

# **FAN PLATE OPENING TOOL**

**TECHNICAL MANUAL** 

EG-series accessories



# Index - Original operating instructions Original language version

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## 1. Important

- 1.1 Carefully read all the information in this manual before removing the packaging, before handling, assembling, positioning, commissioning of the machine and before performing any work on the model. If in doubt contact Modine.
- 1.2 This manual is an integral part of the product and must be kept for the entire life of it.
- 1.3 Modine declines all responsibility for damage to persons and property caused by failure to follow all instructions contained in this manual
- 1.4 The product must only be used for the purpose for which it was expressly designed: improper use releases Modine from any liability.
- 1.5 This manual must be kept available near the product for the entire life of the same.
- 1.6 The use of fluids or substances which could corrode, make unsafe or reduce the performance of the product is prohibited. Please check the compatibility of the fluids used on the model on which this product is to be installed and this product itself.
- 1.7 It is forbidden to modify or tamper with the components of the product.
- 1.8 It is forbidden to walk or climb on the product.
- 1.9 The Customer is solely responsible for compliance with the regulations relating to installation and operation of the product.
- 1.10 For any use other than that specified, contact the Modine technical department.
- 1.11 Modine assumes no responsibility for any accidents, losses or damages 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 products 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.
- 1.12 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.
- 1.13 Any operation other than that indicated in this manual must be agreed in advance with Modine. Failure to do so will invalidate the warranty.
- 1.14 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.
- 1.15 Install the product in compliance with all local legislation and regulations.
- 1.16 All operations described in this manual must be carried out by authorized 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 The product is an accessory for the EG-series models. If, after the installation of the product on a model, something unexpected happens, stop the model immediately and call maintenance; do not restart the unit until normal operating conditions have been restored. Please contact Modine in case of necessity.
- 1.18 The product comes with an internal safety system. In the event of an emergency on the plant, arrange and plan measures that take into account the safety system on the product in order to avoid damage to persons and property.
- 1.19 The product, limited to the operating conditions described in this manual, complies with the applicable standards of the Machinery Directive.
- 1.20 This manual is not intended to be a replacement of the manual of the model on which the product is to be installed: this manual is an integral part of the manual of the model. Please carefully read the manual of the model before installing the product and/or before the commissioning of the model.
- 1.21 If you have any doubts or queries, please contact Modine or the dealer.

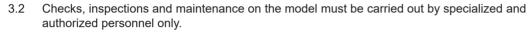
# 2. Applications

- 2.1 The product must only be used for the stated purpose: use other than that prescribed is to be considered improper and exempts Modine from all liability.
- 2.2 Use in unspecified operating conditions must be considered incorrect or improper.
- 2.3 Make sure that the adopted fluids on the model are compatible with the materials used to construct the product (aluminum, copper, galvanized steel, pre-painted galvanized steel, polymers).
- 2.4 Please refer to any attachments to this manual.

- 2.5 Product description:
- 2.5.1 EG-series accessories Fan plate opening tool. The product is a two-frame panel designed to be installed on EG-models: it allows the motorfans to be easily lifted and lowered in order to simplify the operations of finned-pack inspection and cleansing.
- 2.6 If the Fan plate opening tool is not already installed but it has been purchased separately from the model it is supposed to be installed upon, please skip to Chapter 5.
- 2.7 If the Fan plate opening tool is already installed on the model, please continue reading the following Chapters.

### 3. Correct usage

- 3.1 Please refer to the manual of the model the product is to be installed upon.
  The manual is available at the following URL: https://www.modinecoolers.com/documents/
  - The manual is available at the following URL: https://www.modinecoolers.com/documents/ or please scan the QR-code on the side.





- 3.3 During the operations of maintenance, repair and cleaning of the model, always use personal protective equipment (PPE 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.
- 3.4 Do not perform any operations on the model before disconnecting the power supply. Disconnect the energies and discharge them. Set the main switch to the "0-OFF" position 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 junction boxes on the machine.
- 3.5 Do not carry out maintenance work in bad weather.
- 3.6 The product comes with a safety micro-switch: it is placed on the inner right-side of the frame. Its purpose is to stop the motorfan when the upper frame is lifted. The contact opens whenever the front screw on the right gets loosened. See "Figure 1".
- 3.7 The presence of the safety micro-switch must not be seen as a replacement of the general safety rules: always turn the main switch to "0-OFF" before working on the model. No work on the model is allowed if the electric circuit is live. The micro-switch is just an emergency safety device.

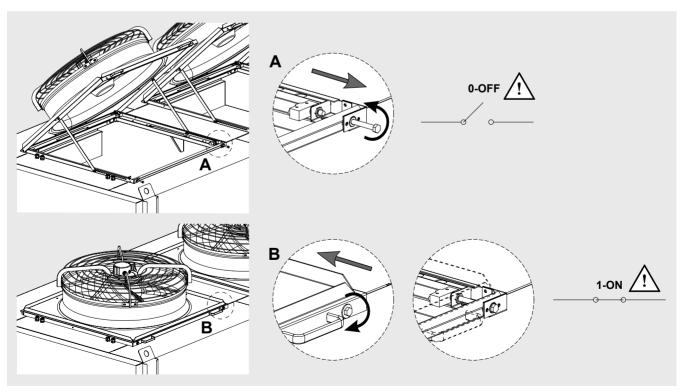


Figure 1



- 3.8 Important safety notice: connect the micro-switch to the main circuit in a way that, every time that the micro-switch opens the circuit (i.e. the screw on the front right-side gets loosened and the upper frame is lifted), the system stops the fans of the model.
- 3.9 The electrical connection must comply with the regulations in force. Work must be carried out by qualified operators allowed to work on the model.
- 3.10 The product has been designed with the purpose of simplifying the maintenance procedures. Fin pack inspections and fin pack cleaning are made easier:
- 3.10.1 Turn the main switch in "0-OFF" position. No inspection and no intervention on the model can be performed if the main switch is not in "0-OFF" position.
- 3.10.2 Wait until the fans have stopped rotating.
- 3.10.3 Make sure that the electric circuit of the model is not live. No inspection and no intervention on the model can be performed if the electric circuit is live.
- 3.10.4 Unfasten the front screws of the frames of the product. When the front screw on the right side is unfastened, the microswitch inside the product turns the fan off. The presence of this micro-switch is not intended to be a replacement of the safety rules (main switch in "0-OFF" position): it is just an emergency safety device.
- 3.10.5 Grab the handles of the frame below the fan-shrouds firmly with both hands and lift if upwards.
- 3.10.6 Let the side levers of the frame slide forward until they reach the blocking position, see "Figure 2". While keeping a handle of the frame with one hand, check that the side levers are in blocking position with the other. Do not leave the handle of the frame until it is sure that the side levers are blocked and the frame does not fold down. It is recommended the use of PPE (see Chapter 4).

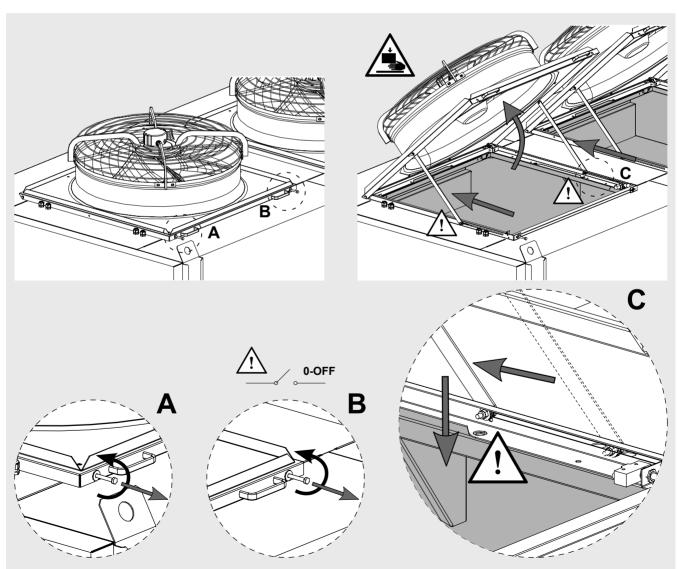


Figure 2

- 3.10.7 Once the frames are blocked in position, it is possible to check the fin pack or carry out the maintenance routines. Do not enter the model with body parts like arms, head and so on. The check of the fin pack must be carried out from the outside. The maintenance operations must be carried out with appropriate devices (lances, suction nozzles, camera probes...).
- 3.10.8 During the cleaning of the finned pack, protect the electric connections, the fans and the micro-switches of the frames with waterproof canvases or panels. Water, dust or other contaminants can damage the electric circuits and electric devices.
- 3.10.9 When the inspection or maintenance is over, the frames can be closed back in position: take the frame handles with one hand, with the other one free the side levers from the blocking position and make them slide backwards. The upper frame folds down on the lower one. See "Figure 3". It is recommended the use of PPE (see Chapter 4).
- 3.10.10 Once the frames have been closed, fasten the front screws. The front screw on the right closes the electric circuit on the micro-switch and allows the fan to be started. Wait till all the frames have been closed before operating on the main switch.

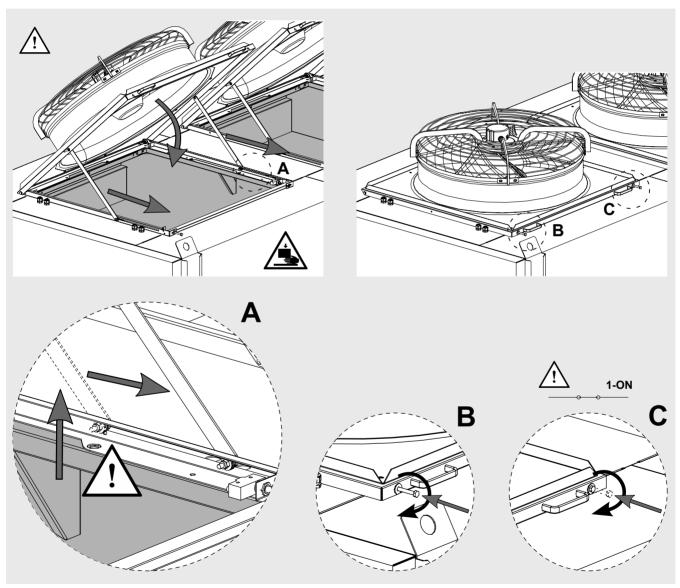


Figure 3

- 3.10.11 Once all the frames have been closed, refer to the model manual before starting the model.
- 3.10.12 After the start-up of the model perform the checks as required by the model manual.
- 3.11 Modine takes no responsibility for any damage to the model or to persons or to any property due to improper maintenance procedures.
- 3.12 For general troubleshooting please refer to the model manual.



- 3.13 If, after the installation of the product, a fan does not work, please:
- 3.13.1 check the electrical connections.
- 3.13.2 check that the front screw on the right-side of the frame is properly fastened. This screw operates on the internal safety micro-switch. If not properly fastened the micro-switch keeps the circuit open and does not allow the fan to start.
- 3.13.3 Contact Modine if necessary.

#### 4. Residual risks

4.1 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; for the residual risks of the model please refer to the model manual.

For the mounting of any accessory on the model, sufficient space must be provided during the installation to limit the risks. The aisles and areas surrounding the unit must always:

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

During the usage of the product please consider:

### **CUTTING AND CRUSHING BY BODIES IN MOTION**



The operator (in particular situations or during maintenance) must pay attention when lifting and lowering the frames that support the fans. Risk of crushing of the hands between the upper and lower frame of the product. Use of PPE is recommended.

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.

#### It will be considered predictable misuse:

- Failure to disconnect the power supply with the main switch in the open "O" position (or disconnection of the plug socket) before carrying out adjustment, reset and maintenance work.
- · Insufficient maintenance and periodic checks.
- · Tampering with the guards and safety systems.
- The presence of third persons during normal operation.
- · Non-use of PPE by operators and any maintenance technicians.
- Use of inappropriate clothing and/or accessories (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 Modine.

The following table summarizes 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.

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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	Х	Х	Х	NP	NP	NP	X
Unpacking	X	Х	Х	X	NP	NP	NP	X
Assembly	X	Х	Х	Х	NP	0	NP	X
Ordinary use	NP	NP	X	NP	NP	NP	NP	NP
Adjustments	X	Х	Х	NP	Х	0	NP	NP
Cleaning	X	Х	Х	NP	Х	0	X	NP
Maintenance	X	Х	X	NP	X	0	0	X
Dismantling	X	Х	X	NP	X	0	NP	X
Demolition	X	Х	Х	Х	NP	0	NP	0

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.



# 5. Identification (product not already installed on the model)

- 5.1 If the product has been purchased separately from the model it is to be installed upon, the product has its own code.
- 5.2 For any request of assistance or any other communication please provide the product code present on the order documentation. The product code is an alphanumeric string made of 8 characters as follows:
- 5.2.1 the first 4 characters are always "KCOR";
- 5.2.2 the last 4 characters are numbers.

Example: KCOR0375

## 6. Inspection - Storage

- 6.1 Upon receipt of the packaged product immediately check its state of integrity; immediately dispute with the transport company any damage. The packaging is created according to the product, to the suitable means of transport and of handling.
- 6.2 The product must be stored in its original packaging in a place that is protected and away from weathering.
- 6.3 Do not place any other material on top of the packaging.

## 7. Handling

- 7.1 The packed product must be moved by qualified personnel using one or more forklift trucks of adequate capacity, or by crane and/or overhead travelling crane. Avoid any sudden movement and do not stand near the manoeuvring area. A large bump or strong push can cause the package to overturn.
- 7.2 For handling with a forklift truck, the lifting brackets must be longer than the depth of the packaging.

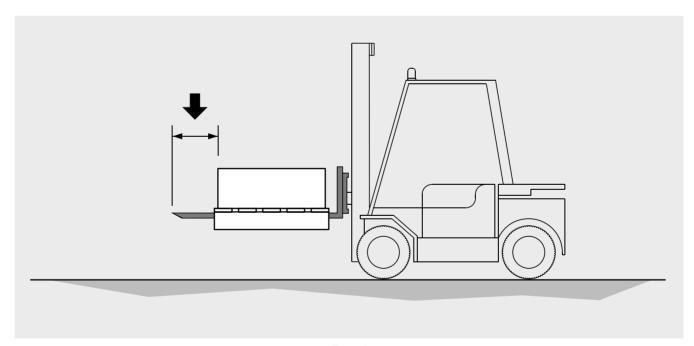


Figure 4

### 8. Installation instructions

- 8.1 The product described in this manual is a component of a system and must be installed by authorized personnel only. The operators must be fully qualified to work on electrical and mechanical parts as per the enforcing law.
- 8.2 The use of PPE is recommended. Please see Chapter 4.
- 8.3 The place of installation must conform to what is prescribed by local legislation.
- 8.4 For installations at height, use elevating platforms, scaffolding or trestles.
- 8.5 Before installing the product, the main switch must be placed on the "0-OFF" position and must be padlocked. The key must be kept by the supervisor until the work on the model is over. For no reason the main switch has to be put on the "1-ON" position if any operator is still working on the model or, anyway, the work on the model is not over. When the work is over, the key must be stored in a safe place: the access to this place must be reserved to the operators qualified and allowed to work on the model.
- 8.6 Before installing the product, make sure that all the fans have stopped rotating and make sure that the electric circuit is not live.
- 8.7 The product is meant to be installed on EG-series models only. Before installing the product, please check if the model on which the product is to be installed is an EG-series one:
- 8.7.1 Locate the data plate on the model:

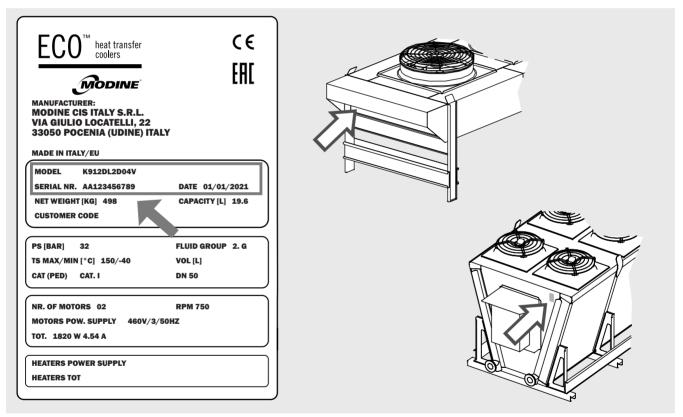


Figure 5

- 8.7.2 The name of EG-series models is an alphanumeric string made of at least 11 and up to 15 characters. The first character is always a letter (K, W, S, F, N), the next 3 characters are always numbers and the next 2 characters are always letters. Example: K912EN5A04V. If the model name does not fit into this definition it is not an EG-series model. Contact Modine in case of doubt.
- 8.7.3 Do not try to install the product on models not belonging to the EG-series unless you have received detailed instructions from Modine.
- 8.8 Locate the motor connection box on the motor fans, open it by unscrewing the relative screws and disconnect the motor. Always replace the cover on the motor connection box. Protect the wire ends with proper caps as per the enforcing law. Do not work on the model with the wire ends bare. Do not let, for any reason, the ends of the wires get in contact with water, dust or dirt of any kind.



8.9 Locate the screws that fix the group fan-shroud - motorfan to the model. Unscrew them and remove the group. Please notice: the position of the screws can be different depending on the model. "Figure 6" below shows a generic EG model: on Junior, Jumbo and Giant EG models the procedure is the same.

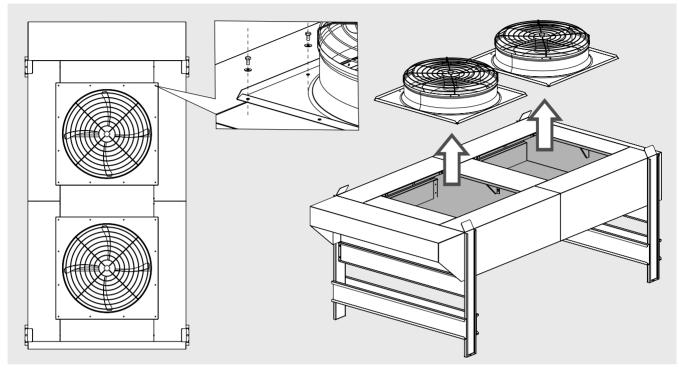


Figure 6

- 8.10 The fan-shroud motorfan groups must be stored in a safe place, protected against weathering. Make sure that the place is safe and that in no conceivable way the groups can pose any danger to people, environment and properties. Modine takes no responsibility for any damage to the motorfans or fan-shrouds or any other damage due to improper storage or improper uninstallation practices.
- 8.11 Once all of the fan-shrouds motorfans groups have been removed, it is possible to start the installation of the product:
- 8.11.1 Locate the rivet nuts on the panels of the models: you will need the same rivet-nuts which the fan-shrouds were fixed upon.
- 8.11.2 Place the product on the model taking care to have it oriented in a way that it does not interfere with the cable glands for the electrical connections.

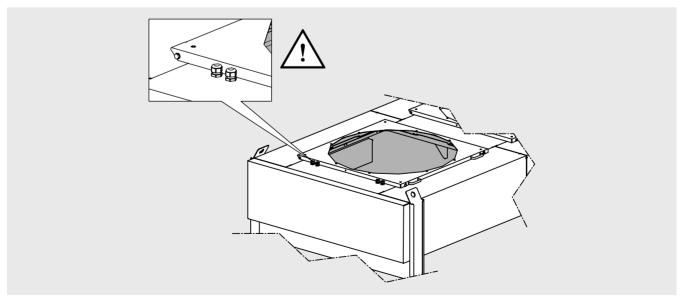


Figure 7

8.11.3 Unfasten the front screws: it is not necessary to remove them completely. Lift the upper side of the frame taking it by the front handles. Make sure that the side levers slide forward and get locked in position. Check that the upper side of the frame does not move: do not work on the frame unless it is sure that the upper side of the frame is in position and does not fold down.

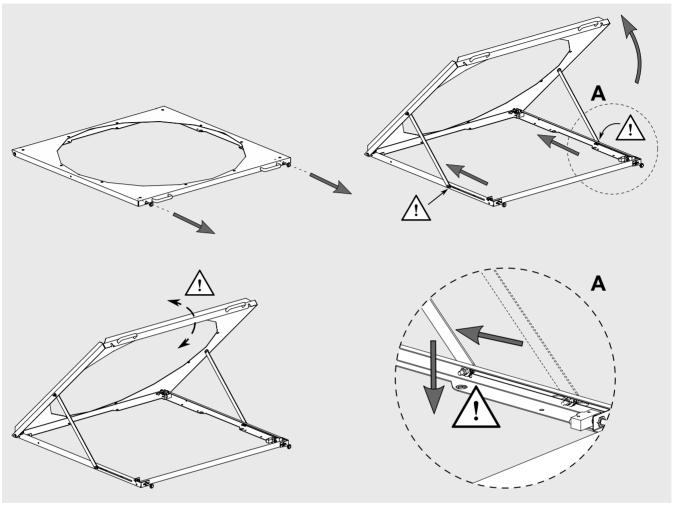


Figure 8

- 8.11.4 Fix the lower side of the frame in position on the model using the screws and washers that come in bundle with the product. Use all the available fixing points. See "Figure 9".
- 8.11.5 The product comes with a safety micro-switch: it is placed on the inner right-side of the frame. Its purpose is to stop the motorfan when the upper frame is lifted. The contact opens whenever the front screw on the right gets loosened.
- 8.11.6 The presence of the safety micro-switch must not be seen as a replacement of the general safety rules: as seen at Chapter 8.5, always turn the main switch to "0-OFF" before working on the model. No work on the model is allowed if the electric circuit is live. The micro-switch is just an emergency safety device.
- 8.11.7 Connect the micro-switch to the thermal contacts of the motorfan as per the electric diagram. Please refer to the electric diagram of the model or the electric diagram on the inside of the connection box of the motorfan.
- 8.11.8 The electrical connection must comply with the regulations in force. Work must be carried out by qualified operators allowed to work on the model.



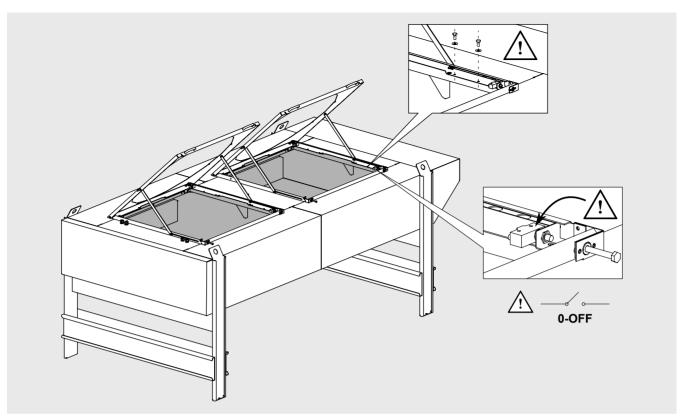


Figure 9

- 8.11.9 Once the frame is installed with all the fixing points fastened and the electrical connection of the micro-switch has been set up, take one of the front handles with one hand and, with the other, unlock the side levers of the frame out of the blocking position. Make the levers slid backwards. It is recommended the use of the PPE (see Chapter 4) with particular attention to the protection of the hands.
- 8.11.10 Take the upper frame by both the front handles and fold it down onto the lower one. See "Figure 10".

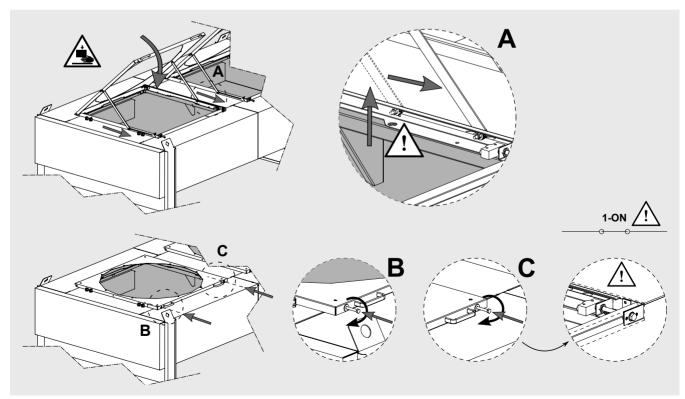


Figure 10

- 8.11.11 Fasten the front screws of the frame. Fastening the front screw on the right makes the micro-switch close the circuit. See "Figure 10".
- 8.11.12 Take the groups fan-shroud motorfan previously taken out of the model and place them on top of the frames.
- 8.11.13 Fix the fan-shroud to the upper frame using the screws previously taken out of the model. Use all the fixing points. See "Figure 11".
- 8.11.14 Take the caps of the connection boxes of the fans out and connect the motorfans to the electrical circuit of the model.

  Please refer to the wiring diagram of the model or the wiring diagram on the inner side of the cap of the connection box.

  The intervention must be carried out by qualified and authorized operators.
- 8.11.15 Put the cap of the connection boxes back in position and fasten the screws.
- 8.11.16 Check that the screws on the front of the frames are tightly fastened.

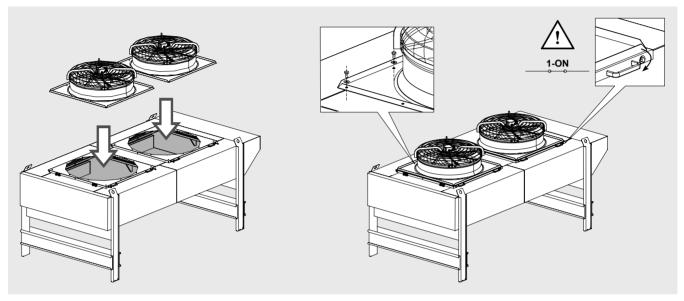


Figure 11

8.12 Modine takes no responsibility for any damage to the model or to persons or to any property due to improper installation practices and or lack of qualification of the operators. In case of any doubt contact Modine.



## 9. Checks to be performed before start-up

After the installation of the product on the model:

- 9.1 Please refer to the manual of the model for the start-up operations.
- 9.2 Leave the main switch open and padlocked ("0-OFF" position).
- 9.3 Check that all the electrical connections are correctly tightened.
- 9.4 Check the integrity of all the cables: immediately replace a cable if it has been damaged during the installation of the product. Do not, for any reason, start the model with the wiring not in perfect condition. A wiring not in perfect condition can lead to the risk of electrocution of operators and to damages to the model and to the plant.
- 9.5 Check the integrity of the fan shrouds: immediately replace a fan shroud if it has been damaged during the installation of the product. A damaged fan shroud can lead to poor performances of the product and possible dangerous conditions. Contact Modine if necessary.
- 9.6 Check the integrity of the fans with special attention to the guard grilles: immediately replace a grille if it has been damaged during the installation of the product. In case that the grille alone cannot be replaced, replace the entire fan. Do not, for any reason, start the model with damaged fan grilles. A damaged fan grille can lead to hazardous situations: cutting or crushing of body parts and damages to the model. Contact Modine if necessary.
- 9.7 Modine takes no responsibility for any damage to the model or to persons or to any property due to a model operating in conditions of not perfect integrity.
- 9.8 Check the correct fastening of the panels and components, paying special attention to the correct fastening of the fan guard grille.
- 9.9 Check the freedom of movement of the blades of the fans: if the blades get in contact with the fan shroud, the fan shroud has probably been damaged during the installation of the product. See Chapter 9.5.
- 9.10 Check the cleanliness of the installation area. Remove any debris or other improper material from the installation area.
- 9.11 Check that there are no foreign bodies in the vicinity of the fans and of the model to avoid them being sucked in by the fans.
- 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.
- 9.13 Please refer to the manual of the model for further details on the start-up of the model.

# 10. Checks to be performed after start-up

- 10.1 Please refer to the manual of the model for the start-up of the model.
- 10.2 Please refer to Chapter 3 for the correct usage of the product.
- 10.3 The first start-up after the installation of the product must be supervised by a qualified technician and must be carried out with great care.
- 10.4 Check the rotation direction of the motor fans. Contrary rotation could affect the performance of the model.
- 10.5 Check freedom of rotation of the impeller, without rubbing or irregular movements.
- 10.6 Absence of vibrations or unusual noises. Pay special attention to vibrations of the frame or of the fan shrouds upon the frames.
- 10.7 Check that the electric consumption is correct, in any case not exceeding what is reported on the label of the motor fan.
- 10.8 Check that the screws are tightened correctly (Ref. EN 1090-2).

#### 11. Reference standards and directives

Please refer to the model manual for reference standards and directives

#### Garanzie

Tutte le informazioni tecniche presenti in questa edizione sono basate su prove che riteniamo ampie e attendibili, ma che non possono essere riferite a tutta la casistica dei possibili impieghi. Pertanto, l'acquirente deve accertare l'idoneità del prodotto all'uso per il quale intende destinarlo, assumendo ogni responsabilità derivante dall'utilizzo dello stesso. La società venditrice, su prichiesta dell'acquirente, si renderà disponibile fornendo tutte le informazioni utili per il migliore utilizzo dei suoi prodotti. Tutti i nostri modelli sono garantiti per due anni dalla data di fatturazione degli stessi; si prega di contattare la sede legale di Modine CIS Italy S.r.l. per un maggior approfondimento. Sono ad ogni modo escluse da ogni forma di garanzia le avarie occasionali guali guelle dovute al trasposto. le manomissioni da parte di personale non autorizzato, l'utilizzo non corretto e le errate installazioni a cui vengano sottoposti i prodotti

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La recherche constante de nos laboratoires visant à garantir des produits toujours meilleurs et innovants pourrait causer la modification des données contenues ici. Il incombera à l'utilisateur de se tenir informé

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