



AlfaBlue Junior AG/XG

Instruction manual

Product description	_____
Product labels	_____
Unpacking and lifting	_____
Installation	_____
Maintenance	_____
Spare parts	_____



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1 Important information

1.1 Disclaimer



This Instruction Manual applies to all AlfaBlue Junior AG condensers and XG gas coolers and is supplied in combination with the Air Cooled Condensers & Gas Coolers Product Manual AHE00049. 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

Condensers and gas 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. 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:

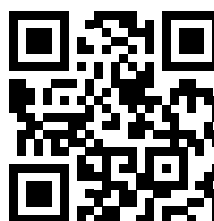
- Pressure Equipment Directive 2014/68/EU
- Machine Directive 2006/42/EC
- Low Voltage Directive 2014/35/EU
- Electrical Equipment of Machines IEC 60204-1
- Electro Magnetic Compatibility 2014/30/EU
- Any applicable local or national legislation

1.3 Where to find product information

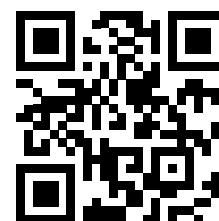
Detailed technical data for individual product models are available in order related documents, on the product label and in product data sheets. Comprehensive technical information for all Alfa LU-VE air heat exchanger products is available online on alfa.luvegroup.com. This includes:

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

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.



AlfaBlue Junior AG



AlfaBlue Junior XG

2 Product description

2.1 General information and application

AlfaBlue Junior is a competitive condenser (AG) and gas cooler (XG) line that offers excellent performance, allowing easy installation on site and an outstanding integration with other components. High efficient fan motors combine excellent sound characteristics and low energy consumption. AlfaBlue Junior AG condensers can be used in commercial refrigeration and HVAC installations. AlfaBlue Junior XG gas coolers have been specifically designed for CO₂ refrigerant systems.

- AG condensers suitable for all HFO/HFC refrigerants.
- AG capacity range (SC2): 5.6 up to 260 kW.
- XG capacity range: 3.2 up to 230 kW
(air temp. = 35 °C, CO₂ at 90 bar, gas temp. in/out = 120/38 °C)

2.2 Standard configuration

Finned coil:

Innovative coil design manufactured from Cu tubes (K65 for XG) and aluminium turbo fins. Standard fin spacing 2.1 mm. Each heat exchanger is leak tested with dry air (nitrogen for XG) and finally supplied with a nitrogen pre-charge.

Model	Design pressure	Test pressure
AlfaBlue Junior AG(H)	33 (45) bar	47 (65) bar
AlfaBlue Junior XG	120 bar	172 bar

Construction:

Patented coil frame design allowing thermal expansion and offering protection against vibration. Corrosion resistant casing material, powder coated RAL9002. Separated fan sections.



Fans:

High efficiency AC or EC fans and low power consumption. Available in 3 fan diameters 350, 500 and 630 mm, different power supplies (230/50-60/1, 400/50/3, 480/60/3) and four noise levels. Protection class IP54 according to DIN 40050. AC motors are fitted with integrated thermo contacts to provide reliable protection against thermal overload (terminals in the box).

2.3 Options

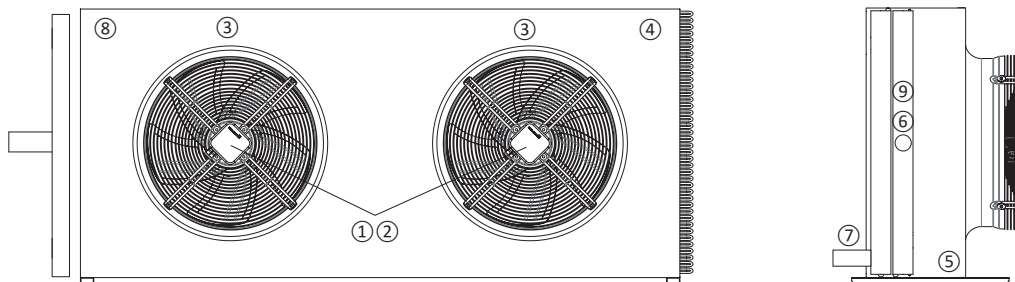
- Switch on/off (SW)
- Connection box for electrical power connection (CB)
- Fan speed control 230/1 and 400/3 (FP)
- Coil options:
 - Epoxy coated aluminium fins (EP)
 - Seawater resistant aluminium AlMg fins (SWR)
 - Copper fins (CU)
 - F-coat treatment (FC)
 - Industrial fins (IF)
 - Fin spacing 2.5 mm (other fin spacings on request)
- Vibration dampers (VD)
- End covers (CV)
- Mounting feet kit for vertical airflow
- Stainless steel header tubes for on-site welding connections (XG only)

2.4 Code description

AG	H	SE	35	2	.2	A	S	*	H/V	BO	*	-	AL	2.1	CU	*
1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16

- 1 AlfaBlue Junior (AG=condenser, XG=gas cooler)
- 2 High pressure range for R-410A (AG only: blank=default, H=R410A)
- 3 Sound level/fan code (S=standard, L=low, Q=quiet, R=residential, E=EC fan motor)
- 4 Fan diameter (35=350, 50=500, 63=630 mm)
- 5 Number of fans (1 to 6)
- 6 Version number
- 7 Tube rows code (A, B, C)
- 8 No. of phases (S=1 ph, D=3 ph D connection, Y=3 ph Y connection)
- 9 No. of circuits (XG only)
- 10 Units are suitable for both horizontal and vertical airflow (mounting feet kit required for vertical airflow setup)
- 11 Packing (BO=box, CR=crate)
- 12 Options
- 13 Fin material (AL=aluminium, IF=industrial fins, SWR=AlMg, CU=Copper, EP=epoxy coated aluminium, FC=F-coat)
- 14 Fin spacing (2.1, 2.5 mm)
- 15 Tube material (AG: CU=copper, XG: K65=copper K65)
- 16 Options

3 Product labels



1. Electrical warning

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




2. Fan motor

Fan motor item number.




3. Fan direction



Sticker indicates fan rotation direction.



Manufacturer	Manuf. Date
AIR HEX ALONTE S.R.L. - Italy	04 / 2019
Model	O.A. *****
AG*****	

Item ID	*****
Serial no.	*****
Unit Net Weight	146 Kg $\pm 5\%$
Sn	
Motor data	
Vn	3~400V-480V
f	50/60Hz


Country of origin Italy


READ INSTRUCTION MANUAL BEFORE INSTALLATION AND MAINTENANCE TO AVOID INJURIES OR DAMAGE




4. 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	Manuf. Date
AIR HEX ALONTE S.R.L. - Italy	04 / 2019
Model	O.A. *****
AG*****	

Item ID	*****
Serial no.	*****
Sn	
Materia	CU
PED Category	I
Max DN	38
Fluid Group	2
Coil Ts	+125/-60 °C
Ps	33 bar
Pt	47 bar
Test Date	04-2019

READ INSTRUCTION MANUAL BEFORE INSTALLATION AND MAINTENANCE TO AVOID INJURIES OR DAMAGE

5. 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.
Material	Tube material
PED category	According to PED
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



6. & 7. In/Out

Refrigerant connections inlet and outlet.



8. Moving parts

Warning: moving parts.

Switch off power supply before any maintenance or installation activity.



9. Hot surfaces

Danger of burns. Wear adequate protection.



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 cooled condensers & gas coolers product manual AHE00049.



4.1 Packing

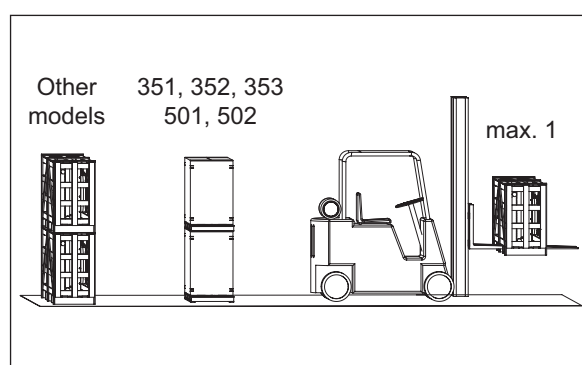
All units are packed and shipped in horizontal airflow position. AlfaBlue Junior 351, 352, 353, 501 and 502 units are mounted on a wooden pallet and covered with a sturdy cardboard box. All other models are mounted on a wooden pallet, wrapped with plastic foil and covered with an open crate.



4.2 Shipping dimensions

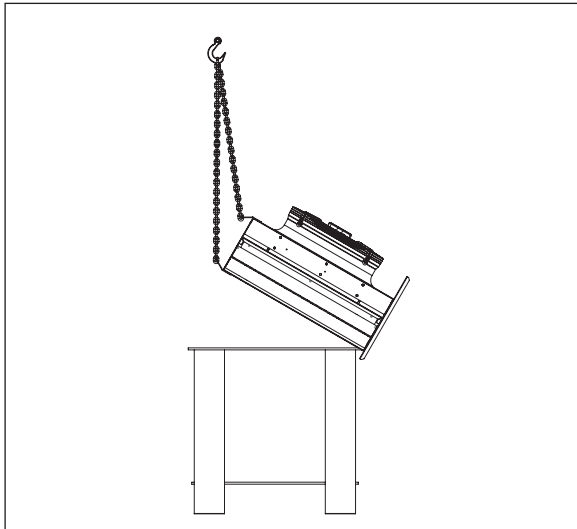


model	Standard packing type	Standard packing					Including fan speed control switchboard				
		Length cm	Width cm	Height cm	Volume m ³	Weight kg	Length cm	Width cm	Height cm	Volume m ³	Weight kg
351	box	95	53	72	0,4	30	95	53	70	0,4	32
352	box	155	53	72	0,6	47	155	53	70	0,6	54
353	box	215	53	72	0,8	76	215	53	75	0,9	82
501	box	120	61	97	0,7	67	125	61	95	0,7	75
502	box	210	61	97	1,2	121	224	70	101	1,6	134
503	crate	311	70	100	2,2	208	311	70	100	2,2	226
504	crate	402	70	102	2,9	282	412	58	100	2,4	296
631	crate	177	91	135	2,2	122	177	87	127	2,0	130
632	crate	277	91	135	3,4	198	259	91	141	3,3	212
633	crate	377	91	135	4,6	296	377	91	135	4,6	310
634	crate	477	91	135	5,9	376	577	91	137	7,2	390
635	crate	577	91	135	7,1	477	559	91	141	7,2	491
636	crate	677	91	137	8,4	554	678	91	141	8,7	577

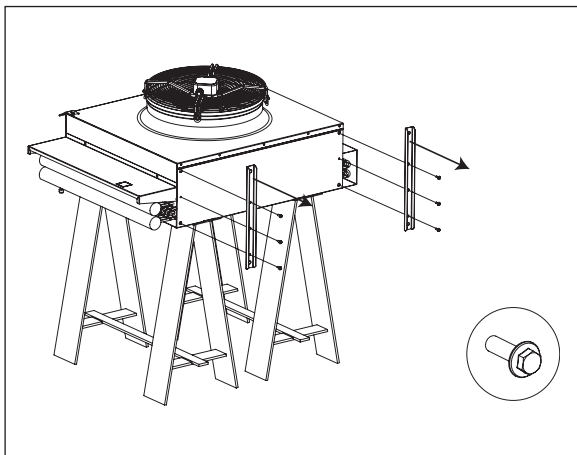


Handling can take place with use of a forklift. Heat exchangers can be stacked during storage. (max. 2 units).

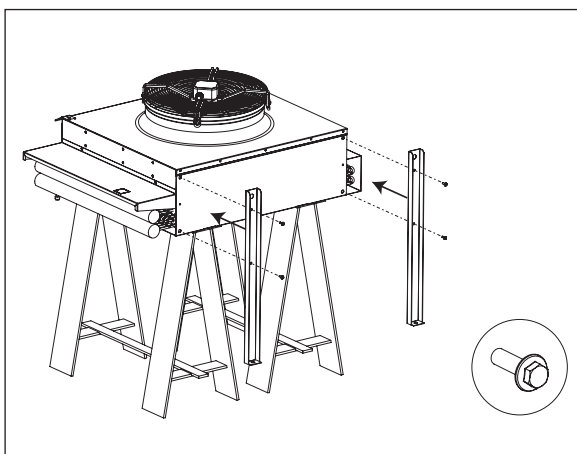
4.3 Feet mounting for vertical airflow



All units are packed and shipped in horizontal airflow position. For setup with vertical airflow, the mounting feet (kit) must be mounted prior to installation. For this purpose the unit must be lifted and tilted 90° onto supports. Use supports for each mounting foot position. The supports must span the full casing width to avoid damage to the finned coil.



Loosen fixing bolts and remove all mounting profiles. For AG/XG 630 models, also remove the lifting lugs positioned on the opposite casing side.

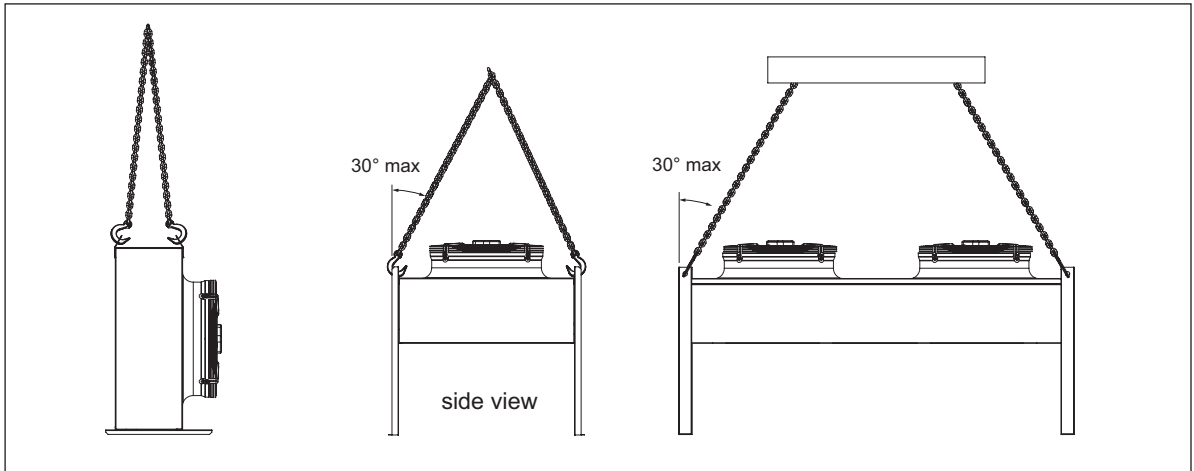


Replace all mounting profiles with the supplied mounting feet. Mounting feet should be fitted on both sides of the casing at all vacant mounting feet and lifting lug positions.

With all mounting feet in place, the unit is ready for further positioning and installation.



4.4 Lifting from above



M8 eye bolts
to be fitted on
AG/XG 35/50 models
(not provided)

AlfaBlue Junior heat exchangers can be lifted from above. For models with 2 or more fans the use of a hoisting beam is required. AG/XG63 models are supplied with lifting lugs. For other models eye bolts must be fitted on all lifting points.



Attach belts or hooks to the lifting point. Respect the allowable chain angles. The load on the lifting chains shall be equally distributed on all the lifting points.

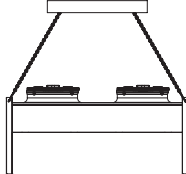
For all heat exchanger models it is mandatory to use all indicated lifting positions during any lifting operation.

Total amount of lifting points (identical for both horizontal and vertical airflow models)

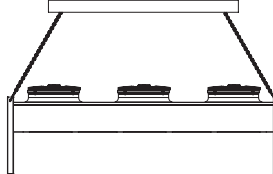
351, 501, 631:
4 lifting points



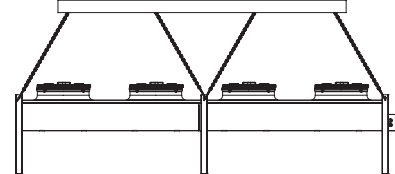
352, 502, 632
4 lifting points



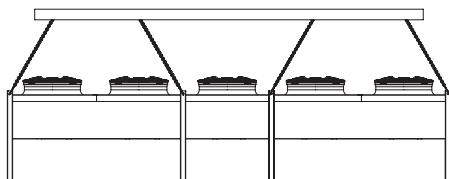
353, 503, 633:
4 lifting points



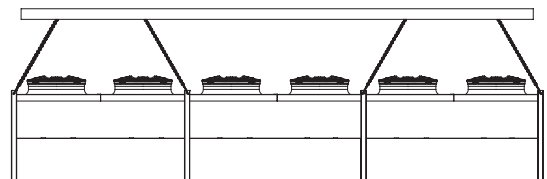
504, 634: 6 lifting points



635: 8 lifting points



636: 8 lifting points



5 Installation



Always follow guidelines and instructions as given in the air cooled condensers & gas coolers product manual AHE00049.

5.1 Mounting dimensions

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

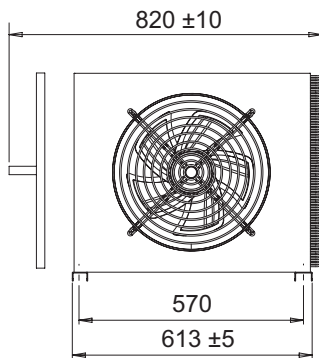


Dimensional drawings
AlfaBlue Junior AG

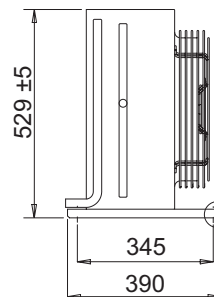


Dimensional drawings
AlfaBlue Junior XG

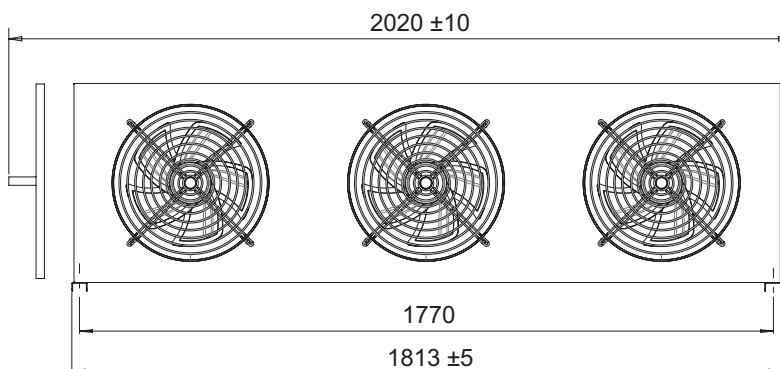
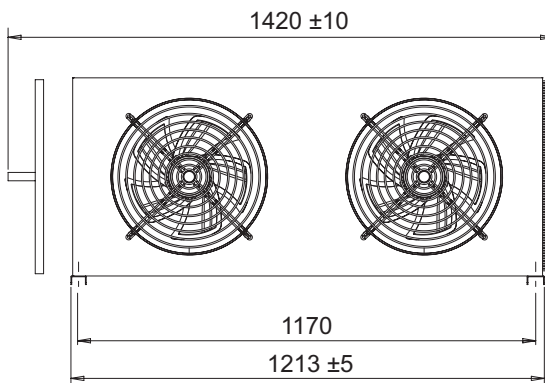
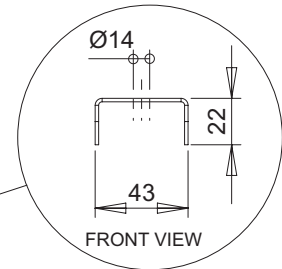
Mounting dimensions model 351, 352, 353 - Horizontal airflow



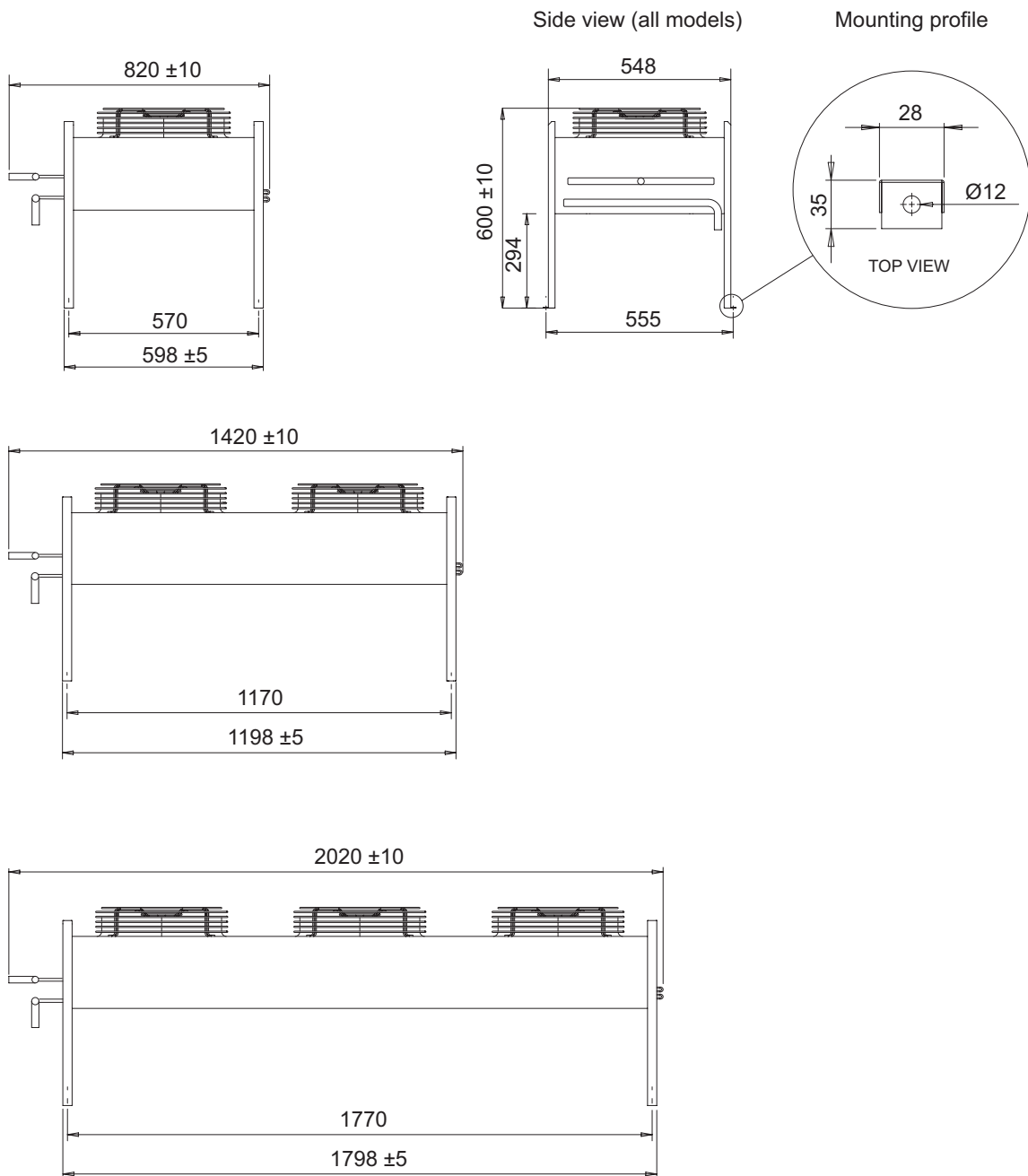
Side view (all models)



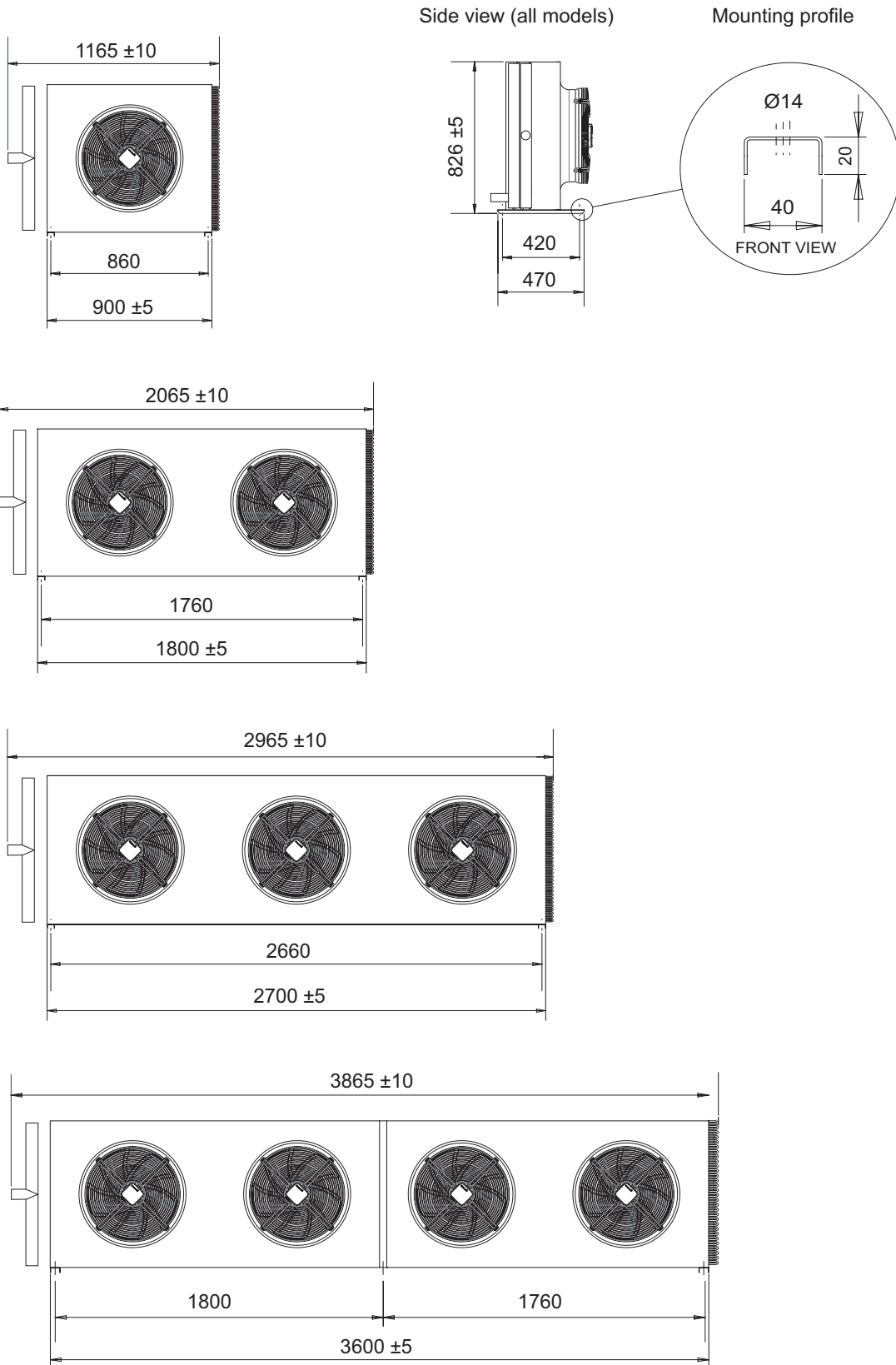
Mounting profile



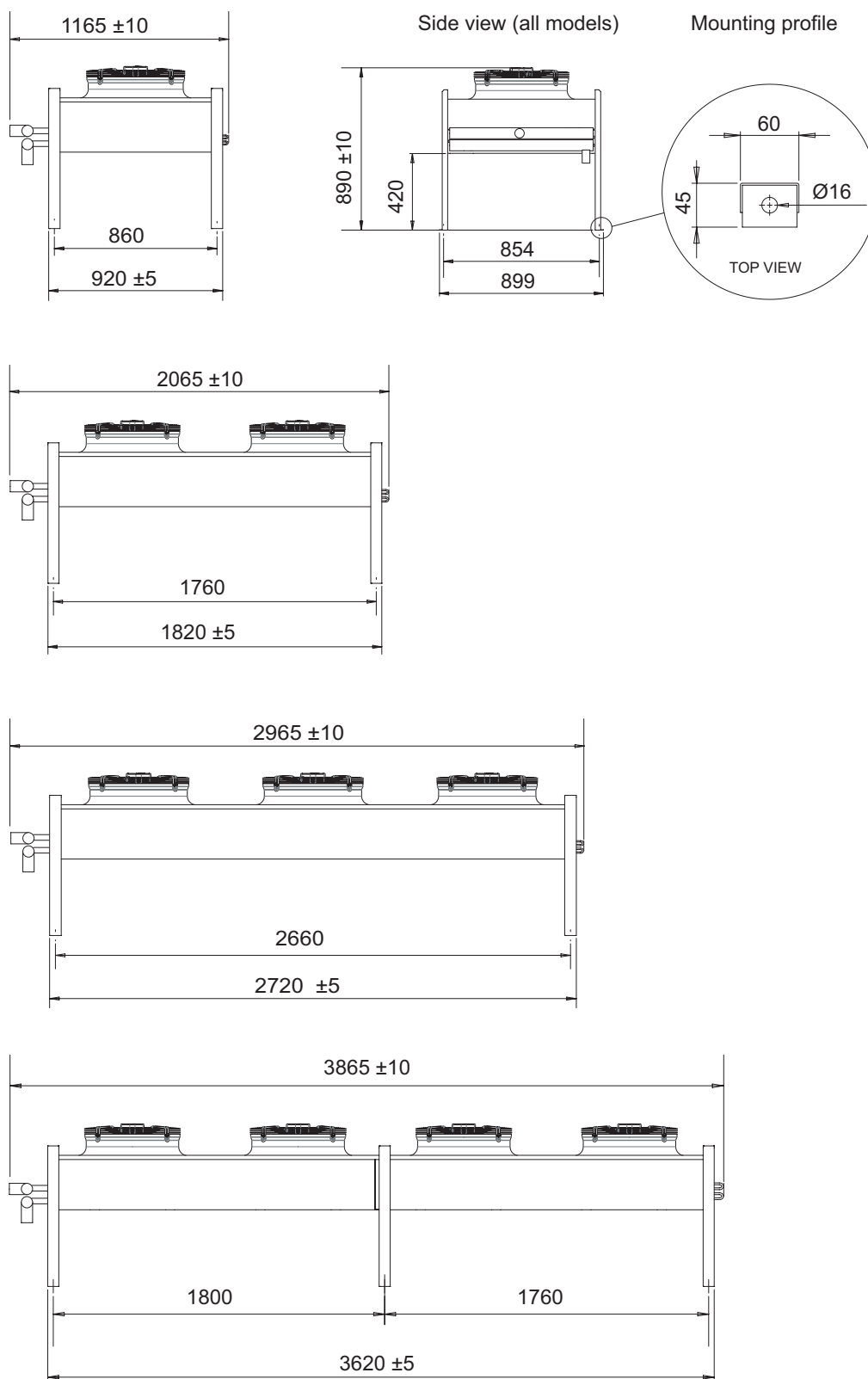
Mounting dimensions model 351, 352, 353 - Vertical airflow



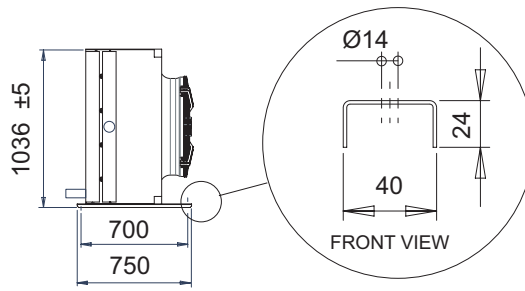
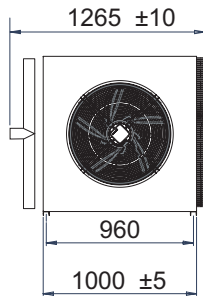
Mounting dimensions model 50 - Horizontal airflow



Mounting dimensions model 50 - Vertical airflow

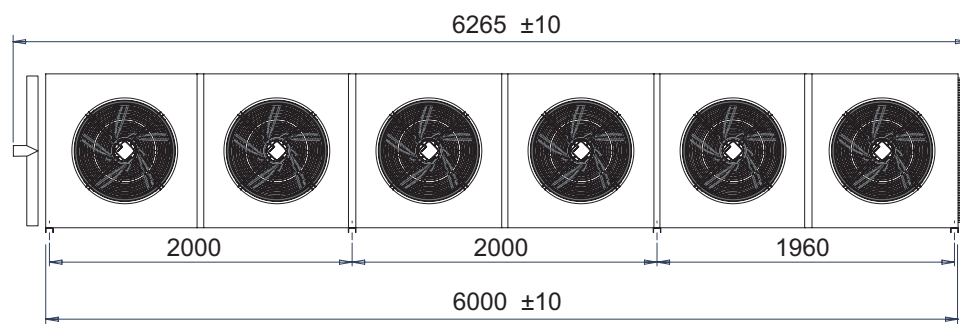
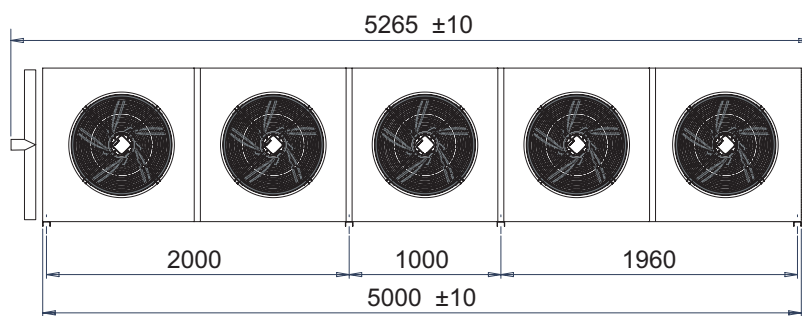
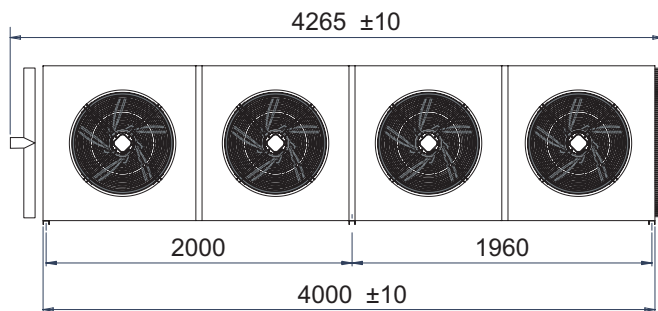
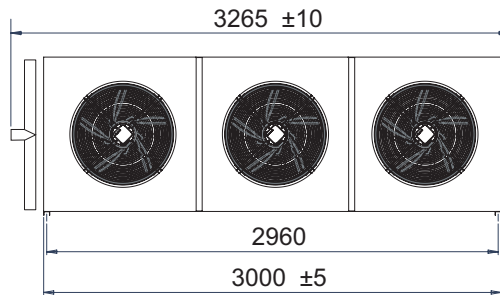
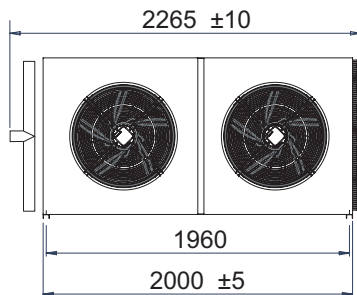


Mounting dimensions model 63 - Horizontal airflow

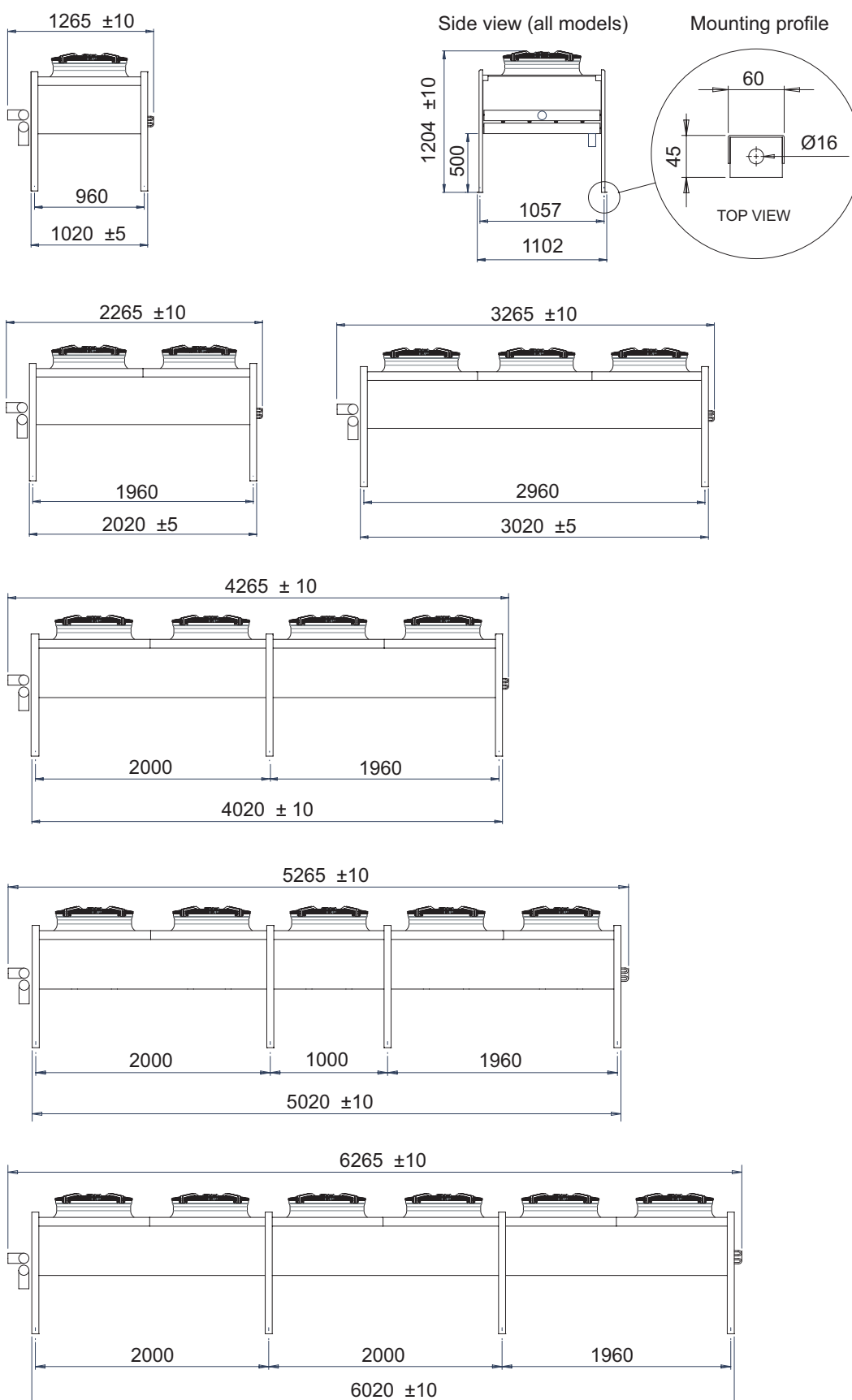


Side view (all models)

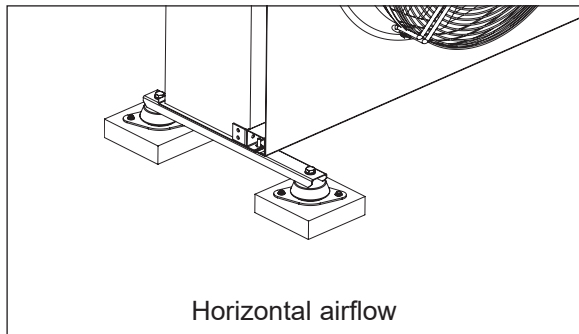
Mounting profile



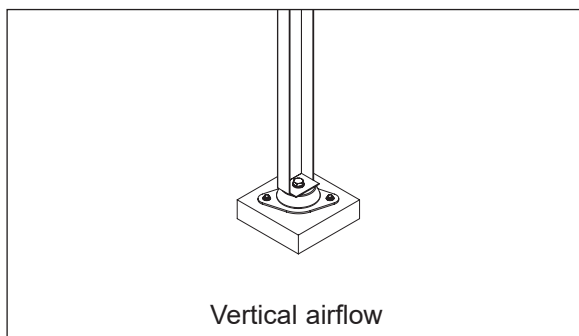
Mounting dimensions model 63 - Vertical airflow



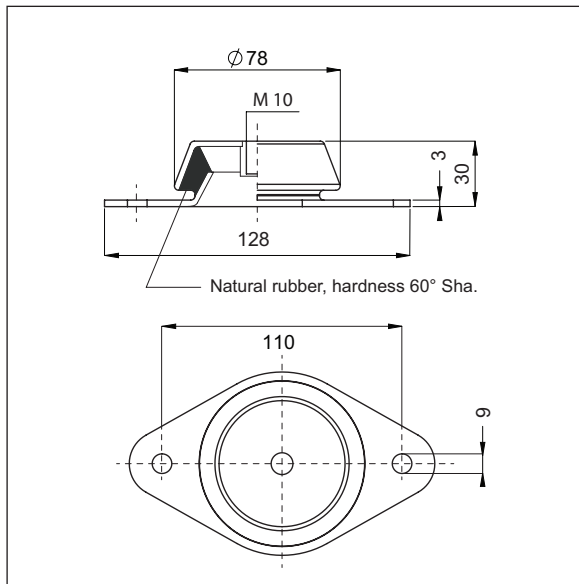
5.2 Concrete mounting base



To avoid oxidation of the equipment feet, it is strongly recommended to mount the heat exchanger on concrete mounting bases.

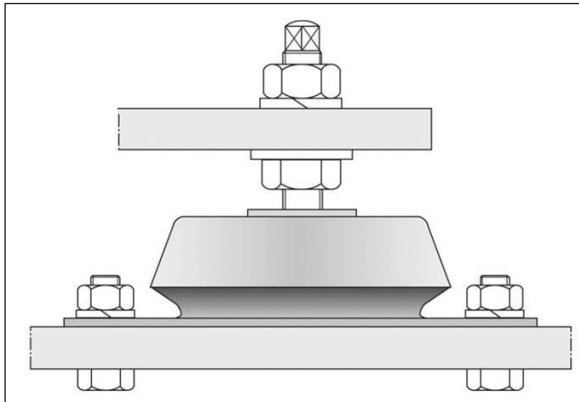


5.3 Vibration dampers



For active and passive isolation of vibrations and reducing noise transmission, Alfa LU-VE strongly recommends the installation of vibration dampers. Installation of vibration dampers must be carried out before positioning the unit. Vibration dampers are to be positioned between the unit feet and the mounting base with the supplied M10 screws.

Model	Total nr. of vibration dampers
351, 352, 353, 501, 502, 503, 631, 632, 633	4
504, 634	6
635, 636	8



Picture shows an installation example using threaded bar, nut, grower washer, washer and locknut (not supplied).

This way vibration dampers can be used to make the cooler level adjusting the locknut. This is particularly useful with long units or irregular basement.

5.4 Expansion joints

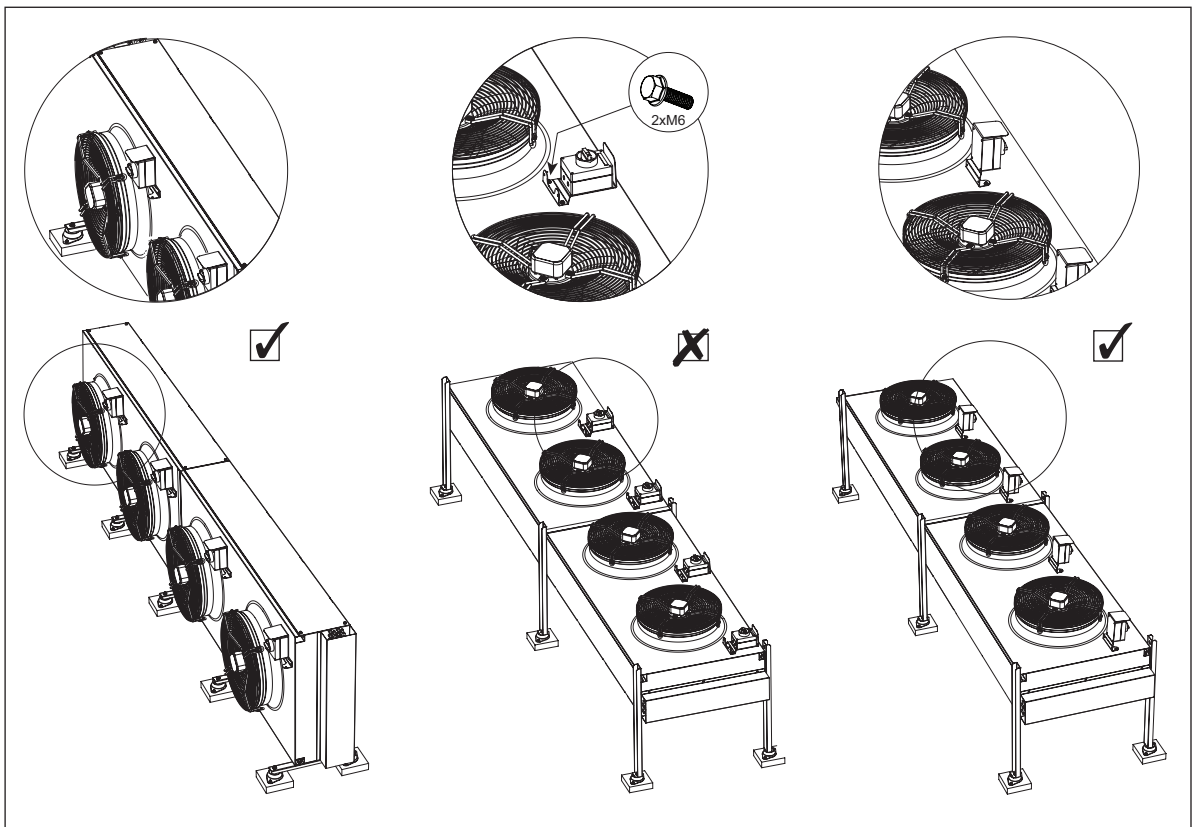


Alfa LU-VE recommends the installation of expansion joints on both inlet and outlet connections. Expansion joints are elastic elements which, if properly installed, absorb the thermal expansions of the tubing. Expansion joints are also helpful in order to reduce vibrations in the piping.



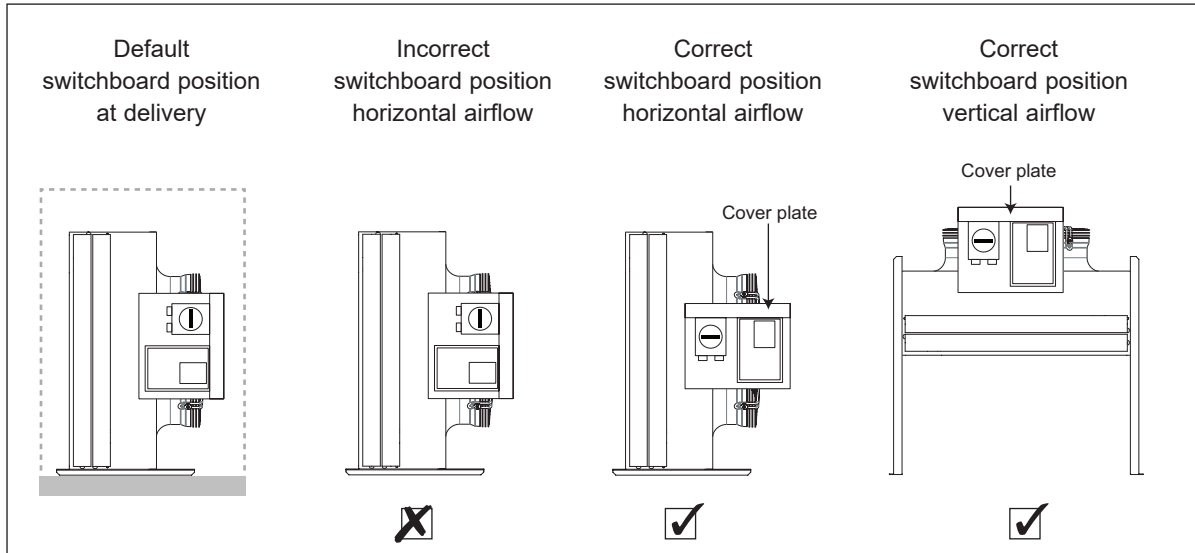
5.5 Switch on/off (option SW)

If switch on/off (SW) is selected, the default positioning is for horizontal airflow installation. The cover design is such that it can be used both for horizontal and vertical airflow installation. To adjust the switch positioning to the actual positioning on site: unscrew the cover fixing screws, turn it as shown and replace fixing screws.



5.6 Switchboard fan speed control (option FP)

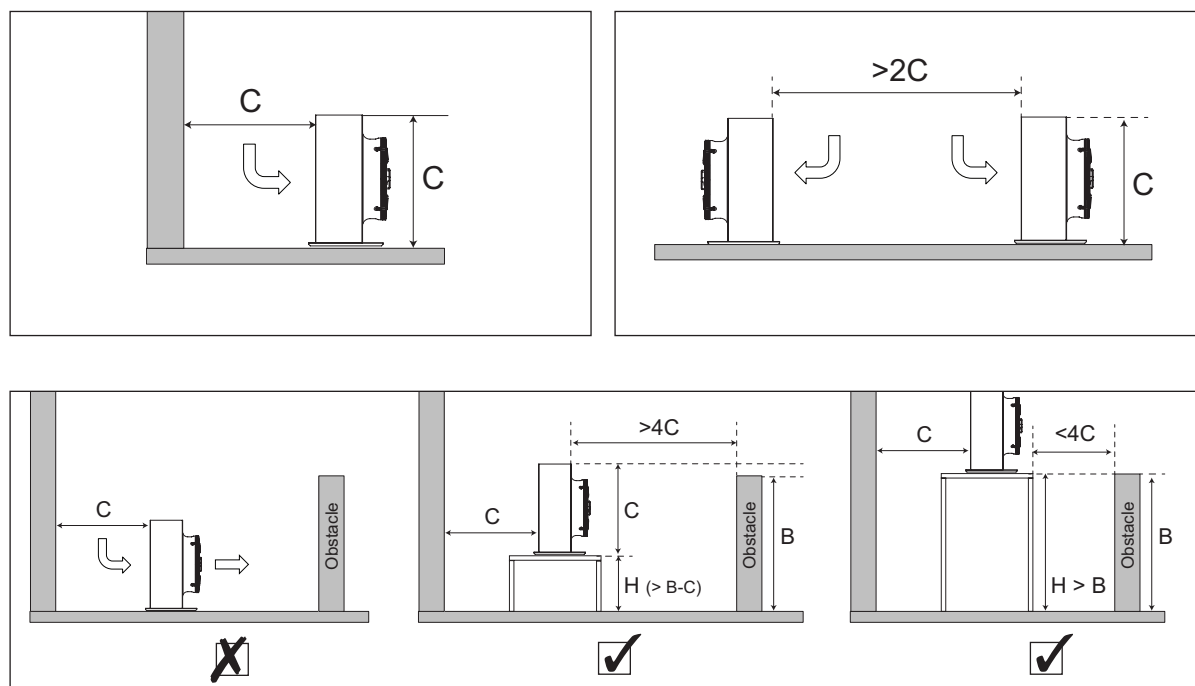
If fan speed control (FP) is selected, the default positioning of the switchboard is for vertical air-flow installation. For application with horizontal airflow, unscrew switchboard cover and remount in position as indicated below. The cover plate should always be positioned horizontally to protect the electrical components.

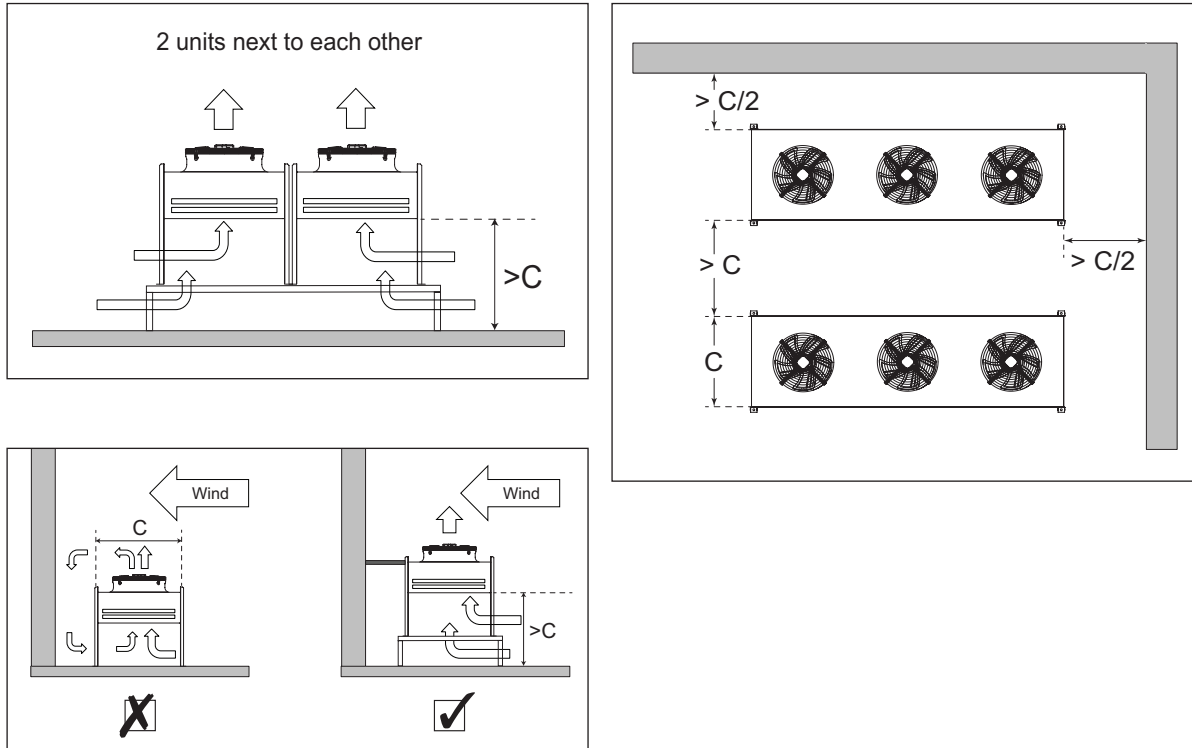


5.7 Installation layout guideline

Ensure installation is such that the following conditions are met:

- Place the unit outdoor, so that it can be monitored and controlled from all sides at all times.
- Ensure that sufficient space is available for maintenance.
- Verify the structures supporting capacity regarding the weight of the unit(s), including refrigerant.
- As a rule of thumb the (unrestricted) air-inlet surface area should at least equal the coil surface of the unit(s).
- Recirculation of heated air is to be avoided at all times.





Contact Alfa LU-VE to determine optimal unit spacing for specific conditions on site. Special care should be taken in particular installations such as:

- When installation site is subjected to strong winds.
- When walls or other obstructions with different configuration than the ones shown in the previous pictures are present on site.
- When severe environmental loads are likely to affect to the unit.



5.8 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 Alfa LU-VE representative for assistance.



Electrical connections
AlfaBlue Junior AG



Electrical connections
AlfaBlue Junior XG

6 Operation

6.1 Start-up procedure



The following procedure is to be respected at every system start-up.

- Verify there are no leaks in the refrigerant circuit and connections.
- Switch on fan power supply.
- Start the fans and verify fan direction.
- After some operating time, verify that current absorption does not exceed the value as given in the technical specifications.

6.2 Shutdown

If the unit requires emptying for maintenance, system shutdown or dismounting, proceed as follows:

- Stop refrigerant supply and switch off electrical power supply.
- Make sure neither refrigerant nor power supply can be resumed accidentally or unexpectedly.
- Drain all liquid refrigerant into a suitable vessel.
- Evacuate the coil to remove any remaining refrigerant gas.

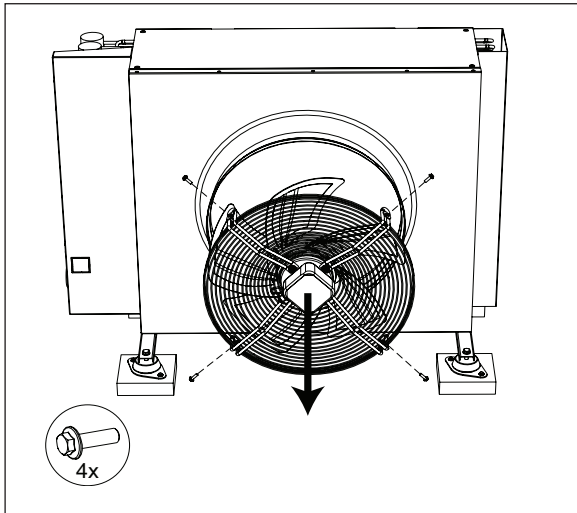


7 Maintenance

Ensure complete electrical isolation before performing any maintenance activity and always follow guidelines and instructions as given in air cooled condensers & gas coolers product manual AHE00049.



Fan replacement



Disconnect fan cabling.

Unscrew fixing bolts and remove old fan.

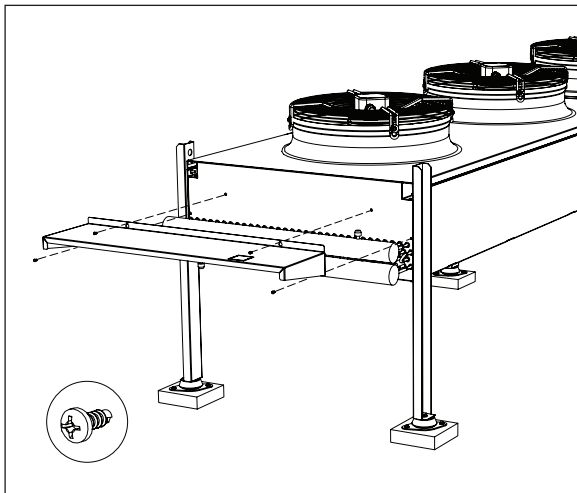
Mount new fan assembly in identical position. Remount fasteners. Use an anti-corrosion coating like Geomet or comparable when remounting the fixing bolts.

Restore electric connection.

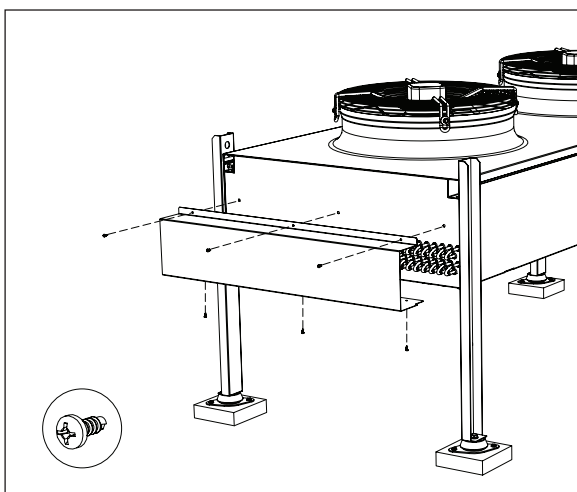
Check for the correct fan rotation.



7.1 End covers



End covers can be removed for inspection, cleaning and maintenance purposes. To remove end covers, loosen fixing bolts.



8 Spare parts



Spare parts for AlfaBlue Junior AG/XG

- ① End cover - bend side
- ② End cover - connection side
- ③ Mounting profiles (horizontal airflow)
- ④ Mounting feet (vertical airflow)
- ⑤ Fan
- ⑥ Vibration damper
- ⑦ Switch on/off

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



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