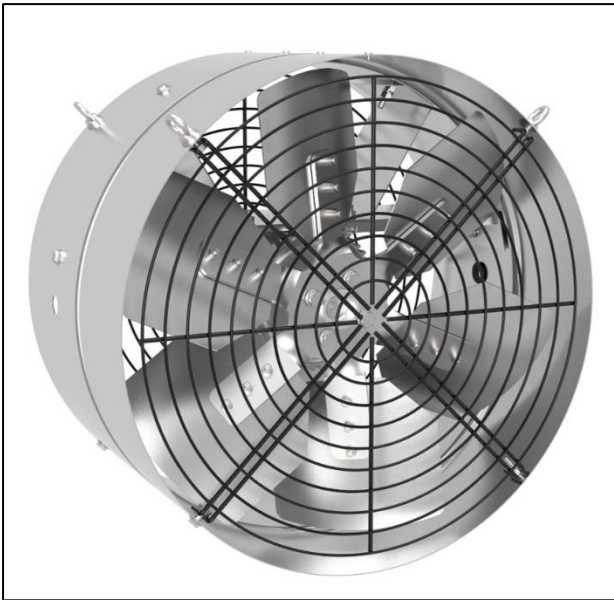


EDC
GHp

Manual for use and maintenance



EDC GHp

Air circulation fan

Models: EDC18 GHp - EDC24 GHp

EDC GHp

Manual for use and maintenance

Original instructions

This manual for use and maintenance is an integral part of the apparatus together with the attached technical documentation.

This document is destined for the user of the apparatus: it may not be reproduced in whole or in part, committed to computer memory as a file or delivered to third parties without the prior authorisation of the assembler of the system. Munters Italy S.p.A. reserves the right to effect modifications to the apparatus in accordance with technical and legal developments and to make alterations to specifications, quantities, etc., for production or other reasons, subsequent to publication.

Warranty

For Warranty information please refer to "General terms and condition of sale" available on https://www.munters.com/globalassets/terms-and-policies/condizioni_generali_vendita.pdf

Conditions and Limitations:

- Products and Systems involved in a warranty claim under the "General terms and condition of sale" shall have been properly installed, maintained and operated under competent supervision, according to the instructions provided by Munters;
- Malfunction or failure resulting from misuse, abuse, negligence, alteration, accident or lack of proper installation or maintenance shall not be considered a defect under the Warranty.



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1. INTRODUCTION

1.1 Disclaimer

Munters reserves the right to make alternations to specifications, quantities, dimensions etc. for production or other reasons, subsequent to publication. The information contained herein has been prepared by qualified experts within Munters. While we believe the information is accurate and complete, we make no warranty or representation for any particular purposes. The information is offered in good faith and with the understanding that any use of the units or accessories in breach of the directions and warnings in this document is at the sole discretion and risk of the user.

1.2 Introduction

Congratulations on your excellent choice of purchasing a Munters fan!

In order to realize the full benefit from this product it is important that it is installed, commissioned and operated correctly. Before installation or using the fan, this manual should be studied carefully. It is also recommended that it is kept safely for future reference. The manual is intended as a reference for installation, commissioning and day-to-day operation of the Munters fans.

1.3 Notes

Date of release: 2020.

Munters cannot guarantee to inform users about the changes or to distribute new manuals to them.

All rights reserved. No part of this manual may be reproduced in any manner whatsoever without the expressed written permission of Munters. The contents of this manual are subject to change without notice.

1.4 Attached technical documentation

The listed documentation is to be considered an integral part of this manual:

- technical sheet/electric motor instruction booklet.

1.5 Disposal

Do not dispose of this product with general household waste. This product must be disposed according to the laws governing Waste Electrical and Electronic Equipment. If required, contact your local authorities for information regarding the available disposal facilities.

2. SAFETY ASPECTS



WARNING Failure to respect safety or behavioral rules can produce hazardous situations for users as well as damage to the machine and the place where it is installed. The fan must only be used if it is in perfect operating condition, by personnel who are perfectly aware of the safety measures and possible hazards, and in strict compliance with the instructions given in this manual.

2.1 Personnel requirements

Equipment may only be used by personnel who know and apply the specific requirements given in the user and maintenance manual and the more general instructions contained in various regulations for accident prevention and applicable legislation regarding safety in the workplace, as well as other European Community directives incorporated by the member states into their national legislation.

Knowledge and understanding of the manual and of the attached documents constitute an indispensable tool for reducing hazards and promoting the safety and health of workers.

Personnel training

All operators engaged in the use of the fan must have received adequate information from the employer relating to:

- risks to health and safety at work connected with the use of the machine;
- first aid procedures, fire precautions and evacuation of workplaces;
- devices provided for the safety of operators, and residual risks generated by the machine.

In particular, the employer has the following duties:

- when assigning tasks to operators, to take into account their capabilities in the interests of safeguarding their health and safety;
- to provide adequate means of protection;
- to require compliance by individual operators with the company rules and provisions regarding safety and the use of the collective and individual protective measures at their disposal;
- to ensure that normal and special maintenance operations, or in any event operations necessary for machine safety, are regularly carried out.

All operators must take care of their own safety and health as well as that of other people in the workplace who may be affected by their actions or omissions, in accordance with their personal skills, and the instructions and means provided to them by the employer.



WARNING Unauthorized tampering/replacement of one or more parts of the machine, or the use of accessories, tools or materials other than those recommended by the manufacturer, are prohibited and release the manufacturer from all liability.



WARNING Operators must be trained to deal with the occurrence of possible faults, malfunctions or dangerous conditions to themselves or others, and in such an event must:

- stop the fan immediately by operating the emergency stop device (mushroom-shaped pushbutton/main switch mounted on the electrical panel);
- not carry out operations which are beyond their duties and/or technical knowledge.

2.2 General safety instructions



WARNING

- Safety devices must not be removed or rendered ineffective;
- the fan must not be started with guards removed;
- any adjustment or maintenance operation must be performed with the electrical isolating device activated and locked in position with a padlock;
- any operation is prohibited which may cause arcing or sparks or other situations which could start a fire;
- in the event of alarm signals resulting in the intervention of safety devices, the operator must ask for immediate action by qualified technicians responsible for maintenance;
- user must ensure that the environmental and electricity supply conditions in which the fan operates are always within the limits specified in this user manual;
- do not for any reason modify parts of the fan in order to fit additional devices.

2.3 Safety devices

In the process of designing and building the fan, the manufacturer adopted the necessary technical solutions to ensure compliance with fundamental safety requirements: the object of the risk reduction process was to ensure that the operator can use the fan in safety. The machine is provided with protection devices of fixed type and is fitted with an actuator for the emergency stop function.

Fixed guards

The fixed guards are solidly fixed to the structure of the machine and cannot easily be eluded: the guards are fixed with systems which require the use of tools for dismantling. Dimensions and positioning in accordance with the instructions in the standard UNI EN 13857.



WARNING Do not start the fan with fixed guards removed: the guards can only be removed with special tools, by specialized and trained personnel and with the system stationary (emergency system activated and electricity and hydraulic fluid isolated). At the end of maintenance operations, the guards which were removed must be replaced correctly.

Emergency stop function





The machine must be equipped at the installation stage with an electrical panel, on which must be installed an actuator for the emergency stop function, which when operated brings dangerous movements to a halt by isolation of the power supply: the button must be mushroom-shaped and coloured red, provided with mechanical restraint and released by turning.

2.4 Residual risks

Hazards generated by noise (<i>measured at 2m distance</i>)	
Fan model	Sound pressure level Lp [dB(A)]
EDC18 GHp – 0.33 hp	75.8
EDC18 GHp – 0.5 hp	75.5
EDC24 GHp – 0.5 hp	76.5

A measurement has been made of the noise produced by the machine during normal operation in order to calculate the equivalent level in conditions of normal use. These values are shown in the above table.

Mechanical hazards		
Part of machine / stage of use	Description	Plates/provisions/PPE
Installation of machine	Hazard arising from failure to observe ergonomic principles, caused by excessive strain, i.e. generic mechanical hazard during the moving and installing stages of the machine.	
Electrical hazards		
System area	Description	Plates/provisions/PPE
Panels, covers and electrical apparatus.	The safety signs must be fixed in an extremely visible position on the door of the electrical panel and on covers containing electrical apparatus, to highlight the risks to which an operator could be exposed in the event of opening the electrical panel (danger resulting from the presence of live parts), the level of voltage present, the prohibition of tampering by unauthorized personnel and the prohibition on the use of liquids on electrical apparatus in the event of fire.	



WARNING The user and the employer must comply with current national law in terms of protection against daily personal exposure of operators to noise, by providing the use of personal protective equipment (earmuffs, earplugs, etc.) if necessary, depending on the overall level of sound pressure in the installation area, and the daily personal exposure of the employees. In areas where the overall sound level reaches excessive values, personal protective equipment must be used.



WARNING The fan must only be used if it is in perfect operating condition, by personnel, aged more than 14 years who are perfectly aware of the safety measures and possible hazards, and in strict compliance with the instructions given in this manual.

3. BEFORE USING

3.1 Delivery check

Upon receipt, inspect the fan for external damage and if found, inform the forwarding agent without delay. Check the data on all the rating plates, especially voltage and frequency. Turn the propeller while the fan is switched off to verify smooth rotation of the propeller.

3.2 Packaging and transport

Fans are packed individually in cardboard wrappers according to delivery requirements.



WARNING Always wear protective clothing and gloves during fans handling.

Handling of the fans should not be done manually as the fans have no handles or grips. Consequently, one of the following alternatives should be used:

- trolley;
- forklift;
- crane: fix two bolts in the M8 bushes situated on the fan housing and hook the lifting cable over the bolts.



WARNING Make sure a steel cable or rope of adequate size is being used when the fan is lifted by crane. Fan weights are shown in the technical specification table (see *section 7.2*).

3.3 Structure

Air Circulators consists of the following components:

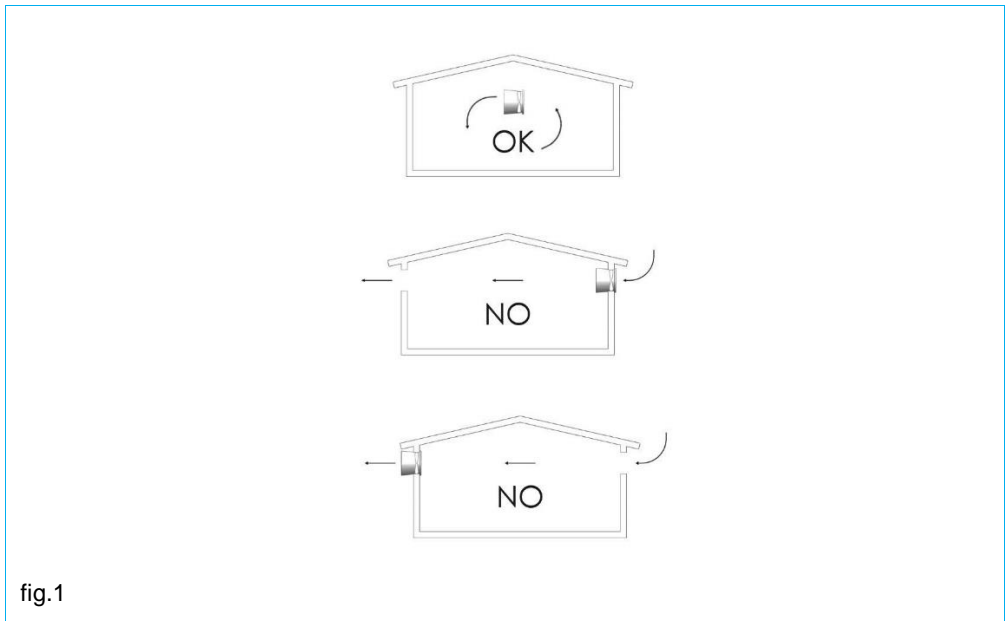
- riveted sheet body in Munters Protect coated steel without welding spots;
- propeller with six blades in Munters Protect coated steel; blades are fixed to the propeller by high-strength pop rivets;
- asynchronous three-phases electric motor (single-phase on request), 50/60 Hz, IP55 protection class, fixed or adjustable speed;
- two safety meshes.

4. OPERATING CONDITIONS

4.1 Intended conditions of use

Fans are machines designed for moving air to control temperature and humidity in greenhouses or rearing sheds by extraction, not under pressure. They can even be installed horizontally, without altering or modifying their characteristics.

Normal ambient temperature limits are -15°C to $+40^{\circ}\text{C}$. Maximum altitude is 1000m above sea level. Should a fan be required to operate at a higher altitude, the loss in mass flow (heat removing capacity) due to lower air density should be taken into consideration.



The fan has been designed and built to operate in safety for the user, if used according to the conditions intended by the manufacturer and stated in this user and maintenance manual.



NOTE For further information, please refer to the technical documentation attached to this manual.

4.2 Non-permitted conditions of use

Total or partial failure to observe the instructions given in this manual could cause damage to the fan and/or people.

The following uses are to be considered not permitted and improper:

- use in the event of faults and/or tampering with the installed safety devices;
- use by personnel not specifically trained;
- installation of the fan for extraction or circulation under pressure;

- use contrary to existing regulations;
- incorrect installation differing from instructions given in this manual;
- supply from an electrical network with characteristics different from that specified in the wiring diagram;
- total or partial failure to observe instructions;
- insufficient maintenance;
- use of non-original spare parts;
- use of lubricants with characteristics different from those specified in the technical documentation attached to the manual;
- use by minors;
- use under the influence of drugs, alcohol, etc.



WARNING Use of the fan other than as described in the user manual or outside the operational limits laid down by the manufacturer is considered IMPROPER USE. In the event of IMPROPER USE the manufacturer declines all liability in relation to any damage that may be caused to persons or property, and any kind of warranty will be considered invalidated.

Use of non-original spare parts

Original spare parts ensure the reliability and safety of the operation of the fan: in the event of maintenance/replacement, consult the spare parts list, the list of parts and components used and the relevant technical documentation attached to this manual.



WARNING In the event of replacement of safety devices, it is essential to maintain the safety and operational characteristics of the original device, preferring replacement with an identical component.

Insufficient maintenance

A correct normal maintenance is one that maintains the original integrity or restores the fan's efficiency, while at the same time limiting normal deterioration resulting from use.

Special maintenance work can also prolong the usable life of the machine and/or, secondarily, can improve its efficiency, reliability, productivity and ease of maintenance and inspection.

Unauthorized modifications or tampering

No operation is permitted which is aimed at making modifications to the fan and the safety devices fitted to it; similarly, it is not possible to alter its operational and performance characteristics.



WARNING Interference with the command and control circuits is prohibited: such operations could cause damage to the equipment and serious danger to the operator.



NOTE Modifications made to the fan which do not come into the categories of normal and special maintenance, or which alter its operational and performance characteristics, invalidate the machine's compliance with the requirements of the applicable directives, as attested by the manufacturer with the EC declaration of conformity: it is up to the person responsible for the modification to resubmit the machine to the assessment conformity procedures specified in the applicable directives.

Use in a potentially explosive atmosphere

The fan has been designed and built to operate in environments where the presence of a potentially explosive atmosphere is not expected, in other words it is not intended to handle materials which release explosive dust. Emission into the atmosphere of harmful particles or gases must be contained within the limits established by current regulations.



WARNING The fan has been designed and built in such a way that it CANNOT operate in a classified area, according to directive 1999/92/EC.



WARNING The metal sheets used for constructing the fan housing and shutter blades have a surface coating made of an alloy of Zinc, Aluminum and Magnesium, classified as Zn120 (equivalent to 9 µm of coating thickness on each side of the panels) which corresponds to a corrosion resistance in salty mist of 1800 hours.

Whenever it is intended to use the fans in ambients characterized by the presence of particularly aggressive agents (ammonia, clavulanic acid, etc.) the user, before installing the fan at the installation site must verify that the environmental conditions are compatible with the intended use of the materials that compose the fan.

5. INSTALLATION



WARNING Fitting and installation of the fan must be performed by specialized personnel, in order to prevent damage to the equipment or hazards to people as a result of faulty fitting.

5.1 Choice of site and checking installation requirements

The user is responsible for preparing an area suitable for installation of the equipment and complying with the requirements laid down by European directives and national law governing safety at places of work. Environmental conditions for operating the equipment are as follows:

Ambient temperature during operation	Ambient humidity during operation
-15°C / +40°C	< 90%

For operation of fan installation, a manoeuvring area must be made available that is suitable for the fan dimensions and the chosen lifting equipment: electrical points must be provided in the installation area for fan connection to the mains electricity supply.



WARNING Our standard fans are delivered as fixed speed.

Upon request we can supply fans with the following features :

- "multispeed" where the speed variation can be made by using **ONLY** an autotransformer
- "multispeed with inverter (or VFD)" where the variation of speed is made by using an inverter (Variable Frequency Drive)

The "multispeed" machines cannot in any way be regulated by an inverter and the "multispeed with inverter" machines cannot in any way be regulated by an autotransformer.

5.2 Placement of fans

Circulators are delivered fully assembled. The fan is supplied without a control box; the installer shall provide a suitable control box in compliance with the requirements specified by the EN 60439-1 standard.

Circulators are designed and built for hanging installation and have therefore eyebolts to be hung.

Fitting the fan must be carried out according to the following stages:

- positioning and anchoring the fan;
- connection to the mains electricity supply;
- operational testing and putting into operation.



WARNING Always check up if cable and chain dimensions are suitable to hold up the fans weight and if they have the proper length to distribute the strain uniformly (fig.1).

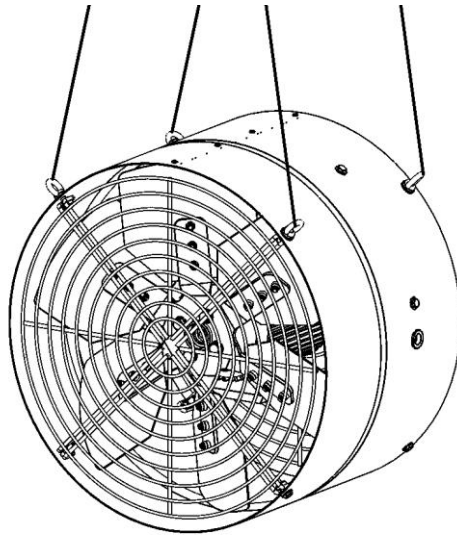


fig. 2

5.3 Connection to the electrical system

The fan is supplied without a command and control circuit, but with all the internal electrical connections already made.

At the fitting stage, the installer must set up a control panel in compliance with the requirements of standard IEC EN 60439-1, and arrange the wiring of the fan in accordance with the instructions in standards IEC EN 60204-1 and IEC 60364.

The electrical panel of the fan must generally be equipped with the following devices (bearing EC marking as per directive 2006/95/EC):



 <p>fig.2</p>	<p>Lockable isolating switch.</p>
 <p>fig.3</p>	<p>Magnetothermal switch (chosen to suit the power of the motor). The need to fit a switch of differential type depends on the configuration of the electrical system supplying the fan: it is the installer's responsibility to make this assessment in accordance with the instructions in standard IEC 60364.</p>



fig.4

Red emergency stop button, mushroom type, provided with mechanical locking and release by turning (in compliance with UNI EN ISO 13850). Operating the button must bring about the electromechanical isolation of the power supply to the electric motor (category 0/1 according to IEC EN 60204-1).



fig. 5

Start/stop selector switch (with characteristics compatible with the nominal current of the motor), or main panel for managing the equipment, with control devices which act on the electrical supply to the fan.



WARNING Do not supply power to the fan during installation stage.

Installer must issue a declaration of correct installation in accordance with applicable legislation in the country of use.

Below are suggested wiring diagrams for connecting the fan to the mains electrical supply. These diagrams are however subject to local laws and regulations and should be modified if necessary to comply with such laws and regulations.

3 x 400V
or
3 x 230V

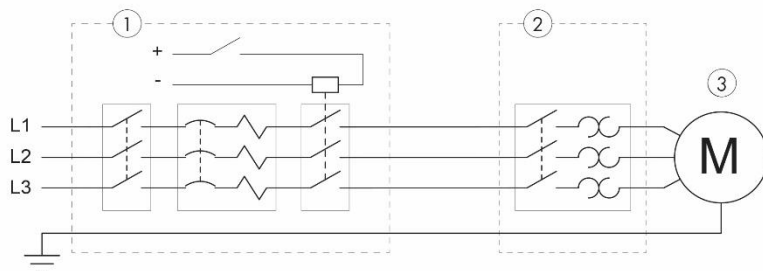
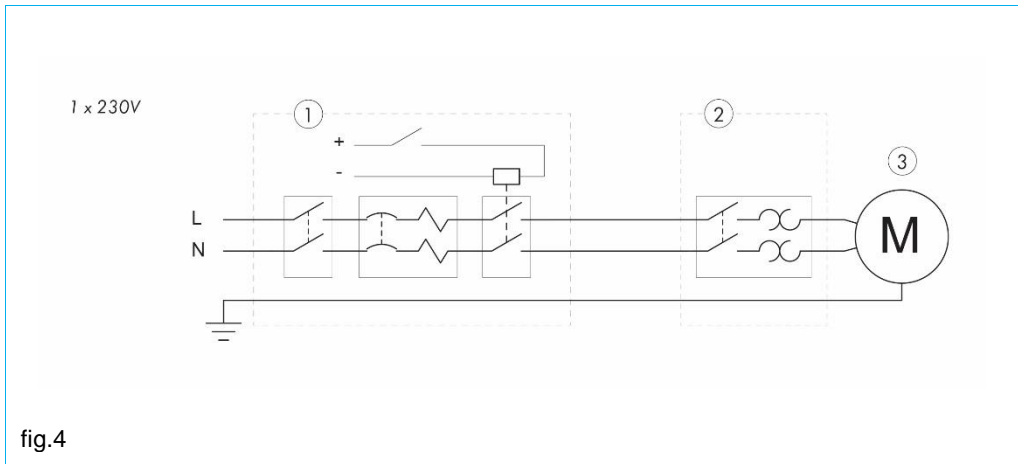


fig.3



1 = Overload protection switch

2 = Circuit breaker

3 = Fan motor



WARNING The rating plate data of the electric motor and the instructions given in the attached technical documentation must be used for sizing the power supply cable.



WARNING In the event of installations that do not comply with the directions given in this chapter, the manufacturer's liability ceases, along with the validity of the CE Declaration of Conformity.

The electrical lines must be laid in accordance with requirements of the laws applying in the place of installation, and in any event:

- they must be laid with cables of adequate section for the power of the fan and the length of the line itself;
- they must make an effective earth connection;
- they must have isolating devices and automatic protection against overload and short circuits.

Before activating the electrical supply to the machine by turning the isolator switch to position On, a series of checks must be made:

- check that the voltage and frequency of the power source correspond to those indicated in the equipment technical data and electrical diagram;
- check that the supply cables and the conductor providing external protection are correctly connected;
- check that the connections in the control and power circuits are properly tight;
- check that the intensity of the short-circuit expected at the connection terminals is compatible with the breaking power of the protection switch upstream of the electrical panel;
- check that the protection devices (fuses, magnetothermic switches) are correctly sized, and that the phases are connected in the correct order.

5.4 Use



WARNING

- Fans should not be installed in places where children aged 14 years or less are present;
- It is forbidden to remove the safety meshes until all people are clear of the fans.

Risks connected to moving parts

All the moving parts are protected by a case or placed inside the body. Even in case of breakings (fan, blades,...)

there are no risks of injury for people.

Switching on and switching off

Switching on and switching off operations pass through not supplied equipments.

Operating conditions

Looking at the airflow rectifier, the propeller should turn counterclockwise (*fig.8*).

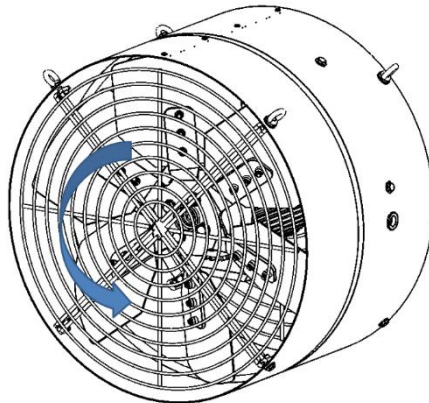


fig. 5

Emissions in the atmosphere

If used as an air extractor, the user should carry out the checks and fulfilments in compliance with the regulations about the inflow of polluting substances into the atmosphere.

Cleaning

During cleaning operations the power switch must be in the off position and locked by a padlock. It is necessary to perform periodic cleaning of safety meshes, airflow rectifier and blades using brushes or compressed air.



WARNING In order to avoid any damage, cleaning the motor directly with water jets must be avoided.

6. COMMISSIONING

After installation, follow the steps mentioned below to verify that the fan is working properly:

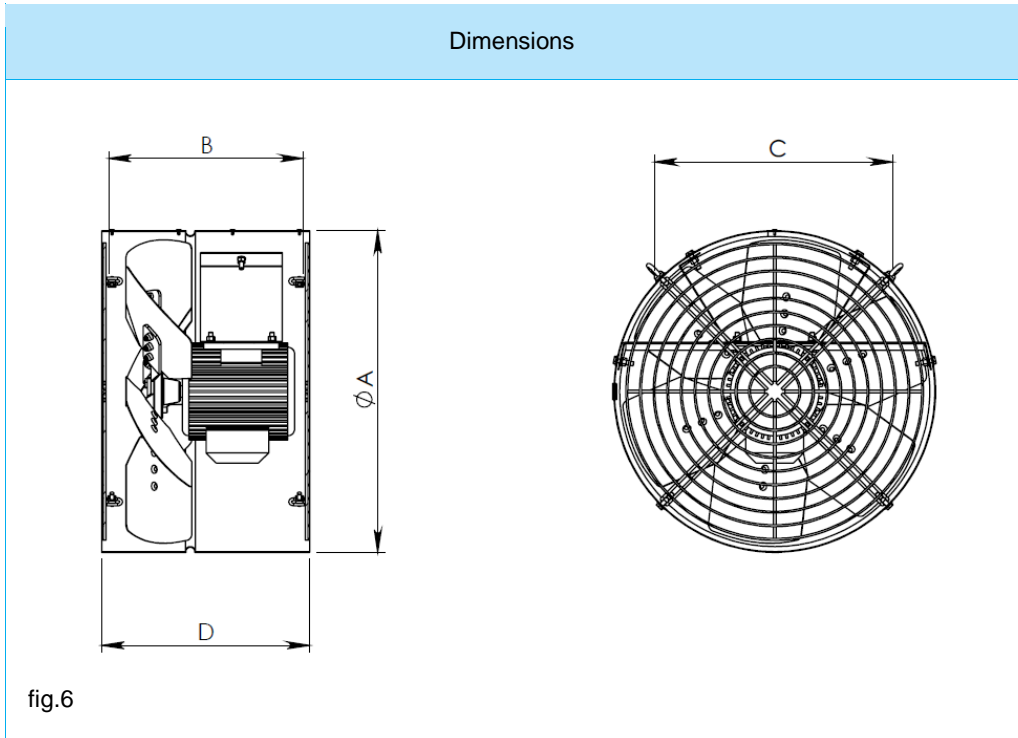
1. check if all the fans are secured tightly to the suspension;
2. ensure that all the necessary safety equipment is fitted to the fans;
3. ensure that all electrical connections are done properly and comply with local regulations;
4. note in which direction the propellers are supposed to turn;
5. remove all obstacles from the front and back sides of the fan;
6. ensure that all people and animals are standing clear of the fan;
7. turn the electrical power to the fans on;
8. observe the direction in which the propeller of each of the fans is turning;
9. turn the electrical power to the fans off.



WARNING Do not attempt to correct any problem observed during the above mentioned steps while the fan is in operation. Wait until the electrical power has been switched off and the fan has come to a complete stand still. Lock the electrical switch in the off position with a pad lock while working on the fan.

7. TECHNICAL DATA

7.1 Dimensions



A	B	C	D
EDC24 GHp			
620	275	580	305
EDC18 GHp			
470	275	350	305

7.2 Motor specifications

Model	Nominal Power		Phases	Speed	Frequency	Voltage	Current	Rpm	Poles
	[W]	[Hp]			[Hz]	[V]	[A]		
EDC18GHp	240	0.33	3	single	50	240/415	1.7/1	1400	4
EDC18GHp	370	0.5	3	single	50	240/415	2.3/1.3	1400	4
EDC24GHp	370	0.5	3	single	50	240/415	2.3/1.3	900	6

7.3 Technical specifications

		EDC18 GHp 0.33 hp	EDC18 GHp 0.5 hp	EDC24 GHp 0.5 hp
Weight of fully equipped air circulator*	kg	14	14	20
Nominal propeller speed	rpm	1400	1400	900
Airflow at 0 Pa*	m ³ /h [cfm]	3950 [2325]	5260 [3095]	7800 [4590]
Specific performance at 0 Pa*	m ³ /Wh [cfm/W]	9.2 [5.4]	8.5 [5.0]	17 [10]
Propeller diameter	mm [inch]	450 [18]	450 [18]	600 [24]
Number of blades		6	6	6
IEC protective class of electric motor		IP55	IP55	IP55
Electric motor winding insulation grade		F	F	F
Max noise level at 1.95 m		75.8	75.5	76.5

* The value refers to 3 phases 50Hz single speed motors.

Note: airflow data are measured at standard conditions (20°C, 1,013hPa)

8. MAINTENANCE

Maintenance of circulators only consists in regular cleaning, as they do not contain parts needing periodic lubrication: all the moving parts are either manufactured from self lubricating materials or are sealed with lifetime lubrication.

Maintenance operations must only be carried out by qualified personnel, as:

- mechanical operator or assembler (for mechanical parts);
- electrician (for the electrical equipment).

All the maintenance operations must be carried out with:

- the power switch in the off position and locked by a padlock;
- the fan removed from work position after unhooking chains or cables;
- the propeller at a complete stand still before removal of protections;
- the use of ladders complying with the safety regulations in case of fans installed at a certain height;
- a suitable equipment for maintenance operations.

Replacement of the propeller

If damage occurs, it is necessary to replace the whole propeller.

Replacement procedures of the propeller group in the EDC GHp model (see Chapter 9, fig. 10):

- loosen the fixing screws and remove the safety mesh;
- unscrew the bolts fixing the motor bracket to the body;
- pull the motor/propeller group out of the body and replace the damaged propeller;
- reassemble the circulator following the reverse procedure.



WARNING Do not operate the fan with the safety protections removed: safety meshes can be removed only with specific tools by qualified technicians when the fan reaches a complete standstill.

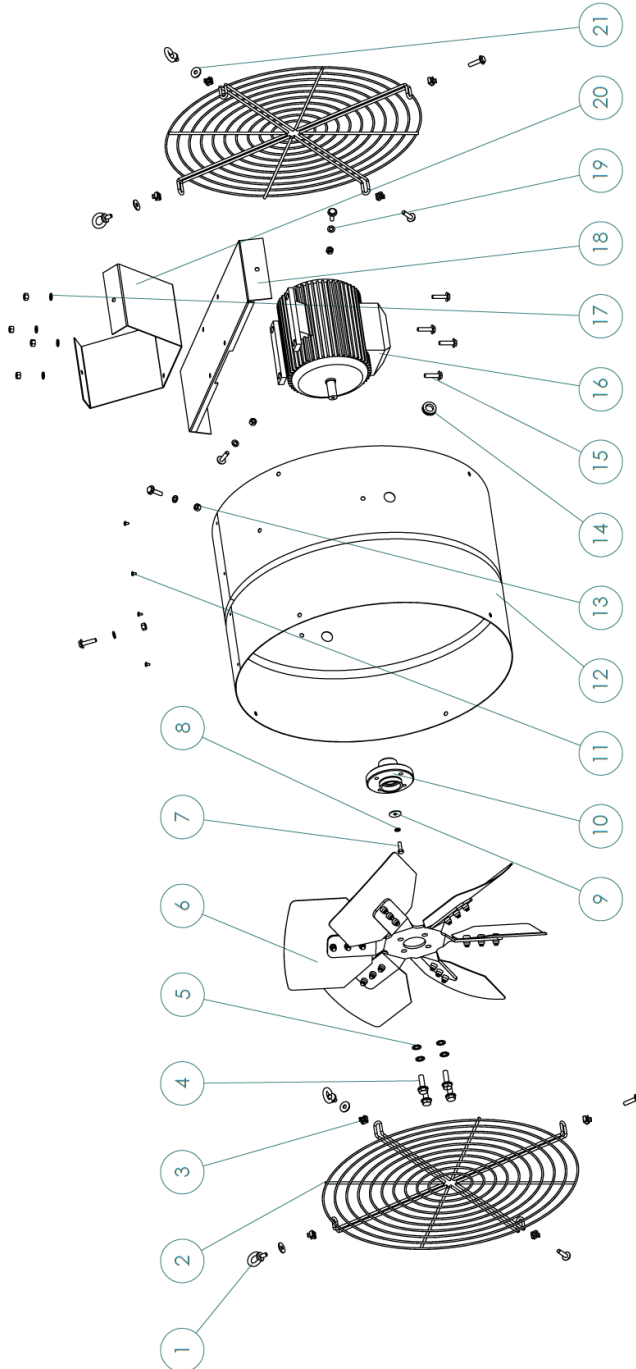
The fixing systems of the safety protections are not interchangeable with other devices. Therefore, if for maintenance reasons the user damages or loses any component, this must be definitely ordered from the constructor as spare parts and it cannot just be replaced with other components, even similar, not supplied by the constructor itself. In this particular event the constructor refuses all responsibility on consequent damages caused to things and people and considers any kind of warranty lost.

Functionality check of the thermo-magnetic switch:

- open the electrical control panel;
- check the absence of electrical continuity between the terminals upstream and downstream the thermo-magnetic switch; in case of electrical continuity replace the switch;
- close the electrical control panel;
- switch on the fan.

SPARE PART LIST

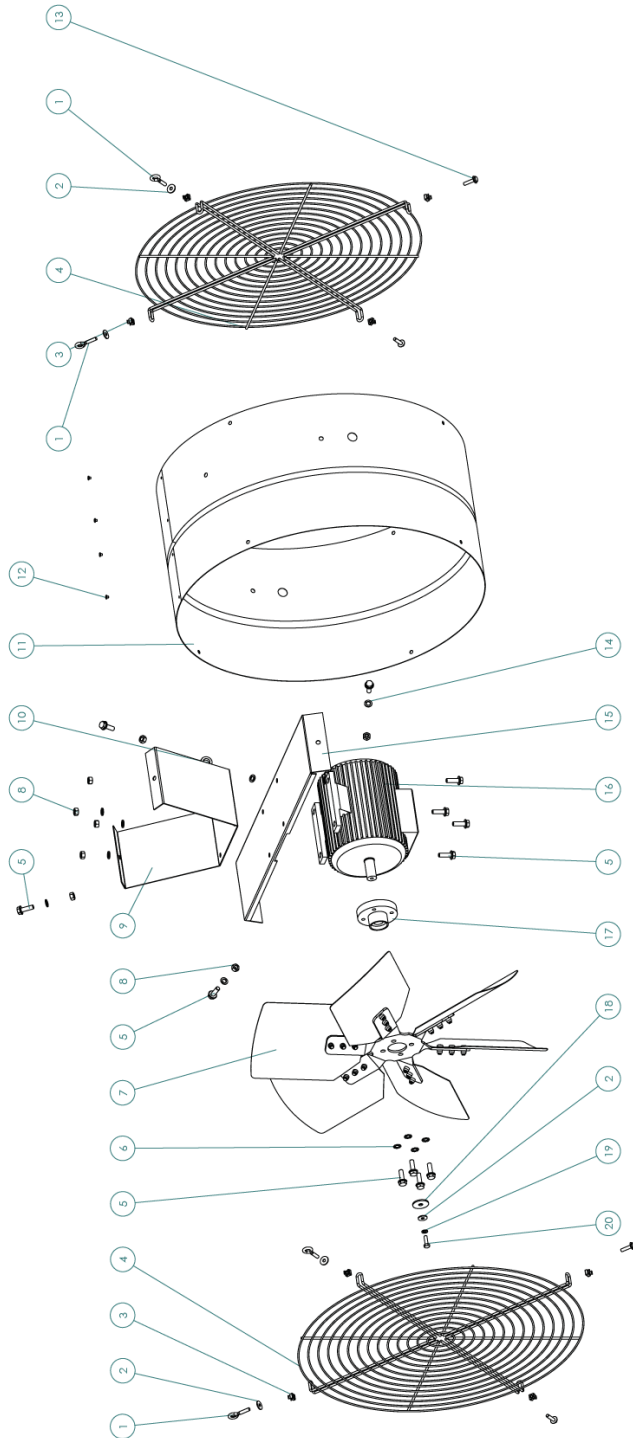
Exploded view - EDC18 GHp



Spare parts - EDC18 GHp

REF.	DESCRIPTION	QUANTITY
1	EYEBOLT M6	4
2	SAFETY MESH	2
3	CAGE NUT M6	8
4	M8x25 HEX SCREW W/FLANGE	4
5	D8 EXT TOOTHED WASHER	4
6	PROPELLER	1
7	M5x16 HEX SCREW	4
8	D5 SPRING WASHER	1
9	D5x20 PLAIN WASHER	1
10	HUB	1
11	POP UP RIVET D3.9x7 ALU	4
12	HOUSING	1
13	M6 HEX NUT	8
14	RUBBER FOR CABLE	1
15	M6x25 HEX SCREW W/FLANGE	12
16	MOTOR	1
17	D6 SPRING WASHER	4
18	MOTOR PLATE	1
19	D6 SPRING WASHER	4
20	MOTOR PLATE SUPPORT	1
21	D6x18 PLAIN WASHER	4

Exploded view - EDC24 GHp



Spare parts - EDC24 GHp

REF.	DESCRIPTION	QUANTITY
1	EYEBOLT M6	4
2	WASHER D6x18	5
3	CAGE NUT M6	8
4	SAFETY MESH	2
5	M8x25 HEX SCREW W/FLANGE	12
6	D8 EXT TOOTHED WASHER	4
7	PROPELLER	1
8	M8 HEX NUT	8
9	MOTOR PLATE SUPPORT	1
10	RUBBER FOR CABLE	1
11	HOUSING	1
12	POP UP RIVET D3.9x7 ALU	4
13	M6x25 HEX SCREW W/FLANGE	4
14	D8 SPRING WASHER	8
15	MOTOR PLATE	1
16	MOTOR	1
17	ALUMINIUM HUB	1
18	WASHER D8X32	1
19	D6 SPRING WASHER	1
20	M6X20 HEX SCREW	1

Requests for technical assistance and spare parts must be made directly to the manufacturer, at the following address:

Munters Italy S.p.A
Strada Piani, 2
18027 Chiusavecchia (IM), Italy
Tel: +39 0183 52 11
Fax: +39 0183 521 333
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Munters EDC GHP extraction fans are developed and produced by Munters Italy S.p.A., Italy



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