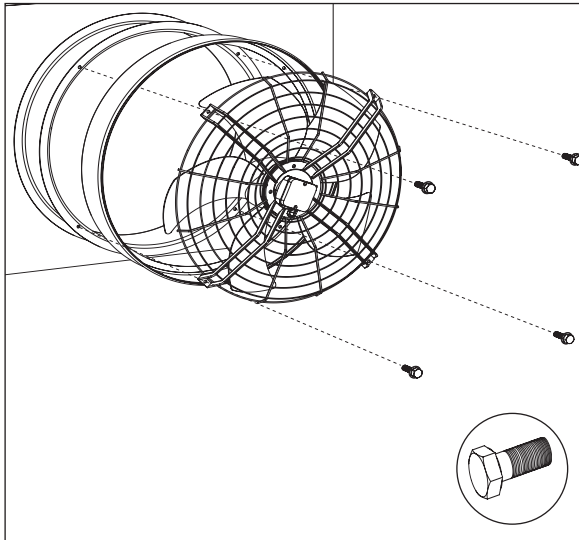
Place the sockring on the top of the fan cowl and fix it to the edge with four rivets.

Restore electric connection of the fan. For electrical connections please refer to the wiring diagrams.

Fan guard fixed on the edge of the fan cowl



Unscrew fixing bolts and remove the fan.



Position the sockring on the top of the fan cowl. Align the fixing holes of the sockring and the fan cowl. Remount the fan using the bolts provided.

Restore electric connection of the fan. For electrical connections please refer to the wiring diagrams.

6.6 Shutupsock mounting



Position the shutupsock such that the belt is mechanically blocked by the rounding on the sockring.

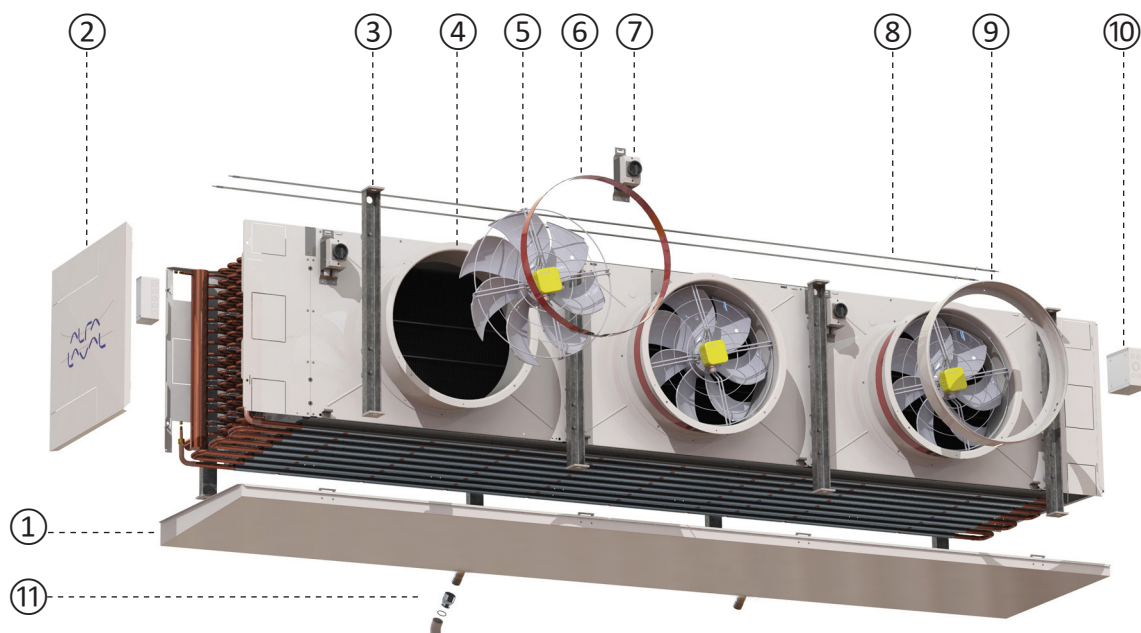


Slacken the shutupsock belt. Let the sock overlap the sockring. Fasten the belt.



Fasten again the belt, tighter. Test tightness to verify correct mounting.

7 Spare parts



Spare parts

- | | |
|---|---|
| ① | Drip tray |
| ② | Side panels (left/right identical) |
| ③ | Mounting feet |
| ④ | Fan cowl/ring |
| ⑤ | Fan unit complete |
| ⑥ | Fan ring heater |
| ⑦ | Switch on/off |
| ⑧ | Electric defrost heater |
| ⑨ | Sockring |
| ⑩ | Connection box |
| ⑪ | Drain kit (adapter + click-on PVC connection) |

Spare parts can be selected and ordered in the online eBusiness tool Alfa Laval Anytime. If required please contact your local Alfa Laval Representative for assistance.



Alfa Laval Anytime



www.alfalaval.com