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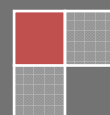
SIEMENS



USE AND MAINTENANCE MANUAL

Extractors, fans and components

CIESSE S.r.l.
Via U. Boccioni, 5
42124 – Z.I. Mancasale
Reggio nell'Emilia (RE)
Italia



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1. INTRODUCTION

Congratulations for having chosen a CIESSE fan, all our products are built with high quality material and projected to guarantee a correct operation that, with a suitable program of maintenance, can be extended for a long time.

Fans are generally mounted in points hardly decentralized in comparison to the site plant or in its hardly accessible zones and therefore recommended periodic checks are often overlooked. It's nevertheless important to define a program of regular maintenance and to make sure that this is meticulously respected, to such end is recommended to use the manual present as guideline for defining a proper program of maintenance. **An accurate fan maintenance guarantees an effective and efficient unit operation in time.**

Before intervening on the fan it is necessary to know it in detail, therefore is recommended to read attentively this use and maintenance manual. If you need particular information or more detailed explanation please contact the post-sale technical support service (ufficio@ciesseventilatori.com) or visit the website www.ciesseventilatori.com

The information reported in this instruction manual cannot be used for different purposes by those for which it is been compiled.

This publication and all outfit furnished documentation of the fan cannot be reproduced neither partly neither totally without CIESSE S.r.l. wrote permission.

The illustrations and the possible schematic sketches depicting fans are intended only as didactic references.

The manual content can be modified by CIESSE S.r.l. without any warning and without incurring in any sanction.

1.1 MANUAL PURPOSE

This manual has been realized by CIESSE S.r.l. to furnish all the necessary information to those people that have been authorized to carry out in safety the activities of: transport, movimentation, installation, maintenance, reparation, dismantlement and disposal of the machinery of which it constitutes the outfit.

All the necessary information to buyers and designers are listed into the "sales catalogue". In addition to adopting the rules of good motor ering practices, information must be carefully read and applied in a strict manner.

The non observance of this information can be cause of risks for health and safety of the people and things, as well as cause of economic damages.

1.2 RECIPIENTS OF THE MANUAL

All information contained in this manual is intended to a professional user which has to have specific knowledge on the machine use, has to be authorized, educated and opportunely trained. This manual is particularly written for the following users:

- Chief Manager, Production Manager, chief workshop or chief yard;
- Installation personnel;
- Users;
- Maintenance personnel.

The manual must be kept by the responsible person and at the purpose intended, in an appropriate place, so that it is always available for consultation in the best condition possible.

In case of loss or damage, replacement documentation must be asked to the manufacturer, quoting the name of this manual.

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1.3 PERSONNEL QUALIFICATIONS

The personnel entrusted of the operations of handling, installation and maintenance has to have the followings requisite:

- Minimum age to be started to work, with reference to the regulations in force at the time of use;
- Appropriate education degree and training to the work to be performed;
- Knowledge of information contained in this manual;
- Knowledge of safety regulations in force at time;
- Suitable physical conditions for work to be performed;
- Possession and use of personal protective equipment (P.P.E.) suitable, intact and certificates.

1.4 CLOTHING

Signs applied on the machine chassis provide a series of important indications: **their observance serves to your safety.**

Before using the fan, be sure that all personal safety devices are correctly worn and in good condition. If this should be/appear deteriorated or damaged replace them immediately. During fan maintenance dusty clouds could be originated, it is therefore recommended to wear respiratory protection systems. During maintenance, all the operators must have sufficient visibility into work areas considered as dangerous.

It is recommended to the assigned operators to the machine not to wear clothing that can give rise to caught.

Never work with this machine if tired, ill, injured, under the influence of alcohol, drugs or medicinal that could affect psychomotor performances.

	It is recommend to the machine assigned operator to wear overalls and safety shoes. To carry out the work in safe conditions always use required PPE (mask, gloves, eye and ear).
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The non observance of the norms or basic safety rules could cause accidents during the operations of maintenance and reparation of the fan.

1.5 MANUAL CONTENTS

This manual provides instructions for installation, use and maintenance of the product and refers to its intended use as defined in the following.

This manual consists of 56 pages and for an easy consultation has been divided into chapters easily identifiable. Inside you will find: the **operation description** and all **the necessary instructions for proper unit start-up and shutdown**, as well as the **inspection and maintenance (routine and periodic) of the machine with the related frequencies**.

1.6 MANUFACTURER'S IDENTIFICATION DATA

	CIESSE S.r.l. Via Boccioni, 5 42124 – Mancasale (RE) Italia
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1.7 MANUFACTURER DECLARATION OF COMPLIANCE

For declaration of compliance please see attachment 1 in the use and maintenance manual.

WARNING: The final unit cannot be commissioned until it has not been declared in conformity with the Directive 2006/42/EC on Machinery.

Keep in mind that fans must always be installed in accordance with EC rules.

The table below chart all the CIESSE S.r.l. fan series or which can be applied to the recommendations contained in this manual.

BELT TRANSMISSION		DIRECT COUPLED	
TYPE	DIMENSION [mm]	TYPE	DIMENSION [mm]
TS	315 – 810	MP	390 - 1120
PMA	315 – 1010	MQ – BQ	390 – 715
		MQ – BC	390 – 715
		ES	660 – 1752
		SCATTER	920
		TE – TR	800 – 1500
		RT	250 - 600

Relevant EC Directives applied:	Directive 2006/42/EC on Machinery
Applied harmonized standards¹:	EN ISO 12100-1, EN ISO 12100-2, UNI EN ISO 13857, ISO 281, ISO 1940, ISO 10816, ISO 14694, ISO 1813, ISO 1210, EN 60529, EN 13463-1, EN 13463-5, EN 14986
National standards and particular specifications used ²:	UNI 10531, BS 848 – 1, DIN EN ISO 5801, AMCA STD 210, DIN 25136, BS EN ISO 5136

¹ For a complete list of the applied standards and specifications ask directly to the manufacturer.

² National standards and technical specifications are used if there are no harmonized standards.

1.8 FAN IDENTIFICATION

In case of assistance request always refer to information written on the nameplate.

All the impellers designed to operate in potentially explosive atmospheres, in accordance to the Directive "ATEX" 94/9/EC, are identified by a nameplate giving the following information:

- Name and address of manufacturer;
- Type and series identification;
- Construction Year;
- CE.

ATEX string with the symbol  that indicates the risk of explosion and:

- **Group** (eg II: equipment intended for surfaces and in different sites from mine);
- **Zone** (eg 2: high protection level);
- **Category** (eg G: Protection from potentially explosive gas);
- **Class of the maximum surface temperature of the fan** (eg T3).

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1.9 MANUAL UPDATING

This manual reflects the state of art at the time of putting on the market the machine; it is an essential part of it and it is in compliance with all applicable laws, directives and mandatory standards at that time. **It cannot be considered as inadequate only because of subsequently updates based on new experiences.**

Any changes, adjustments, etc., which have been made after the machines selling do not require the manufacturer to intervene on equipment previously supplied or consider the manual incomplete or inadequate.

CIESSE reserves the right to modify, supplement or improve the manual, without notifying to those who are already in possession of it; this does not entail any act of revenge against CIESSE.

Any additions to the manual that the manufacturer deems appropriate to send to the users must be kept with the manual which will be an integral part of it.

1.10 IMPORTANT INFORMATION

In the case of replacement it is recommended to use always original parts and accessories. Non-original parts, besides invalidate your warranty, could be dangerous as well as reduce the life and performance of the machine.

The machine is fitted with special icons and labels that should be kept in perfect visual condition and replaced once they are no longer legible.

Where the deterioration of an icon, of a label or a rating plate is likely to impair the intelligibility, even only one of the items of information, you need to request a new one from the manufacturer citing data contained in this manual or on the rating plate and must provide to it immediately replacement.

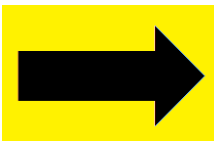
Warning: The rating plates must not be removed or covered and is also affixing license plates or other pictograms on the machine without the prior written consent of the manufacturer.

Substituting the rating plate with a non-authentic one implies the immediate and irreversible decay of the warranty.

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1.11 MEANING OF THE PICTOGRAMS ON THE MACHINE

A series of safety pictograms are affixed on the fan casing. The meaning of each of these is wrote into following table:

Signal	Meaning
	Rotating parts.
	Tamper or bypass the protection and safety devices forbidden.
	Prohibition of carrying out lubrication, cleaning or maintenance operation without previously having switched off the machine.
	Please note that the machine is intended to be used by a single operator at a time, which, to operate in a safe condition, should be familiar with the instructions contained in this manual.
	All personal protective equipment (PPE) must be worn during start-up, shutdown and maintenance operations.
	Impeller rotation direction.
	Parts of machinery in tension.
	Lift the machine by this point.

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1.12 TIPS FROM THE USER

CIESSE is available to its customers to provide more information and to consider proposals for improvement in order to make this manual better reflecting the needs for which it was written.

WARNING: If the equipment changes the primary user it is encouraged to inform the manufacturer of the address of the new user so that he can receive any information and / or updates considered as necessary.

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1.13 GLOSSARY AND TERMINOLOGY

The following are some terms used in this manual in order to determine unambiguously the meaning:

Term	Meaning
Expert maintainer:	An authorized technician selected among those who have the qualifications, skills and training to perform mechanical and electrical repair and maintenance on the machine.
Ordinary maintenance:	Set of operations required to preserve the functionality and efficiency of machinery. These operations are usually programmed by the manufacturer that defines the necessary skills and methods of intervention.
Extraordinary maintenance:	Set of operations required to preserve the functionality and efficiency of machinery. These operations are not scheduled by the manufacturer and must be performed by an expert maintainer.
Inspection:	All the operations consisting in the replacement of bearings or other mechanical components that show signs of wear such as to affect the operation of the machinery. The inspection shall include verification of all components of the machine and in case of deferral this implies damage replacement and investigation of causes.
Safety measures	Include the following: - Disconnecting the machine from all sources of electric power; - Verification of the arrest of all the moving mechanical parts; - Block all moving parts; - Control of the concentration of dust / flammable and explosive test of the atmosphere; - Check the temperature inside and outside of the machine and check if it is not hot; - Proper lighting of the area around the machine for the duration of the inspections and routine / extraordinary maintenance; - The personnel operating with the machine must wear all the necessary Personal Protective Equipment (suitable, certified and intact) including the use of antistatic protective clothing (suitable, certified and intact).

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1.14 TECHNICAL SUPPORT SERVICE

For every maintenance intervention please contact technical support service by applying directly to the manufacturer at the following e-mail address commercial@ciesseventilatori.com or writing to: CIESSE S.r.l. Via Boccioni, 5 - 42124 Mancasale (RE) Italia.

1.15 MANUFACTURER RESPONSIBILITY

The instructions in this manual do not replace, but rather complete the provisions for compliance of current legislation on safety and accident prevention. In any case CIESSE declines all responsibility in case of:

- Non-compliances with the instructions and use of the machine other than that provided in this manual;
- Use by staff who have not read and understood the contents of the manual;
- Operations carried out by unauthorized and / or untrained and / or unsuitable personnel;
- Use of machinery in violation of local laws on safety and accident;
- Incorrect installation, lack or incorrect compliance with the instructions provided in this manual;
- Defects of power;
- Changes and / or unauthorized repair;
- Tampering;
- Use of supplies and items that do not match the originals.

WARNING: selling the machine to a second user also implies the delivery of the manual. The non-delivery of the manual automatically voids manufacturer's responsibility regarding the correct use of it.

1.16 COMPULSORY SIGNS

SIGN	MEANING
	Pay attention to the recommendation accompanied by this symbol; follow meticulously the instructions indicated.
	Indicates useful information and advice for handling, assembly and installation.
	Indicates the risk of electrical shock and is related to handling, assembly and disassembly of parts.
	Indicates the risk of death and is related to particularly dangerous handling, assembly and disassembly.

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SIGN	MEANING
	Indicates danger of explosion or projection of material at a distance and is related to handling, assembly and disassembly to which we must pay special attention.
	Indicates useful information and advice for the operations of recycling and disposal of materials.

1.17 WARRANTY

The user, in order to be able to take advantage of the warranty provided by the manufacturer, must strictly observe the precautions listed in this manual and in particular:

- Operate within the limits of use of the machinery;
- Always perform a constant and diligent maintenance;
- Only personnel of proven ability and adequately trained for the purpose shall use the machine.

The warranty is valid for 12 months from the date of delivery of the fan. For the decay of the warranty conditions upon receipt of the goods see section 7.1 ACCEPTANCE.

The warranty is void if the parts returned as defective have been repaired or tampered.

The repair of defective parts made by buyer will be recognized only with the consent and approval of the estimate cost by CIESSE S.r.l. does not assume liability and will not pay any compensation for damages that occur during the use of its products (even if defective) or work suspension caused by the failure of the goods. CIESSE S.r.l. declines any responsibility for the execution of specifics by customer design under any patents.

The presence of tampering or changes to the machine must be communicated immediately to CIESSE S.r.l. since it might cause security issues and cause the immediate cessation of the validity of the warranty. Otherwise the user will be solely responsible for any accidents and / or physical and economic damage.

2. DETAILS

CIESSE S.r.l. fans are mainly used in the industrial sector and have wide variety of applications:

- handling of clean air;
- handling of air mixed with dust;
- handling of air containing particles with variable grain size.

It is clear that, depending on the application, the design criteria of the fans change so every fan must be used according to the working conditions specified in the technical catalogues. The fans are designed to be used within systems, machines, or more complex systems and should not work outside the systems in which they are embedded: refer to CIESSE S.r.l. in case of doubt.

CIESSE S.r.l. industrial production also includes special machines, more appropriate in case of atypical uses, which must be specifically agreed, as:

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- spark proof fans, suitable to work in 1/21 and 2/22 classified zones where there is a potentially explosive atmosphere, suitable for conveying flammable and combustible substances in accordance with the ATEX Directive 94/9/EC.
- impellers for operation at 60 Hz;
- construction in stainless steel AISI 304, AISI 316 and other special steels recommended in case of habitual and continuous presence of corrosive materials or for food;
- construction material HARDOX-CREUSABRO for transport of particles of materials of high hardness and/ or abrasive;
- insulated fan casing to reduce the surface temperature of the fan when temperatures are very high or working to reduce noise;
- corrosion resistant special steels at high temperatures to very high working temperatures up to 500 [°C]; - performances with special seals;
- aluminum construction
- painted with epoxy type powder paints, with certain exceptions, with antioxidant function
- motors are supplied with 2, 4, 6, 8 poles of the unified series MEC.

CIESSE S.r.l. fans are intended for use by professional users only. The smooth operation and durability of the fans are subject to a series of checks and scheduled maintenance. The manual of use and maintenance, supplied with the ventilator together with the documentation and certificates of components and equipment that is assembled, it describes all the details necessary for a proper and safe use of the fan.

3. **WARNING**

Any modifications to the machine which is not authorized by CIESSE S.r.l. or not performed by an authorized CIESSE S.r.l. raises CIESSE S.r.l. from any liability for damage or injury that may result to operators, third parties and / or property.

3.1 **ACCIDENT PREVENTION WARNINGS**

Generally:

1. ⚠ NEVER use the machine under not provided condition;
2. ⚠ NEVER use the machine for a service other than that provided;
3. ⚠ NEVER operate the machine in an atmosphere not provided for the class of operation;
4. ⚠ NEVER modify the function / performance of the machine or its components in order to increase the potential;
5. ⚠ NEVER use the machine with "flying connections" by means of temporary cables or non-insulated;
6. ⚠ NEVER remove the protection of land;
7. ⚠ NEVER remove safety guards on machinery in tension, motion or on stand-by;
8. ⚠ NEVER perform any inspections or maintenance on machinery in motion;
9. ⚠ NEVER open the inspection door before all rotating parts have stopped;
10. ⚠ NEVER perform any inspections or maintenance on machinery in live or in stand-by;
11. ⚠ NEVER allow the start-up and / or use of the machine to inexperienced personnel under the age of 18 years;
12. ⚠ NEVER modify or tamper with the security guards of the machine;
13. ⚠ NEVER carry out routine maintenance, inspections or repairs without having turned off the machine by turning off the switch, without also removing the plug from the electrical distribution system;
14. ⚠ NEVER carry out temporary repairs and / or restoration which does not comply with these instructions;
15. ⚠ NEVER leave the machine after running a necessary adjustment without having affixed on it appropriate hazard warning and informing the department manager;

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16. ⚠ NEVER start the machine if the inspection door has not been replaced on-site and / or locked with its bolts;
17. ⚠ It is recommended to all people exposed to strictly follow the standards of accident prevention regulations relating to safety;
18. ⚠ The fan user must make sure that all instructions in this manual are scrupulously and unequivocally observed;
19. ⚠ The fan must be installed exclusively by competent and adequately trained personnel;
20. ⚠ The maintenance or repair must be performed by trained personnel and in accordance with the instructions in this manual;
21. ⚠ Before carrying out any maintenance and / or adjustment disconnect the fan from its power sources of energy;
22. ⚠ Any changes to the fan must be carried out only by personnel authorized by CIESSE S.r.l.;
23. ⚠ When connecting or disconnecting the power cord, make sure the ground cable is always connected first and disconnected last;
24. ⚠ Pay attention to the labels on the fan;
25. ⚠ Do not expose the fan to water jets;
26. ⚠ Safety guards must never be removed. In case of absolute necessity, suitable measures must immediately be taken in order to keep out the possible danger; as soon as the reasons for the temporary removal cease, the safety guards must be restored;
27. ⚠ It is absolutely forbidden to make connections of luck;
28. ⚠ Do not use the fan for any purpose and in atmospheres other than those intended;
29. ⚠ Make sure that there are no hazardous conditions before switching on the fan;
30. ⚠ Do not start the fan for any reason if the inspection door has not been replaced and locked in place with the relative bolts;
31. ⚠ Before opening the inspection door, make sure that the rotating parts are stationary and that the power line is de-energized; ! If the suction and / or outlet s are not ducted, you must apply an adequate grid of protection;
32. ⚠ It is forbidden to carry out any operation of maintenance, cleaning, repair on the operating fan;
33. ⚠ It is absolutely forbidden to try to accelerate the rotation arrest with your hands or other tools;
34. ⚠ In machines equipped with pulleys, the manual movement of the belt for the speed changing must be made at a standstill;
35. ⚠ It is forbidden to leave materials in the proximity of parts that may come into rotation or at least set in motion; ! In case of lack of the electricity the machine should be switched off immediately;
36. ⚠ When cleaning, always use gloves, mask and goggles.
37. ⚠ The fans shall be stored in an enclosed place without dust where the humidity does not exceed 80%;
38. ⚠ Do not store the fan in the proximity of machines that produce vibrations, otherwise the bearings will suffer the same type of stress.

3.2 PROTECTION DEVICES INSTALLED ON THE MACHINE

CIESSE S.r.l. range of fans is set with accident prevention protection devices and accessories on the various moving parts according to UNI 10615, namely:

- Protection grids installed on the inlet and outlet mouths according to UNI EN ISO 13857;
- Protection guard of the cooling fan;
- Protective cover for the pulleys, belts and shafts of transmission fans.



WARNING:

In case the fans were channeled, the user should provide adequate systems to prevent foreign bodies that could cause damage to access the fan.

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WARNING:

Before starting the fan make sure that all guards are properly installed.

CIESSE S.r.l. disclaims any liability for direct or indirect damage to persons or property caused by the absence of such safety devices.

The free impeller fans lack of safety grill and are sent only by explicit require of the customer and following the evaluation (in its total load) of the risks.

3.3 RESIDUAL RISK

A detailed analysis of the risks has been carried out during the design phase, including the risks the operators assigned to the maneuvers, installation and maintenance, might be exposed; as a result, every possible precaution to make the machine safe and reliable was taken.

However, certain conditions of risk depending on the type of installation and operating conditions can be erased by adopting **common sense** and **prudence**.

During machine work, however, it is not possible to exclude the existence of a residual risk due to malfunction, wrong behavior or events of force majeure. The system designer **has to** implement appropriate security measures in accordance with DIN EN 12100, e.g. protection devices, measures to prevent the occurrence of any potentially dangerous situation.

3.4 PRECAUTIONS FOR USE IN A POTENTIALLY EXPLOSIVE ATMOSPHERE (ATEX)

A prior consultation with CIESSE S.r.l. for the use of fans in potentially explosive atmospheres is compulsory.

The fans manufactured and distributed by CIESSE S.r.l. can be used in potentially explosive environments according to ATEX Directive 94/9/EC only with explicit indication of the customer as a result of the risk assessment and the completion of a specific questionnaire, in this case, on the name plate of the fan the ATEX string is reported (identified and / or specified by the customer) composed of protection against the risk of explosion, **group** of the equipment, **area** of use, **category** (type of protection from the potentially explosive gas or dust) and the **class of the maximum surface temperature** of the fan.

It is forbidden to use the CIESSE S.r.l. fans for any purpose and in atmospheres other than those provided at time of order.

CIESSE S.r.l. disclaims any liability for direct or indirect damages to people or property from improper use of such equipment.

The fans carried out in accordance with the ATEX Directive 94/9/EC are suitable for conveying flammable and combustible substances (verified by CIESSE S.r.l. according to the data supplied by the customer) and have been designed for use in temperatures between -20 and 40 [°C], relative humidity 80%, an area classified as 1/21 and 2/22 (for categories of machinery respectively 2 G / D and 3 G / D) and are supplied in various constructions, making the metal parts in contact (side entrance impeller or impeller and suction nozzle and the ring of transition shaft) in non-ferrous material in accordance with Directive 94/9/EC, so the fan in question, to be considered as a component, is not be put into service until the machine and / or system within which has been incorporated has been made safe from the point of view of the risk of explosion before it is started, and has been declared in conformity with relevant directives as required by the ATEX Directive 94/9/EC.

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Atmosphere with presence of	Zone	Danger level during normal operation	Category	NOTE
GAS STEAM MIST	0*	Always Present Explosive Atmosphere (Permanent Danger)	1G*	* CIESSE S.r.l. does not build fans Category 1G - 1D for zones 0 and 20
	1	Possible Explosive Atmosphere (Potential Danger)	2G	
	2	Highly Unlikely Explosive Atmosphere (Minimal Danger)	3G	
DUST	20*	Always Present Explosive Atmosphere (Permanent Danger)	1D*	
	21	Possible Explosive Atmosphere (Potential Danger)	2D	
	22	Highly Unlikely Explosive Atmosphere (Minimal Danger)	3D	

The fans declared in conformity with the ATEX Directive 94/9/EC have been designed, built and tested to operate in safe conditions with dust and / or gas / vapor with a minimum ignition temperature greater than 250 [°C], as indicated on the nameplate and the declaration of conformity.

In any case, remember:

- ⚠ Install the explosion-proof fan leaving a space of about 1 [m] from other equipment / devices placed in proximity to allow the inspection and control and to prevent the phenomena of friction with other foreign bodies nearby;
- ⚠ Install the fan on plants or facilities with contained stress;
- ⚠ Do not let metal tools and materials hit the fan;
- ⚠ For maintenance and assembly use explosion-proof tools only;
- ⚠ Periodically clean the outside of the fan and the protective grid to prevent excessive accumulation of dust.

	<u>WARNING:</u> <i>The cleaning of the external parts of the fan are closely related to the type of fluid to be transported and the relative concentration of dust. The user must determine a cadence of cleaning so that the impeller is always perfectly clean (accumulations of material on the rotating parts cause imbalance) and so that do not come to create material accumulations laminated over 5 [mm] thick .</i>
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- ⚠ To clean the impeller please ask information to CIESSE S.r.l.;

	<u>WARNING:</u> <i>The impeller cleaning intervals are closely related to the type of fluid to be transported and to the relative concentration of dust. The user must determine a cadence of cleaning such that the impeller is always perfectly clean (accumulations of material on the rotating parts cause imbalance).</i> <i>It is recalled that the minimum distances between a fixed part and a mobile one, either axially, must always be greater than 1% of the diameter of the impeller and never less than 2mm and never higher than 20 [mm].</i>
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- ⚠ Paint periodically the crate to avoid corrosion phenomena that could affect the ability of the explosion-proof fan (repainting intervals depend on the characteristics of the environment of use and in any case must be made in the moment in which it is visible, **in any measure**, the metal base of the fan). **Repaint the fan always with epoxy-polyester powder tint or polyester;**

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- ⚠ DO NOT expose the explosion-proof fan in environments where electromagnetic and / or electrostatic fields are present;
- ⚠ Install a lightning rod in correspondence with the environment of use of the fan in order to avoid phenomena of overvoltage;
- ⚠ DO NOT lubricate the seals. (Oils and / or fats are a source of danger in potentially explosive environments).
- ⚠ The user must ground the fan.

3.5 INSTALLATION OF PARTS AT THE EXPENSE OF THE USER

CIESSE machines come fully assembled. In case it had been agreed sending separate motor and / or impeller with CIESSE S.r.l., for the assembly to their specific units follow the information below.

3.5.1 IMPELLER

In case the impeller is part of the rotating parts of a complete fan or if it constitutes separate delivery, it is recommended to follow these guidelines for proper contact in place.

DISASSEMBLY:

1. Remove the screw and washer that blocks the impeller to the shaft;
2. Inject the flux between the hub of the impeller and the shaft and wait to take effect;
3. Remove the impeller from the shaft with the aid of a size suited extractor to extract. (In case of replacement of rotors of large impellers provide support before extracting).

ASSEMBLY:

1. Lubricate the impeller hub and the shaft;
2. Insert the impeller shaft. DO NOT FORCE THE COUPLING! The fitting must be done with the sole thrust of the locking screw with washer. (If you find particularly intense resistance make sure everything is clean and that you have not formed burrs or dents. IT IS STRICTLY FORBIDDEN TO GRIND THE HUB OF THE WHEEL AND THE SHAFT!).
3. Tighten the locking screw using a torque wrench being careful to never exceed the maximum tightening torque of the screw.



WARNING:

Do not drop the impeller because it could be dented and, however, even in absence of dents the fall causes the imbalance of the impeller.



USEFUL INFORMATION:

For the balance of the impeller please apply directly to CIESSE S.r.l. through your local dealer or directly by telephone for information. CIESSE S.r.l. will repair it if possible, otherwise please communicate the need for replacement.



WARNING:

If the buyer decided to perform the balancing operation at different centers from CIESSE S.r.l. invalidate the CIESSE S.r.l. warranty on the ventilator.

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3.5.2 MOTOR

In the event that the motor forms part of a complete fan or constitutes separate delivery, it is recommended to follow these guidelines for proper contact in place.

REMOVE:

Before providing the replacement motor it is important to understand the reason for his failure and to arrange, if possible, its resolution. If the fan was still within the warranty, do not act on it, otherwise it will the decay, but take it to CIESSE S.r.l.; if, on the contrary, the warranty had already expired, proceed as follows:

1. secure the fan;
2. electrically disconnect the motor (motor disconnection to the main power supply must always be authorized and done by qualified personnel);
3. disassemble the fan needed to remove the motor from the impeller.

ASSEMBLY:

1. place the motor in place (in case of change verify that the characteristics of the motor are equivalent or superior to the characteristics of the motor it replaces) and secure it to the frame with the necessary and appropriate elements;
2. center the impeller;
3. electrically connect the motor (the motor connection to the electricity distribution network must always be authorized and done by qualified personnel);
4. proceed to ignition.

3.5.3 SAFETY GRIDS

Depending on the type of installation, CIESSE S.r.l. fans are equipped with the required safety devices necessary during normal operation of the fan. Such devices may possibly be removed or modified only if:

- The machine and / or system in which they are embedded guarantees the minimum safety requirements of the machinery directive. (This operation is the sole responsibility of the purchaser and must be supported by a careful risk assessment);
- The safety device appears to be damaged or compromised.



WARNING:

The presence of grids of protection does not exclude completely the possible entrance of foreign bodies into the fan. If the bodies or dangerous particles are mixed with the treated air the user will perform a comprehensive assessment of the risk, taking into consideration the possible dimensions. In case the section of the standard grid is not sufficient to ensure the minimum safety requirements the user must put in place all the necessary precautions in order to avoid any residual risk.



WARNING:

The air flow characteristics as indicated on the fan catalogues are void of any accessory. Such charts do not take into account the greater loss of pressure due to safety grids, joints, valves, silencers or other. All the load losses, including those produced by the grids of protection, must be evaluated in the design phase in function of speed, air density, temperature and any other factor that contributes to modifying the impact on the system.

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REMOVE:

1. secure the fan;
2. remove the screws and remove the safety grid.

ASSEMBLY:

1. secure the fan;
2. place the safety grid at the inlet / outlet of the fan. Fix to this with all the fixing screws.

4. GENERAL INFORMATION

4.1 CONDITIONS OF USE AND FEATURES

The machines belonging to each of the series of CIESSE S.r.l. production have been specifically designed to exclusively perform the functions indicated in the table CONDITIONS OF USE AND FEATURES below. Any use of the machine other than those reported here is to be considered improper and dangerous.

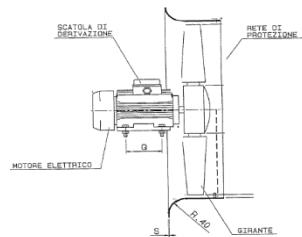
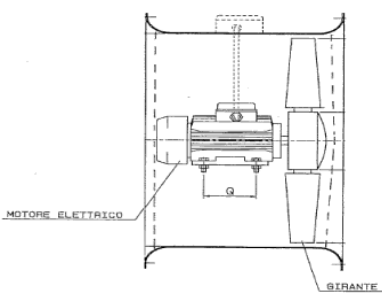


WARNING:

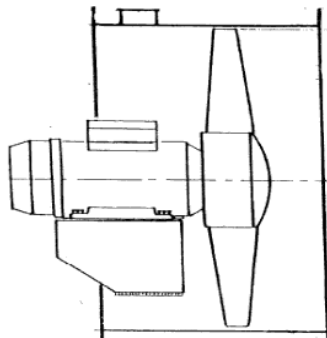
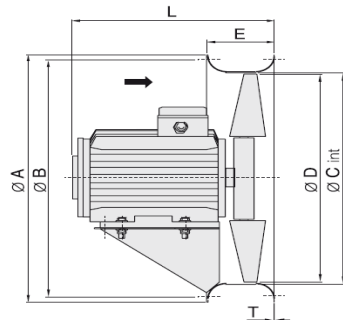
The use the machine in a special or different condition from those indicated in this manual must be agreed in advance and verify the suitability of the machine with the manufacturer.

Proper use of the machine, a scrupulous observance of the rules listed here and the strict enforcement of all precautions to prevent any dangerous situations, will swear the risk of accident or injury, minimize damages and allow better work and longer machine life.

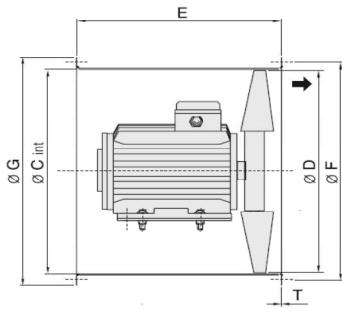
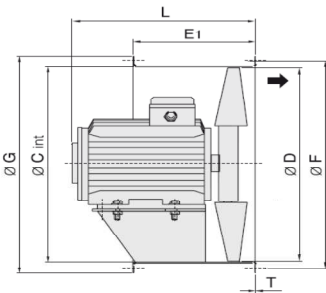
CIESSE S.r.l. disclaims any liability objective and subjective when the rules of conduct stated in this are not applied.

SERIES	CONDITIONS OF USE AND FEATURES	TECHNICAL DRAWING
MP	The design of the conveyor, designed for the best performance of the fan, makes it ideal for any application in industrial plant motor ering, mechanical and agricultural, for the transport and handling of clean or slightly dusty air, as well as to reclaim environments with fumes or vapors.	
PMA	The construction form of the conveyor with double flat flange, makes it particularly suitable to be applied directly on channeling, machinery and components for the transport of air, in the industrial, agricultural and mechanical field, for the transport and handling of clean or slightly dusty air, as well as to reclaim environments with fumes or vapors. It comes with long case with motor fully intubated. On request: Special construction for the presence of fumes, resistant up to 400 [°C] for 2 hours, approved LGAI EN 12101-3.	

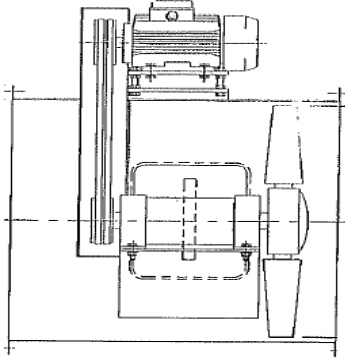
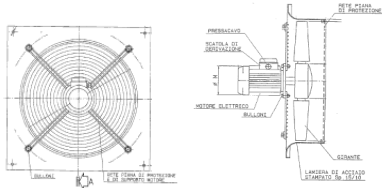
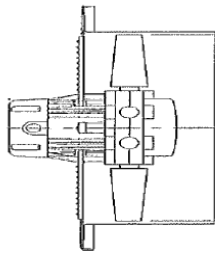
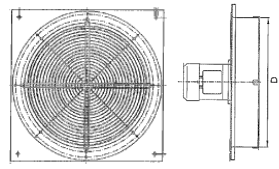
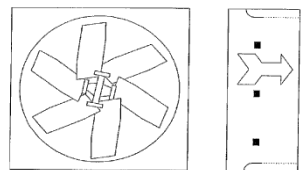
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SERIES	CONDITIONS OF USE AND FEATURES	TECHNICAL DRAWING
PMA/C	The construction form of the conveyor with double flat flange, makes it particularly suitable to be applied directly on channeling, machinery and components for the transport of air, in the industrial, agricultural and mechanical field, for the transport and handling of clean or slightly dusty air, as well as to reclaim environments with fumes or vapors. It comes with a short case with motor partially intubated. On request: Special construction for the presence of fumes, resistant up to 400 [°C] for 2 hours, approved LGAI EN 12101-3.	
MPHT	The shape of the conveyor is designed to achieve the best performances from the fan. Fluid-immersed ducted axial fan, class 400C°/2h, are an efficient system for the aspiration of smokes and a valid support to raise safety levels in the emergency situation caused by fire. The series HT, made available with a diameter from 400mm till 1400mm, is manufactured according to the EN 12101-3 European regulation and it achieved the Applus certification. Component parts. Carbon steel conveyor, epoxy-painted for high temperatures; high performance impeller, statically and dynamically balanced, made of carbon steel, epoxy-painted for high temperatures; three-phase electric motor, IP55, class H, service S1 and S2. Technical specifications. Extractor tested in horizontal position; airstreams goes from motor to blades; the complete technical data of the certified range are detailed in the technical file and the range report n 11/2526-516. Certified reference n EN0370-CPD-1150	

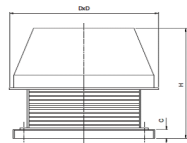
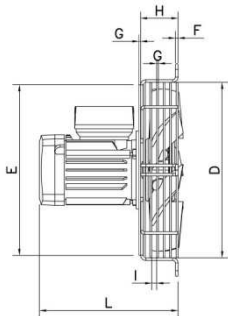
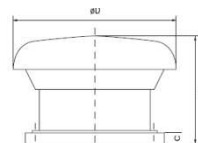
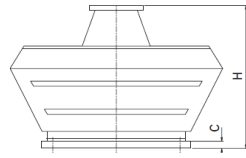
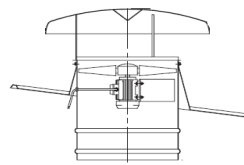
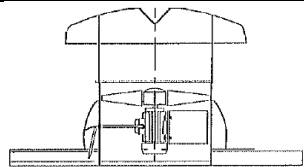
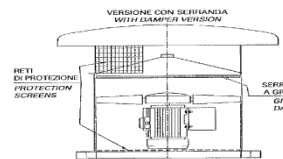
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SERIES	CONDITIONS OF USE AND FEATURES	TECHNICAL DRAWING
PMHT	The shape of the conveyor with double flat flange, makes it particularly suitable to be applied directly on canalization. Fluid- immersed ducted axial fan, class 400C°/2h, are an efficient system for the aspiration of smokes and a valid support to raise safety levels in the emergency situation caused by fire. The series HT, made available with a diameter from 400mm till 1400mm, is manufactured according to the EN 12101-3 European regulation and it achieved the Applus certification . Component parts. Carbon steel conveyor, epoxy-painted for high temperatures; high performance impeller, statically and dynamically balanced, made of carbon steel, epoxy-painted for high temperatures; three-phase electric motor, IP55, class H, service S1 and S2. Technical specifications. Extractor tested in horizontal position; airstreams goes from motor to blades; the complete technical data of the certified range are detailed in the technical file and the range report n 11/2526-516. Certified reference n EN0370-CPD-1150.	
PMCHT	The shape of the conveyor with double flat flange, makes it particularly suitable to be applied directly on canalization. Fluid- immersed ducted axial fan, class 400C°/2h, are an efficient system for the aspiration of smokes and a valid support to raise safety levels in the emergency situation caused by fire. The series HT, made available with a diameter from 400mm till 1400mm, is manufactured according to the EN 12101-3 European regulation and it achieved the Applus certification . Component parts. Carbon steel conveyor, epoxy-painted for high temperatures; high performance impeller, statically and dynamically balanced, made of carbon steel, epoxy-painted for high temperatures; three-phase electric motor, IP55, class H, service S1 and S2. Technical specifications. Extractor tested in horizontal position; airstreams goes from motor to blades; the complete technical data of the certified range are detailed in the technical file and the range report n 11/2526-516. Certified reference n EN0370-CPD-1150.	

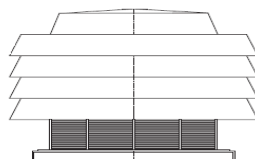
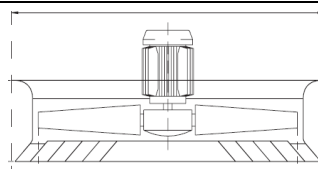
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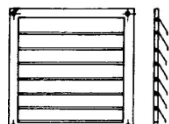
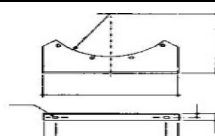
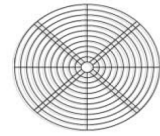
SERIES	CONDITIONS OF USE AND FEATURES	TECHNICAL DRAWING
TS	Featuring inner monobloc support, coupled to the electric motor by means of belts and pulleys (protected by inner and outer casings in models of diameter from 450 to 800). The lubrication of interior block is made easy by pipes connected to the outside cylindrical stem. The construction form of the conveyor with double flat flange, makes it particularly suitable to be applied directly on channeling, machinery and components for the transport of air, in the industrial, agricultural and mechanical field, for the transport and handling of clean or slightly dusty air, as well as to reclaim, environments with fumes or vapors. If one side of the fan, rather than intubated, comes with free outlet, the safety grid is mandatory according to EN 294, which prevents contact with rotating parts.	
LQ	The LQ axial fans are suitable to convey clean or slightly dusty air. The aspirated fluids must not be lower than -20 [°C] and above +40 [°C]. They are placed in the ends of the wall or in refrigeration plants, railways, shipbuilding and so on. It is good to remember that in order to make effective these fans work in extraction, it is necessary to replace extracted air by an equal volume of air introduced into the environment. Air flow: reversible	
LP	LP Axial fans are suitable to convey clean or slightly dusty air. The aspirated fluids must not be lower than -20 [°C] and above +40 [°C]. They are placed in the ends of the wall or in refrigeration plants, railways, shipbuilding and so on. It is good to remember that in order to make effective these fans work in extraction, it is necessary to replace extracted air by an equal volume of air introduced into the environment. Air flow: reversible. Phase LP is a CIESSE S.r.l. patent	
MQ	The BQ MQ / MQ-BC fan is ideal for aeration of environments in which it is necessary to remove heat, smoke and stale air. The aspirated fluids must not be lower than -20 [°C] and above +40 [°C]. Three-phase motor . Reversible airflow.	
ES	The ES fans aim to move large volumes of stale air, control humidity and temperature. Ideal for livestock environments.	

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SERIES	CONDITIONS OF USE AND FEATURES	TECHNICAL DRAWING
MT	It is used to aspirate large volumes of air at low pressures. The size and weight facilitate direct mounting on roofs, both with free aspiration and connected to flues.	
RT	These fans are suitable where it is necessary to remove heat, replacement of stale air or slightly dusty. They are in execution 5 with motor mounted on grid in carbon steel with epoxy painted and protection in according to UNI EN ISO 12499, impeller hub in die-cast aluminum alloy and glass reinforced polypropylene blades. Construction specifications: working temperature -10 [°C] +40 [°C]; single-phase or three-phase motor; Voltage Eurovoltage; frequency 50 or 60 [Hz]; direct drive; protection IP55; Balancing according to UNI 1940; diameter 250 [mm] 600 [mm].	
MTE	This series of extractors is suitable for extracting stale air from buildings, warehouses and so on. In all those cases where large air flow with relatively low pressure are needed. Temperature of the fluid conveyed: max +40 [°C]. Continuous service.	
MTV	These extractors are suitable for extracting stale air from civil buildings and especially toilets, kitchens etc.. Maximum temperature of the intake air: 60 [°C]. Continuous service.	
TE	TE extractors are designed and manufactured to solve the problem of extracting air from / to any kind of environment, in particular for industrial environments, livestock farms and / or production in general. TE have a non adjustable leaning.	
TR	TR extractors are designed and manufactured to solve the problem of extracting air from / to any kind of environment, in particular for industrial environments, livestock farms and / or production in general. TR have an adjustable leaning.	
TP	TE extractors are designed and manufactured to solve the problem of extracting air from / to any kind of environment, in particular for industrial environments, livestock farms and / or production in general. They have a level floor.	

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SERIES	CONDITIONS OF USE AND FEATURES	TECHNICAL DRAWING
MTF 260	MTF 260 active chimney is a centrifugal extremely quiet fan which is applied to the top of the exhaust pipe: it ensures perfect suction even in adverse weather conditions, inhaling high temperature fumes (200 [°C]) and odors.	
SCATTER	It diffuses heat in the environments aligning the temperature at each point and any height, avoiding the stratification.	

ACCESSORIES		
Gravity shutters	The gravity shutter allows the passage of air in one direction only, when the fan is functioning. The tabs of the shutters open with the movement of air when the fan is turned on, and close by gravity when it is turned off thus preventing heat loss and the entry of wind, rain, birds. Made of painted steel frame with stiff pvc tabs, their application reduces the air flow rate by 10%.	
Supports	They are made in order to secure the fan to the chassis, equipment or foundation footer are applied directly to the conveyor.	
Anti-vibration joints	They are made to prevent the transmission of the vibrations of the fan to the duct system or machinery on which they are applied. They are applied in discharge or suction.	
Safety grids	They are made for accident prevention and to prevent the intrusion of foreign bodies into the sewage system. They are always mandatory, except if fans are channeled and under the customer's request.	

4.2 NOT PERMITTED USE – NOT INTENDED USE – EXPECTED AND / OR NOT EXPECTED USE

The use of the machine in a not permitted manner, its misuse and lack of maintenance can lead to dangerous situations for your personal and / or properties safety as well as affect the functionality and the intrinsic safety of the machine.

The actions listed below, which obviously cannot cover the entire range of potential possibilities of misuse, constitute the most reasonably predictable and **shall be absolutely prohibited, therefore:**

- **Do not use** in environments that by their nature can cause the projection of fragments or splinters as a result of priming by the impeller;
- **Do not use** in environments that by their nature can result in explosions or detonations;
- **Do not let use** the machine to persons who are ineligible, unauthorized, under the action of substances capable of altering psychomotor performances and under the age of 18.

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4.3 MACHINERY IDENTIFICATION DATA

4.3.1 NAMEPLATE

The following nameplate is attached to the fan. This label is self-adhesive and it contains references to the producer and all information essential for unambiguous identification of the fan model and its operation, as well as some useful information for operating safety. To interpret the information on the nameplate use the following explanatory diagram.



4.3.2 READABILITY, STORAGE AND NAMEPLATE REPLACEMENT

The operator / user should keep in perfect visual state the information contained in the plate.

If the deterioration of the plate was such as to affect its intelligibility, even for only one of the items of information, you need to request a new one from the manufacturer, citing data contained in this manual or on the plate and must provide for the replacement.

	<u>WARNING:</u> <i>The plate must not be removed or covered for any reason and it is also prohibited to affix plates or other pictograms on the machine without the prior written consent of the manufacturer.</i>
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4.4 TECHNICAL SPECIFICATION

The features, size and performances of the machine are described in the technical and commercial catalogue available on request or downloadable from the website

www.ciesseventilatori.com

5. PACKAGING, TRANSPORT E HANDLING (loading and unloading)

5.1 PACKAGING

The machines, unless differently agreed with CIESSE S.r.l., are supplied **without packaging**.

The **standard packaging** is not waterproof and is intended for shipping by land and not by sea, for indoor environments and not humid. The machinery, under appropriate conditions, can be stored for a maximum period of 3 months in indoor environments where the temperature is between -15 [°C] to

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+40 [°C] and humidity no higher than 80%. **For different conditions need specific packaging (barrier bag).**

The **packaging with barrier bag** is made using plastic films, polyester, PP, nylon with or without aluminum foil, in such a way as to ensure the impermeability to moisture, salinity, light and UV. This type of packaging is typically used to eliminate damage due to oxidation resulting from transport by sea and / or long storage in cold or tropical countries. To remove traces of residual moisture inside the barrier bag salts and / or hygroscopic gel are introduced. The goods, suitably stored, can be kept for a maximum period of 6 months.

5.2 INSTRUCTIONS FOR REMOVING AND DISPOSING THE PACKAGING

	<u>DO NOT DISCARD THE PACKAGING IN THE ENVIRONMENT</u> The packaging components are classified as normal municipal solid waste so they can be disposed without difficulty. We recommend that you separate the recyclable products and always adhering strictly to the specific regulations in force in the place of installation.
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CIESSE S.r.l. is not liable for any environmental damage caused by not allocating the packaging in a provided place or by transferring it in an inappropriate place.

5.3 TRANSPORT

Transport must always be carried out by authorized and qualified conveyor so that the machinery / package is transported with proper care.

	<u>ATTENTION:</u> <i>Unless differently stated no other good must be placed on top of the machinery/ package transported.</i>
---	--

During the **overland** transport machinery / package must be secured to the means of transport by lashings and must be carefully covered in order to protect it from the rain.

When transporting the machinery / package **by sea** it should be secured to the means of transport by lashings and must be housed in the hold or container protected from splashing water or humid winds.

5.4 HANDLING (loading and unloading)

All handling operations described below must be carried out with caution and always avoiding giving sudden accelerations / decelerations to the machinery / package.

The handling of machinery / packages must always be according to the instructions given in this manual and / or the information on the packages (if any).

In order to facilitate the transportation, handling and operations of loading / unloading machinery / packages may be loaded on pallets.

Whereas mass and form not always allow machinery / package by hand displacement, it is necessary (and highly recommended) the use of specific equipment for this purpose (forklifts, pallet trucks, cranes, overhead travelling crane ...) in order to avoid damage to people, things, and machinery / goods itself.

In case the bulk of the load does not allow a sufficient visibility to the carrier, an assistant must provide the operator the right signals for proper handling.

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WARNING:

All handling operations including loading and unloading must be carried out by qualified and authorized personnel (slingers, forklift, etc..).

The people who are qualified / authorized for such transactions must be trained and experienced in order to safeguard their safety, that of the people involved and the integrity of the machine. **Who is authorized to make the handling and loading / unloading of the unit must prepare all the necessary conditions for the safety and security of people involved and of the machinery / package.**

5.4.1 Machinery manual handling with or without packaging (loading and unloading)



WARNING:

Never lift the machine from the shaft of the impeller and / or by the blades.

- If the fan is unpacked, you must close the suction and discharge nozzles to prevent the entry of dirt and / or foreign bodies;
- Do not lift the fan from the shaft, the motor or the impeller;
- For particularly long and uneven paths, lock the impeller to avoid damage to motor bearings and problems to the balance of rotating parts.

Manual handling:

To properly raise a fan you need to follow these simple rules:

- Keep your body in a balanced position and bend your knees to lift the fan;
- Keep your bust upright and your arms stiff;
- Take the fan with the palms of your hands while keeping your feet at a distance to ensure the stability of the body;
- When lifting, the effort must be borne mainly by the lower limbs;
- Keep the fan leaning against the body during transport dividing the weight on your arms without swinging;
- Do not carry the fan with greasy hands;
- Always use suitable protective equipment: gloves and shoes.

Machinery without packaging mechanical handling (loading and unloading)



WARNING:

If you need to lift the machine by grasping the body itself please use appropriate lifting points indicated by pictograms.

To attach the machine to the lifting equipment please use **certificated and adequate** eyebolts, hooks, straps, ropes, etc.. for the load to be lifted.

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To properly handle the fan:

1. Identify the attachment points for lifting (refer to the drawings listed below and to the pictograms applied to machinery);
2. Prepare the machine lifting by shackles, hooks, straps, ropes, etc.. attached to grip points, or alternatively move it by using a pallet for support.
3. In case of handling using a forklift or pallet truck, remove the packaging and place the load to the forks at the points indicated;
4. Handle and gently lay the machinery used in the unloading area, taking care not to produce sharp swings while moving, not to drop it and not to crawl it during the placing in the unloading area.

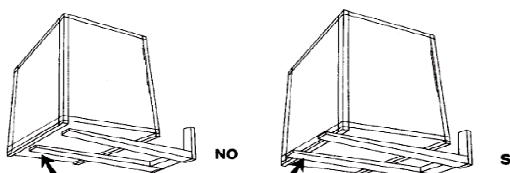
5.4.2 Machinery with standard packaging mechanical handling (loading and unloading)

	<u>WARNING:</u> <i>The choice of the features of the means of handling must take into account the mass to be moved, encumbrance, grip points and the center of gravity. All these data, when required are indicated on the package itself.</i>
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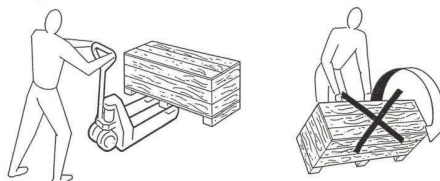
To attach the machine to the lifting equipment use certificated and adequate eyebolts, hooks, straps, ropes, etc.. for the load to be lifted.

To properly handle the fan:

1. Provide a limited and adequate space, with floor or surface for unloading and lay down.
2. Prepare the equipment required for handling the package. In case the handling operations (loading and unloading) is carried out by a manual / electric / motorized forklift equipped with forks, these must have a length not less than the size of the machinery / package itself in order to ensure stability.



3. The machinery / package must always be maintained horizontally and you must care to comply with the indication of the side that must be maintained upward, in order to avoid the risk of loss of stability and / or rollover and / or damage to the machinery / goods.



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5.4.3 Machinery with barrier bag mechanical handling (loading and unloading)

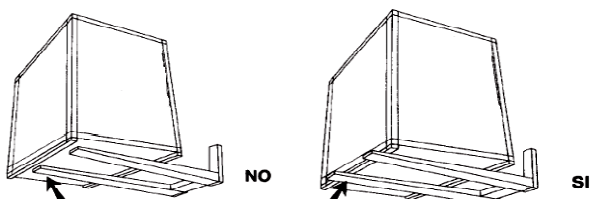
 	<u>WARNING:</u> <i>The choice of the characteristics of the means of handling must take into account the mass to be moved, encumbrance, grip points and the center of gravity. All these data, when required, are indicated on the package itself.</i>
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Per agganciare il macchinario al mezzo di sollevamento utilizzare golfari, grilli, moschettoni, brache, funi, ganci ecc. **certificati ed idonei al peso da sollevare.**

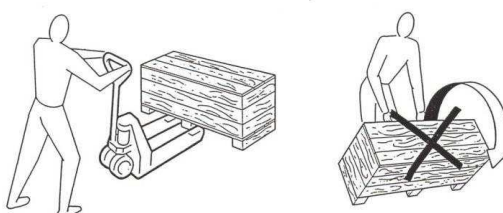
To attach the machine to the lifting use certificated and adequate eyebolts, hooks, straps, ropes, etc.. for the load to be lifted.

To properly handle the fan:

1. Provide a limited and adequate space, with floor or surface for unloading and lay down.
2. Prepare the equipment required for handling the package. In case the handling operations (loading and unloading) is carried out by a manual / electric / motorized forklift equipped with forks, these must have a length not less than the size of the machinery / package itself in order to ensure stability.



3. The machinery / package must always be maintained horizontally and you must care to comply with the indication of the side that must be maintained upward, in order to avoid the risk of loss of stability and / or rollover and / or damage to the machinery / goods.



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6. STORAGE

The preservation or storage can be made when receiving the machine and is permitted for a maximum of six months provided that:

- You check the conditions of acceptance specified in paragraph 7.1;
- The machine has been disentangled from any packaging;
- Monthly all the mechanical parts are lubricated in order to protect them from corrosion and / or rust;
- Monthly the position and tightness of locking pins and fasteners is checked;
- The machine is positioned on pallets and away from machinery in operation and / or sources of vibration;
- The machine is protected from direct sunlight or high UV.

	<u>USEFUL INFORMATION:</u> <i>In order to preserve the strength characteristics of the components of the machine and especially the impeller, it is recommended to cover the windows of local storage with a red or orange layer / filter screen).</i>
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- The machine, the standard kit supplied and any accessories are lying in a closed environment with a temperature not lower than -5 [°C], not higher than + 40 [°C] and with a moisture that is not higher than 80%. **(Values of temperature and humidity beyond the specification determine the deterioration of parts of the machine and will change the length of service).**
- Nothing is resting on top of the machine (and in particular above the impeller), the standard kit of delivery and any accessories.

	<u>WARNING:</u> <i>If the machine remains idle for more than 30 days the bearings of the machine and those of the motor must be rotated by hand at least once a month, grabbing (if possible) the impeller making it rotate several times. This should be done only after disconnecting the unit from the power supply and placing the appropriate warnings.</i>
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	<u>WARNING:</u> <i>Storage periods longer than 12 months require special conservation procedures which should be obtained from the manufacturer.</i>
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	<u>WARNING:</u> <i>The outdoor storage requires a particular conservation procedure to be required directly to the manufacturer.</i>
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7. INSTALLATION

All installation steps must be considered since the realization of the overall project. The one who is authorized to perform the work must, if necessary, implement a **security plan to protect the safety of people directly involved and rigorously apply all existing laws.**

	<u>WARNING:</u> <i>It is forbidden to proceed with the tasks of activation if the machine integrity has not been examined. It is also forbidden to assemble / disassemble / reassemble without including all the details defined by the manufacturer.</i>
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7.1 RECEPTION

The machinery, its standard kit of delivery and any accessories must be checked on the day of the **reception**. Therefore, carefully remove the machine and any accessories from packaging. Make sure that the machine corresponds to the purchase order; check if the machine and any accessories do not clearly have structural lesions or deep abrasions on the painting (everything must be in perfect condition and free of rust, moisture, dents, etc.), that safety pictograms are the original ones, they are all present and undamaged, and that the standard supply documentation kit corresponds to the machinery acquired / to be installed.

In the event of faults and / or defects (to be documented by recording photographs), make immediate notice to both the Carrier and CIESSE S.r.l. and **follow CIESSE S.r.l. instructions before completing the installation, testing and / or putting into service the machinery**. In the event of non-compliance of the above provisions shall be null any form of recourse against CIESSE S.r.l. (before shipping any provision is subject to a verification procedure, however, it is always advisable to check that it is complete and in order at the time of receipt of the material).

	<u>WARNING:</u> <i>CIESSE S.r.l. disclaims any civil or criminal liability for claims made in any subsequent date of the delivery.</i>
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7.2 PRELIMINARY INFORMATION

	<u>WARNING:</u> <i>The installation must be performed only by qualified personnel who have suitable technical training and in full compliance with current regulations.</i>
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Handle the machine as stated in this manual.

Fan installation depends on the type of fan that you are installing and the specific requirements of the operation of this site assembly (see sections 6.2 - 6.3 – 6.4). In any case, **the fan should be firmly fixed to its foundation / base / support holder.**

	<u>WARNING:</u> <i>The installation must always be performed avoiding to strain or deform the base or support structure and the fan as a whole.</i>
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WARNING:

The installation position of the fan cannot be changed or modified without prior contact with the company CIESSE S.r.l.

The unit must be in a place that, once installed, there is a space surrounding sufficient for normal operations: assembly, disassembly, cleaning, inspection and maintenance.

Equipment and safety features possibly not previously installed on the machine must **always** be installed before proceeding with the electrical connections.

7.3 STANDARD SUPPLY DOCUMENTAL KIT

Along with the fan you will find the following documents:

- CE Declaration of Compliance (Attachment 1);
- Impeller balancing certificate (Attachment 2);
- Instruction manual for installation, use and maintenance.

7.4 TIGHTENING COUPLES FOR METRIC SCREWS



WARNING:

For all the operations of screws and / or bolts tightening, it is recommended the use of torque wrenches in order to avoid the application of torque in excess to the screws and / or bolts.

The torque values shown in Table 1 are in agreement with the DIN 267 and correspond to 80% of the strength yield of the material constituting the screw. In each box there are two values, the first is referred to a friction coefficient of 0.10 and the second to a coefficient of 0.14.



WARNING:

The torque couples are to be considered as a guidance as they can vary considerably in relation to the type of joint (rigid, semi-rigid, elastic, etc..), to the material on which the screws are tightened, the lengths of the screws, to the type of screwdriver used for clamping (pulse, clutch torque, continuous etc..), to conditions of the threads etc..

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Coppie massime di serraggio per viti metriche															
NORMA DIN 267	Ø vite esagono mm	nuova →		4.8		5.8		6.8		8.8		10.9		12.9	
		vecchia →		4S		5S		6S		8G		10K		12K	
		Passo		Passo		Passo		Passo		Passo		Passo		Passo	
		grosso mm	fine mm	grosso Nm	fine Nm	grosso Nm	fine Nm	grosso Nm	fine Nm	grosso Nm	fine Nm	grosso Nm	fine Nm	grosso Nm	fine Nm
M2	4	0,4	-	0,2	-	0,2	-	0,2	-	0,3	-	0,4	-	0,5	-
M2,5	5	0,45	-	0,3	-	0,4	-	0,5	-	0,6	-	0,9	-	1,1	-
M3	5,5	0,5	-	0,4	-	0,5	-	0,6	-	0,8	-	1,1	-	1,3	-
M3,5	6	0,6	-	0,5	-	0,7	-	0,8	-	1,1	-	1,5	-	1,8	-
M4	7	0,7	-	0,6	-	0,8	-	1,0	-	1,3	-	1,9	-	2,3	-
M5	8	0,8	-	0,8	-	1,1	-	1,3	-	1,7	-	2,4	-	2,8	-
M6	10	1,0	-	1,0	-	1,3	-	1,5	-	2,1	-	2,9	-	3,5	-
M7	11	1,0	-	1,3	-	1,6	-	1,9	-	2,5	-	3,5	-	4,2	-
M8	13	1,25	1,0	1,5	-	1,9	-	2,3	-	3,1	-	4,3	-	5,2	-
M10	17	1,5	1,25	2,5	-	3,1	-	3,7	-	4,9	-	6,9	-	8,3	-
M12	19	1,75	1,5	3,0	-	3,8	-	4,5	-	6,0	-	8,5	-	10	-
M14	22	2,0	1,5	4,2	-	5,3	-	6,4	-	8,5	-	12	-	14	-
M16	24	2,0	1,5	5,2	-	6,5	-	7,8	-	10	-	15	-	18	-
M18	27	2,5	2,0	7,0	-	8,7	-	10	-	14	-	20	-	24	-
M20	30	2,5	2,0	8,6	-	11	-	13	-	17	-	24	-	29	-
M22	34	2,5	2,0	10	11	13	14	15	16	20	22	29	31	34	37
M24	36	3,0	2,0	13	14	16	17	19	20	25	27	35	38	42	46
M27	41	3,0	2,0	20	21	25	26	30	32	40	42	57	58	68	71
M30	46	3,5	2,0	25	26	31	33	37	39	50	53	70	74	84	89
M33	50	3,5	2,0	34	36	43	45	52	54	69	72	97	101	116	121
M36	55	4,0	3,0	42	45	53	56	64	67	85	89	119	125	143	150
M39	60	4,0	3,0	55	59	68	74	82	89	110	118	154	166	185	199
M42	65	4,5	3,0	68	74	84	92	101	111	135	148	190	208	228	250
M45	70	4,5	3,0	85	90	106	112	128	135	168	180	240	253	287	303
M48	75	5,0	3,0	106	113	132	141	159	170	212	226	298	318	357	382
M52	80	5,0	3,0	118	124	147	155	176	186	235	248	330	349	397	419
M56	85	5,5	4,0	145	155	182	194	218	233	290	310	402	436	490	523
M60	90	5,5	4,0	166	174	208	217	249	261	332	347	467	489	561	586
M64	95	6,0	4,0	206	218	258	273	310	327	413	436	580	614	697	736
M68	100	6,0	4,0	227	237	284	296	341	355	454	474	639	666	767	799
				284	299	355	373	426	448	568	597	798	840	958	1.008
				287	308	358	386	431	463	574	617	808	868	989	1.041
				357	390	446	488	535	586	714	781	1.004	1.098	1.204	1.317
				420	448	525	561	630	673	840	897	1.181	1.261	1.418	1.513
				525	570	656	712	788	855	1.050	1.139	1.477	1.602	1.772	1.923
				573	624	716	780	859	936	1.146	1.248	1.611	1.754	1.933	2.105
				714	795	893	994	1.072	1.193	1.429	1.590	2.009	2.236	2.411	2.648
				775	836	968	1.045	1.162	1.254	1.549	1.673	2.179	2.351	2.614	2.821
				970	1.068	1.213	1.335	1.456	1.602	1.941	2.136	2.729	3.004	3.275	3.605
				999	1.048	1.248	1.310	1.498	1.572	1.997	2.066	2.809	2.948	3.370	3.537
				1.248	1.326	1.561	1.658	1.873	1.989	2.497	2.652	3.511	3.730	4.213	4.476
				1.292	1.352	1.615	1.690	1.938	2.028	2.584	2.703	3.633	3.802	4.360	4.562
				1.621	1.715	2.026	2.144	2.431	2.573	3.242	3.430	4.559	4.824	5.471	5.789
				1.661	1.710	2.002	2.137	2.402	2.564	3.203	3.419	4.504	4.868	5.404	5.770
				2.005	2.175	2.507	2.718	3.008	3.262	4.011	4.349	5.640	6.116	6.768	7.339
				2.006	2.119	2.507	2.648	3.008	3.178	4.011	4.237	5.641	5.958	6.769	7.150
				2.520	2.701	3.149	3.376	3.779	4.051	5.039	5.401	7.086	7.596	8.503	9.115
				2.407	2.582	3.008	3.227	3.610	3.873	4.813	5.163	6.768	7.261	8.122	8.713
				3.018	3.297	3.773	4.122	4.527	4.946	6.036	6.585	8.488	9.274	10.186	11.129
				3.100	3.289	3.875	4.124	4.650	4.949	6.200	6.588	8.719	9.279	10.462	11.135
				3.901	4.223	4.876	5.278	5.851	6.334	7.801	8.445	10.970	11.876	13.164	14.251
				3.838	4.008	4.798	5.010	5.757	6.012	7.676	8.017	10.795	11.273	12.954	13.528
				4.824	5.098	6.031	6.372	7.237	7.647	9.649	10.196	13.569	14.338	16.282	17.206
				4.755	4.850	5.943	6.188	7.132	7.425	9.509	9.900	13.372	13.923	16.047	16.707
				5.993	6.309	7.491	7.886	8.989	9.464	11.985	12.618	16.854	17.744	20.225	21.293
				5.746	6.039	7.183	7.549	8.619	9.059	11.492	12.078	16.161	16.985	19.393	20.382
				7.235	7.711	9.044	9.638	10.853	11.586	14.470	15.422	20.349	21.687	24.419	26.024
				6.940	7.263	8.675	9.079	10.409	10.895	13.879	14.527	19.518	20.428	23.421	24.514
				8.758	9.289	10.948	11.611	13.137	13.933	17.516	18.578	24.633	26.125	29.559	31.350

Table 1 Table of maximum tightening torque couples for metric screws.

7.5 INSTALLATION ON FOUNDATION

If you use a **foundation**, fixing bolts must be accompanied by spacers (which, once installed, should not be completely crushed) to ensure perfect contact between the fan and fan base in order to avoid possible misalignment of the rotating parts that could result to the formation of torques which can cause abnormal vibrations during the fan operation.

The **reinforced concrete foundations** are considered to be optimum for mounting the fan. The weight of the foundation must never be less than the sum of the weight of the electric motor used plus four times the weight of the fan-motor group.

The media has not to be completely crushed and should bear a base frame rather than rely on individual elements of the fan (see CIESSE S.r.l. for details).

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In case of connection to aeraulic piping no force or vibration should be transferred to the ducts so it is necessary that the fan is connected to the ductwork using **anti-vibration joints** and / or **flexible joints**.

	<u>WARNING:</u> <i>Improper mounting and / or incorrect installation of machinery can affect the operation and create dangerous situations for both the machinery and the plant.</i>
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 	<u>WARNING:</u> <i>Using a free inlet / outlet fan, it is necessary to verify compliance with the safety distances according to DIN EN ISO 13857. Any objects could be aspirated and thrown at a distance causing serious injury to persons or damage to property.</i>
---	---

 	<u>WARNING:</u> <i>In the case of free inlet make sure that on the side of the inlet there is a distance such as to ensure that the suction effect of the fan does not cause the ingestion of garments (or parts them) or limbs. In the case of large fans there is the risk of people ingestion.</i>
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7.6 **INSTALLATION ON A METAL SUPPORTING STRUCTURE**

In case the fan is installed on a **metal support structure** or a shelving, then it is necessary to make sure that this is able to sustain not only the weight of the fan, but also the dynamic forces generated both by the electric motor and the rotation of the impeller.

	<u>WARNING:</u> <i>The metal structures must have a minimum resonance frequency greater than 50% of the frequency of rotation of the fan.</i>
---	--

The stand does not have to be fully extended and should bear a frame rather than individual fan elements (see CIESSE S.r.l. for details).

In case of connection to aeraulic piping no force or vibration should be transferred to the ducts so it is necessary that the fan is connected to the ductwork using anti-vibration joints and / or flexible joints.

	<u>WARNING:</u> <i>Improper mounting and / or incorrect installation of machinery can affect the operation and create dangerous situations for both the machinery and the plant.</i>
---	---

 	<u>WARNING:</u> <i>Using a free inlet / outlet fan, it is necessary to verify compliance with the safety distances according to DIN EN ISO 13857. Any objects that could be aspirated and thrown at a distance can cause serious injury to persons or damage to property.</i>
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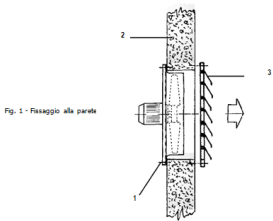
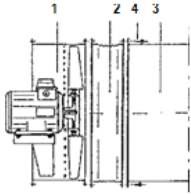
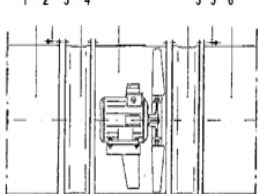


WARNING:

In the case of free inlet make sure that on the side of the inlet there is a distance such as to ensure that the suction effect of the fan does not cause the ingestion of garments (or parts them) or limbs. In the case of large fans there is the risk of people ingestion.

7.7 WALL INSTALLATION

Prepare a hole of suitable diameter to accommodate the inlet cone of the fan panel. Attach the fan to the wall (2) by means of bolts passing through the slots (1) on the frame of the fan (3), gravity shutter (accessory) is to be fixed to the wall using wall anchors or screws.

 Fig. 1 - Fissaggio alla parete	 Fig. 2 - Fissaggio del ventilatore al condotto	 Fig. 3 - Fissaggio del ventilatore al condotto
1. Support wall; 2. Fastening bolts; 3. Impeller safety grid and gravity damper.	1. Fan case; 2. Anti-vibration joint; 3. Duct; 4. Fastening bolts.	1. Duct; 2. Fastening bolts; 3. Anti-vibration joint; 4. Fan case; 5. Fastening bolts; 6. Duct.



WARNING:

Never use the fan without impeller side safety grid.



WARNING:

Do not use the not intubated fan without safety grids in correspondence of the inlet and / or the outlet.



WARNING:

*Using a free inlet / outlet fan, it is necessary to verify compliance with the safety distances according to **DIN EN ISO 13857**. Any objects that could be aspirated and thrown at a distance can cause serious injury to persons or damage to property.*



WARNING:

In the case of free inlet make sure that on the side of the inlet there is a distance such as to ensure that the suction effect of the fan does not cause the ingestion of garments (or parts them) or limbs. In the case of large fans there is the risk of people ingestion.

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7.8 ELECTRICAL CONNECTION

The user has the responsibility to provide a suitable electrical distribution system (line, cabinet, outlet, grounding system) in accordance with the regulations.

	<u>WARNING:</u> <i>Before carrying out the connection check that the characteristics of the power line agree with those indicated on the nameplate of the machine.</i>
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	<u>WARNING:</u> <i>The electrical connection must only be carried out by specialized personnel who have suitable technical training and in full compliance with current regulations.</i>
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Wrong connection may cause serious damage to electronic equipment and electric motor .

Do not make loose connections by means of extensions and / or temporary cables and **do not** leave cables on the floor in the passage area.

If a different type of connection is not possible and in the area of installation it is provided the passage of means or persons, indicate the presence on the ground of the supply cable.

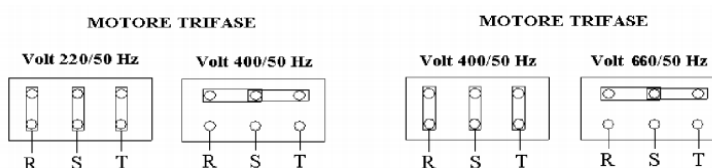
The minimum cross section of the connecting cables must be calculated according to the voltage, the power and the distance between source and machinery.

All cables must be secured in such a way that you cannot tear or damage them by accident.

All operations of connection with the terminal box of the motor must be carried out when the electrical panel is switched off with a power switch (RCD), and accompanied with reporting system of prevention of erroneous ignitions.

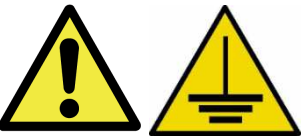
The motor is connected with the terminal block using information provided by the motor manufacturer.

On motor s with a rated power up to 5.5 [kW] you can operate the direct start, while for those with a rated output of more than 5.5 [kW] you normally use the "sweet" start star / delta.



The motor must be protected against overload by appropriately chosen fuses to fit the actual starting time of the machine and the full current load.

Motor damage due to insufficient protection will void the warranty of the motor manufacturer.

	<u>WARNING:</u> <i>The machine must always be grounded and the task of such link is under direct responsibility of the customer.</i>
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- ⚠ Verify that the voltage and frequency shown on nameplate of the fan and / or the electric motor conform to those in use;
- ⚠ Connect the fan to a facility in compliance with RCD (circuit breaker);
- ⚠ The minimum cross section of the connecting cables must be calculated according to the voltage, the power and the distance between source and machinery;
- ⚠ All electrical wiring must be connected in such a way so that you cannot tear or damage it in any way.

7.9 MINIMUM DISTANCES

The distance between the rotating parts of the impeller and the fixed fan must be equal to 1% of the diameter of possible contact and never lower than 2 [mm] or higher than 20 [mm]. These distances are to be considered both in radial and axial direction. **The seals are not subject to such action.**

8. FIRST START-UP – COMMISSIONING – DECOMMISSIONING

8.1 FIRST START-UP

The first start-up must be of short duration to ensure that the rotor of the machine rotates in the correct direction.

In case the fan rotates in the wrong direction (the direction of rotation does not coincide with the pictogram applied on the fan or on the label), then:

- Isolate the fan from the power source;
- Invert the phases in the motor terminal.

8.1.1 ELECTRICAL ABSORPTION MONITORING

When the operating speed of the machine is reached immediately measure the electrical consumption and compare it with the nominal value of the power indicated on the motor nameplate.

In case of abnormal absorption of current, immediately disconnect the power from the motor.



WARNING:

Avoid a lot of consecutive starts of the machinery because the motor would not be able to dispose the accumulated temperature with serious damage to the bearings and the winding with the consequent risk of fire ignition and / or explosion

8.1.2 BEARING TEMPERATURE MONITORING

Verify that the maximum surface temperature of the bearings always remains below 90[°C].

8.1.3 VIBRATIONS MONITORING

Check the machine for the presence of mechanical vibrations in accordance with ISO 14694. Recommendation: repeat the test approximately every 6 months. The maximum allowable vibration intensity is 2.8 [mm / s] (with measurement on the bearing sump motor impeller side or under specific agreements with its customer).

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8.1.4 PROPER OPERATION MONITORING

Please check the functioning of the fan. There should not be unusual vibrations or shocks.

Check abnormal noise of the bearings.

It is recalled that most of the drawbacks and failures that may occur during the use of the machine is caused by a relaxation of the fixing members. Since from the first phase of the life of the machine a general settlement of all organs and mechanical / electrical connections is produced, **it is ESSENTIAL after 1 hour of operation to perform a check of the machine with the utmost care** and in particular to check that all bolts are tight and if necessary repeat the tightening.

If there are transmission belts, after one hour of continuous operation please stop the fan and check that the belt tension is correct, if necessary, re-tension the belts; after 3-4 days of continuous operation, recheck the belt tension.

8.2 COMMISSIONING

For the commissioning of the machine it is necessary that it successfully passes all the checks listed below.

- Bearing temperature <90 [°C];
- Bearing vibrations <2.8 [mm / s];
- Operation Speed [RPM] coincides with the value shown on the nameplate of the fan;
- Check the noise level [dB (A)] defined in the environmental impact analysis carried out at the beginning of the project;
- Check the assembly clearances, verification of the correspondence with the data shown in the typical section of the fan and in the typical installation of any protective casing of the transmission;
- Check spare parts according to the CIESSE S.r.l. instructions (list on request);
- Check compliance of environmental data with those indicated on the bid form and on the rating plate of the fan:
 - Ambient temperature [°C];
 - Temperature at the inlet [°C];
 - Temperature at the fan [°C];
 - Static pressure / total inlet pressure [Pa];
 - Static pressure / total pressure [Pa].
- Check compliance of the motor with the data shown on the nameplate:
 - Voltage [V];
 - Power [A];
 - Link (Triangle - Star).
- CHECK THE CORRECT LINK OF GROUNDING POINT;
- Check the condition of the bearings and the level of lubrication (in the case of transmission fans)

The final unit cannot be commissioned until when it has not been declared in conformity with the provisions of the Machinery Directive 2006/42/EC.

It is not allowed to commission the fan, before this do not comply, in site, with directives 2006/42/EC.

The **free impeller fans** are characterized by a free rotating impeller without protection; if necessary, please ask specific measures and security guards. (Safety ingestion grid UNI EN ISO 13857).

Keep in mind that the fan must always be installed in accordance with EC rules.

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8.2.1 BREAK-IN

All the CIESSE machinery must be subjected to a break-in period of 100 hours.

	<u>WARNING:</u> <i>In the early hours of operation it is recommended not to put the machinery in particularly critical working conditions (excessively higher or lower temperature than that of project - "over run" ...)</i>
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After the break-in tightening the connection and fastening bolts and the replacement of the lubricant is recommended (except for sealed items), to ensure greater reliability and durability of the machine.

8.2.2 CHECKS DURING OPERATION

Every:

- **1200** hours of operation in case of **clean fluid**;
- **800** hours of operation in case of **slightly dusty fluid**;
- **600** hours of operation in case of **moderately dusty fluid**;
- **300** hours of operation in case of **dusty fluid**;
- **150** hours of operation in case of **extremely dusty fluid**.

It is recommended to check:

- Bearing temperature <90 [°C];
- Vibrations of the bearings <2.8 [mm / s];
- Condition of the bearings and level of lubrication (in case of fans transmission);
- The correct connection of the grounding points;
- The status of the impeller and its degree of wear and tear;
- If present, the current state of the transmission system and its degree of wear and tear;
- The status of the drive motor ;
- The status of the anti-vibration joints;
- The level of tightness of all hardware;
- The accumulation of dust on the internal and external parts of the machine.

For more intense work cycles please contact CIESSE S.r.l. for more detailed information on the timing of the controls during operation.

8.3 DECOMISSIONING – DEMOLITION – DISPOSAL

8.3.1 DECOMISSIONING

Please isolate the electrical system and provide it with a system of prevention of erroneous ignitions.

	<u>WARNING:</u> <i>The electrical disconnection must be performed only by qualified personnel who have suitable technical training and in full compliance with current regulations.</i>
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Wait until all rotating parts (rotor - motor - pulleys - slings ...) are firm and safe, then remove the machine from the place paying close attention to what is around.

8.3.2 DEMOLITION

	<u>AVOID RELEASE TO THE ENVIRONMENT.</u> <i>Before demolishing the machinery it is necessary to separate the parts made of plastic or rubber from electrical and electronic equipment. Recover any oil waste and dispose them in special centers. Parts consisting solely of plastic, aluminum, steel can be recycled if collected by specific centers.</i>
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8.3.3 DISPOSAL

Confer the dismantling of machinery in appropriate collection points provided.
Do not leave the machine or parts of it in transit areas as this could pose serious danger to people, vehicles and animals, any liability shall be allocated **only** to the owner of the machine.

CIESSE S.r.l. is not liable for any environmental damage caused by a not having provided the machine or its parts / components in an inadequate place.

9. START-UP – OPERATION – SHUTDOWN – EMERGENCY STOP

This chapter describes the recommended actions for start-up, operation and shutdown of the unit.

9.1 START – UP

	<u>WARNING:</u> <i>Avoid a number of consecutive starts of machinery because the motor would not be able to dispose of the accumulated temperature with serious damage to the bearings and the winding with the consequent risk of fire ignition and / or explosion.</i>
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Before starting the motor please carry out a series of checks:

- Check the tightness of the bolts holding the fan to the foundation / base / support;
- Check the tightness of the bolts holding the accessories and the protections installed;
- Check by turning by hand and by safe machine, that all moving parts (rotor, transmission, drive shaft) have no impediments of any kind;
- Ensure that all safety systems are working properly;
- For units equipped with variable frequency drive (inverter), make sure that you have set the parameters for the minimum acceptable speed. Consult the manufacturer of the VFD to know the minimum recommended speed and get directions to the exclusion of the resonance frequencies;
- Check that the fan is grounded with the screw;
- Make sure that the motor is connected to the supply line.

It is the responsibility of the purchaser / installer to check all the remaining requirements of safety at work.

9.2 OPERATION

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CIESSE machinery are made with high quality materials and components so as to ensure a long life to the product.

All CIESSE S.r.l. impellers, prior to their installation, are balanced both statically and dynamically in accordance with ISO 1940/1 with balancing grade of 6.3 and marked by the CERTIFICATION LABEL. It is advisable to check periodically and whenever you detect malfunctions and / or the noise of machinery:

- The absence of loose clamping bolts;
- The efficiency of the type of mechanism used for the transmission of motion;
- The lubrication and the state of the lubricant of all rotating parts subjected to stress;
- The power absorbed by the motor ;
- The rotation speed of the motor and / or of the impeller;
- The temperature of the motor ;
- The vibration intensity;
- Whether there are unusual noise or intensity beyond measure.

	<u>WARNING:</u> <i>Specified values of power consumption, motor temperature, intensity of vibration or noise can be a symptom of a problem to the machine / plant. Should the situation not be transient then arrange to inspect / maintain the machinery / plant.</i>
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9.2.1 NOISE

The noise values of CIESSE S.r.l. machinery are expressed in [dB (A)] i.e. weighted decibels according to the audio band (scale A) and are obtained through measurements performed in free field at the point of maximum output on the 4 cardinal points of the machinery and at a distance equal to 1.5 [m]. **When measuring, the fan was channeled as reported in the UNI 10531 and noise values measured are subject to a tolerance of +3 [dB (A)].**

The sound pressure level in the environment of actual operation of the machine depends both on operational factors (flow, pressure, performance of the machine, type of pipes, the presence or absence of machinery soundproofing systems...) and on environmental factors (acoustic characteristics of the installation site) and may influence substantially on the noise level of the machine. To ensure noise levels at the site of operation of the machine below the preset thresholds preventive ambient noise studies are needed, IT IS NOT ENOUGH THAT THE MACHINE HAS A NOISE LEVEL LESS THAN OR EQUAL TO THE SAME LEVEL THRESHOLD.

 	<u>USEFUL INFORMATION:</u> <i>Pay close attention to people noise exposure and the staff who is in close proximity of machinery for a long time. Prolonged exposure to excessive noise levels can cause feelings of nausea, headache, irritability and loss of hearing (temporary or, in severe cases, permanent). Local legislation defines the time of exposure of personnel in relation to the characteristics of sound output (intensity - nature - duration), it is recommended to strictly adhere to the resolutions. CIESSE S.r.l. MAY NOT BE LIABLE TO CIVIL AND / OR CRIMINAL PENALTIES FOR INJURY AND / OR PERSONAL also undesired BY NON-LOCAL LAWS IN FORCE IN THE MATTER.</i>
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 	<u>WARNING:</u> <i>If you must work near the machine while in operation for a long time, it is recommended to wear suitable, undamaged and certified hearing protection devices.</i>
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9.3 SHUTDOWN

The arrest of machinery can only be done by removing power to the motor unit.

	<u>WARNING:</u> <i>Do not try to slow down the rotation of the impeller using braking systems of any kind since this could compromise the efficiency of the motor and convey excessive mechanical stress on the transmission system.</i>
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Once the power supply to the machine motor is interrupted, the rotor, due to the high moment of inertia, may remain in rotation for a few minutes.

	<u>WARNING:</u> <i>Do not try to reduce the stopping time of the impeller through the use of braking systems of any kind, nor even by introducing foreign bodies or limbs in the impeller blades because you will almost certainly damage the blades; this would alter the balance of the impeller or worse the limb might be amputee.</i>
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9.4 EMERGENCY STOP

	<u>WARNING:</u> ALL CIESSE S.r.l. FANS SYSTEMS ARE NOT EQUIPPED WITH QUICK STOP IN CASE OF EMERGENCY.
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10. CLEANING

The cleaning of the unit must be done every:

- **1200** hours of operation in case of **clean fluid**;
- **800** hours of operation in case of **slightly dusty fluid**;
- **600** hours of operation in case of **moderately dusty fluid**;
- **300** hours of operation in case of **dusty fluid**;
- **150** hours of operation in case of **extremely dusty fluid**.

During all cleaning operations the machine must be stopped, the motor must be isolated from the electrical box and the latter must be equipped with a prevention of erroneous ignition system.

In any case, report the presence of personnel working on the machine using the appropriate reporting systems (signs and / or barriers).

Define the work area so that unauthorized personnel cannot access the workspace, thus creating potentially dangerous situations for themselves, for the operators and for the machine.

Comply with the requirements related to safety at work (wear suitable PPE, undamaged and certified) and always use common sense and responsibility in every action.

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WARNING:

It is absolutely forbidden to use high pressure jets of water for general cleaning. Cleaning with water on electrically live parts can cause electrical shock resulting in DANGER OF DEATH.

Before restarting the machine please make sure that nothing is left inside.



WARNING:

At the end of each cleaning operation it is necessary to rerun all of the checks pointed out in this manual, paragraph 12.3.3 (PROPER OPERATION) and 15.2 (START-UP)

If there were out of range vibrations or acoustic anomalies it is necessary to repeat the cleaning of the impeller and if these abnormalities persist please contact CIESSE Customer's Service.

10.1 IMPELLER CLEANING



WARNING:

Do not remove the impeller for any reason, the removal of the impeller will void the product's conformity with the relevant regulations and any warranty.

The traces of deposits and / or dirt can cause an imbalance of the impeller and damages (risk of fatigue failure), so please return the impeller to CIESSE S.r.l., after advance arrangements for the cleaning and the new balancing.



USEFUL INFORMATION:

It is absolutely forbidden to use abrasive cleaning systems (because it causes the imbalance of the impeller) and / or solvents which are chemically aggressive to the materials and for the paint as well (because this would give rise to imbalances and / or changes that can compromise the strength features of the parts).

In case the impeller cleaning becomes necessary with a high frequency it is recommended the replacement of it with a blade having a special profile.



WARNING:

CIESSE S.r.l. is not liable for damages due to the presence of dirt on the impeller. In case of treatment of gaseous or dusty areas where there are dispersed particles of adhesives and / or resins, it is recommended to inspect the impeller more frequent than normal.

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10.2 CASE AND INLET CONE

The traces of dirt, dust accumulations and / or foreign bodies that may have accumulated over time on the case or on the inside and / or on the Inlet Cone or on the inside, must all be / removed / using air jets at high pressure or wet cloth.

	<u>WARNING:</u> It is <u>absolutely forbidden</u> to use abrasive cleaning systems (because it causes the imbalance of the impeller) and / or solvents which are chemically aggressive to the materials and for the paint as well (because this would give rise to imbalances and / or changes that can compromise the strength features of the parts).
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 	<u>WARNING:</u> While removing dust accumulations please take care to limit the dispersion of it in the air (there is the risk of creating potentially explosive atmospheres) and use protection mask (there is the risk of suffocation).
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	<u>AVOID RELEASE TO THE ENVIRONMENT.</u> The residues of cleaning must be stored in special containers and be disposed as provided by law and / or by the Product Safety Data Sheet.
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10.3 PULLEYS (if present):

The traces of dirt, dust accumulations and / or oil / grease spills from the lubricant bodies must be all removed using jets of air at high pressure and possibly wet cloth.

	<u>WARNING:</u> It is <u>absolutely forbidden</u> to use abrasive cleaning systems (because it causes the imbalance of the impeller) and / or solvents which are chemically aggressive to the materials and for the paint as well (because this would give rise to imbalances and / or changes that can compromise the strength features of the parts).
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 	<u>WARNING:</u> While removing dust accumulations please take care to limit the dispersion of it in the air (there is the risk of creating potentially explosive atmospheres) and use protection mask (there is the risk of suffocation).
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	<u>AVOID RELEASE TO THE ENVIRONMENT.</u> The residues of cleaning must be stored in special containers and be disposed as provided by law and / or by the Product Safety Data Sheet.
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10.4 BELTS (if present):

The traces of dirt, dust accumulations and / or oil / grease spills from the lubricant bodies must be all removed using jets of air at high pressure and possibly wet cloth.

	<u>WARNING:</u> It is <u>absolutely forbidden</u> to use abrasive cleaning systems (because it causes the imbalance of the impeller) and / or solvents which are chemically aggressive to the materials and for the paint as well (because this would give rise to imbalances and / or changes that can compromise the strength features of the parts).
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 	<u>WARNING:</u> While removing dust accumulations please take care to limit the dispersion of it in the air (there is the risk of creating potentially explosive atmospheres) and use protection mask (there is the risk of suffocation).
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	<u>AVOID RELEASE TO THE ENVIRONMENT.</u> The residues of cleaning must be stored in special containers and be disposed as provided by law and / or by the Product Safety Data Sheet.
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10.5 COUPLINGS:

The traces of dirt, dust accumulations and / or oil / grease spills from the lubricant bodies must be all removed using jets of air at high pressure and possibly dry cloth.

	<u>WARNING:</u> It is <u>absolutely forbidden</u> to use abrasive cleaning systems (because it causes the imbalance of the impeller) and / or solvents which are chemically aggressive to the materials and for the paint as well (because this would give rise to imbalances and / or changes that can compromise the strength features of the parts).
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 	<u>WARNING:</u> While removing dust accumulations please take care to limit the dispersion of it in the air (there is the risk of creating potentially explosive atmospheres) and use protection mask (there is the risk of suffocation).
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	<u>AVOID RELEASE TO THE ENVIRONMENT.</u> The residues of cleaning must be stored in special containers and be disposed as provided by law and / or by the Product Safety Data Sheet.
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10.6 SUPPORTS

The traces of dirt, dust accumulations and / or oil / grease spills from the lubricant bodies must be all removed using jets of air at high pressure and possibly dry cloth.

	<u>WARNING:</u> <i>All operations of INSPECTION and MAINTENANCE must be performed by qualified, trained and authorized personnel.</i>
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	<u>WARNING:</u> <i>It is <u>absolutely forbidden</u> to use abrasive cleaning systems (because it causes the imbalance of the impeller) and / or solvents which are chemically aggressive to the materials and for the paint as well (because this would give rise to imbalances and / or changes that can compromise the strength features of the parts).</i>
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 	<u>WARNING:</u> <i>While removing dust accumulations please take care to limit the dispersion of it in the air (there is the risk of creating potentially explosive atmospheres) and use protection mask (there is the risk of suffocation).</i>
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	AVOID RELEASE TO THE ENVIRONMENT. The residues of cleaning must be stored in special containers and be disposed as provided by law and / or by the Product Safety Data Sheet.
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	<u>WARNING:</u> <i>After replacing or topping up of lubricants please clean the surface of the machinery (WITHOUT USING SOLVENT OR CHEMICALLY AGGRESSIVE PRODUCTS) and the walking surfaces next to the area of intervention.</i>
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10.7 SAFETY GRID

The traces of dirt, dust accumulations and / or oil / grease spills from the lubricant bodies must be all removed using jets of air at high pressure and possibly dry cloth.

	<u>WARNING:</u> <i>It is <u>absolutely forbidden</u> to use abrasive cleaning systems (because it causes the imbalance of the impeller) and / or solvents which are chemically aggressive to the materials and for the paint as well (because this would give rise to imbalances and / or changes that can compromise the strength features of the parts).</i>
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 	<u>WARNING:</u> <i>While removing dust accumulations please take care to limit the dispersion of it in the air (there is the risk of creating potentially explosive atmospheres) and use protection mask (there is the risk of suffocation).</i>
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WARNING:

After replacing or topping up of lubricants please clean the surface of the machinery (WITHOUT USING SOLVENT OR CHEMICALLY AGGRESSIVE PRODUCTS) and the walking surfaces next to the area of intervention.



AVOID RELEASE TO THE ENVIRONMENT.

The residues of cleaning must be stored in special containers and be disposed as provided by law and / or by the Product Safety Data Sheet.

11. INSPECTION – ROUTINE MAINTENANCE – EMERGENCY MAINTENANCE

In this section of the manual are listed the main maintenance operations of machines to perform every:

- **1200** hours of operation in case of **clean fluid**;
- **800** hours of operation in case of **slightly dusty fluid**;
- **600** hours of operation in case of **moderately dusty fluid**;
- **300** hours of operation in case of **dusty fluid**;
- **150** hours of operation in case of **extremely dusty fluid**.



WARNING:

All maintenance operations must be conducted after having placed in safety the fan and in any case having stopped and possibly blocked the impeller and the electrical circuit of the fan interrupted and secured against accidental ignition.

The maintenance operations may result in the removal of protections available to safeguard the safety of people and machinery as well as the partial disassembly of the components of the same and / or plant enslaved.



WARNING:

Experiencing noticeable breakage, deformation, irregularity, etc., stop any operation in progress, disconnect the machine from the power supply line and request the assistance of skilled personnel authorized by the manufacturer.

During both ordinary and emergency maintenance work comply with the safety standards and the requirements for work.

11.1 BEHAVIOUR DURING INSPECTION AND MAINTENANCE



WARNING:

Before undertaking any maintenance, ensure that you have secured the machinery, that all moving parts have stopped, the electrical control panel has been disconnected and that its accidental starting is prevented, have reported the presence of operators to work and that the work area is defined with appropriate systems.

Do not use controls, hoses or electrical connection wires as footholds since elements are instable and do not provide a steady support.

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Notify any changes or tampering of the machine compared to the previous control. Tampering and modifications (unauthorized) may cause security problems and the cessation of the validity of the warranty. Otherwise the user will be solely responsible for any accidents and / or physical and economical damage.

11.2 ORDINARY INSPECTION

In relation to the inspection intervals specified in paragraph 11 it is recommended:

- Check the painted metal structures and verify the absence of corrosion and / or excessive sediment of dust on the structure.
- Check the condition of the impeller (verify that there are no cracks, serious damage or excessive buildup of dust on the blades). **It is recalled that in the event that cracks or damages to the impeller are revealed the machine must be immediately disconnected from the power distribution network, blocked and must be made immediate communication to the direction of the plant and to CIESSE S.r.l. To clean the impeller from the dust, instead, you must send it to CIESSE S.r.l. To remove the impeller follow the information given in paragraph 3.5.1.**
- Check the tightness of all bolts and sealing connection.
- Check the screw securing the impeller to the motor shaft.
- Check the motion transmission elements (belts - pulleys - shafts - bearings ...).
- Check the minimum distances and in particular that the interstices between the moving and fixed parts remain unchanged or such as to avoid any possible contact between the parts during operation.
- Check vibrations as referred to in paragraph 8.1.3.
- Check the condition of the seals and check that there are no leakages.

11.3 ORDINARY MAINTENANCE

For ordinary maintenance it is intended cleaning of machinery, lubrication of the parts, clamping and / or replacement of all hardware and / or bolts that, for a scheduled inspection or a simple visual inspection, prove loose or compromised.



WARNING:

For any maintenance operation you need to perform a MINIMUM DISTANCE CONTROL, i.e. you must ensure that the interstices between the moving and fixed parts have not changed or have been reduced to the point of contact between the parts during operation.

If you find that the causes of the reduction of the minimum distances is due to a loosening of the hardware then provide for re-tightening them being careful to observe the tightening torques specified in paragraph 7.4.



WARNING:

If you find that the reduction of minimum distances is due to a deformation of the case or impeller (both the first and the latter event could lead to the replacement of parts or the whole structure / machinery) DO NOT TAKE ANY MAINTENANCE ACTION, but disconnect the machine from the power supply immediately and contact CIESSE S.r.l. technical service.

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11.4 EMERGENCY MAINTENANCE

For emergency maintenance it is intended the whole operation which involves the replacement of parts of machinery which may be compromised as the impeller, the snorkel, the case and the motor .

	<u>WARNING:</u> <i>All operations of EMERGENCY MAINTENANCE must be carried out by CIESSE S.r.l. unless otherwise agreed or the warranty on the machine will fall. CIESSE S.r.l. is not liable for damages caused to people, properties or the downtime of the plant / system related to malfunctions of machinery as a result of EMERGENCY MAINTENANCE not performed by CIESSE S.r.l.</i>
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11.4.1 IMPELLER EMERGENCY MAINTENANCE

	<u>WARNING:</u> <i>Before undertaking the actions described below please make arrangements with CIESSE S.r.l.</i>
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11.4.2 MOTOR EMERGENCY MAINTENANCE

	<u>WARNING:</u> <i>Before undertaking the actions described below please make arrangements with CIESSE S.r.l.</i>
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11.4.3 SAFETY GRIDS EMERGENCY MAINTENANCE

	<u>WARNING:</u> <i>Before undertaking the actions described below please make arrangements with CIESSE S.r.l.</i>
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12. MAINTENANCE REGISTER

In the maintenance register all the operations of both ordinary and emergency maintenance shall be entered. Shall be prepared by the user and should be completed by the maintainer for all maintenance performed, showing both the result of this / these transaction / s and any records of interest.

In the register of maintenance must be also clearly identifiable the maintainer name as well as the date of the connected operation.

	<u>WARNING:</u> <i>The incorrect compilation of the maintenance register will void the warranty of CIESSE S.r.l. on the machine.</i>
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12.1 REGISTER STRUCTURE

The register must be made up of a number of pages equal to the number of components indicated below:

ORDINARY MAINTENANCE REGISTER:

- EARTH MOUNTING BOLTS / SUPPORT STRUCTURE;
- BOLTS OF CONNECTION TO: INLET CONE, AEREAULIC PIPELINE OR ELEMENTS OF NOISE MITIGATION (SILENCERS);
- MOTOR AND ELECTRICAL CONNECTIONS;
- BEARINGS
- PULLEYS;
- TRANSMISSION BELTS;
- IMPELLER – IMPELLER BLADE;
- IMPELLER CASE;
- ANTIVIBRATION JOINTS;
- FLEXIBLE JOINTS;
- SAFETY GRIDS.

EMERGENCY MAINTENANCE REGISTER:

- IMPELLER;
- IMPELLER CASE;
- MOTOR ;
- SAFETY GRID;
- TRANSMISSION (BELTS– PULLEYS);
- BEARINGS.

Manutenzioni mensili/semestrali				
Componente:				
Data	Operazione	Esito	Firma	Nota

13.LUBRICATION

The careful interventions management of machinery and mechanisms lubrication is a necessary condition to guarantee both the efficiency of the machinery and its effective compliance with the service for which it is in charge.

All lubricants degrade with time and the reducing power of friction depends on the operating temperature of the lubricant. The frequency of replacement of lubricating oils must be in accordance with the following

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table, unless in the manual of use and maintenance of the lubricant used, the words "LUBRICATED FOR LIFE" are mentioned.

Temperatura olio [°C]	Intervallo di lubrificazione	
	Olio minerale	Olio sintetico
< 60	8000	25000
60 - 80	4000	15000
80 - 95	2000	12500



WARNING:

Recommended oil: please contact CIESSE S.r.l.

NEVER mix synthetic oils with mineral-based oils.

Never mix oils belonging to different technologies (PAG technology is not compatible with PAO).

Do not lubricate elements insufficiently or excessively in order to avoid overheating and breakdown of the parts.

Always check the functionality of the sealing element.

The range of replacement of grease is 2000 hours at a temperature of 80 [°C] and halves / doubles for every increase / decrease in temperature of 10 [°C].



WARNING:

Recommended grease: please contact CIESSE S.r.l.

NEVER mix greases that do not have the same base mineral oil;

NEVER mix with each other greases that do not have the same base oil viscosity;

NEVER mix greases that do not have the same type of thickener;

NEVER mix with each other greases that do not have the same consistency (NLGI class);

Do not lubricate elements insufficiently or excessively in order to avoid overheating and breakdown of the parts.

Always check the functionality of the sealing element.

In order to avoid damage to equipment and / or parts of it, it is necessary to carry out the restoration or renovation of lubricant when the time indicated above has elapsed.



DO NOT DISPOSE OF WASTE OILS AND GREASES IN THE ENVIRONMENT.

The waste oils and greases are extremely pollutant products for both the environment and the waters. It is therefore recommended to collect and dispose / transfer them in the areas which are suitable for this purpose or to provide contact with a company specialized in the collection, recycling and / or disposal of greases and oils.

CIESSE S.r.l. is not liable for any environmental damage caused by not having delivered the exhausted oils and greases in the provided place or by having transferred them in an inappropriate place.

14. SPARE PARTS



WARNING:

All CIESSE machinery must be fitted with original spare parts only. CIESSE S.r.l. ASSUMES NO LIABILITY FOR PERSONAL INJURY CAUSED BY THE USE OF OTHER PARTS.

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Spare parts may be obtained directly from CIESSE S.r.l. indicating in the order:

- The machinery series number;
- The machinery number;
- The machinery characteristic measures;

(Example: **MACHINERY SERIES NUMBER: TS; MACHINERY NUMBER: 300; CHARACTERISTIC MEASURES: 315 [mm]**)

If present, the components of transmission groups, such as pulleys, bushings, V-belts and bearings are normally available on the market (its manufacturers are also indicated by CIESSE S.r.l.) so the user can order spare parts directly from the original manufacturer. In case of necessity, through its service, CIESSE S.r.l. is always available to provide spare parts directly from its stock.

Nelle applicazioni gravose e/o laddove un eventuale tempo di "fermo macchina" per riparazioni comporterebbe maggiori costi alla vostra attività, CIESSE consiglia di tenere a disposizione in magazzino le seguenti parti di ricambio:

In heavy-duty applications and / or where any time of "downtime" for repairs would result in higher costs to your business, CIESSE S.r.l. advise you to keep available in stock the following parts:

- impeller;
- shaft;
- pulleys;
- V-belts;

The list for spare parts for special applications is available on request at CIESSE S.r.l.

N° PROGRESSIVO	DESCRIZIONE	N° PROGRESSIVO	DESCRIZIONE
1	Inlet grid	14	Inlet flange Silicone seal
2	Inlet cone	15	Outlet flange Silicone seal
3	Impeller head bolt	16	Inspection door Silicone seal
4	Head washer	17	Inspection door
5	Impeller	18	Fan hardware
6	Outlet Grid	19	Sealing ring
7	Nameplate	20	Plate ring housing
8	Pulley	21	Bolts
9	Protective cover straps	22	Monobloc shaft
10	V-belt	23	Monobloc cover
11	Motor	24	Inlet antidumping coupling
12	Protective cover crankshaft	25	Outlet antidumping coupling
13	Fan case	26	Basement antidumping coupling

CIESSE assistance service is always available for spare parts and technical assistance.

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15. FAULTS AND REMEDIES

Problem	Cause	Corrective action
Machinery does not start	Power supply	Check that the main power switch of the machine electrical control panel is to the ON position.
	Power supply	Check that fuses are not blown.
	Power supply	Check the correct voltage of the supply tension.
	Electrical connection	Check the correct execution of all connections in the terminal box of the electric motor .
	Motor Fault	Sostituire il motore.
	Mechanics	Controllare che tutte le cinghie di trasmissione siano integre
		Controllare la tensione delle cinghie di trasmissione
		Controllare il serraggio delle pulegge
	Wrong motor dimension	Replace the motor .
The motor is overheated	Overcharge	Make sure that the mechanical parts driven by the motor are not subject to unexpected or not expected resistances.
	Wrong motor dimension	Replace the motor .
	Too long starting time	Impeller PD2 was underestimate, replace the motor .
		Correct the starting method.
Excessive power consumption	Circuit	The load losses were underestimated and the working point is different from the project point.
		Check for proper operation of the dampers, batteries and by-pass.
		Check the tightness of the inspection door.
		Check the filter conditions.
	Motor Fault	Replace the motor .
	Wrong motor dimension	Replace the motor .
	Impeller	Check the RPM.
		Check the direction of rotation of the impeller.
Overheated bearings	Lubrication	Check that the grease in the bearings is not: excessive, insufficient or degraded.
	Damage	Replace the bearings.
	Transmission	The tension of the transmission belts is excessive.
	Mechanics	The bearings are not aligned properly.
	Mechanics	The drive shaft is not straight.
Lubricant losses	Worn or defective sealing rings	Replace the sealing rings.
	Worn sealing seat on the shaft	Replace the sealing rings or the shaft.

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Problem	Cause	Corrective action
Excessive or abnormal noise	Impeller	Check the minimum distances.
		Tighten the impeller hub.
		Check that there are no excessive obstructions at the mouth of pressure (severe and intermittent noise) or suction (high-pitched and continuous noise)
		Clean the dirt that has deposited on the blades.
		Re-balance.
	Case/Cochlea	Check the minimum distances.
	Mechanics	Tighten collars and Inlet Cone.
		Tighten the bearing collars on the shaft.
		Lubricate the bearings.
		Replace the faulty bearings.
		Tighten the pulleys on the motor shaft / impeller.
		Check for proper belt tension.
		Check the state of wear of the belts.
		Check the alignment of the pulleys.
	Motor	The motor operates at a phase.
		There is an electric imbalance in the motor.
Excessive or abnormal vibrations	Impeller	Check / re-balance the impeller.
	Mechanics	Replace the bearings.
		Replace the anti-vibration joints.
Low capacity	Circuit	Check for leaks in the air flow system.
		Check that the devices for regulating the flow have the correct degree of openness.
		The circuit was improperly dimensioned.
		Check that there are no leaks from the seals and the sealing elements.
		Check that there are no abnormal or unforeseen obstructions in the air flow system.
	Fan	Check that the impeller rotates in the correct direction.
		Check the angle of incidence of the impeller blades.
High capacity	Circuit	Check that the devices for regulating the flow have the correct degree of openness.
		The circuit was improperly dimensioned.
		Silencers not installed.
		Filters not installed.
		Safety grids not installed.
	Fan	Excessive impeller speed.
		Check the angle of incidence of the impeller blades.

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17. ATTACHED DOCUMENTS

17.1 ATTACHEMENT 1 (CONFORMITY DECLARATION FAC SIMILE)

DICHIARAZIONE DI CONFORMITÀ AI SENSI DELLA DIRETTIVA MACCHINE 2006/42/CE
DECLARATION OF CONFORMITY IN COMPLIANCE WITH THE Machinery Directive 2006/42/EC
DECLARATION DE CONFORMITÉ SELON LA DIRECTIVE MACHINES 2006/42/CEE
KONFORMITÄTSERKLÄRUNG GEMÄSS DER MASCHINENRICHTLINIE 2006/42/EWG
DECLARACIÓN DE CONFORMIDAD SEGÚN DIRECTIVA MÁQUINAS 2006/42/CE
Costruttore/ Manufacturer/ Constructeur/ Erbauer/ Constructor:

Ciesse S.R.L.
Via U. Boccioni 5 - Z.I. Mancasale
42124 Reggio Emilia - Italy
Tel. +39/0522.517829 Fax +39/ 0522.513566

MP

FTP806 1.1KW 6P B3 10/40

MODELLO/Model/Modèle/mode/mode

CODICE/Code/Código/Código/Modelo

A 20##-####-#####

01/01/20##

**MATRICOLA/Serial No/Numero de serie/Serien-NR/Matricula/N.de
serie**

DATE/Date/Date/Datum/feca

Noi firmatari della presente dichiariamo, sotto la nostra esclusiva responsabilità, che i ventilatori Serie **ES-PMA-PMA/c-MP-MQBQ-MQBC-LQ-LP-TS-SCATTER-TE-TR**, costruiti nella nostra azienda con sede a **Reggio Emilia** in Via U. Boccioni 5 - Z.I. Mancasale, destinati allo spostamento dell'aria, sono conformi a quanto prescritto dalla direttiva macchine **2006/42/CE**.

Pertanto, I ventilatori sopracitati, se sprovvisti di griglia di protezione sulla flangia d'entrata e premente, non possono essere messi in funzione se non canalizzati in aspirazione e in mandata.

Inoltre, si dichiara che i ventilatori sono conformi a quanto prescritto dalle direttive:
2004/108/CE (direttiva compatibilità elettromagnetica)
2006/95/CE (direttiva bassa tensione)

L'ufficio Tecnico sito nella sede aziendale è autorizzato alla costruzione e alla compilazione del fascicolo tecnico.

We the signer of this letter declare, under our own responsibility, that the blowers **Series ES-PMA-PMA/c-MP-MQBQ-MQBC-LQ-LP-TS-SCATTER-TE-TR**, manufactured in our company located in **Reggio Emilia** in Via U. Boccioni 5 - Z.I. Mancasale, intended for air displacement, are in according to the Machinery Directive **2006/42/EC**.

The above-mentioned fans without protection grid on inlet and outlet flange, can be started only if canalized both in suction and delivery.

Moreover, we declare that the blowers conform with what has been established by the:

2004/108/EC (electromagnetic compatibility directive)

2006/95/EC (low voltage directive)

The technical office site in our company is authorized to set up and at 'filing of the technical file

nous soussignés, déclarons par la présente, sous notre entière responsabilité, que les ventilateurs **Série ES-PMA-PMA/c-MP-MQBQ-MQBC-LQ-LP-TS-SCATTER-TE-TR**, réalisés par notre entreprise dont le siège est à **Reggio Emilia** in Via U. Boccioni 5 - Z.I. Mancasale, destinés au déplacement de l'air, sont conformes à ce qui est prévu par la directive machines **2006/42/CEE**.

Les ventilateurs mentionnés ci-dessus sans grille de protection sur la bouche d'entrée et du refoulement, ne peuvent pas être mis en service sans être canalisés en aspiration et en refoulement.

En outre, nous déclarons que les ventilateurs sont en conformité avec les dispositions des directives:

2004/108/CEE (directive compatibilité électromagnétique)

2006/95/CEE (directive basse tension)

Le Bureau Technique ciesse est autorisée à la création et l'archivage de la documentation technique

Wir, die der Unterzeichneten erklären, unter unserer eigenen Verantwortlichkeit, daß die Ventilatoren **Reihe ES-PMA-PMA/c-MP-MQBQ-MQBC-LQ-LP-TS-SCATTER-TE-TR**, hergestellt in unserer Firma in **Reggio Emilia** in Via U. Boccioni 5 - Z.I. Mancasale, beabsichtigt für Luftversetzung, passen Sie sich mit an, sind in Übereinstimmung mit der Maschinenrichtlinie **2006/42/EWG**.

Die oben genannten Ventilatoren ohne Schutzgitter auf der Einlass- und der Mund können nicht in Betrieb genommen werden, wenn sie saug- und druckseitig nicht kanalisiert sind.

Außerdem erklären wir, daß die Gebläse sich anpassen mit, was durch hergestellt worden ist:

2004/108/EWG (elektromagnetische Kompatibilität Richtlinie)

2006/95/EWG (Niederspannung Richtlinie)

Die Technische Abteilung vor Ort an der Unternehmenszentrale ist die Schaffung genehmigten und Archivierung von technischen Unterlagen.

Nosotros, firmantes de la presente, declaramos bajo nuestra exclusiva responsabilidad, que los ventiladores **Serie ES-PMA-PMA/c-MP-MQBQ-MQBC-LQ-LP-TS-SCATTER-TE-TR**, construidos en nuestra empresa con sede en **Reggio Emilia** in Via U. Boccioni 5 - Z.I. Mancasale, destinados al movimiento de aire son conformes según a Directiva de maquinaria **2006/42/CE**.

Los ventiladores arriba mencionados, si son sin rejilla de protección en la boca de la entrada y la presión pueden ser puestos en servicio sólo canalizados en aspiración y en impulsión.

Por otra parte declaramos que los ventiladores son conformes a las condiciones de las siguientes directivas:

2004/108/CE (compatibilidad electromagnética directiva)

2006/95/CE (tensión directiva)

Reggio Emilia,

CIESSE
AXIAL AND CENTRIFUGAL FANS
L'Amministratore Delegato
The General executive manager
Le directeur exécutif général
Der allgemeine Executivmanager
El encargado ejecutivo general
Carlo Moro

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6.1 ATTACHEMENT 2 (BALANCING CERTIFICATION FAC SIMILE)

File No.: IT13/003798

Ordine N.: 39901

Codice: 300/5/PPG/5ZL/1

Inclinazione pale: 30 deg.

Statically Balanced to: G6.3 @ 1450 RPI

7. REVISION DIARY

Rev. N.	Date	Changes made / Cause of Revision
00	01/01/2010	First emission