



Alfa Laval Arctigo IS

Instruction manual



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



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1 Important information

1.1 Disclaimer

This Instruction Manual applies to all Alfa Laval Arctigo IS 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. Air cooler 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
- 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 sticker 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 Arctigo IS

2.1 General informations and application

Arctigo IS 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 such as agricultural storage (model ISB-F), air-sock application or shock cooling.

- Refrigerants: all H(C)FC, ammonia, brine, CO₂
- Capacities (SC2): 3 up to 250 kW
- Air volume: 3,000 up to 120,000 m³/h.

Refrigerant application	Design pressure
HFC	33 bar
Ammonia	27 bar
CO ₂	33-40-50-60 bar
Brine	10 bar

2.2 Standard configuration

- Finned coil:
 - 8 coil block modules
 - 3, 4, 6, 8 or 10 tube rows deep
 - Tubing \varnothing 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, \varnothing 450 mm up to \varnothing 1000 mm, drawing or blowing trough the coil.
2-Speed fan motors 400/50-60/3 or 230/50-6-/1 (\varnothing 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:
 - Electric defrost in driptray (E1)
 - Electric defrost - heavy (E2)
 - Electric defrost - light (E4)
 - Electric defrost for defrost valve DO (E5)
- Hotgas defrost systems:
 - Hotgas defrost - light, not connected (HG1)
 - Hotgas defrost - heavy, not connected (HG2)
 - Hotgas defrost - light, connected (HG1C)
 - Hotgas defrost - heavy, connected (HG2C)
- Other defrost systems:
 - Hotgas in driptray, light electric defrost in coil (HG1E)
 - Hotgas in driptray, heavy electric defrost in coil (HG2E)
 - Water defrost (W1)
 - Water defrost - low temperatures (W2)
 - Hot water/glycol defrost light/heavy (HW1/HW2)
- Discharge diffusor (D)
- Diffusor with defrost valve (DO)
- Hinged fan ring (HF)
- Inlet/discharge hood 45/90° (H1/H2)
- Driptray 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)
- Shut-up sock (S)
- Fan casing 45/90° (FC1/FC2)
- Airsock adapter ring (SR)
- 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
- Dual fin spacing (DF) Available on request
- Stainless steel casing and frame (SSC)
- Mounting feet (MF)
- Fan ring heater (FRH)
- Switch on/off (SW)
- All fan motors wired to central connection box (CB)

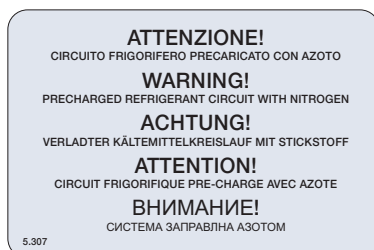
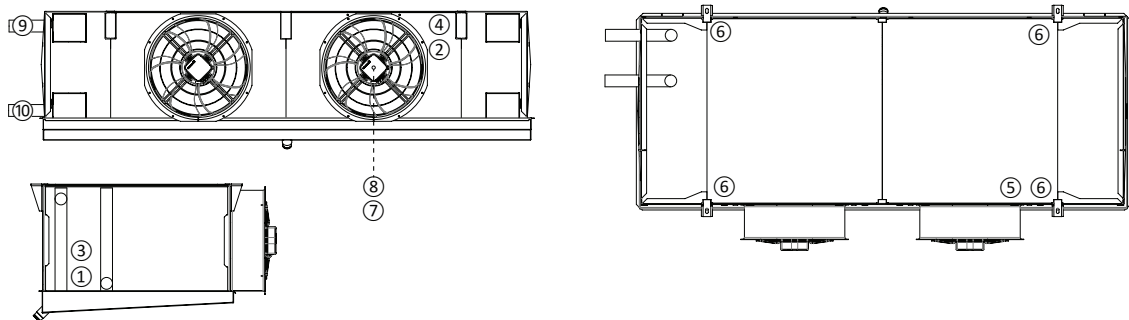


2.4 Code description

IS	B	3	5	-	2	s	H	8	CU	-	E	-	AL 7.0	-	2H-5	L	-	FA04A	-	00	-	FRH
1	2	3	4		5	6	7	8	9		10		11	12	13	14		15		16		17

- 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 power fan)
- 8 Tube rows in air direction (3, 4, 6, 8 or 10 rows)
- 9 Tube material (CU=copper, SS=stainless steel)
- 10 Refrigerant system (E=DX, W=brine, PB=pumped bottom feed, PT=pumped top feed)
- 11 Fin material (AL=aluminium, EP=precoated aluminium, SWR=sea water resistant aluminium)
- 12 Fin spacing (4, 5, 6, 7, 8, 10 and 12 mm)
- 13 Circuiting code (2H, 1H, 1/2H ... 2D, 1D, 1/2D...)
- 14 Refrigerant connection side (R=right, L=left - fan side view)
- 15 Fan motor code
- 16 Revision code
- 17 Option code (see "Options" paragraph)

3 Product labels



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.

Manufacturer: Alfa Laval S.p.A. -Italy **Month / Year:** 03 / 2016

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

Item ID: 328921461
Serial no.: AA 23490
O.A.: 387589

Unit Net Weight: 177 Kg ±5%
Sn

WARNING

EAC

READ INSTRUCTION MANUAL BEFORE
 INSTALLATIONS OPERATIONS AND MAINTENANCE
 TO AVOID INJURIES OR DAMAGE
Service enquiries www.alfalaval.com

2. Product label

Model	Refer to paragraph "2.4 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

Manufacturer: Alfa Laval S.p.A. -Italy **Year:** 2016

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: 03-2016

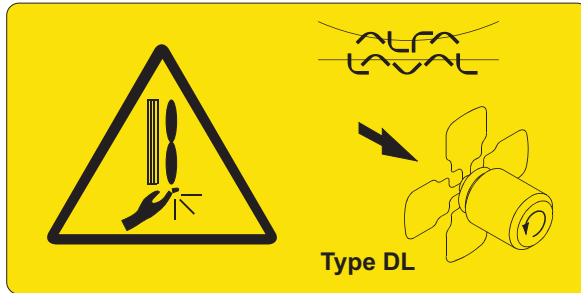
WARNING

EAC

READ INSTRUCTION MANUAL BEFORE
 INSTALLATIONS OPERATIONS AND MAINTENANCE
 TO AVOID INJURIES OR DAMAGE
Service enquiries www.alfalaval.com

3. Product label - coil

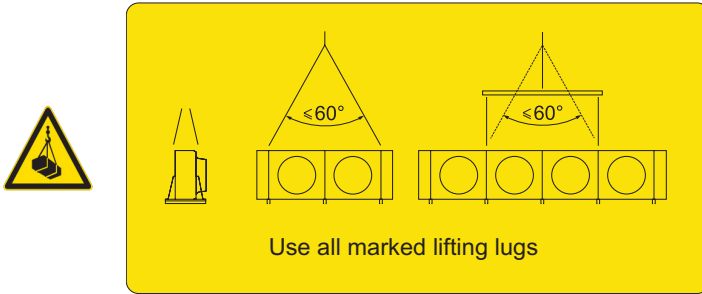
Model	Refer to paragraph "2.4 Code description"
Item ID Serial no.	Communicate these when ordering spare parts as they identify the unit
Max DN	Maximum diameter of the distributor tube
Fluid Group	According to PED
Coil Ts	Range of operating temperatures for the coil
Ps	Design pressure
Pt	Test pressure
Test date	Date on which the coil has been pressure tested in the factory



4. Warning sign for fans and fan type

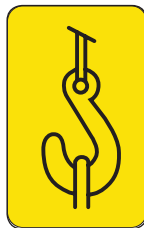
Airflow direction:
B= blow-through
D= draw-through

Rotation direction:
L= left
R= right



5. Lifting from above

Preferably use hoisting beams when lifting from above.



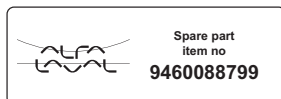
6. Lifting lug

Use all marked lifting lugs when lifting from above



7. Electrical warning

Switch off power supply before any maintenance or installation operation



8. Fan motor

Fan motor item number



9. & 10. In/Out

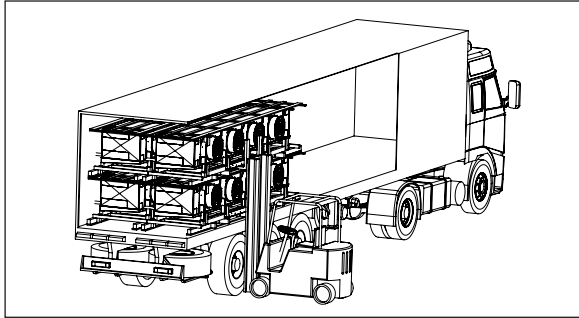
Refrigerant connections inlet and outlet

4 Unpacking and lifting

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



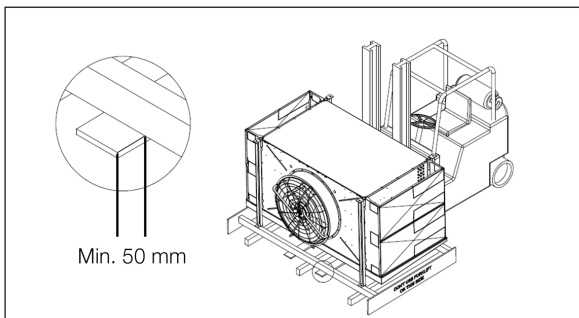
Arctigo air coolers are delivered in mounting position, mounted on wooden beams. Handling and positioning can take place with use of a forklift. When more than one cooler units are delivered in a single shipment, packed air coolers may be stacked during transportation (max. 2 units). Packed air coolers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



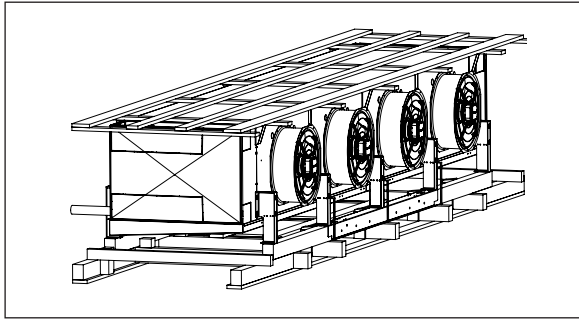
Units must be unloaded and handled only from the long side, one at a time.



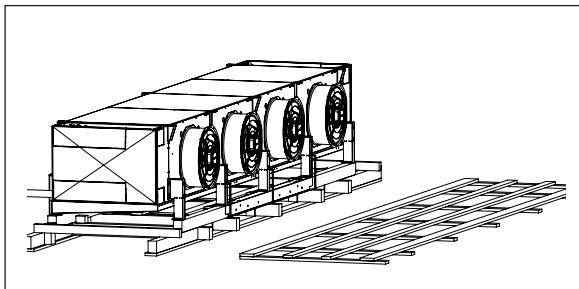
When possible, casing options are supplied mounted on the unit. In such cases this warning might be present on one side the unit packaging. In order to ensure safe lifting, the unit must be loaded on the heavier side i.e. the one where this warning sign is not present.



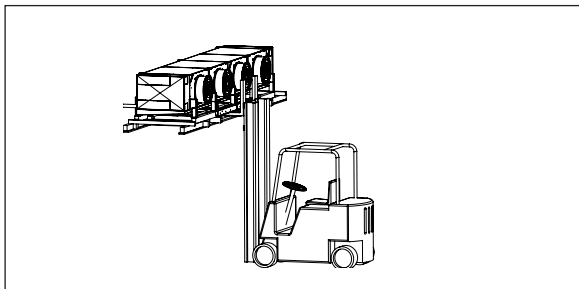
In order to avoid damage to the drip tray or falling of the unit, ensure that the lifting forks cover all beams from the lower support pallet.



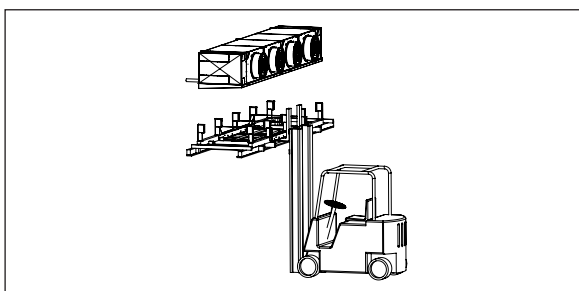
Place the unit on the ground and loosen the fixing materials from the top pallet.



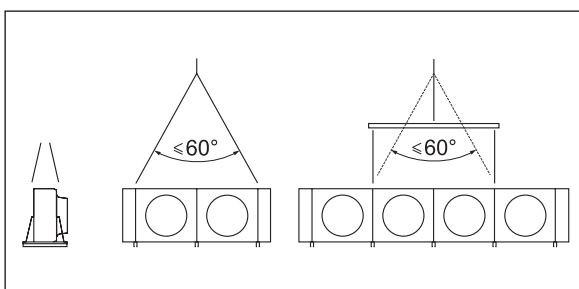
Remove the top pallet.



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

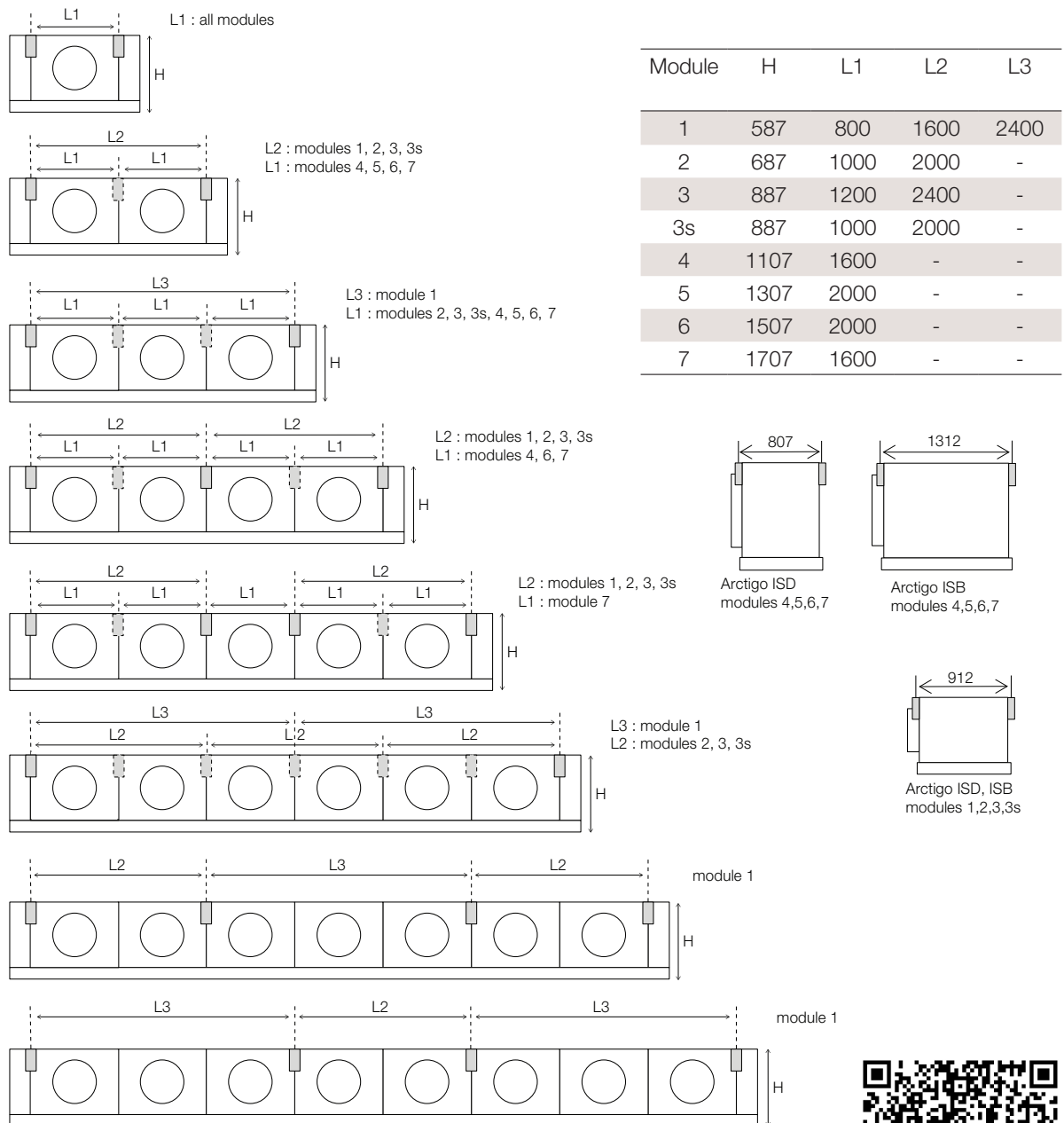


Always follow guidelines and instructions as given in the air cooler product manual AHE00042.

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



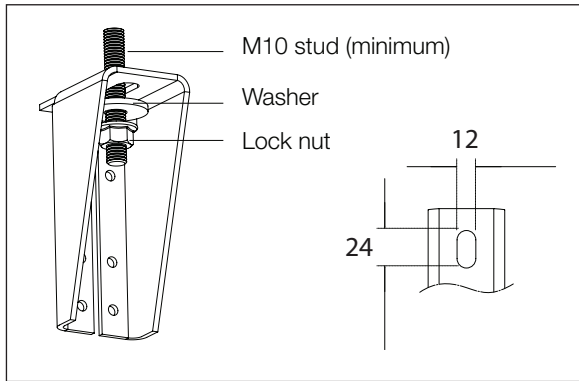
Tolerance on dimensions: ± 5 mm

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



Dimensional drawings

5.3 Mounting bracket

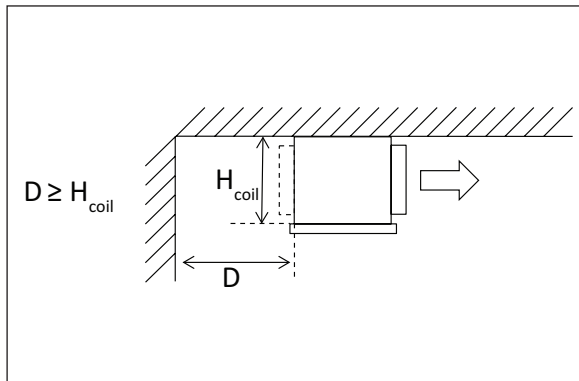


Use extra wide washer (ISO 7093) when mounting the unit to the ceiling.
Avoid any lateral torque on the mounting brackets.

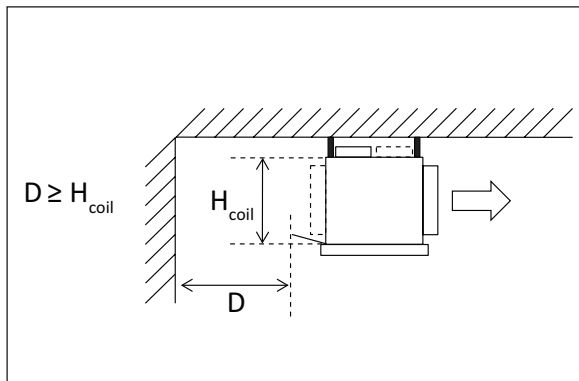


5.4 Technical spaces

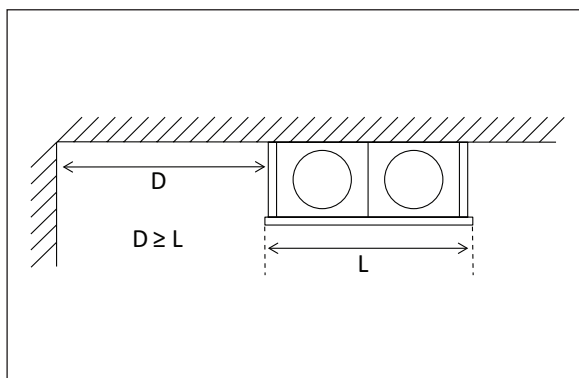
The following guidelines are to be respected when positioning air cooler units.



Minimum wall distance on suction side.



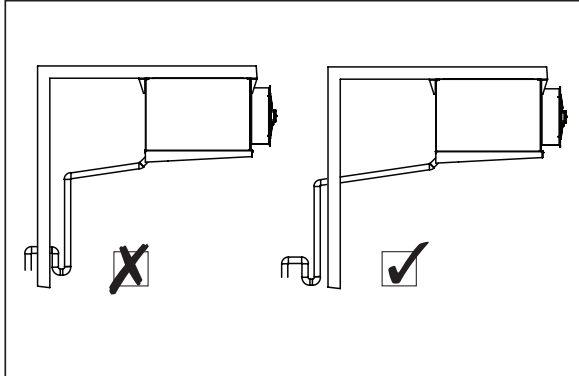
Minimum wall distance on suction side for air cooler models with water defrost system.



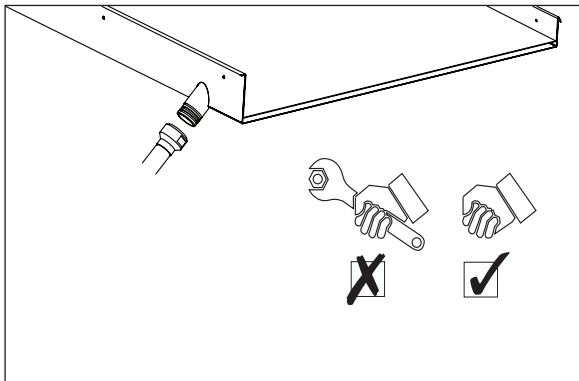
Minimum space for defrost heater replacement

5.5 Drip tray drain

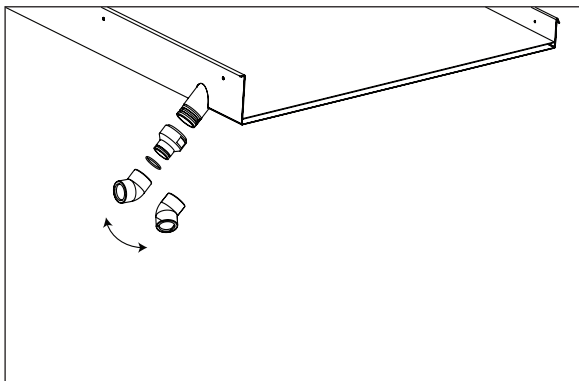
The drain line diameter must be at least the size of the drip tray drain diameter and should be laid with an adequate slope. For room temperatures below 0° C drain line insulation and an internal or external heating element are required to prevent freezing.



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



Tighten drain connection by hand only.



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:

- Cooler model indication
- Fan motor type
- Electrical options

Detailed 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

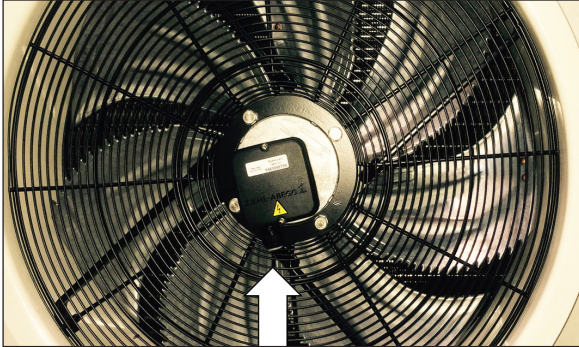
6 Maintenance



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



6.1 Fan replacement

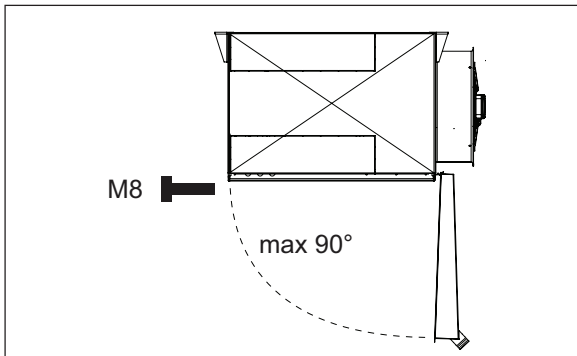


Cable glands must be positioned downwards.

Use a threadlocker like Loctite, Geomet or comparable when remounting the fixing bolts.

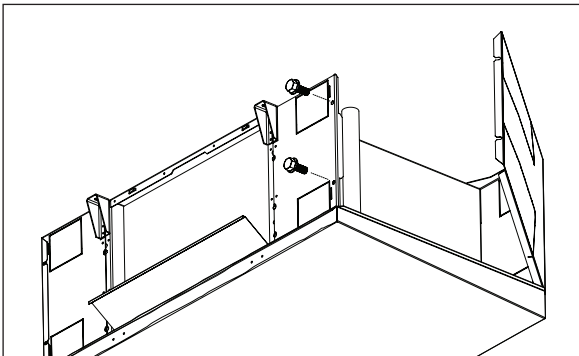


6.2 Drip tray & drain



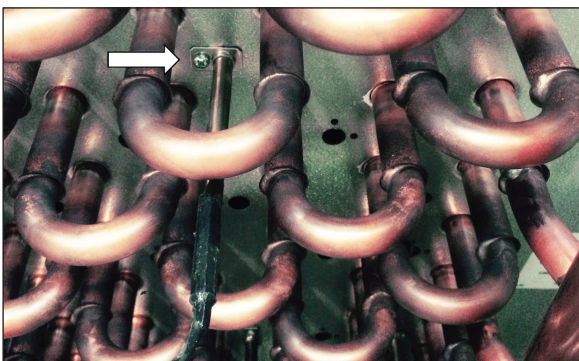
Always disconnect drain line before opening the drip tray. To open tray, first loosen and remove M8 fixing bolts and then lower the drip tray. Respect the maximum opening angle (90°) to avoid damage to the drip tray hinges.

6.3 Side covers



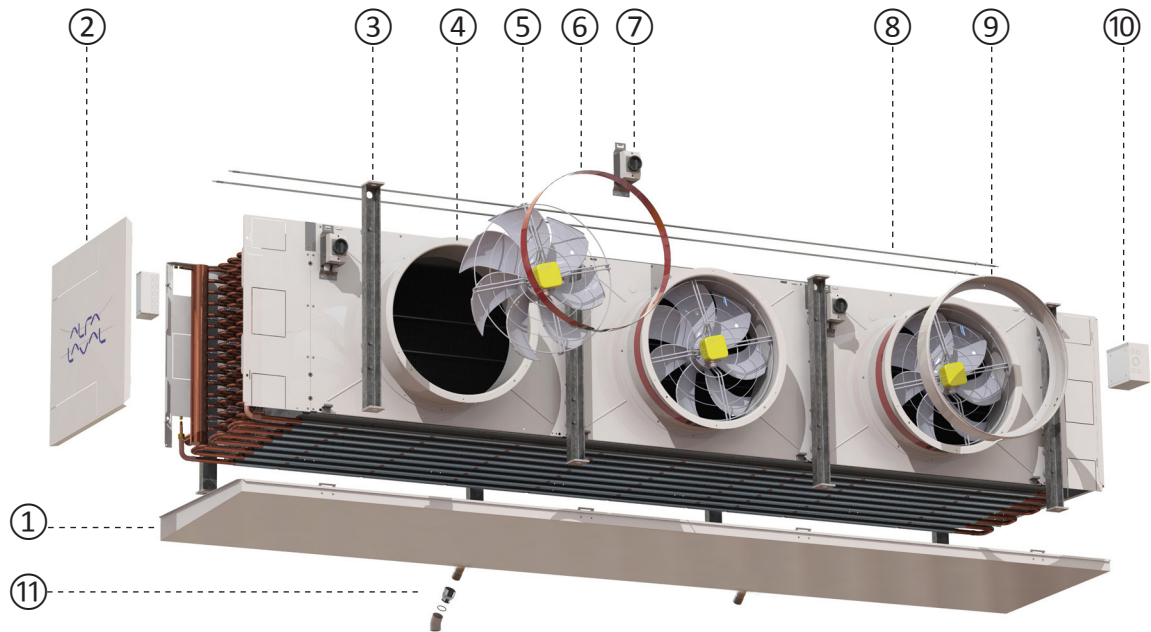
Hinged side covers can be opened for inspection, cleaning and maintenance purposes. This can only be done by qualified personnel. To open side covers, loosen M8 fixing bolts.

6.4 Heater element 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 as originally set.

7 Spare parts



Spare parts for Alfa Laval Arctigo IS

- 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 Airsock ring
- 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