1. Important

1.1 Carefully read all the information in this manual before removing the packaging, before handling, assembly, positioning, commissioning of the machine and before performing any work on the model. If in doubt contact the manufacturer

1.2 This manual is an integral part of the product and must be kept for the entire lifespan of the unit.

1.3 The Manufacturer declines all responsibility for damage to persons and property caused by failure to follow all instructions contained in this manual.

1.4 The unit must only be used for the purpose for which it was expressly designed.

1.5 This manual must be kept available near the unit for the entire lifespan of the same.

1.6 The use of fluids or substances which could corrode, make unsafe or reduce the performance of the unit is prohibited.

1.7 It is forbidden to modify or tamper with the components of the unit.

1.8 It is forbidden to walk or climb on the unit.

1.9 The Customer is solely responsible for compliance with the regulations relating to installation and operation of the unit.

1.10 The use of a fluid other than that specified in the technical documentation (see Section 14) is forbidden, voids the warranty, and could expose you to a chemical hazard.

1.11 For any use other than that intended, please contact the Modine technical office.

1.12 Modine assumes no responsibility for any accidents, losses or damage resulting from improper use of the equipment that must be properly installed by qualified personnel in accordance with intended use and subjected to preventive maintenance to protect the safety of persons, animals and property. The units produced are compliant with the applicable Essential Safety Requirements (ESRs) of the Machinery Directive as required by the standard operating conditions described in the manual.

1.13 It is the responsibility of the installer/designer of the system to comply with the current regulations and legislation and to assess its safety before putting it into service.

1.14 Any operation other than that indicated in this manual must be previously agreed with Modine. Non-compliance will void the warranty.

1.15 This manual reflects the state of the art at the time of marketing of the product and therefore cannot be regarded as inappropriate in the case that evolution of the design and construction methods require updating of the data expressed.

1.16 All operations described in this manual must be carried out by authorised and qualified personnel who have the necessary training and skills in accordance with EN 378. Persons under the influence of drugs, alcohol or medication that impair alertness are not permitted to carry out any operations. Work is only permitted if an order to that effect has been given.

1.17 If something unexpected happens, stop the machine immediately and call maintenance; do not restart the machine until normal operating conditions have been restored.

1.18 The design, construction and operation of the refrigeration plant where the unit is to be installed shall follow the requirements and criteria specified in EN 378.

1.19 The safety prescriptions and requirements for the use of refrigerants belonging to groups A1, A2L must be in accordance with the provisions of EN 378 and the safety data sheets for each fluid used.

1.20 Arrange and plan measures in the event of an emergency on the system, e.g. install a fault indicator system, to prevent damage to persons and property.

1.21 Do not use the model in case of a leak. In case of leakage initiate emergency measures and secure the system according to the applicable regulations.

1.22 In the case of CO_2 R744 (EGS) models, pay attention to the nature of the fluid used. CO_2 (carbon dioxide) is an odourless, colourless, non-flammable, chemically stable gas which is heavier than air. It therefore tends to stratify and accumulate near the floor in closed, unventilated rooms. According to EN 97/23/EG it is classified as refrigerant L1/A1.

Exposure limits are:

- TLV: 5000 ppm as TWA; 30000 ppm as STEL.
- MAK: 9100 mg/m^3, 5000 ppm; peak limitation category: II(2).
- EU-OEL: 9000 mg/m^3, 5000 ppm as TWA.

A concentration above 100000 ppm may cause pulmonary oedema and be fatal.

Continuous monitoring of CO_2 concentration is recommended when installing EGS models in confined spaces.

2. Applications

2.1 The product must not be put into service until the machine to which it will be incorporated has been declared in conformity with Directive 2006/42/EC, see "Declaration of Incorporation" page 179. The product is defined as "Partly completed machinery".

2.2 The product must only be used for the stated purpose: use other than that prescribed is to be considered improper and exempts the manufacturer from all liability.

2.3 Use in unspecified operating conditions must be considered incorrect or improper.

2.4 Make sure that the fluids used are compatible with the materials used to construct the model. In the case of a CO_2 system, bear in mind that the fluid available on the market may contain small quantities of water: check that the concentration of water in the CO_2 is compatible with all components of the system.

2.5 The models that use water-based fluids must be adequately protected from ice formation in the tubes, since it is not always possible to completely empty the circuit.

2.6 The minimum protection level of the model is IP54. Refer to the annexes “PED DATA SHEET” and “ADDITIONAL INFORMATION SHEET” (when present).

2.7 The models are supplied with heat exchangers manufactured according to internal standards with reference to DIN8964 for internal cleaning.

2.8 Product description (see identification code Sect. 14.2):

2.6.1 EGK The EGK series remote condensers have the task of optimising the heat exchange between air and another fluid H(C)FC in a refrigeration cycle.

Inside a casing we find a heat exchanger consisting of a finned pack interconnected to a tube coil. The flow of relatively cold ambient air, created by the axial fans on the top of the casing, passes through the heat exchanger generating the condensation of the compressed hot gas flowing inside the tubes.

2.6.2 EGF The EGF series remote condensers have the task of optimising the thermal exchange between the air and an R410A fluid in a refrigeration cycle.

Inside a casing we find a heat exchanger consisting of a finned pack interconnected to a coil of tubes. The flow of relatively cold ambient air, created by the axial fans located on the top of the casing, crosses the exchanger generating the condensation of the compressed hot gas flowing inside the tubes.

2.6.3 EGS The EGS series gas chillers replace the traditional remote condensers in systems that use carbon dioxide as a refrigerant.

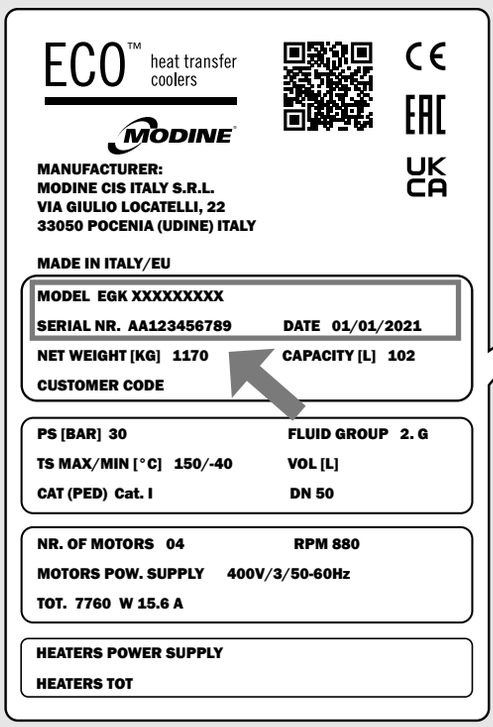
Inside a casing we find a heat exchanger consisting of a finned pack interconnected to a coil of tubes. The flow of relatively cold ambient air, created by the axial fans at the top of the casing, passes through the heat exchanger, cooling the compressed hot CO_2 gas that flows through the tubes. The refrigerant gas is not liquefied in the cooler, but subsequently in the expansion valve. Gas coolers operate at considerably higher pressures than air cooled condensers.

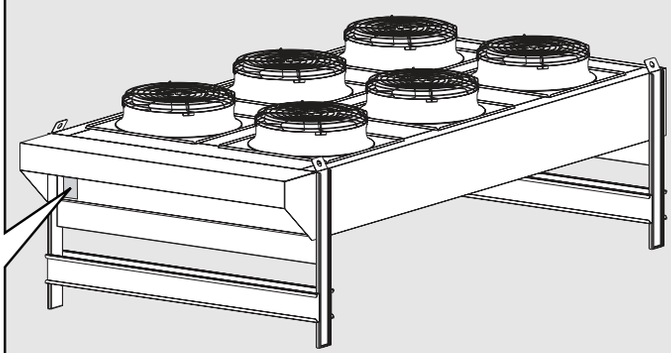
2.6.4 EGW Remote liquid coolers of the EGW series have the task of optimising the heat exchange between air and a process liquid.

Inside a casing we find a heat exchanger consisting of a finned pack interconnected to a tube coil. The flow of relatively cold ambient air, created by the axial fans at the top of the casing, flows through the exchanger, cooling the hot liquid flowing through the tubes.

3. Identification

3.1 For any communication, request for assistance or spare parts, please provide the model name and serial number shown on the data plate:

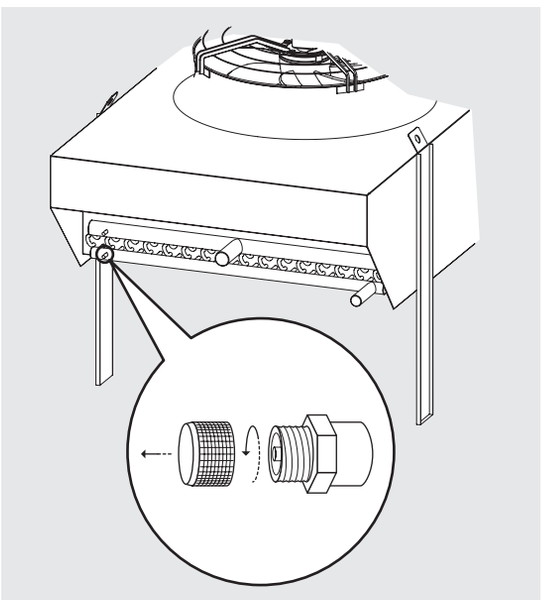


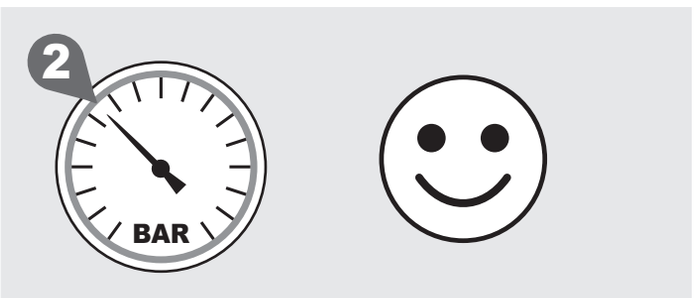


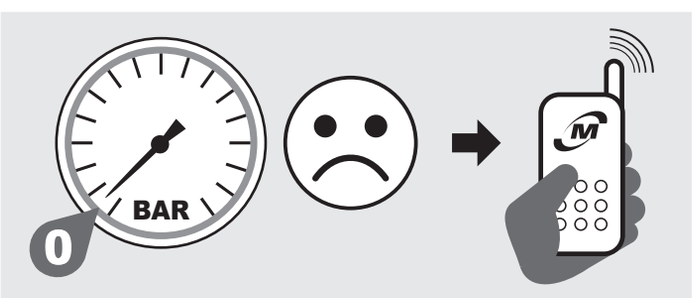
4. Inspection - Storage

4.1 Upon receipt of the model immediately check its state of integrity; immediately dispute with the transport company any damage. The packaging is created according to the model, to the suitable means of transport and of handling.

4.2 The heat exchangers of the condensers (EGK and EGF) and the gas coolers (EGS) are supplied with a pre-charge of dry air at 2 bar and have load couplings of 1/4" SAE. Check for the presence of pressure. In the absence of pressure immediately contact the manufacturer and report the problem on the transport document. Insufficient pressure indicates a loss due to damage incurred during transportation.







4.3 The model must be stored in its original packaging in a place that is protected and away from weathering.

4.4 Do not place any other material on top of the packaging.

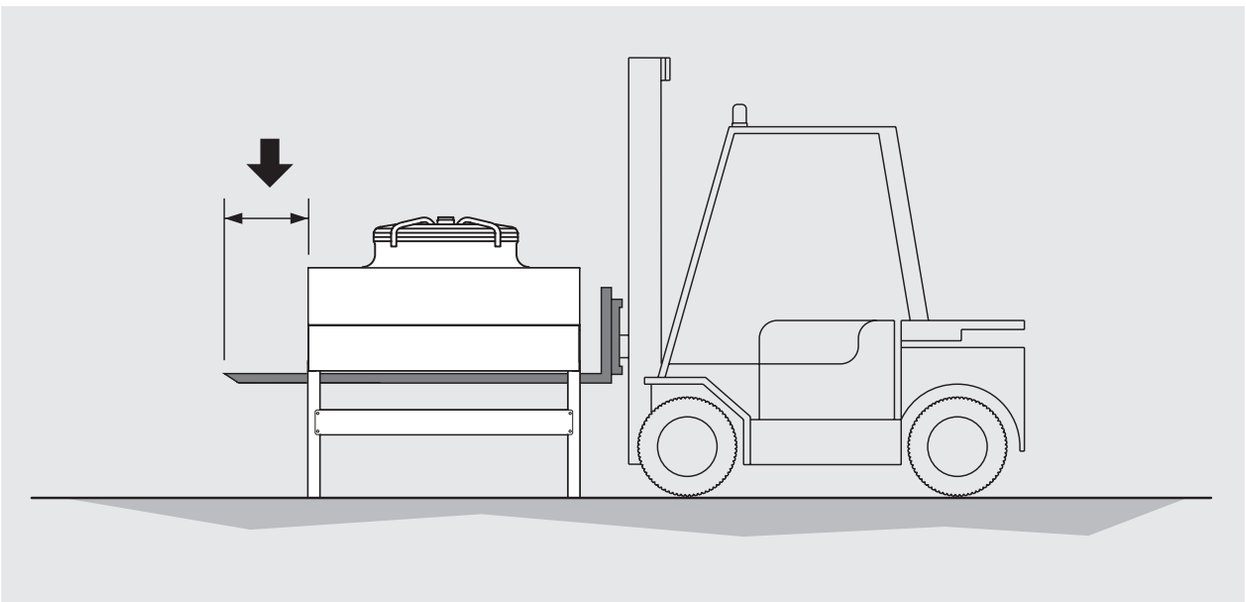
4.5 If a fan is switched OFF for a long period of time, it should be switched ON for a minimum of 2 hours every month to remove any moisture that may have condensed inside the motor.

4.6 The following rules apply when the unit must remain in storage for long periods of time. The unit must be stored indoors and positioned according to its working position. This ensures functionality of the drainage holes of the fans. With the unit stored in a damp environment, it is necessary to examine the outer covering to make sure that there are no damaged points. If any are found, have them repainted. The fans must be protected with plastic reinforced sheeting or with some other mechanical protection against water and/or contaminants which could damage the motors. The free surface of the finned pack must be mechanically protected with a panel or with something similar. On EGW models, the connection couplings, if open, should be closed by blank flanges or steel plate covers, which seal the connection headers by means of rubber gaskets. During storage, the fans must be manually rotated at least once every 3 months.

5. Handling and installation

5.1 The models are shipped on a pallet fixed with metal straps. The smaller models are protected by a cardboard box and/or wooden crate.

5.2 The packaged model must be moved by qualified personnel using a forklift truck of suitable capacity, or with crane and/or overhead crane (see Section 7 dimensional characteristics). The lifting brackets must be longer than the depth of the packaging and/or of the model. Avoid any abrupt movement and do not stand close to the manoeuvring area. Always ensure that the models are secured to the hoists before handling operations. A heavy impact or a strong thrust can overturn the model.



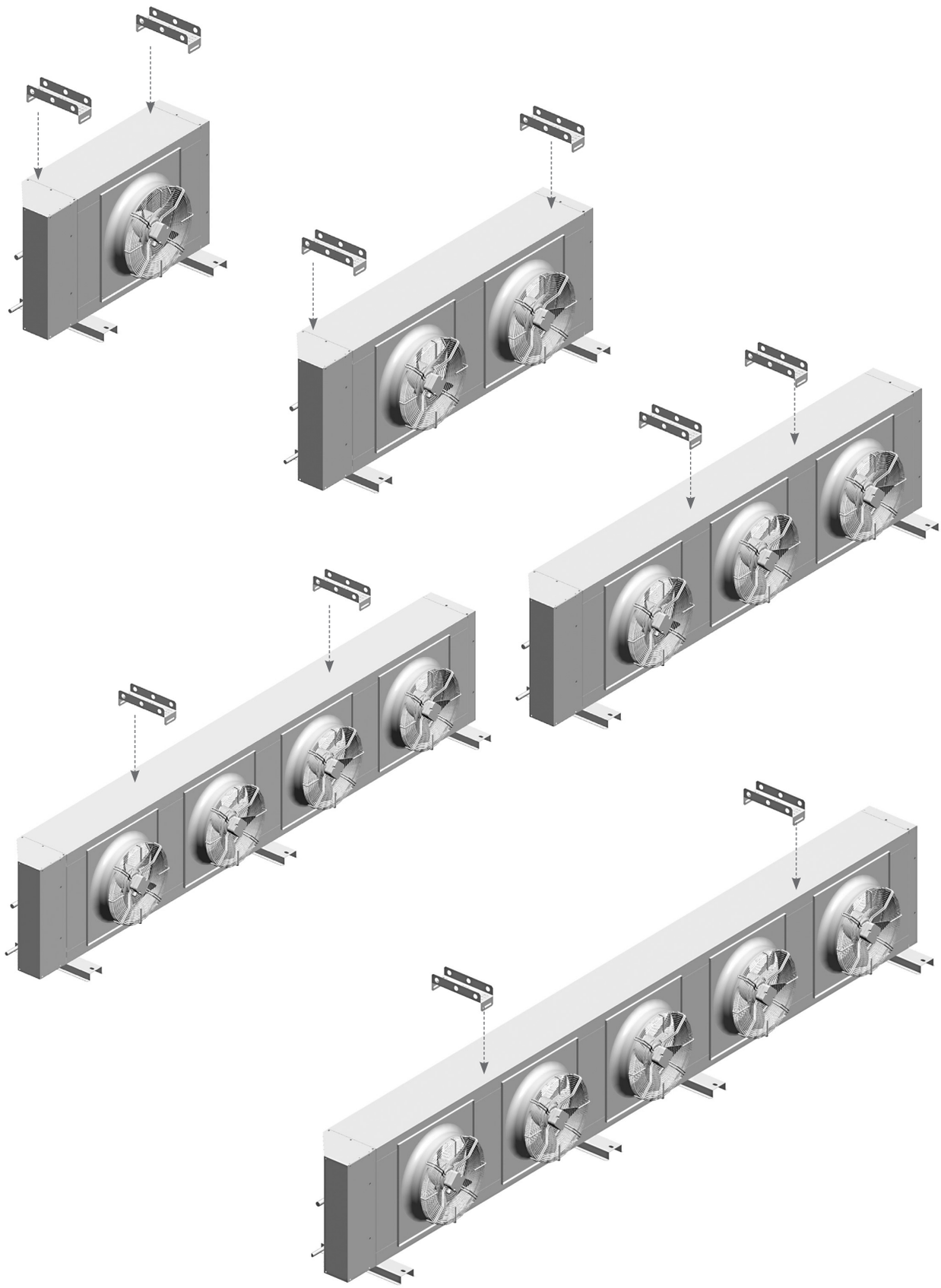
5.3 When handling, avoid exerting improper pressure on the packaging and take care not to damage the headers.

5.4 Always use personal protective equipment (e.g. gloves that are sufficiently resistant to mechanical hazards) during handling and installation to reduce the risk of injury in the event of contact with sharp sheet metal edges or the finned pack.

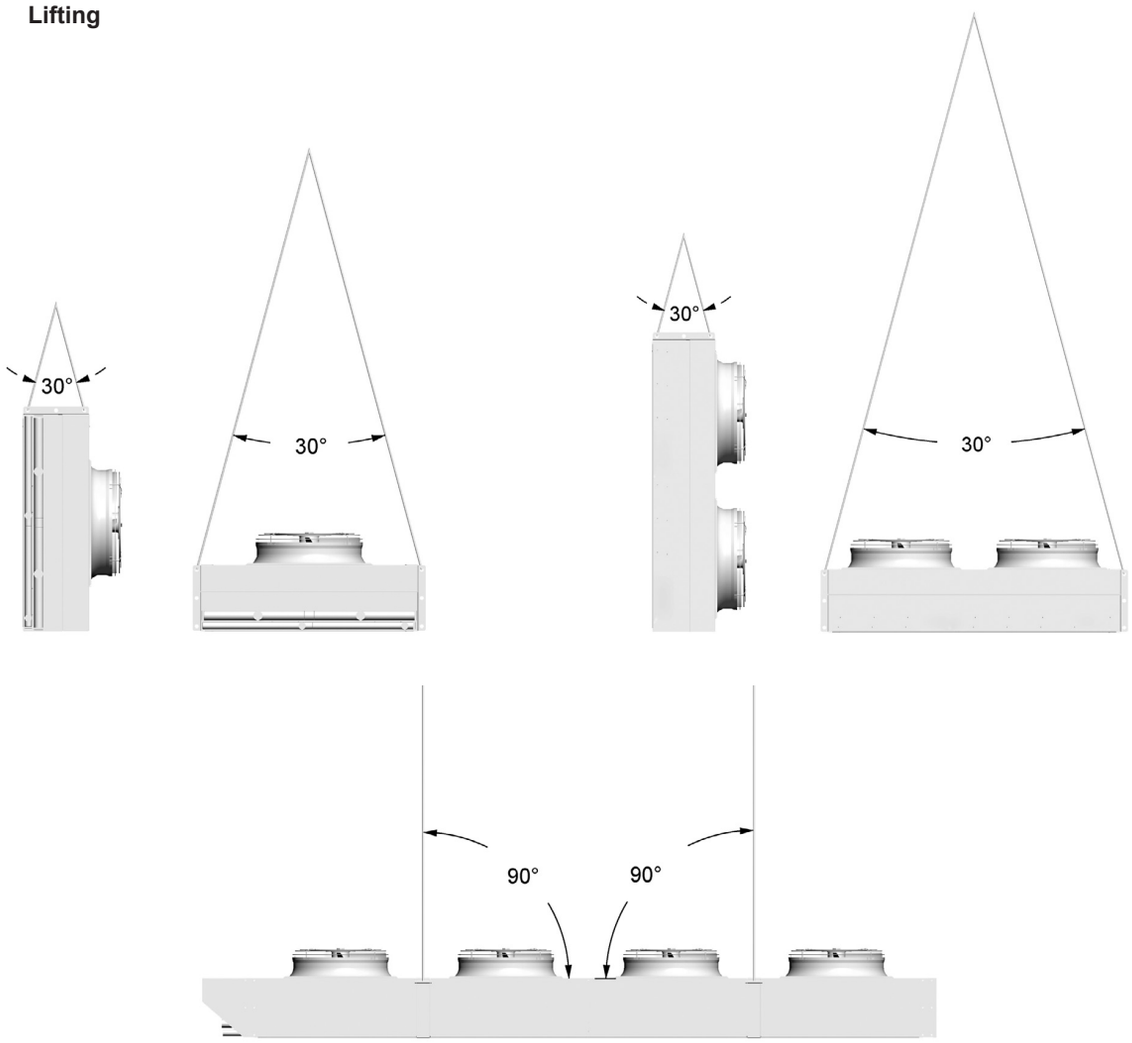
5.5 Mounting of lifting brackets

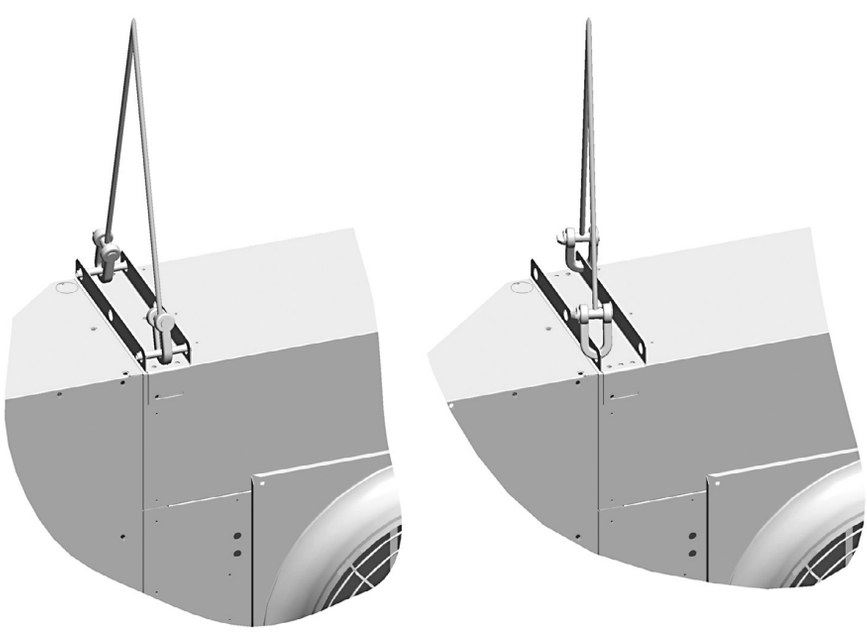
Model code: EG.. 5 1.. - EG.. 6 1.. - EG.. 7 1..

For models (packaging in a cardboard box or wooden crate) shipped without lifting brackets fitted but supplied, assemble as shown in the diagram; tighten no. 5 screws for each support, checking the proper tightening of screws (Ref. EN 1090-2):



5.6 **Lifting**

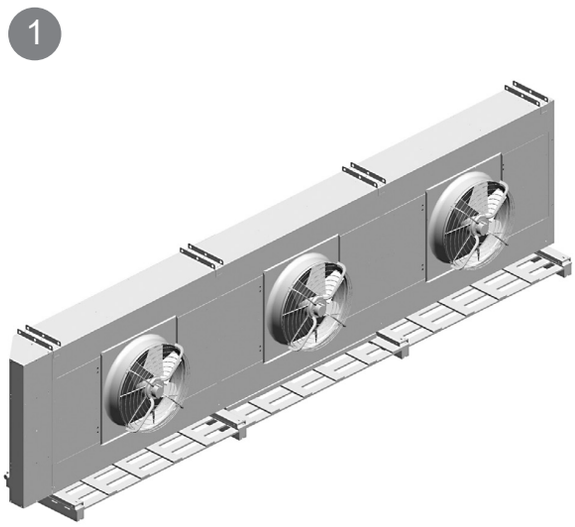


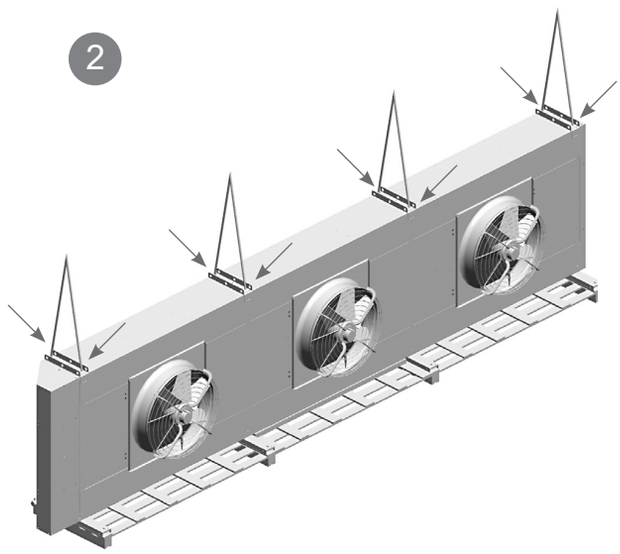


For models: EG.. 72..
EG.. 8..
EG.. 9..
EG.. 1..

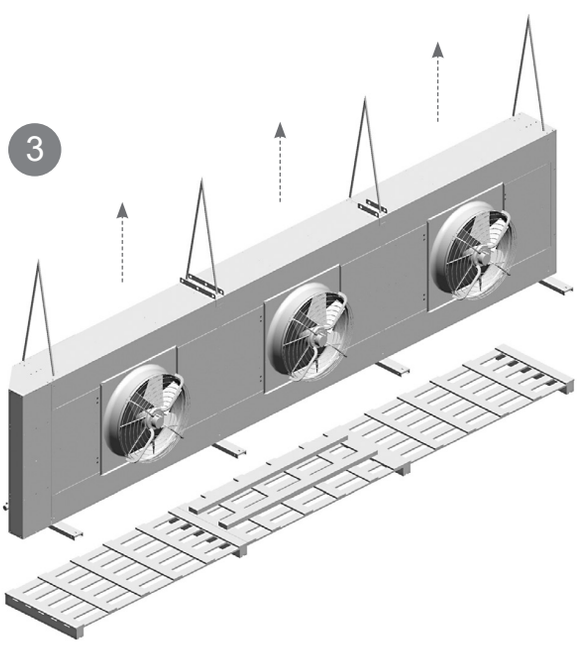
For models: EG.. 5..
EG.. 6..
EG.. 71..

5.7 **Positioning of models with horizontal air flow**

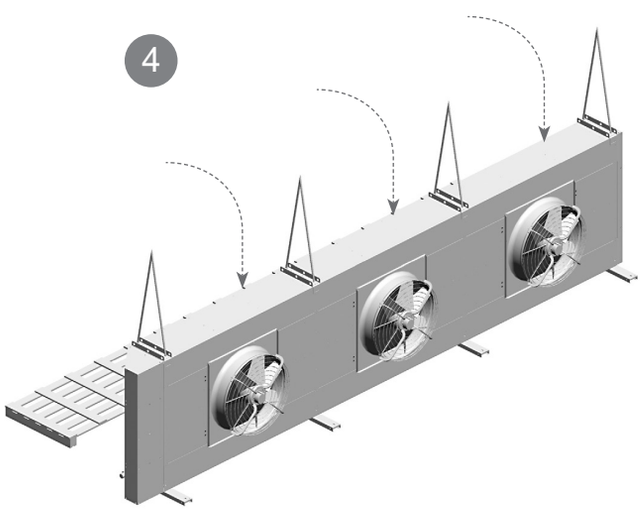




Use all the lifting points.



Lift the model.

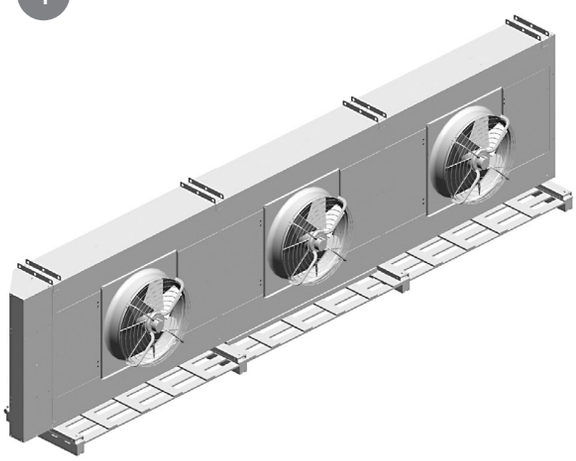


Position the model and remove the protective film from the casing.

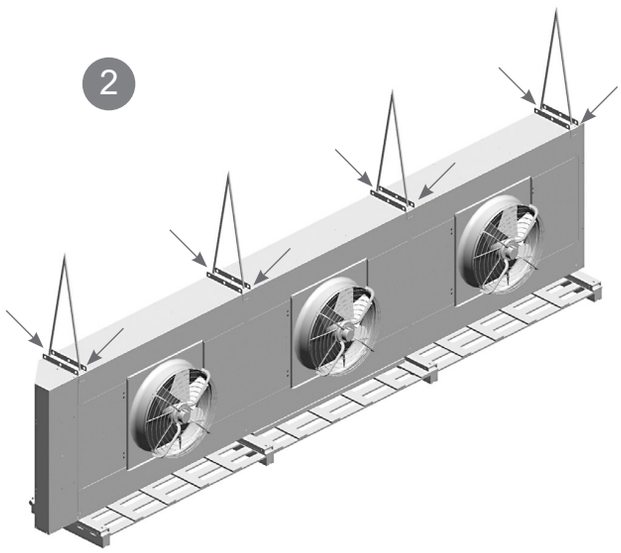
Leave the brackets in place for future handling.

5.8 **Positioning of models with vertical air flow**

1

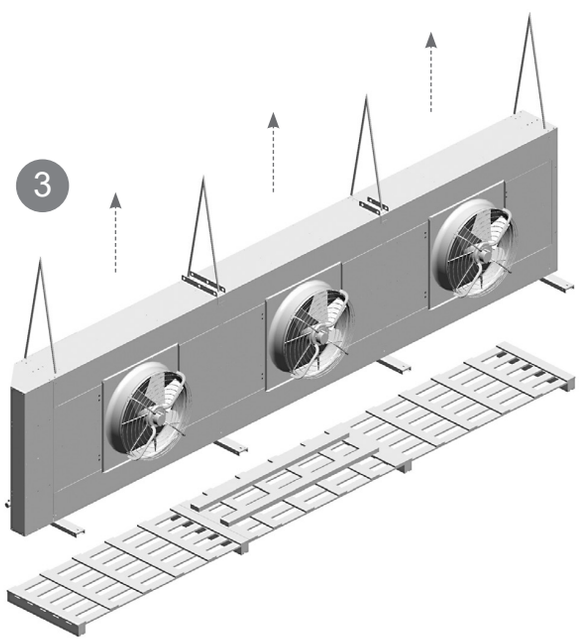


2



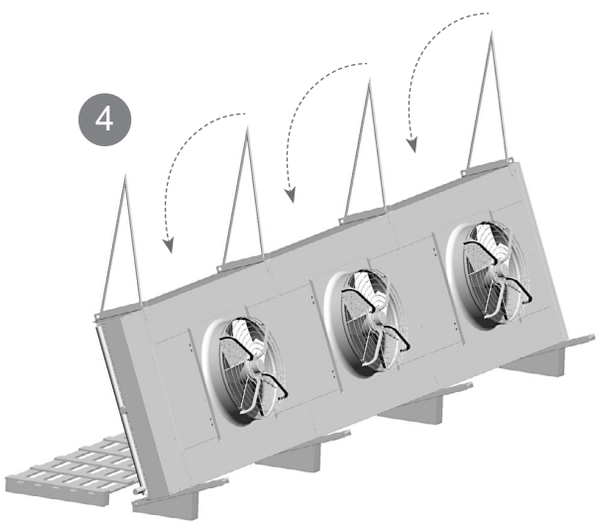
Use all the lifting points.

3



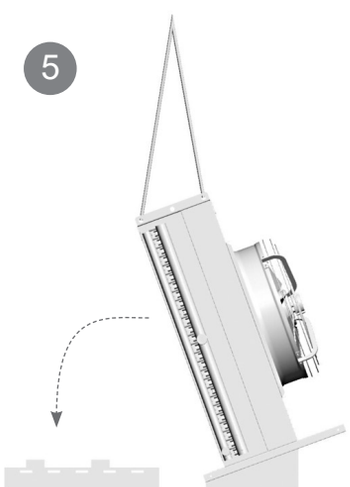
Lift the model.

4



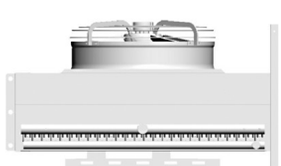
Position the model on the inclined base.

5

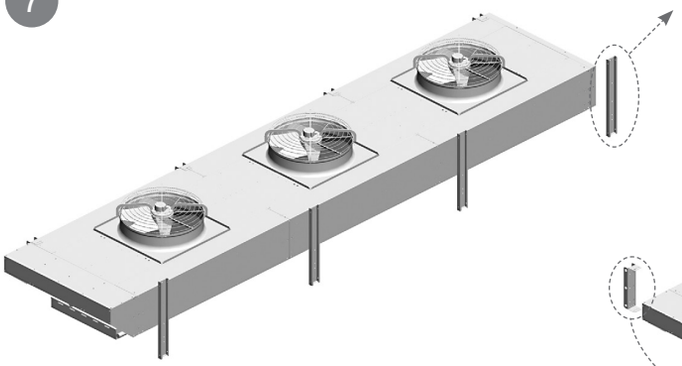


6

Rotate the model by 90° and
place it horizontally on the pallet.

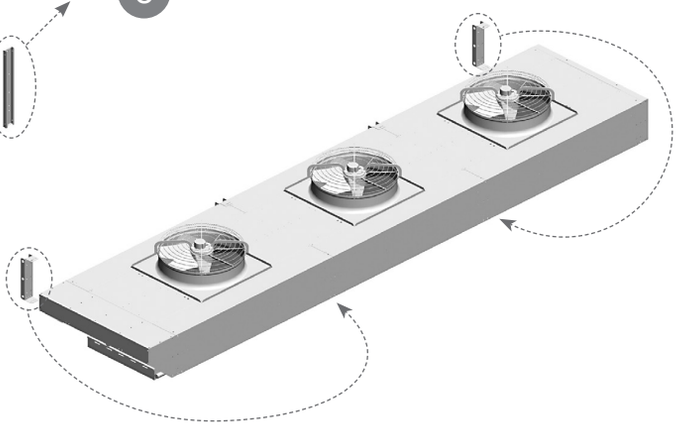


7



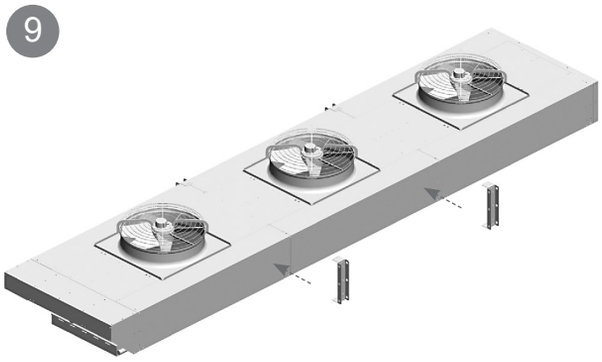
Remove supports.

8



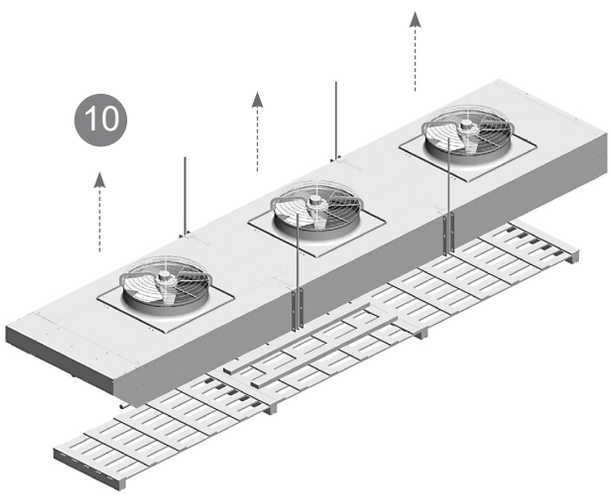
Remove the brackets, see point 5.9

9



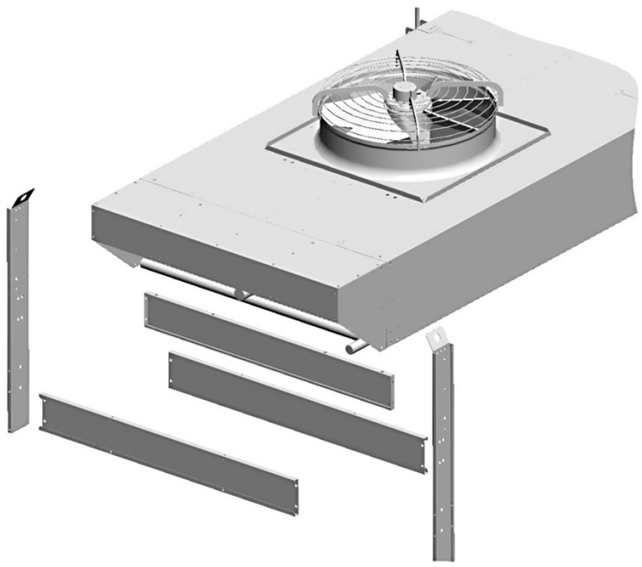
Reposition the brackets, see point 5.9

10

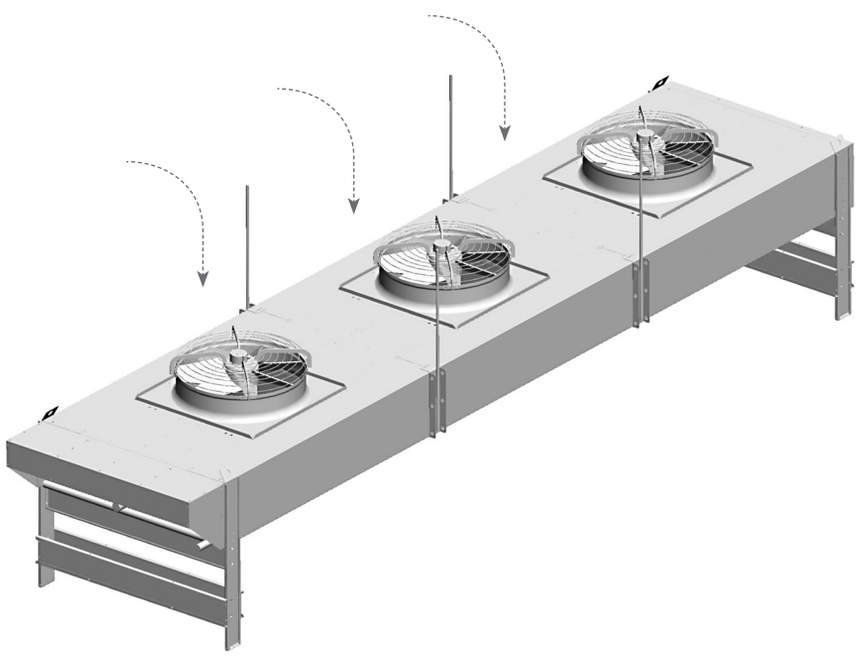


Lift the model.

Leave the brackets in place for future handling.



Mount the support legs supplied, see the drawing supplied with the model and point 5.9 for the relevant details. It is essential to take all necessary measures to ensure the complete safety of the operators in order to avoid the accidental fall of the model against people, it is forbidden to work under a suspended load, it is advisable to prepare a structure of greater capacity than the weight to be supported (tripod or props) on which to rest the model.



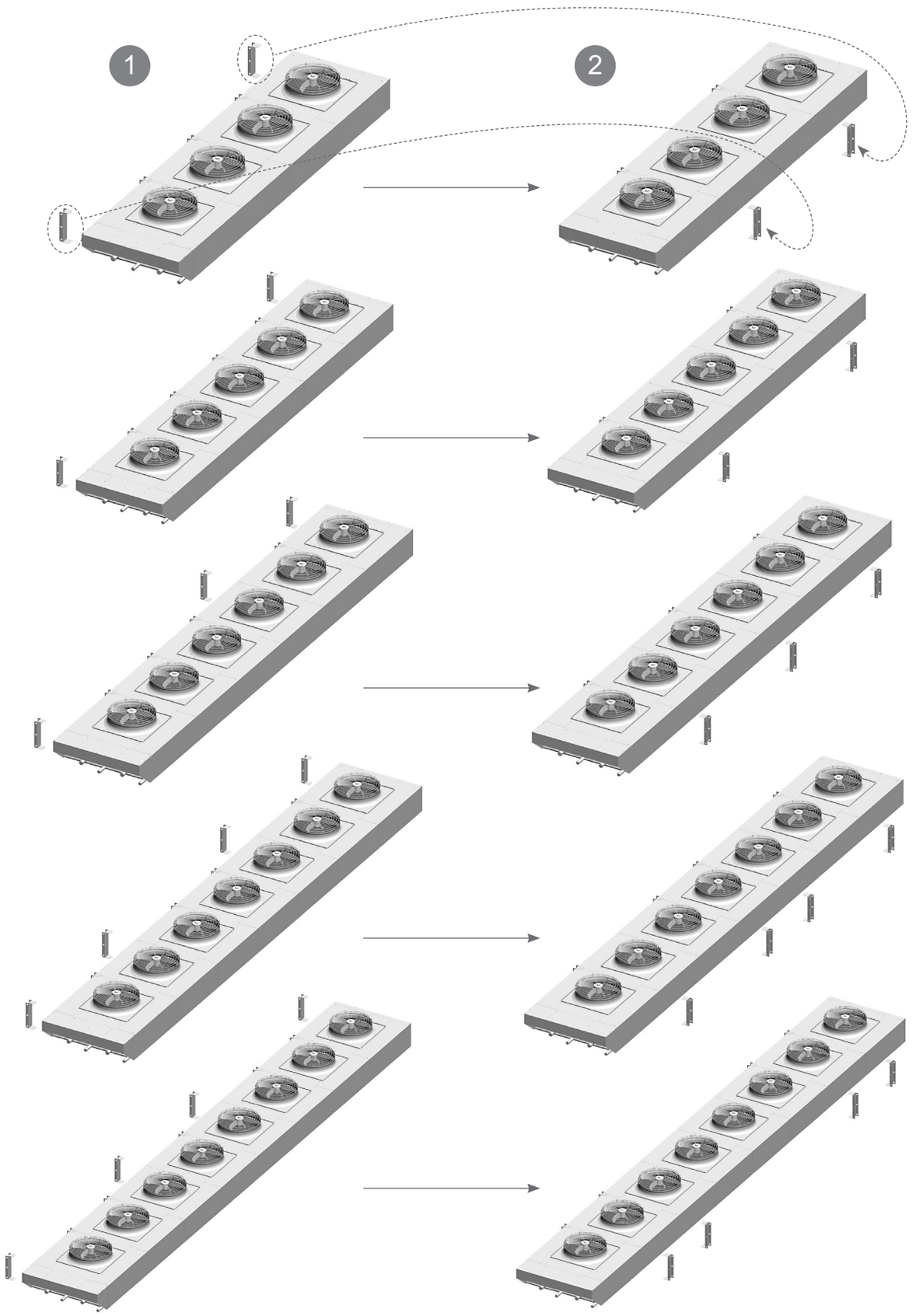
Position the model and remove the protective film from the casing.

5.9 **Positioning of lifting brackets**

5.9.1 Lifting brackets positioning diagram for vertical air flow. One row of fans.

1) Remove as indicated, loosen no. 5 screws for each support.

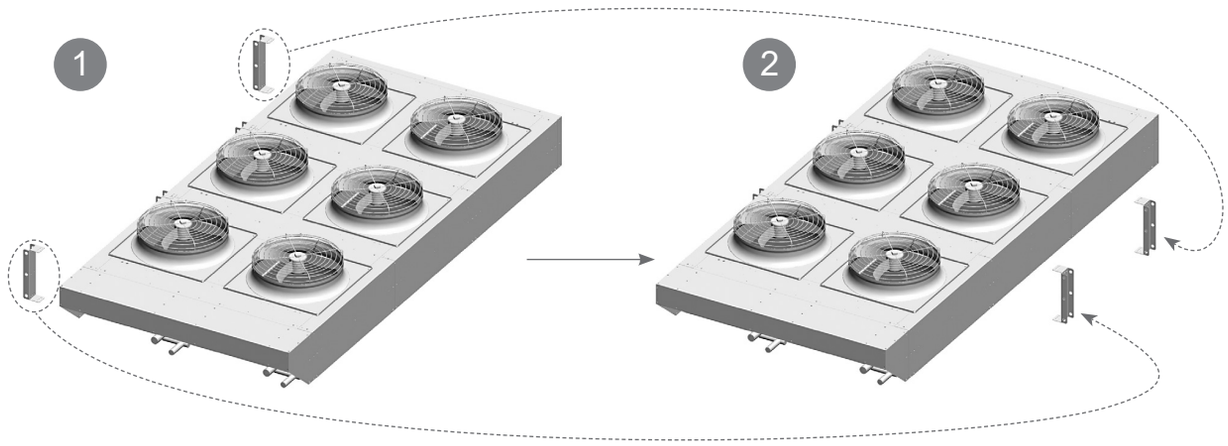
2) Reposition as indicated.
Tighten no. 5 screws for each support checking correct tightening of the screws (ref. EN 1090-2).

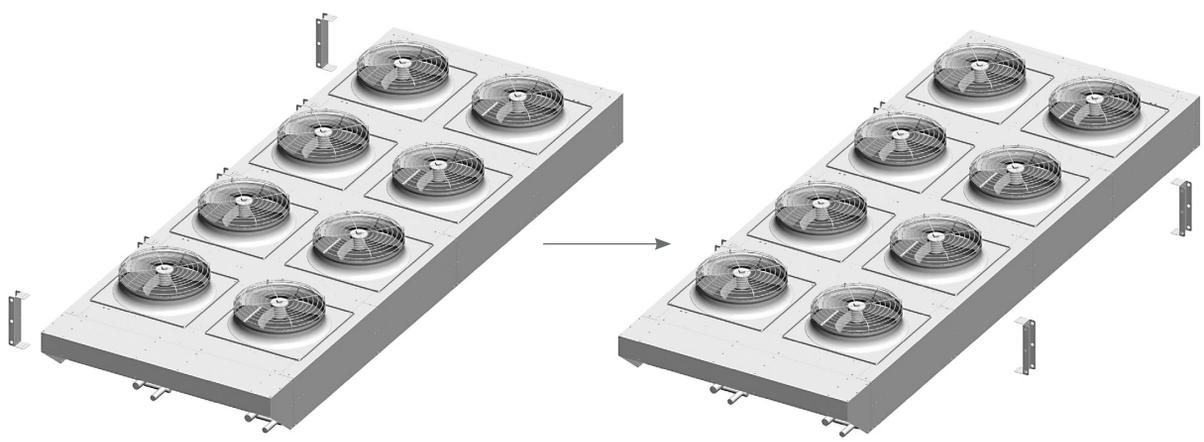


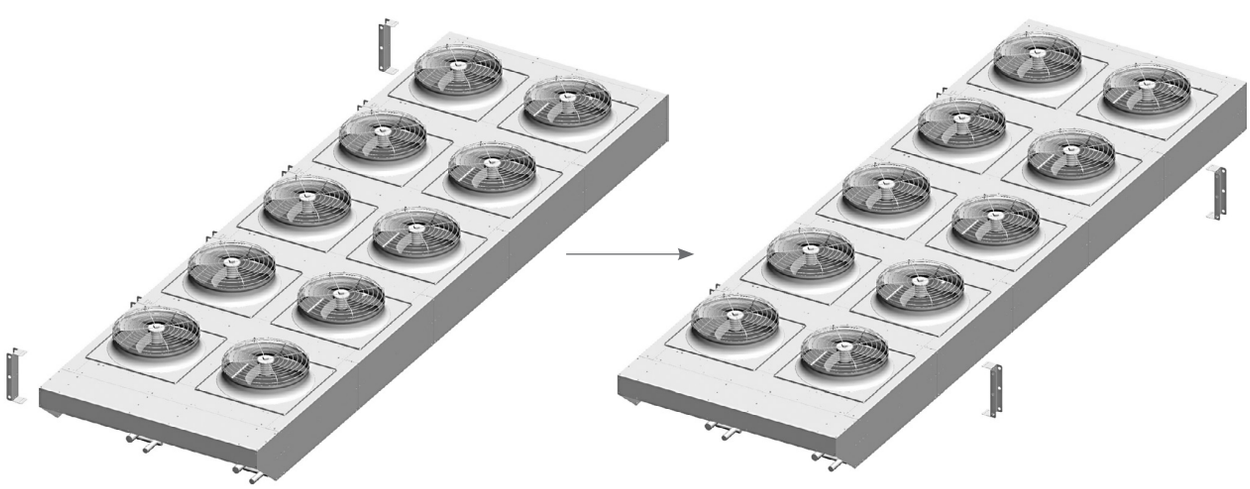
5.9.2 Lifting brackets positioning diagram for vertical air flow. Two rows of fans.

1) Remove as indicated, loosen no. 5 screws for each support.

2) Reposition as indicated.
Tighten no. 5 screws for each support checking correct tightening of the screws (ref. EN 1090-2).

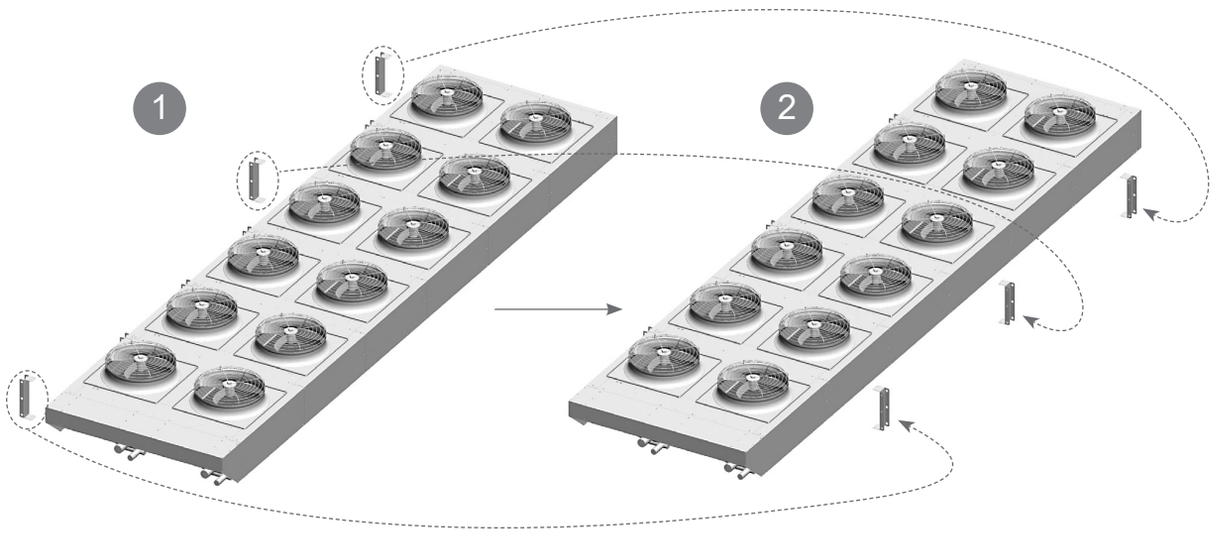


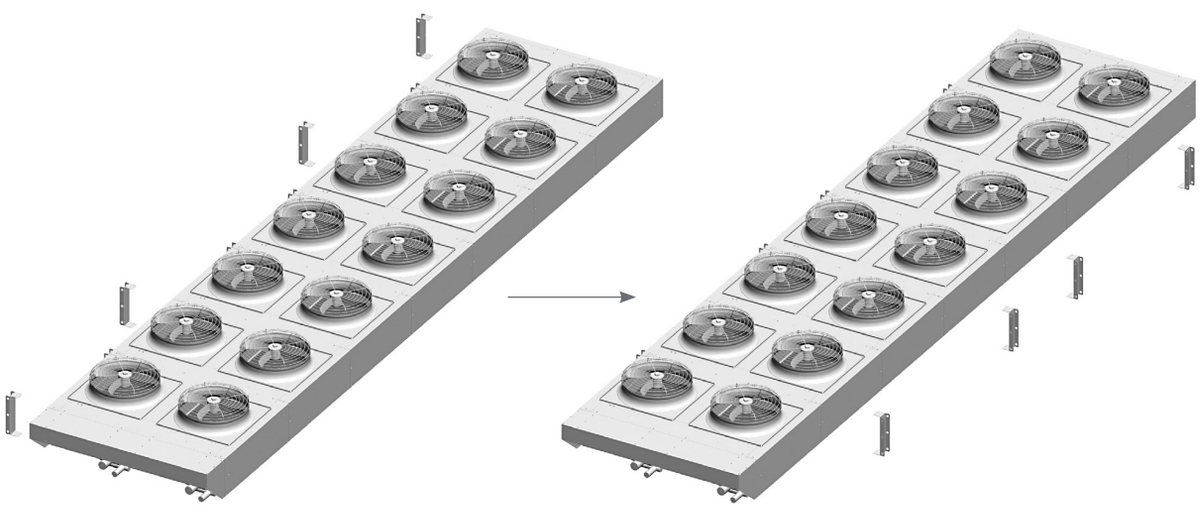


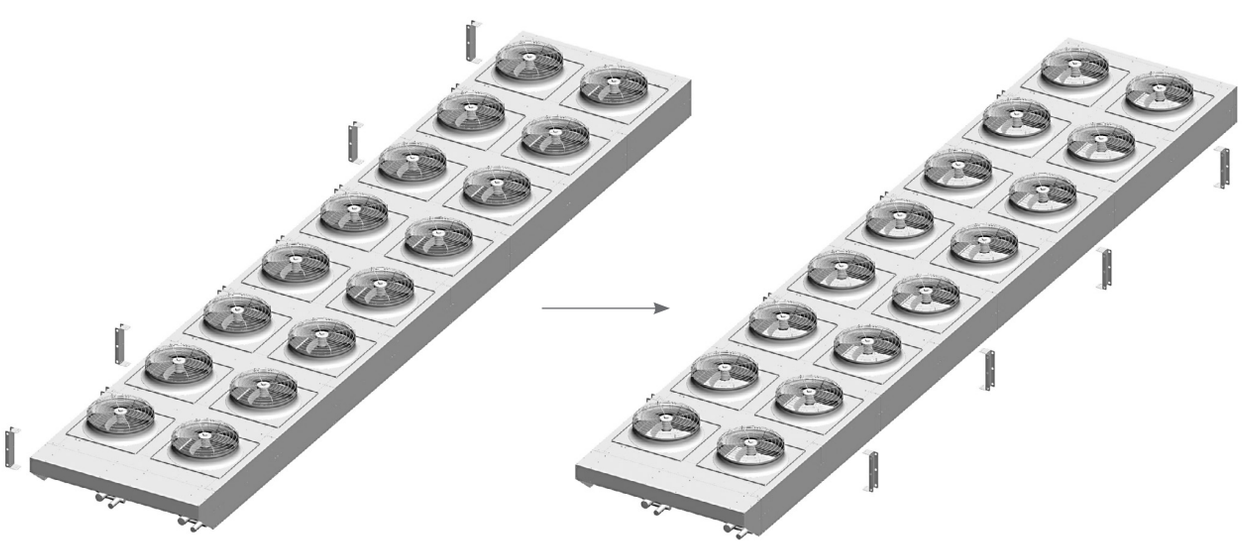


1) Remove as indicated, loosen no. 5 screws for each support.

2) Reposition as indicated.
Tighten no. 5 screws for each support checking correct tightening of the screws (ref. EN 1090-2).

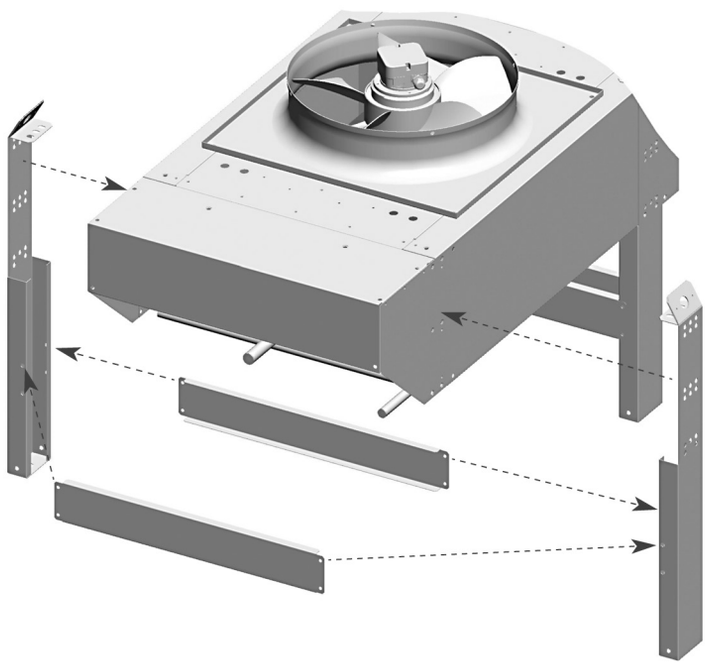




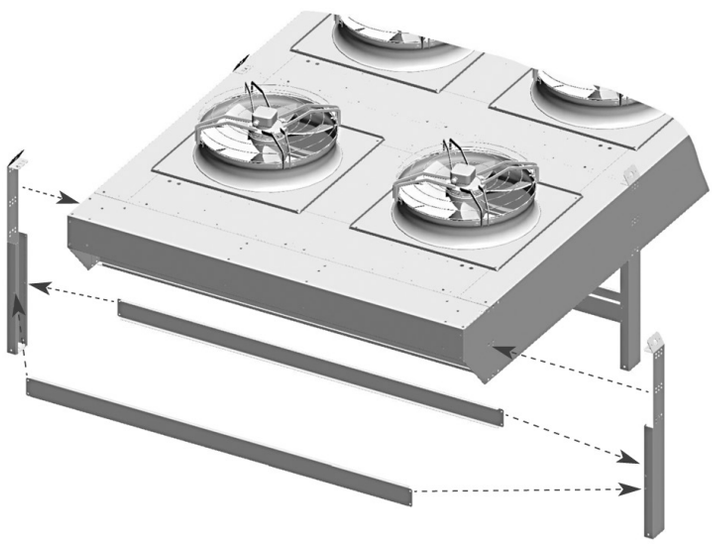


5.9.3 Support brackets positioning diagram for vertical air flow.

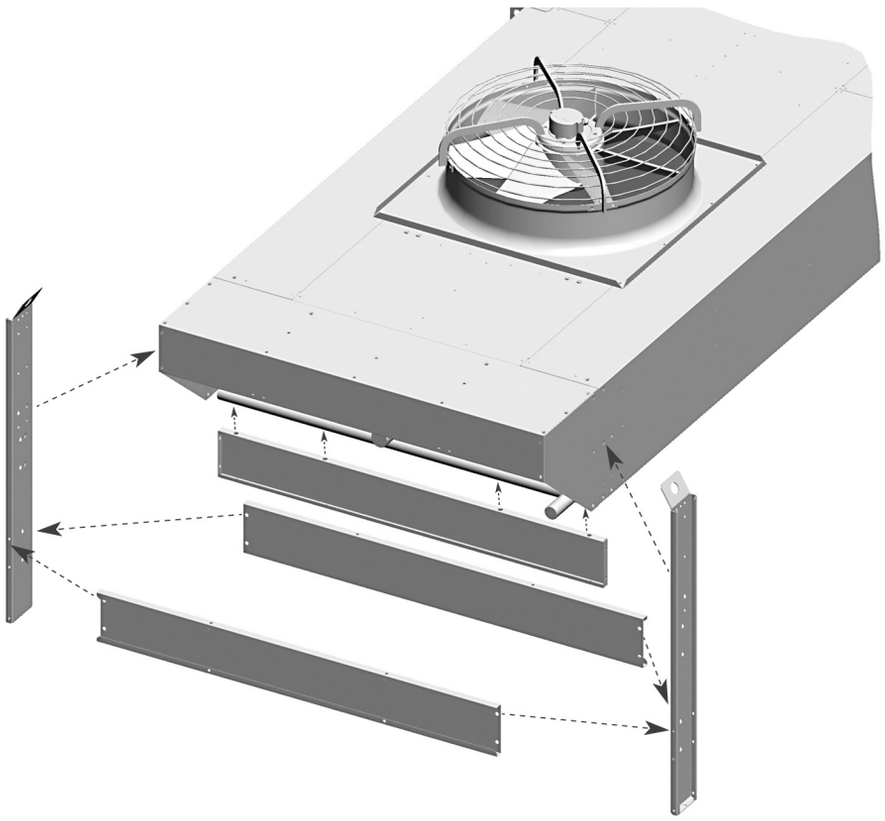
M6 screws and washer for codes:
Codes: EG.. 5 1.. - EG.. 6 1.. - EG.. 7 1..



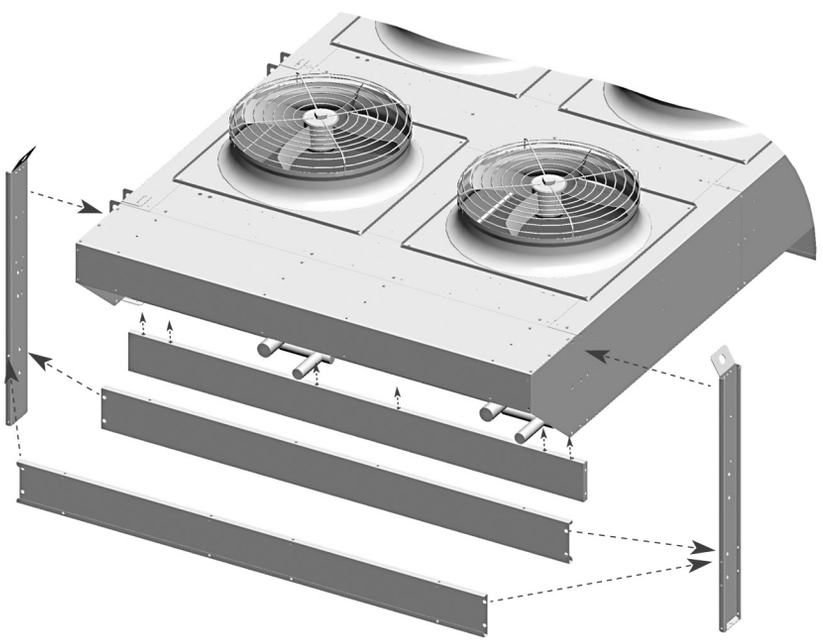
M8 screws and washer for codes:
Codes: EG.. 5 2.. - EG.. 6 2..



M8 screws and washer for codes:
Codes: EG.. 8 1.. - EG.. 9 1.. - EG.. 1 1..



M8 screws and washer for codes:
Codes: EG.. 7 2.. - EG.. 8 2.. - EG.. 9 2.. - EG.. 1 2..



6. Installation conditions

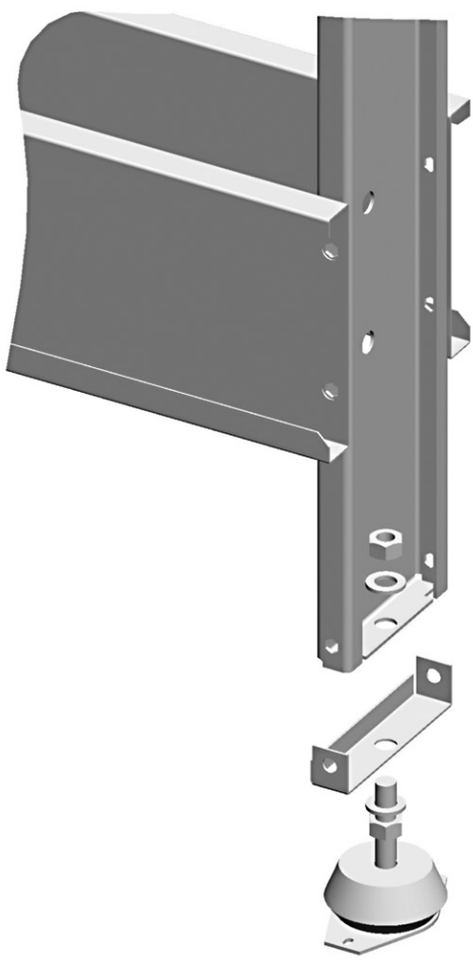
6.1 The model described in this manual is a component of a system and must be installed by authorised personnel only.

6.2 The model is fitted with axial fans that are not suitable to withstand additional static pressures and therefore it cannot be channelled, air intake filters cannot be installed and in the area dedicated to installation there must be no strong currents of air which are contrary to the flow of the motor fans.

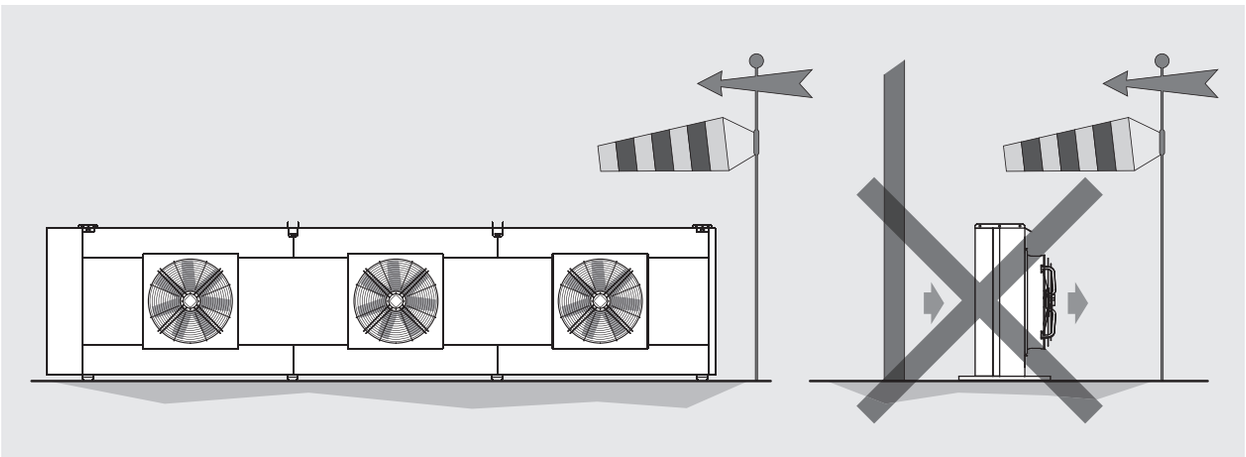
6.3 Installation must be carried out preferably outside. In the event that the model is to be installed inside, it is essential to provide an air intake that excludes any additional static pressure.

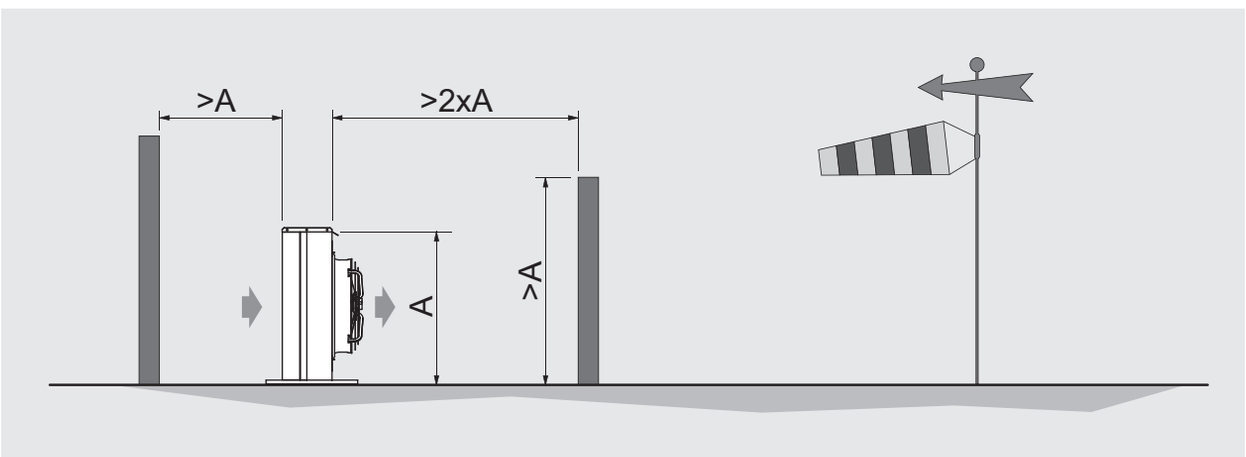
6.4 The base must be appropriate to the weight of the model when operational (see the drawing supplied with the model).

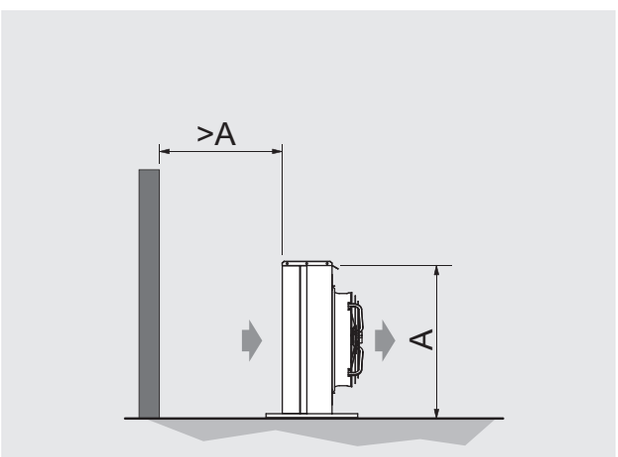
6.5 The equipment must be securely anchored to the support base, use all the fixing points. In order to prevent the transmission of noise. Possibly use shock absorbers.

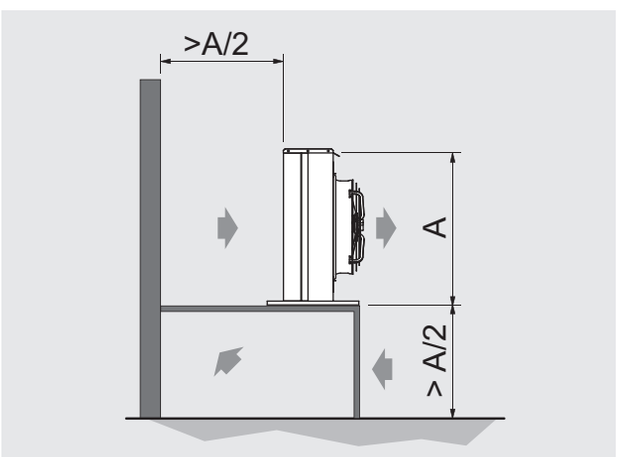


6.6 Provide space adequate to the circulation of air and for maintenance. Avoid directing the air flow against surfaces that are reflective or that otherwise increase the noise level. The minimum space between the models may be reduced according to the height of positioning with the use of special raised legs or a support platform. For installations that are different from what is indicated, contact the manufacturer.

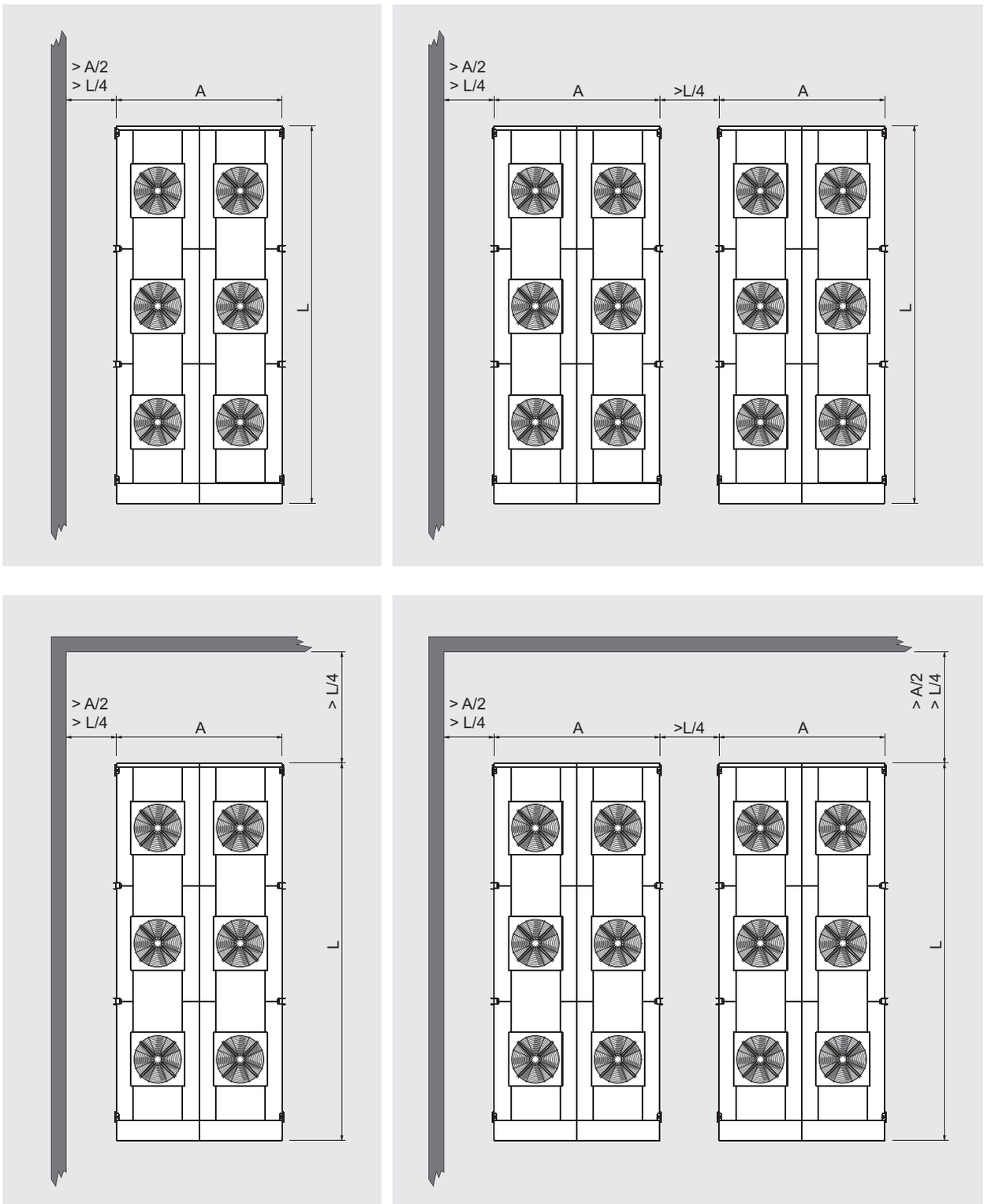








For one or several models



6.7 In the installation area there must not be any foreign bodies and powders which could obstruct the exchanger. Avoid the transit of vehicles that could hit the exchanger.

6.8 The place of installation must offer adequate protection against particular atmospheric events (e.g. flooding).

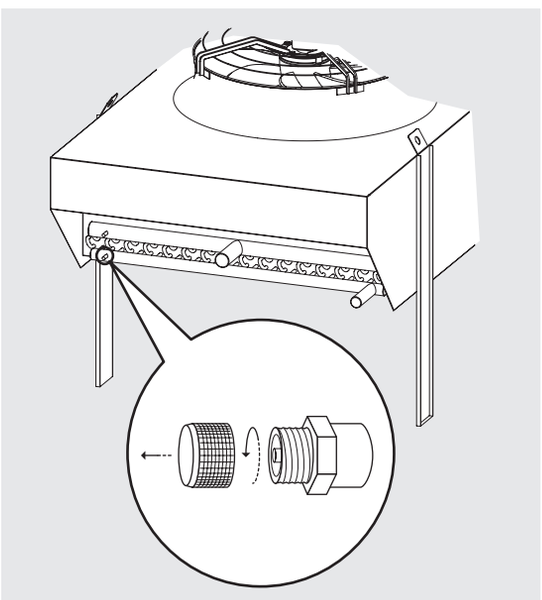
6.9 The place of installation must conform to what is prescribed by local legislation.

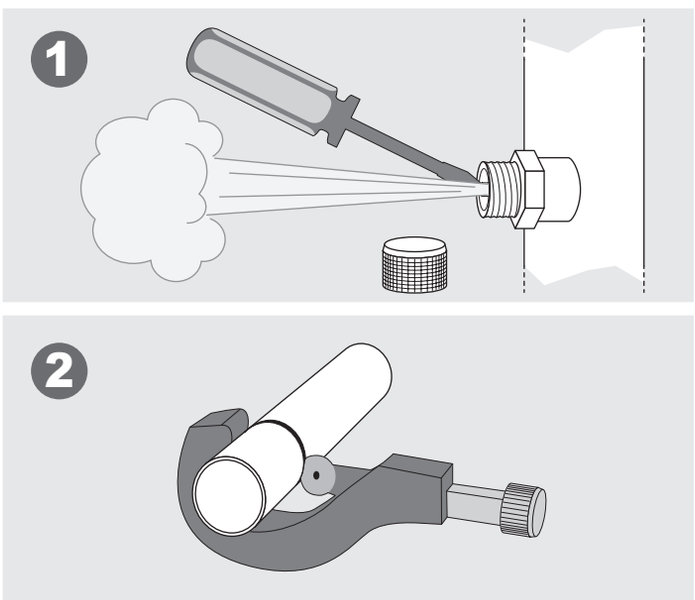
6.10 This appliance must not be installed in a potentially explosive or acidic atmosphere or in one that is not compatible with the materials that compose it (copper, aluminium, steel, polymers).

6.11 This equipment shall be integrated into an industrial electromagnetic environment within the emission and immunity limits of the standards currently in force.

6.12 The ambient temperature must not be less than –25 °C or above 60 °C. In the case of installations at temperatures lower than 5°C check that the presence of snow or ice will not obstruct the fins and will not prevent rotation of the motors. For EGW dry cooler models when using water without glycol as a fluid, ensure that the ambient temperature is always above 0°C. To avoid the danger of frost during the shutdown period and consequent pipe breakage, empty the cooler completely by blowing air in several times and introduce glycol.

6.13 For EGK, EGF and EGS condensers, discharge the pre-charge pressure (approx. 2 bar) from the heat exchanger before cutting the inlet and/or outlet sleeves.





6.14 For EGK, EGF condensers install on the discharge line, between the compressor and the condenser the vibration damping device and the silencer.

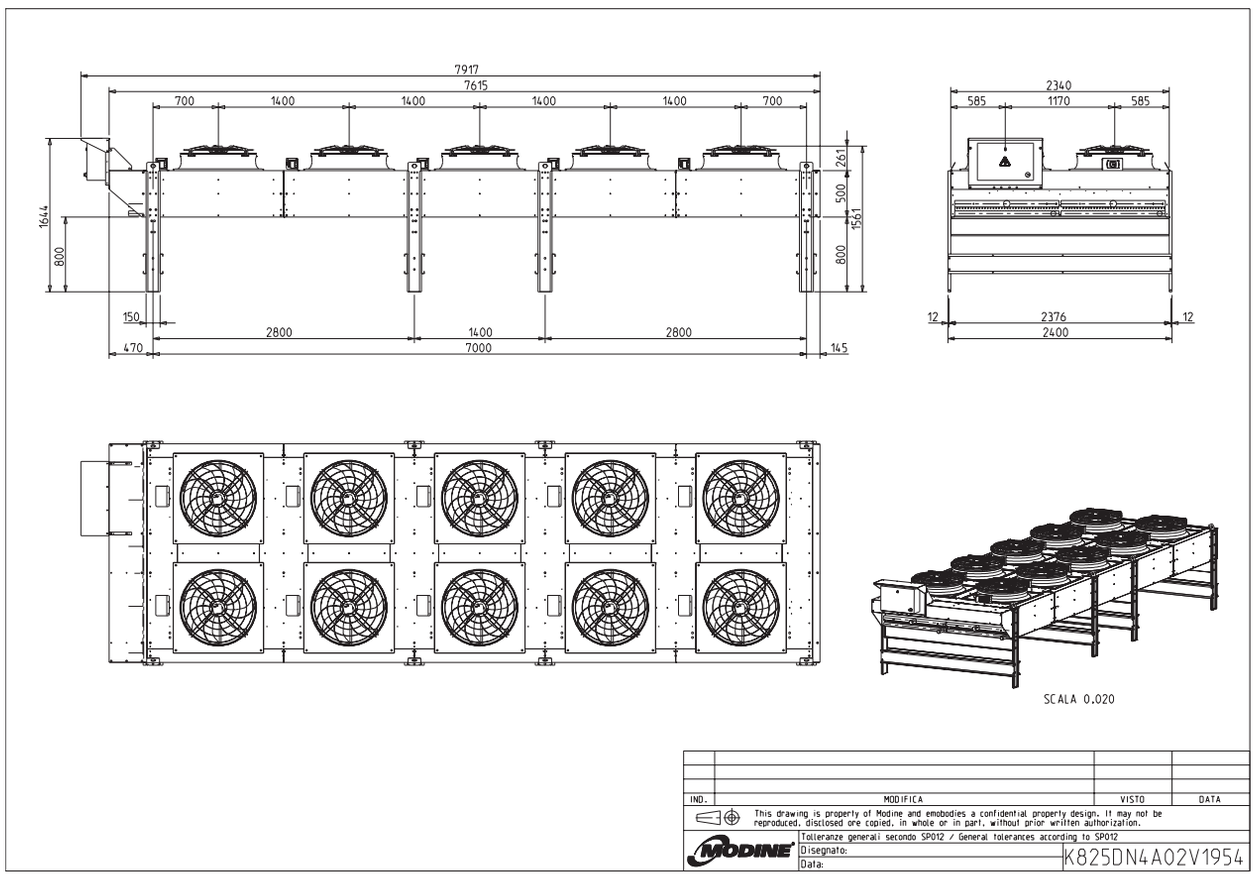
6.15 For installations at height use elevating platforms, scaffolding or trestles.

6.16 To protect against indirect contacts the installer must provide a differential switch upstream of the machine panel with adequate electrical characteristics (value in A referred to the electrical data of the installed fans, see section 14.3 or label on the fan).

7. Dimensional features

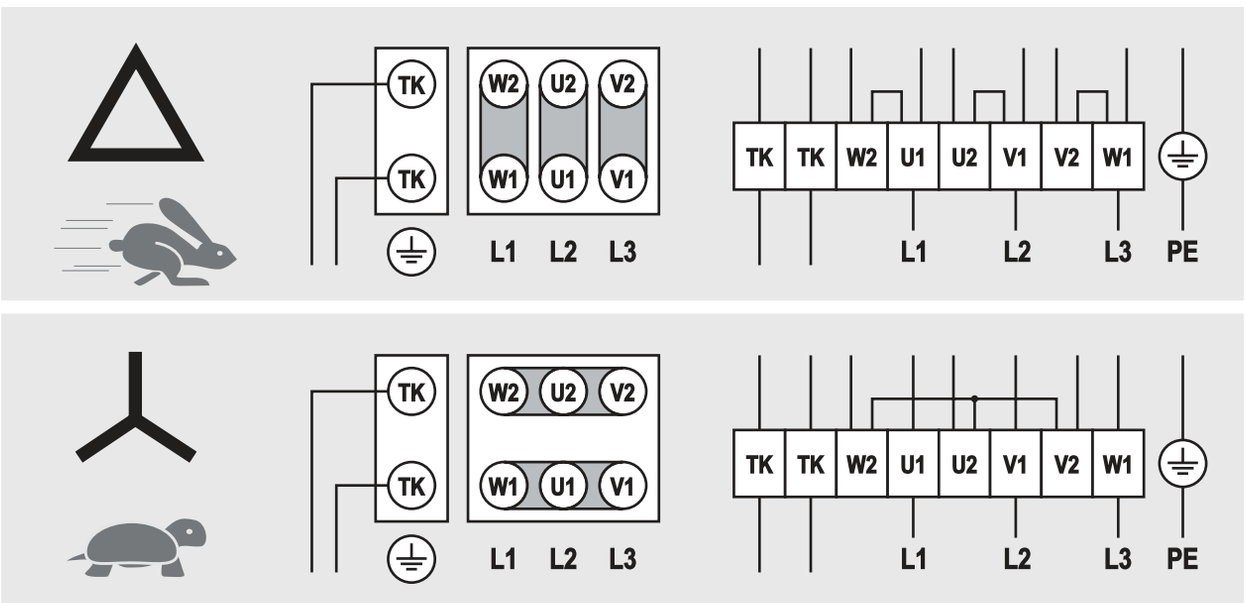
Refer to the drawing supplied with the model.

Example:



8. Wiring diagrams

General diagram

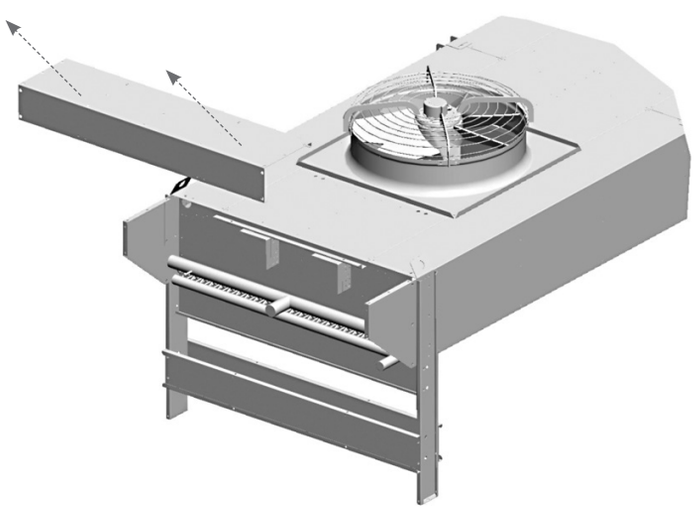


For other connections refer to the diagram printed on the inside of the motor-fan box.

The thermo-contacts (TK) must be connected to the control circuit.

For further information refer to the diagrams supplied with the model.

In the models supplied with the wiring in the junction box, remove the cover to make the connection.

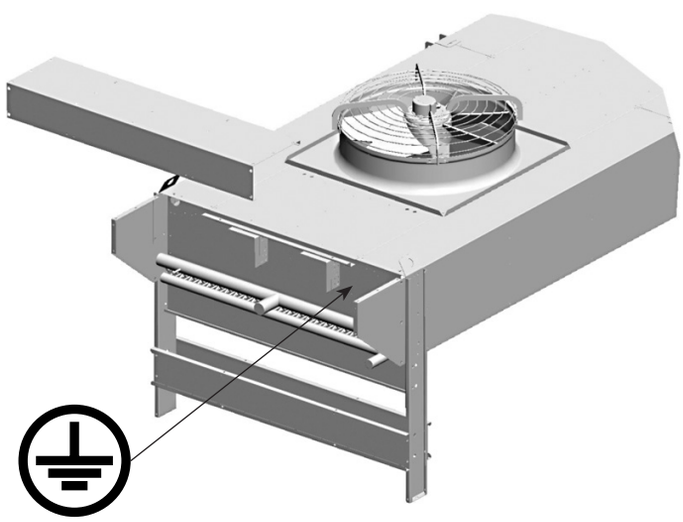


It is mandatory to use power cables with a minimum cross-section as indicated in Tab. 1. Please refer to the technical standards in force in the country of installation, based also on the way the cables are laid and their length and type.

Nominal current [A]	Power cable cross-section [mm^2]
11	1.5
15	2.5
20	4
26	6
36	10
48	16
64	25
80	35
95	50
150	95
170	120

Table 1

To minimise the risk of indirect contact, the electrical system can be earthed using the pin under the front cover.



9. Checks to be performed before start-up

With the main switch-disconnector open and padlocked (OFF position):

9.1 Tightening of all the electrical connections.

9.2 Levelling and verifying of the solidity of the support base.

9.3 Correct fastening of panels and components, paying particular attention to the correct fastening of the fan guard grille.

9.4 Verification of spaces for maintenance.

9.5 Correspondence of the supply voltage to the plate data.

9.6 Freedom of movement of the blades of the fans.

9.7 Absence of fluid leaks. CO_2, and all refrigerant gases in general, are greenhouse gases: take care not to accidentally release them into the atmosphere. Risk of environmental damage.

9.8 Removal of the protective film from the casing.

9.9 Checking of the cleanliness of the installation area.

9.10 Check that there are no foreign bodies in the vicinity of the fans and of the unit to avoid them being sucked in by the fans.

9.11 Checking of the pressure tightness of the unit.

9.12 The unit is ready for use after all the instructions and warnings concerning the electrical connections and the fluids have been strictly adhered to.

10. Checks to be performed after start-up

10.1 Initial start-up must take place under the supervision of a qualified technician and must be carried out with great care.

10.2 Check the rotation direction of the motor fans. Contrary rotation could affect the performance of the model.

10.3 Check freedom of rotation of the impeller, without rubbing or irregular movements.

10.4 Check the movement of the fluid.

10.5 Absence of vibrations or unusual noises.

10.6 Check that the electric absorption is correct, in any case not exceeding what is reported in the label of the motor fan.

10.7 Check the correct tightening of the screws (Ref. EN 1090-2).

11. Maintenance

11.1 Checks, inspections and maintenance must be carried out by authorised specialists.

11.2 During the operations of maintenance, repair and cleaning, always use personal protective equipment (e.g. gloves sufficiently resistant to mechanical hazards) to reduce the risk of injury in the event of contact with the sharp edges of the metal sheets or with the finned pack.

11.3 Under no circumstances should any work be carried out on the machine without first disconnecting the power supply. Disconnect and discharge energy. Set the main switch to position "0 OFF" and lock it with a padlock, the key must be kept by the maintenance technician until the work is completed. Wait until all fans have stopped rotating. After disconnecting the power supply wait 5 minutes before opening the fan junction box.

11.4 Do not carry out maintenance work in bad weather.

11.5 It is recommended to verify, at least once every six months, that the electrical connection, the earthing of components subject to greater wear (motors, switches) are operating correctly, if worn or obsolete, replace with equivalent new components.

11.6 It is advisable to check, at least once every six months, that all the electrical and mechanical parts and circuits affected by the fluids are in good working order, and to check the integrity and fastening of the fan guard grille.

11.7 It is advisable to check, at least once every six months, that the screws are properly tightened (Ref. EN 1090-2).

11.8 If a fan is off for a long period, it should be switched on for at least two hours every month to remove any trace of moisture inside the motor.

11.9 Check the cleanliness of the finned pack at least once a month.

11.10 Clean the surfaces of the finned pack and of the fans at least once every six months.

11.11 Cleaning of the finned pack:

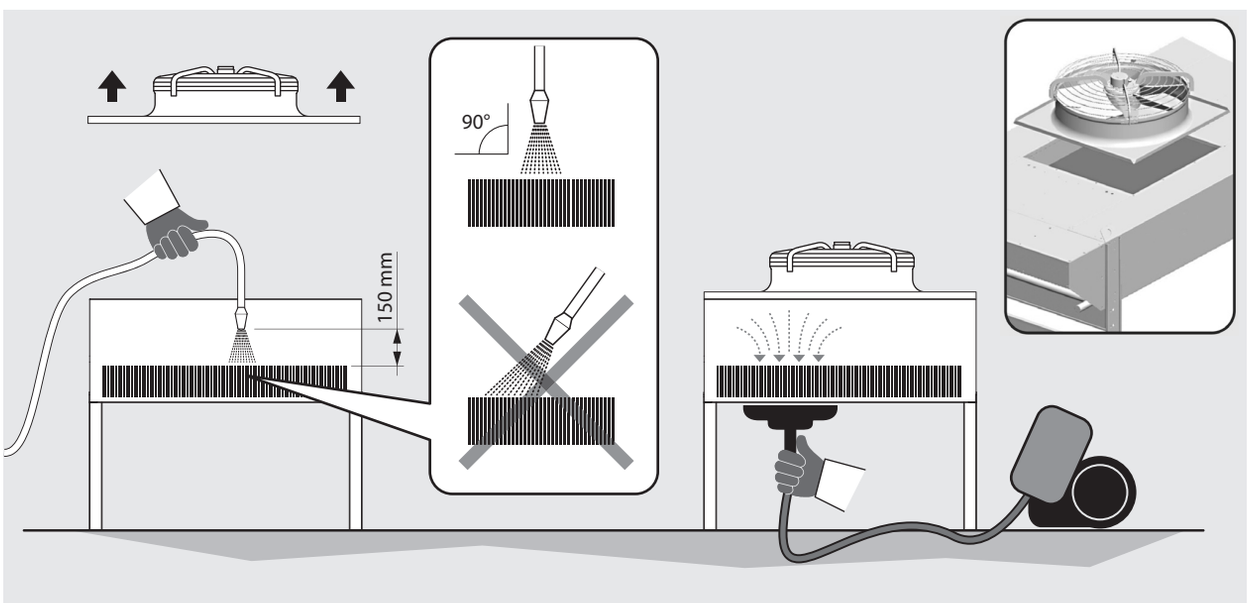
11.11.1 Place the main switch in the “OFF” position and wait until all the fans have stopped rotating and that the hot surfaces have cooled down. Remove the conveyor - fan group by unscrewing the retaining screws.

11.11.2 Use compressed air at a maximum pressure of 10 bar and at a minimum distance of 150 mm, directed perpendicularly against the finned pack to avoid bending or damage to the fins.

11.11.3 Use a jet of water at a max pressure of 50 bar for damp dirt or grease at a minimum distance of 150 mm, directed perpendicularly against the finned pack, avoiding bends or damage to the fins and pipes. If appropriate add a neutral detergent (refer to its instructions for use). Rinse and then dry with compressed air as indicated in point 11.11.2. Make sure that the electrical components are not affected by the jet of water. If necessary, provide adequate coverage.

11.11.4 Aspirate possibly from the air inlet side.

11.11.5 After having cleaned the finned pack, perform a visual inspection to identify any dirt or the presence of fins that are damaged (repeat the cleaning operation if necessary).



11.12 Only use original spare parts. Do not wait until the component is completely worn out, preventive replacements can greatly improve performance and extend the life of the model. See fan data table section 14.3 to identify fan and conveyor replacement part numbers, refer to example in section 14.4.

11.13 For maintenance of any accessories or components fitted to the model refer to their user manuals.

11.14 After any maintenance work, perform pre-commissioning checks according to Section 9 and post-commissioning checks according to Section 10.

11.15 When repairing the system, be aware that even with non-flammable refrigerants (e.g. CO_2 is used as an extinguishing medium), some traces of lubricating oil may be entrained and thus flammable mixtures may be created. It is therefore recommended:

- do not smoke in the vicinity of the model or system;
- do not use naked flames in the vicinity of the model or system;
- avoid any contact between the fluid and the fire;
- remove any means of ignition from the installation site;
- only perform any welding or soldering repairs after the model and/or system has been completely drained. Avoid releasing the fluid into the atmosphere.

11.16 In case of refrigerant leakage pay attention to the nature of the fluid used.

CO_2 in particular tends to stratify near the ground (see Sect. 1.22).

It is recommended to leave the installation site immediately and to activate the safety measures according to the regulations in force in case of:

- visible continuous fluid leakage from the model or other parts of the installation;

- momentary but significant leakage of fluid from the model or other parts of the installation;
- feeling of discomfort by personnel;
- activation of CO_2 or other refrigerant alarm sensors.

In the event of operators feeling unwell, move away from the system and contact a doctor immediately. All operations must be carried out by qualified personnel. The use of PPE is recommended (see Section 12). Ensure adequate ventilation of the working environment.

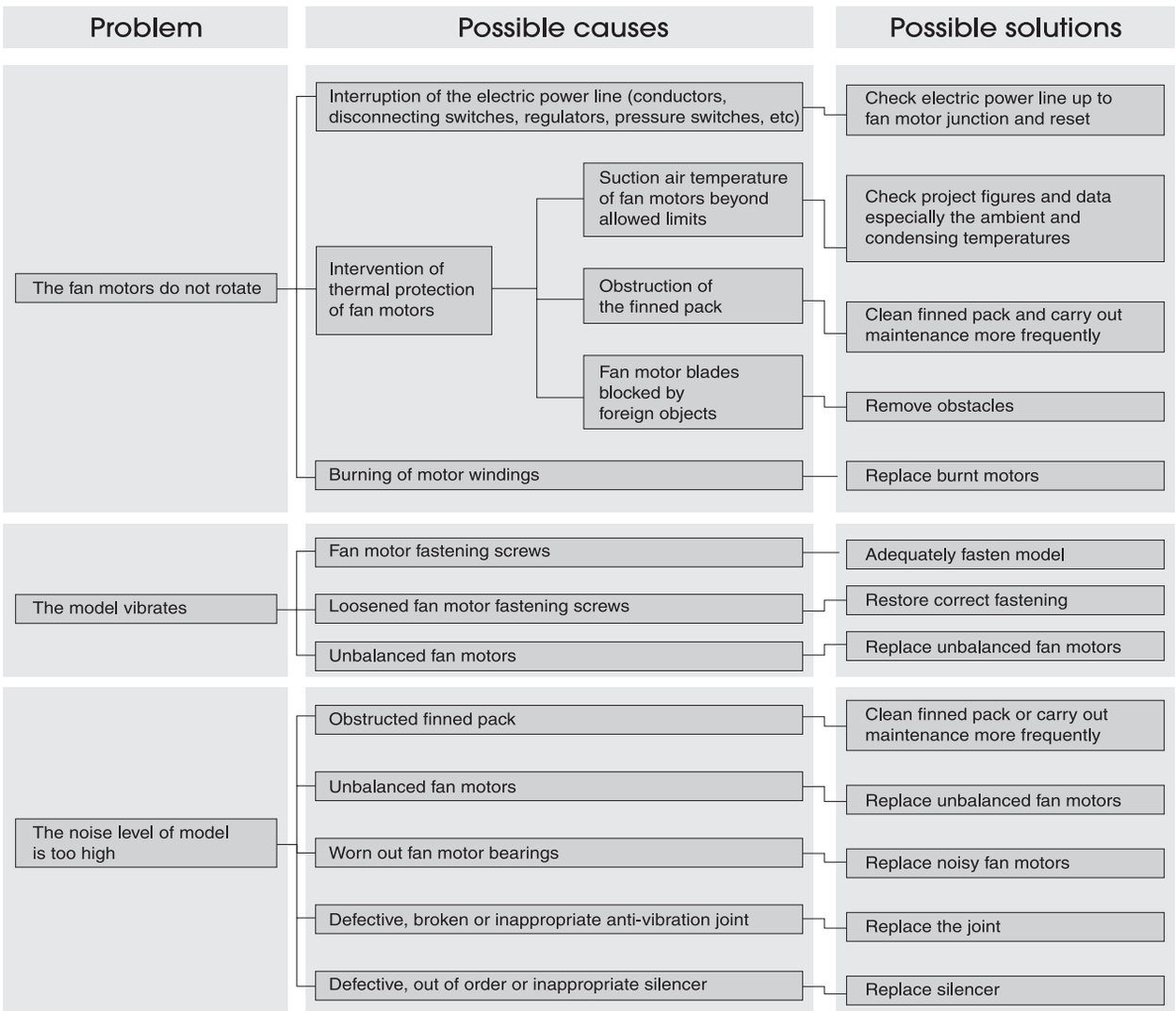
11.17 Always take into account the working pressure of the system. In particular, in the case of CO_2 systems, the working pressure can reach 130 bar: in the event of a rupture, there is a risk of injury to persons or damage to property due to the projection of debris, even from a great distance. Before carrying out any work, always make the system safe as per current regulations. The use of PPE is recommended (see Section 12).

11.18 In the event of a leak of refrigerant fluid, check that it has not penetrated into rooms below or adjacent to the place of installation: secure the rooms as per current regulations. In the case of CO_2 systems, consider the tendency of the fluid to stratify near the ground.

11.19 During the dismantling and scrapping phases, make sure to use the appropriate personal protective equipment (see section 12).

Ensure complete draining of the fluids and their proper disposal. Pay particular attention to sharp edges.

11.20 **Troubleshooting**



12. Residual risks

12.1 The equipment presents a number of risks that have not been fully eliminated from the design point of view or through the installation of adequate protections. Based on such risks, it is reported which Personal Protective Equipment (PPE) should be used by the operators or which behaviours and procedures should be adopted.

During installation of the equipment ensure sufficient space to limit these risks. To preserve such conditions, the corridors and areas surrounding the equipment must always:

- be kept free from obstacles (such as ladders, tools, containers, boxes);
- be clean and dry;
- be well lit if necessary.

List of residual risks that remain in relation to the equipment, on-board signage

BURN

The operator (in particular situations or during maintenance) intentionally or unintentionally touches a hot or frozen surface: if necessary use insulating gloves and/or wait for cooling/heating of the surfaces.

ELECTROCUTION:

Contact with live electrical parts during maintenance operations carried out with the presence of voltage: operations reserved for qualified and authorised operators, equipped optionally with PPE and insulating tools - in general turning off the power supply to the machine by placing in the open position “O” the main switch and locking it in this position.

SHARP FINS

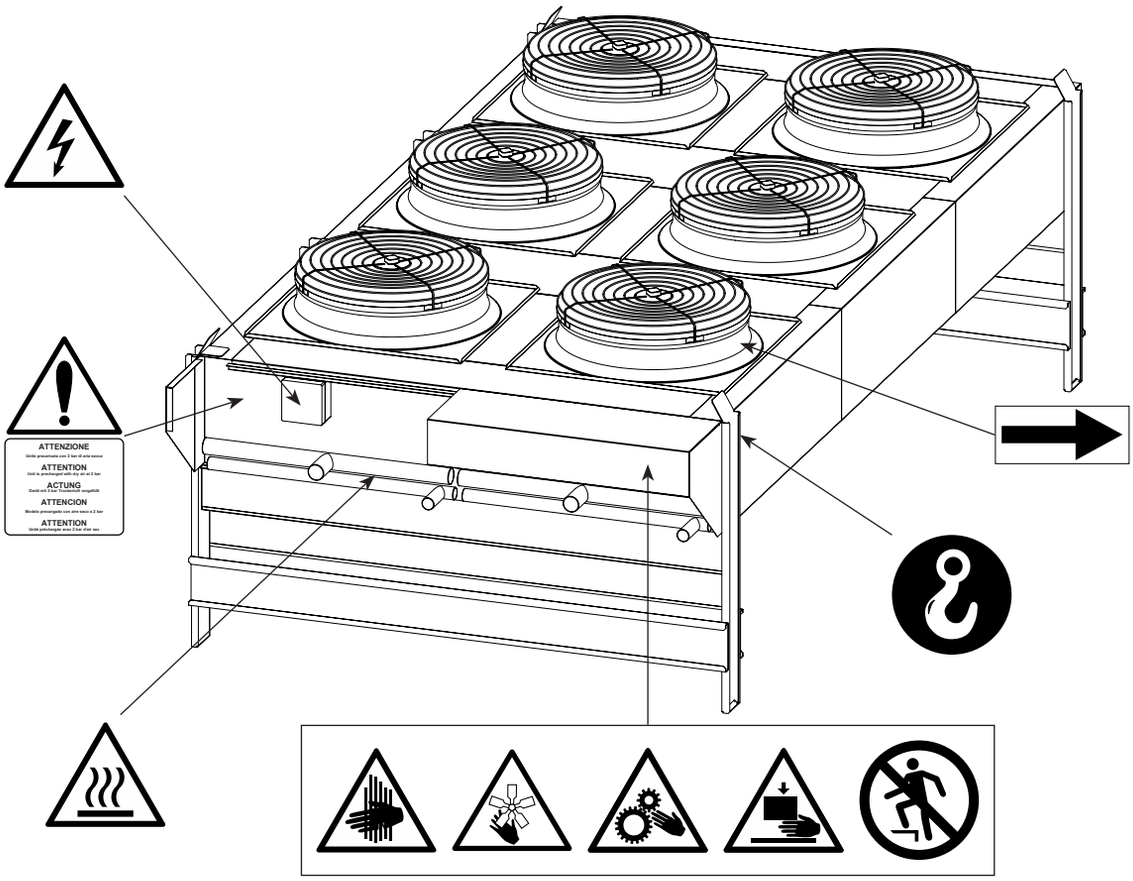
The operator at the stages of use and cleaning must be careful of the fins as they are sharp.

CUTTING AND CRUSHING BY BODIES IN MOTION

The operator (in particular situations or during maintenance) must pay attention to the fans. In general disconnect the fan by placing the safety switch located at the opening in the open position “O”.

FALL HAZARD

Walking or climbing on the unit is strictly prohibited, as it can cause damage and create a fall hazard.



Collectors can reach high temperatures, avoid contact.

Hot air from fans can cause discomfort to personnel and damage to property.

Any use other than that specified in this manual is considered incorrect.

During operation of the equipment, no other types of work or activities are permitted that are to be considered as incorrect and that in general may entail risks for the safety of persons and damage to property.

Predictable misuse will be considered:

- Failure to disconnect the power supply with the main switch in the open position “O” (or disconnecting of the plug from the socket) before performing adjustment, recovery and maintenance operations
- Insufficient maintenance and periodic checks;
- Structural changes or modifications to the operating logic;
- Tampering with the guards and safety systems;
- The presence of third persons during normal operation;
- Non-use of P.P.E. by operators and any maintenance technicians;
- Wearing inappropriate clothing (e.g. ties, ribbons, loose sleeves, necklaces).

The behaviours previously described are prohibited.

It is forbidden to remove or make illegible safety, hazard and obligation signs shown on the equipment.

It is forbidden to remove or tamper with the guards of the equipment

Machine modifications are prohibited: in such cases request the intervention of the manufacturer.

The following table summarises the **PPE** (Personal Protection Equipment) to be used during the various phases of the life of the equipment (each stage involves the obligation to use and provide PPE), in order to protect the health and safety of operators.

The responsibility for the identification and choice of the type and category of **PPE** that is appropriate and suitable lies with the user.

Phase	 Protective clothing	 Safety footwear	 Gloves	 Goggles	 Visor	 Ear protectors	 Mask	 Helmet or head gear
Transportation	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**
Handling	**X**	**X**	**X**	**X**	**NP**	**NP**	**NP**	**X**
Unpacking	**X**	**X**	**X**	**X**	**NP**	**NP**	**NP**	**X**
Assembly	**X**	**X**	**X**	**X**	**NP**	**O**	**NP**	**X**
Ordinary use	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**
Adjustments	**X**	**X**	**X**	**NP**	**X**	**O**	**NP**	**NP**
Cleaning	**X**	**X**	**X**	**NP**	**X**	**O**	**X**	**NP**
Maintenance	**X**	**X**	**X**	**NP**	**X**	**O**	**O**	**X**
Dismantling	**X**	**X**	**X**	**NP**	**X**	**O**	**NP**	**X**
Demolition	**X**	**X**	**X**	**X**	**NP**	**O**	**NP**	**O**

X Recommended PPE

O PPE available or to be used if necessary

NP PPE not recommended

The PPE used must comply with the directives of the product and bear the CE marking (for the European market).

The definitions of the phases of life of the equipment are described in the following table.

PHASE	DESCRIPTION
Transportation	It consists of transferring the equipment from one location to another through the use of suitable means.
Handling	It consists of transferring the equipment from and on the means used for transportation and movements within the plant.
Unpacking	It involves removal of all the materials used for packaging of the equipment.
Assembly	It involves all the assembly operations that initially prepare the equipment for fine-tuning.
Ordinary use	Use for which the equipment is intended (or that is considered usual) in relation to its design, construction and function.
Adjustments	These involve the adjustment, fine-tuning and calibration of all those devices which must be adapted to the condition of operation normally envisaged.
Cleaning	It involves the removal of dust, oil and residues of processing that could compromise the efficient operation and use of the equipment, as well as the health and safety of the operator.
Maintenance	It involves periodic verification of the parts of the equipment that can wear out and that must be replaced.
Dismantling	It involves the complete or partial dismantling of the equipment for any type of necessity.
Demolition	It involves the definitive removal of all parts of the equipment resulting from the operation of definitive dismantling to allow the possible recycling or differentiated collection of components according to the procedures laid down by the existing rules of law.

13. Reference standards and directives

- MACHINE DIRECTIVE 2006/42/EC
- LOW VOLTAGE DIRECTIVE 2014/35/EU
- ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2014/30/EU
- PRESSURE VESSELS DIRECTIVE 2014/68/EU, module A 2 for Cat. I or Art. 4 Par. 3,
  as indicated on the PED label of the exchanger.
- ERP DIRECTIVE 2009/125/EC
- UNI EN 378:2020 REFRIGERATION SYSTEMS AND HEAT PUMPS

14. Technical Data

14.1 **Technical Data**

Model code	Label on the unit
Serial number	Label on the unit
Year of manufacture	Label on the unit
Max pressure PS	Label on the unit
Project number	Documents relating to offer / order
Fluid type	Documents relating to offer / order
Internal volume	Label on the unit
Weight	Label on the unit
Fans code	Technical manual point 14.3 (MN)
Sound power level	Technical manual point 14.3
Current	Label on the unit and Technical manual point 14.3
Voltage	Label on the unit and Technical manual point 14.3

14.2 **Identification Code**

Range	Type	Fan diameter	No. of rows	No. fans per row	Fan motor connection	Noise level	Coil rows	Module		Tubes per circuit	Air flow direction
EG	**K** Condenser	**5** 500	**1**	**1**	**D** Delta	**N** Normal	**1**	**A**	**M**	**1** to **99**	**H** Horizontal
	W Dry cooler	**6** 630	**2**	**2**	**S** Star	**M** Medium	**2**	**B**	**N**		**V** Vertical
	S Gas cooler CO_2	**7** 710		**3**	**M** Monophase	**L** Low	**3**	**C**	**P**		**J** Jumbo
	F Condenser R410A	**8** 800		**4**	**E** EC 3-phase	**S** Silent	**4**	**D**	**Q**		**J** Junior
	N Condenser NH_3	**9** 910		**5**	**F** EC 1-phase		**5**	**E**	**R**		**G** Giant
		1 1000		**6**			**6**	**F**	**S**		
				7			**7**	**G**	**T**		
				8			**8**	**H**	**U**		
							9	**L**	**V**		

14.3 Fan motors data (Tabella_Ventilatori_EGK_12)

Fan diameter	Fan connection	Noise level	Power [kW]	Current [A]	rpm	Fan code MN	Fan plate code MN	Sound power level [dB(A)]
5	D	N	0.81	1.68	1362	265911	268843	82
5	D	M	0.27	0.57	912	265912	268843	71
5	D	L	-	-	-	-	-	-
5	D	S	0.12	0.25	620	285919	268843	58
5	S	N	0.59	1.00	1104	265911	268843	78
5	S	M	0.20	0.33	750	265912	268843	68
5	S	L	-	-	-	-	-	-
5	S	S	0.06	0.12	450	285919	268843	48
5	M	N	0.72	3.20	1240	285959	268843	76
5	M	M	0.27	1.25	900	285902	268843	72
5	M	L	0.13	0.59	665	285922	268843	59
5	M	S	-	-	-	-	-	-
5	E	N	0.98	1.87	1600	285962	268843	83
5	E	M	-	-	-	-	-	-
5	E	L	-	-	-	-	-	-
5	E	S	-	-	-	-	-	-
5	F	N	-	-	-	-	-	-
5	F	M	0.36	2.20	1100	285953	268843	71
5	F	L	-	-	-	-	-	-
5	F	S	-	-	-	-	-	-
6	D	N	1.75	3.70	1400	266006	268844	86
6	D	M	0.62	1.25	900	286014	268844	75
6	D	L	-	-	-	-	-	-
6	D	S	0.11	0.27	420	286016	268844	54
6	S	N	1.35	2.20	1210	266006	268844	82
6	S	M	0.44	0.72	720	286014	268844	69
6	S	L	-	-	-	-	-	-
6	S	S	0.06	0.12	310	286016	268844	47
6	M	N	-	-	-	-	-	-
6	M	M	0.66	3.00	860	286020	268844	75
6	M	L	-	-	-	-	-	-
6	M	S	-	-	-	-	-	-
6	E	N	3.00	4.60	1450	199957	268844	82
6	E	M	0.82	1.64	1100	286067	268844	77
6	E	L	-	-	-	-	-	-
6	E	S	-	-	-	-	-	-
6	F	N	-	-	-	-	-	-
6	F	M	0.62	2.70	1000	286066	268844	74
6	F	L	0.40	1.80	820	286055	268844	70
6	F	S	-	-	-	-	-	-
7	D	N	2.60	4.90	1330	285808	268840	87
7	D	M	0.94	1.70	900	285814	268840	79
7	D	L	-	-	-	-	-	-
7	D	S	-	-	-	-	-	-
7	S	N	1.75	2.90	1040	285808	268840	82
7	S	M	0.62	1.05	690	285814	268840	72
7	S	L	-	-	-	-	-	-
7	S	S	-	-	-	-	-	-
7	M	N	-	-	-	-	-	-
7	M	M	0.63	2.79	900	285811	268840	80
7	M	L	-	-	-	-	-	-
7	M	S	-	-	-	-	-	-
7	E	N	3.70	5.60	1360	285854	268840	88
7	E	M	0.93	1.50	900	285852	268840	77
7	E	L	-	-	-	-	-	-
7	E	S	-	-	-	-	-	-

Fan diameter	Fan connection	Noise level	Power [kW]	Current [A]	rpm	Fan code MN	Fan plate code MN	Sound power level [dB(A)]
7	F	N	-	-	-	-	-	-
7	F	M	-	-	-	-	-	-
7	F	L	-	-	-	-	-	-
7	F	S	-	-	-	-	-	-
8	D	N	1.94	3.90	880	266111	268857	81
8	D	M	0.82	2.10	670	266114	268857	72
8	D	L	-	-	-	-	-	-
8	D	S	-	-	-	-	-	-
8	S	N	1.21	2.30	670	266111	268857	75
8	S	M	0.48	1.00	550	266114	268857	66
8	S	L	-	-	-	-	-	-
8	S	S	0.10	0.25	250	266126	268857	49
8	E	N	3.02	4.60	1100	199956	268857	88
8	E	M	2.20	3.40	1000	199955	268857	84
8	E	L	2.90	4.60	1140	266106	268857	87
8	E	S	0.83	1.45	700	266161	268857	73
8	F	N	-	-	-	-	-	-
8	F	M	-	-	-	-	-	-
8	F	L	0.44	1.90	600	266151	268857	67
8	F	S	-	-	-	-	-	-
9	D	N	3.60	7.20	890	280801	268809	92
9	D	M	-	-	-	-	-	-
9	D	L	0.90	2.10	660	280824	268809	71
9	D	S	0.31	0.83	440	280823	268809	60
9	S	N	2.50	4.30	700	280801	268809	87
9	S	M	-	-	-	-	-	-
9	S	L	0.54	1.10	500	280824	268809	64
9	S	S	0.19	0.39	340	280823	268809	54
9	E	N	3.20	5.00	1100	280840	268809	89
9	E	M	1.95	3.20	930	280841	268809	83
9	E	L	0.70	1.10	640	280827	268809	71
9	E	S	-	-	-	-	-	-
9	F	N	-	-	-	-	-	-
9	F	M	-	-	-	-	-	-
9	F	L	0.63	2.80	620	280859	268809	71
9	F	S	0.31	1.40	480	280825	268809	65
1	D	N	3.10	5.60	870	270006	268803	84
1	D	M	1.25	2.90	620	270004	268803	74
1	D	L	0.50	1.50	440	270005	268803	65
1	D	S	-	-	-	-	-	-
1	S	N	1.95	3.40	660	270006	268803	79
1	S	M	0.74	1.40	480	270004	268803	67
1	S	L	0.31	0.71	350	270005	268803	60
1	S	S	-	-	-	-	-	-
1	E	N	3.30	5.40	940	270010	-	80
1	E	M	1.65	2.70	730	270009	-	73
1	E	L	-	-	-	-	-	-
1	E	S	-	-	-	-	-	-
1	F	N	-	-	-	-	-	-
1	F	M	-	-	-	-	-	-
1	**F**	**L**	**-**	**-**	**-**	**-**	**-**	**-**
1	F	S	-	-	-	-	-	-

For further information please refer to the fan manual supplied with the model.

14.4 **Example technical data calculation**

Use the identification code, see point 14.2

Model Code: K 8 2 5 D N 4 A 2 V

See point 14.3 fans data:

Fan diameter	Fan connection	Noise level	Power [kW]	Current [A]	rpm	Fan code MN	Fan plate code MN	Sound power level [dB(A)]
8	D	N	1.94	3.90	880	266111	268857	81
8	D	M	0.82	2.10	670	266114	268857	72
8	D	L	-	-	-	-	-	-
8	D	S	-	-	-	-	-	-
8	S	N	1.21	2.30	670	266111	268857	75
8	S	M	0.48	1.00	550	266114	268857	66
8	S	L	-	-	-	-	-	-
8	S	S	0.10	0.25	250	266126	268857	49
8	E	N	3.02	4.60	1100	199956	268857	88
8	E	M	2.20	3.40	1000	199955	268857	84
8	E	L	2.90	4.60	1140	266106	268857	87
8	E	S	0.83	1.45	700	266161	268857	73
8	F	N	-	-	-	-	-	-
8	F	M	-	-	-	-	-	-
8	F	L	0.44	1.90	600	266151	268857	67
8	F	S	-	-	-	-	-	-

One fan = 1.94 kW 3.9 A 81 dB(A)

(Fan code MN266111, fan plate code MN268857)

Model code: K 8 2 5 D N 4 A 2 V

Total number of fans = 2 x 5 = 10 ventilatori

Total electric power = 1.94 x 10 = 19,4 kW

Total current = 3.9 x 10 = 39 A

Sound power level = 81 + 10 x log 10 = 91 dB(A)

14.5 Documents supplied with the current model:

14.5.1 Technical Manual - Instructions for Use

14.5.2 Model drawing

14.5.3 Declaration of Incorporation

14.5.4 Operating Manual - Fans (as long as required)

14.5.5 Circuit diagram (if applicable)

14.5.6 User’s manuals for accessories (if any)