

# ***SUPER POLAR HVLS***



**Instruction Manual**



Reading this Manual and the enclosed Assembly Manual is obligatory, before installing or working on the machine.

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## 1 - INTRODUCTION

### 1.1. General warnings

- Make sure you have a complete copy of this manual and the enclosed Assembly Instructions available. Read both documents fully and make sure you understand them adequately before proceeding with subsequent steps. If you have any doubt about a task to be carried out, apply the criterion of maximum personal and collective safety. Immediately interrupt your work, make everything done so far in complete safety, and ask for adequate instructions, if necessary, from the manufacturer as well.
- Check the integrity of the equipment when opening the packaging. Pay particular attention to damage to or deformation of mechanical parts, which may result in breakage and/or malfunctions when in use. If any of these are found, do not connect the machine to the power supply. Carry out these checks every time before use.
- Before connecting the machine to the power supply, check that the indications on the data plate correspond to the electricity supply. The data plate is located on the electronic motor (see par. 1.9).
  - Each and every person that may come into contact in any way with the product marketed by Maico Italia S.r.l., and described here, must be adequately informed by the purchaser of about use, risks, dangers and safety procedures, in the ways provided for by law and as described below in this document.
- Conform to the safety norms indicated for electrical equipment, and especially:
  - o Conform to the assembly and installation instructions for the equipment.
  - o Do not put items on top of the ceiling fan, and do not hang anything from the ceiling fan's blades.
  - o Do not allow children and/or incapable or untrained personnel to use the device or go near it without the necessary supervision.
  - o Adequately train employees on use of the machine and risks associated with its use.
  - o Do not touch the ceiling fan when it is running, or immediately after it has stopped. Remember that the motor could be hot.
  - o Never immerse the equipment in water or any other liquid, and do not use water, especially pressurised, for washing or cleaning the fan or its parts. This equipment is not designed to be impermeable to water. Do not touch the equipment if it gets wet by accident. Immediately disconnect the power supply by switching off the switch on the electrical panel for the your system, and immediately disconnect the feeder before touching the equipment. Use suitable means to indicate that reinstating the power supply at the panel is forbidden.
  - o
  - o Do not touch the equipment with wet and/or damp hands.
  - o Do not use accessories, spare parts and/or components that are not indicated or supplied by the manufacturer.
  - o Do not pull the power supply cable or expose it to a risk of being sheared.
  - o If a fault occurs and/or the equipment works badly, switch it off immediately and disconnect the power supply. Use suitable means to indicate that reinstating the power supply at the panel is forbidden. Do not attempt to open or tamper with the equipment. Contact Maico Italia S.r.l.'s technical service department.

### 1.2. Warnings for correct disposal of the product

In terms of European Directive 2002/96/EC.

At the end of its working life, the product must not be disposed of with urban waste.

It can be taken to specific separated collection centres set up by the municipality, or to dealers who provide this service. Disposing of the product separately makes it possible to avoid negative consequences for the environment and for health, resulting from inadequate disposal, and it also makes it possible to recycle the materials of which it is made, in order to achieve significant savings in terms of energy and resources.

### 1.3. Conventions used in this manual

The Manual is broken down into independent chapters, each of which is addressed to a specific type of operator (INSTALLER, MACHINE OPERATOR AND MAINTENANCE TECHNICIAN), for which the skills required to operate on the machine in safety have been defined.

The sequence of the chapters follows the temporal logic of the machine's lifespan.

To facilitate immediate understanding of the text terms, abbreviations and pictograms are used, the meaning of which is indicated below.

The instruction manual is made up of a cover, a list of contents, and a series of chapters (sections).

The front page contains the machine's identity details and model, the revision number of the Instruction Manual and, finally, a drawing of the type of machine described, to help the reader to identify the machine and the relevant manual.

### **ABBREVIATIONS**

Chap. = Chapter

Par. = Paragraph

Pag. = Page

Fig. = Figure

Tab. = Table

### **UNITS OF MEASUREMENT**

The units of measurement used are those from the International System (IS).

## **1.4.Keeping this instruction manual**

The instruction manual, along with the enclosed Assembly Manual, must be kept and must stay with the machine through all changes of ownership that may occur during the machine's lifespan.

Anyone who has to come into contact with the ceiling fan in any way or that is involved with using it (due to proximity of the working area, etc.) must be informed of this manual as well as the enclosed Assembly Manual, and adequately trained by the purchaser / user.

Conservation of the same must be facilitated by handling it carefully, with clean hands and avoiding putting it on dirty surfaces.

The parts must not be removed, torn or arbitrarily changed.

The manual and the enclosed assembly manual must be kept in a place protected against damp and heat, and in the immediately vicinity of the machine to which it relates.

The Manufacturer is able to provide further copies of the Instruction Manual and the enclosed Assembly Manual for the machine, if requested by the User.

Such requests should be sent to [info@maico-italia.it](mailto:info@maico-italia.it).

### **METHOD FOR UPDATING THE INSTRUCTION MANUAL**

The Manufacturer reserves the right to change the design and make improvements to the machine without notifying clients and without updating the Manual or the enclosure already delivered to the user. In addition, if the machine installed on the Client's premises is modified, in accordance with the Manufacturer, and one or more chapters of the Instruction Manual need to be edited, the Manufacturer will send those that have the Instruction Manual and the Assembly Manual the chapters affected by the modification, with the new overall revised version of the same.

The user is responsible for following the indications provided with the updated documentation, for replacing all the old chapters with the new in the copies they have, as well as the front page and contents, and the pages that indicate the new revision status.

The Manufacturer has drawn up this User's and Maintenance Manual and the enclosed Assembly Manual for the purposes laid down by law, in Italian. Any translation, transcribing, summary or change not expressly authorised by Maico Italia S.r.l. or accepted by them, may not be considered to be the manufacturer's user's manual by anyone, for tasks related to the product as described and specified herein, to any extent.

No responsibility is accepted for the consequences of unauthorised changes or translations, or failure to provide this publication to the specific operators who carry out any and every kind of work connected to or related to the ceiling fan. All the Manufacturer's legal obligations are deemed to have been sufficiently fulfilled by making this Manual and the enclosed Assembly Manual available in hard copy and/or electronic format, to each purchaser of the product.

Any irregularities or anomalies related to the availability of this document must be immediately made known to the manufacturer by the person involved, so that necessary remedies can be effected quickly.

Maico Italia S.r.l. does not accept any responsibility for a lack of knowledge of this document by any user.

!! Should the purchaser transfer the product to anyone else in the future, they are specifically obliged to provide the new owner with this manual and its enclosure, at the time of transfer.

!! Should the user not have the manual or enclosed assembly manual available for any reason, or should they doubt that the version they have is up to date with normative or product changes, they are free to ask the manufacturer to issue them with the latest version, by contacting: [info@maico-italia.it](mailto:info@maico-italia.it)

## 1.5.Recipients

This Manual and the enclosed Assembly Manual are addressed to: the Installer, Operator, and Qualified Personnel authorised to carry out maintenance tasks in the machine.

<b>EXPOSED PERSON:</b>	This means any person who may find themselves fully or partly within the area affected by use of the ceiling fan.
<b>OPERATOR:</b>	This means the person(s) tasked with installing, operating, setting, cleaning, repairing, moving or doing maintenance work on the machine.
<b>QUALIFIED PERSONNEL, QUALIFIED OPERATOR</b>	Person(s) that has/have done a specialisation course, training etc. and that have experience of installing, commissioning, maintaining, repairing or transporting the machine.

This machine is intended for industrial use, and so professional and not general use, which means that it must be entrusted to qualified personnel that are adequately trained in using it by the purchaser, and that especially:

- 1.5.1. Are no longer minors.
- 1.5.2. Are physically and psychologically suitable for doing particularly difficult technical tasks.
- 1.5.3. Have been trained on the use of the personal protection equipment indicated and required.
- 1.5.4. Are suitably instructed in using and maintaining the machine.
- 1.5.5. Have been adjudged suitable by the employer to do the tasks assigned to them.
- 1.5.6. Are able to understand and interpret the operator's manual and safety instructions.
- 1.5.7. Know the emergency procedures and how to implement them.
- 1.5.8. Have the capacity to operate this specific type of equipment.
- 1.5.9. Are familiar with the relevant specific standards.
- 1.5.10. Have understood the operating procedures defined by the machine's constructor.

## 1.6.Glossary and pictograms

This paragraph lists uncommon terms or terms whose meaning differs from the common meaning. The abbreviations used and the meaning of the pictograms used to indicate the operator's qualifications and machine status are explained below. Use of the same makes it possible to provide quick, unequivocal information required for correct use of the machine in safety.

### GLOSSARY (Ann. I p. 1.1.1 Dir. 2006/42/EC)






<b>DANGER</b>	A potential source of injury or harm to one's health.
<b>DANGER ZONE</b>	Any zone inside and/or in proximity to the machine in which the presence of a person constitutes a risk to the health and safety of that person.
<b>EXPOSED PERSON</b>	Any person that finds themselves fully or partially in a danger zone.
<b>OPERATOR</b>	The person(s) tasked with installing, operating, setting, cleaning, repairing, moving or doing maintenance work on the machine.

<b>RISK</b>	A combination of the probability and gravity of an injury or damage to one's health that may result in a dangerous situation.
<b>GUARD</b>	A part of the machine used specifically to ensure protection by means of a material barrier.
<b>PROTECTIVE DEVICE</b>	A device (other than a guard) that reduces a risk on its own or in association with a guard.
<b>INTENDED USE</b>	Use of the machine within the limits laid down by the Manufacturer, for which the machine is designed and built, in conformity to the information provided in the instructions for use.
<b>REASONABLY FORESEEABLE INCORRECT USE</b>	Use of the machine in a way that differs from that indicated in the instructions for use, but that may result from human behaviour that can easily be foreseen.

## OTHER DEFINITIONS



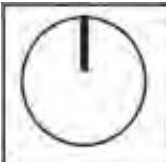
<b>MAN-MACHINE INTERACTION:</b>	Any situation in which an operator interacts with the machine, in any operating phase, and at any time in the life of the machine.
<b>OPERATOR'S QUALIFICATION</b>	The minimum skill level the operator must have to carry out the operation described.
<b>NUMBER OF OPERATORS</b>	Number of operators able to carry out the operation described in the best possible way, and resulting from careful analysis by the manufacturer. Therefore, use by a number of different members of staff could prevent the expected result being achieved or put the personnel involved in danger.
<b>MACHINE STATUS</b>	The machine's status includes its operating mode, such as automatic operation, jog mode control, stopping, etc., the condition of the safety devices in the machine, such as guards included, guards excluded, emergency button pushed, type of isolation from energy sources, etc.
<b>RESIDUAL RISK</b>	Risks that remain, despite integrated protective measures being adopted that are integrated in the design of the machine, and despite the additional protective devices and measures adopted.
<b>SAFETY COMPONENT</b>	Component: <ul style="list-style-type: none"> <li>- Intended to provide a safety function.</li> <li>- A component that, if damaged and/or tampered with, puts the safety of the people involved in jeopardy (e.g. lifting equipment; fixed, mobile or adjustable guard, etc.; electrical, electronic, optical, pneumatic or hydraulic device that serves as, or interlocks a guard, etc.).</li> </ul>

**PICTOGRAMS RELATED TO THE OPERATOR'S QUALIFICATIONS**

Symbol	Description
	<p>General operator: an operator without specific skills, only able to carry out simple tasks according to the instructions of qualified technicians.</p>
	<p>Lifting and handling gear operator: an operator authorised to use lifting gear and for handling materials and machines (strictly according to the manufacturer's instructions), according to the laws in force in the country in which the machine is used.</p>
	<p>Mechanical maintenance operator: a qualified technician able to operate the machine under normal conditions, to make it work in jog mode with the protective devices deactivated, and do work on the mechanical parts to effect the necessary adjustments, maintenance and repairs. Normally, they are not authorised to work on live electrical systems.</p>
	<p>Electrical maintenance operator: a qualified technician able to operate the machine under normal conditions, to make it work in jog mode with the protective devices deactivated, and do all tasks of an electrical nature involved in adjustments, maintenance and repairs. They are able to work in electrical cabinets and derivation boxes, with the power on.</p>
	<p>Manufacturer's technician: a qualified technician made available by the manufacturer to carry out complex tasks in particular situations or, in any case, as agreed with the user. The skills they possess are of a mechanical and/or electrical and/or electronic and/or software nature.</p>

**PICTOGRAMS RELATED TO THE MACHINE'S STATUS**

The pictograms enclosed in a square / rectangle, provide INFORMATION.

Symbol	Machine status
	<p>Machine off: with the electrical and pneumatic power supplies disconnected.</p>
	<p>Machine running: operating in automatic mode, with mobile guards closed, related interlocking devices activated, and fixed guards closed.</p>
	<p>Machine on: stopped and ready to start (stand-by conditions) by activating an operating activator (e.g. control unit consensus), with mobile guards closed, safety device activated, and fixed guards closed.</p>



**SAFETY PICTOGRAMS**

Pictograms contained with a triangle indicate DANGER.  
 Pictograms contained within a circle impose a PROHIBITION/OBLIGATION.

Pictogram	Name
	High voltage danger
	Entanglement
	Dragging
	General danger
	Do not remove the safety devices
	Cleaning, oiling, greasing, repairing, or adjusting moving parts manually forbidden.
	Obligation to disconnect the power supply before starting work or repairs.
	Protective gloves obligatory
	Safety footwear obligatory

## 1.7. Applications

### INTENDED USE

Ceiling fan to be installed by fixing to the ceiling, for industrial buildings

This equipment is only to be used for the purpose for which it was expressly designed. Any other use is to be considered improper and dangerous. Maico Italia S.r.l. cannot be held responsible for any damage resulting from improper, erroneous or unreasonable use, or if the equipment is used with systems that do not conform to the current safety norms.

### USES EXPLICITLY EXCLUDED

This product as a whole, including its construction components, is NOT made and therefore must absolutely NOT be used for other purposes such as, by way of example and not exhaustively: ATMOSPHERES:

- Use in atmospheric conditions even only potentially explosive
- Use in aggressive atmospheric conditions
- Use in atmospheric conditions with high salinity or humidity over 90% of that of the standard atmospheric air
- Use in places in which external suspended elements are present (for example, fibres, powders, paints, sand)

### INSTALLATION:

- Use in outside environments (e.g. lean-to roofs, pergolas, trellises, temporary worksites)
- Use in places that subject the product to vibrations or oscillations (for example: ships, precarious structures, or semi-rigid composite structures such as tents, hot houses, mobile hangars)
- Precarious and temporary use

This machine must be installed where there is a need to cool large closed spaces, such as workshops or industrial departments, factory buildings, etc.

The materials used ensure reliability and durability over time, provided the machine is installed correctly and subjected to suitable maintenance by qualified personnel.



This machine is only to be used for the purpose for which it was designed:

Ceiling air fan to be installed fixed to the ceiling, for industrial buildings.

All other uses are to be deemed improper and therefore dangerous.



## 1.8. Versions

The CEILING FAN comes in the following versions:

Ceiling Fan 3m series Super Polar HVLS – Super Polar HVLS E  
Ceiling Fan 4m series Super Polar HVLS – Super Polar HVLS E  
Ceiling Fan 5m series Super Polar HVLS  
Ceiling Fan 6m series Super Polar HVLS  
Ceiling Fan 7m series Super Polar HVLS

## 1.9. Machine identity data and data plates

Each machine is identified by a motor plate that contains its reference details in an indelible state. Whenever contacting the manufacturer or service centres, always quote these reference details.



Fig.1.1

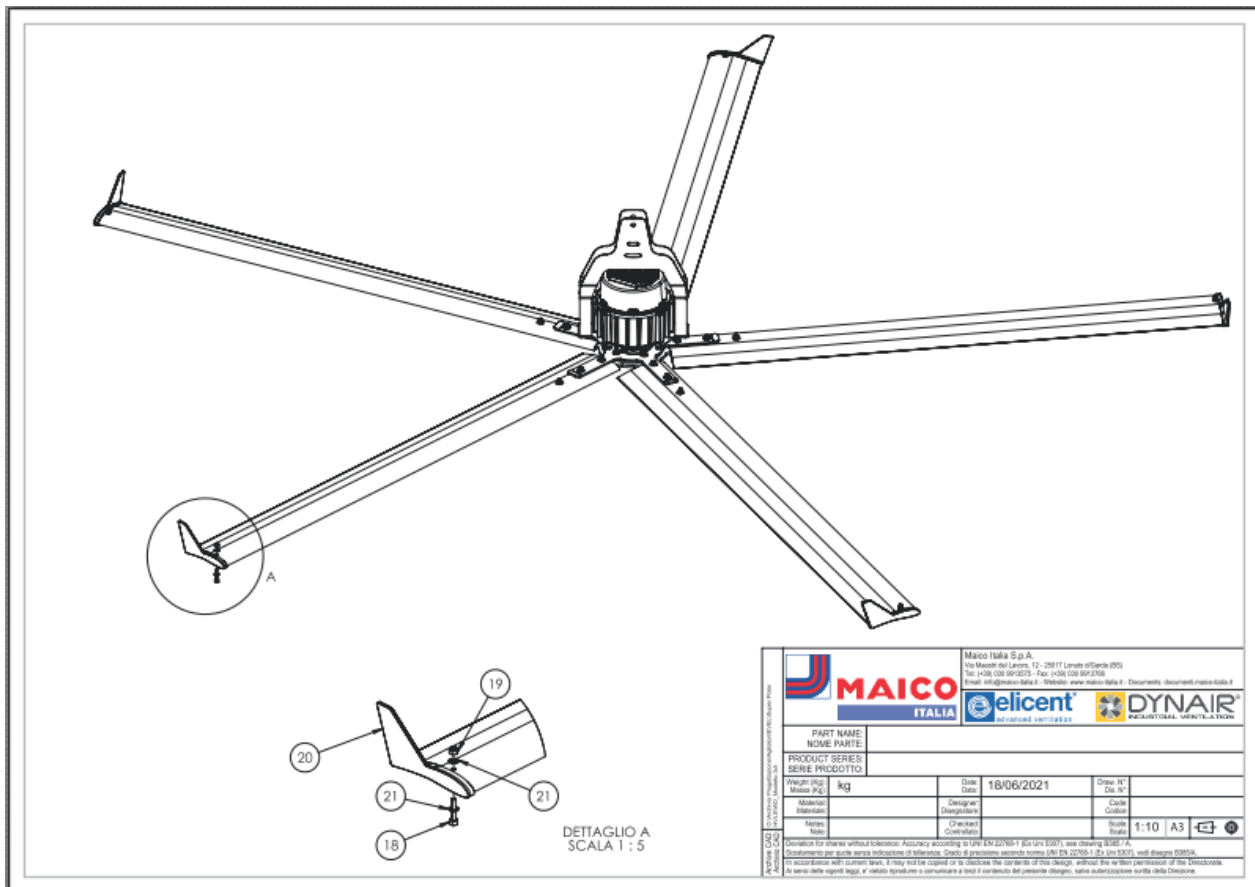
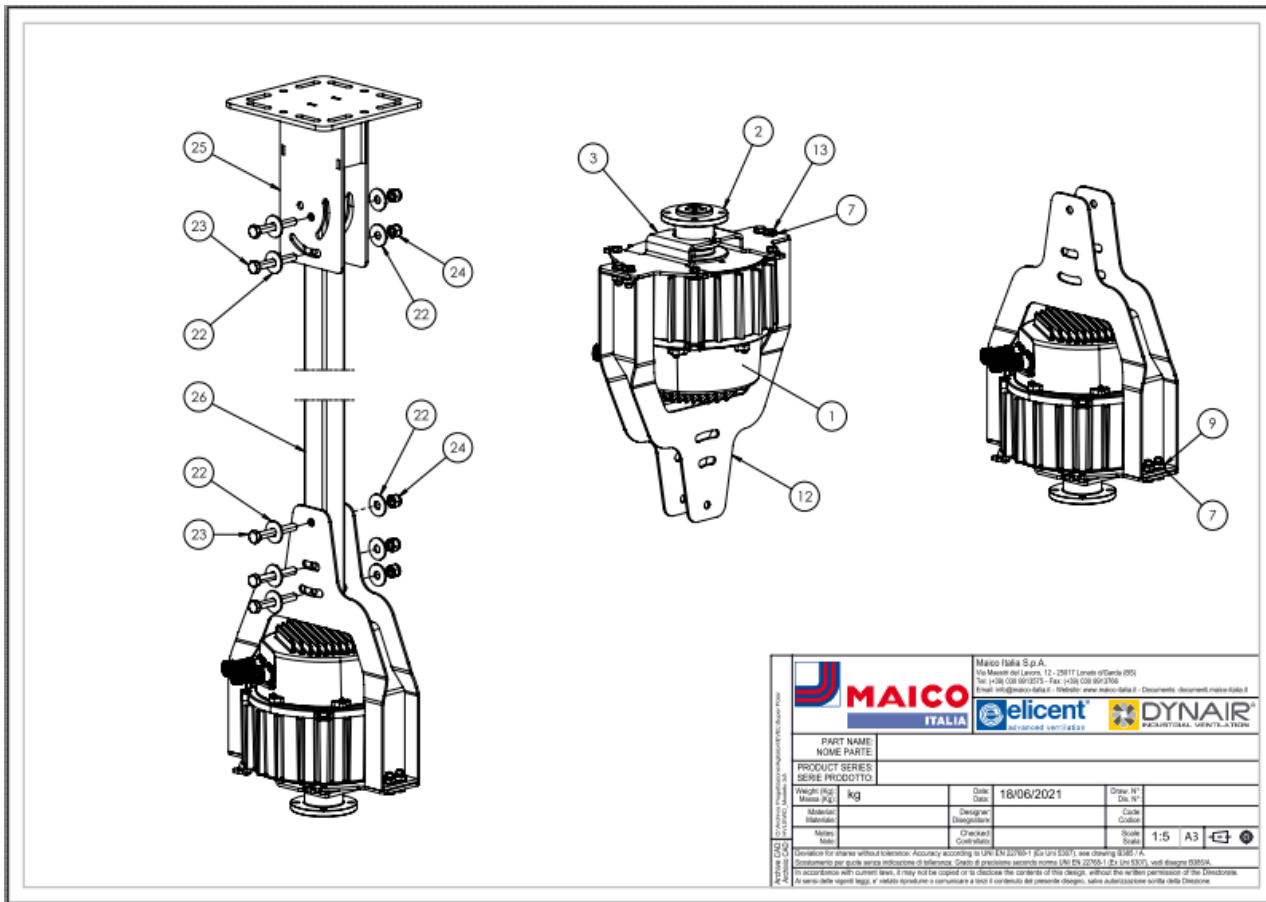
The position of the plate on the machine may vary from one machine to another.

## 1.10. Declaration

This machine was made in conformity with the pertinent European Directives applicable at the time it was put on the market.

1.11. Description of the parts

Parts that make up the ceiling fan



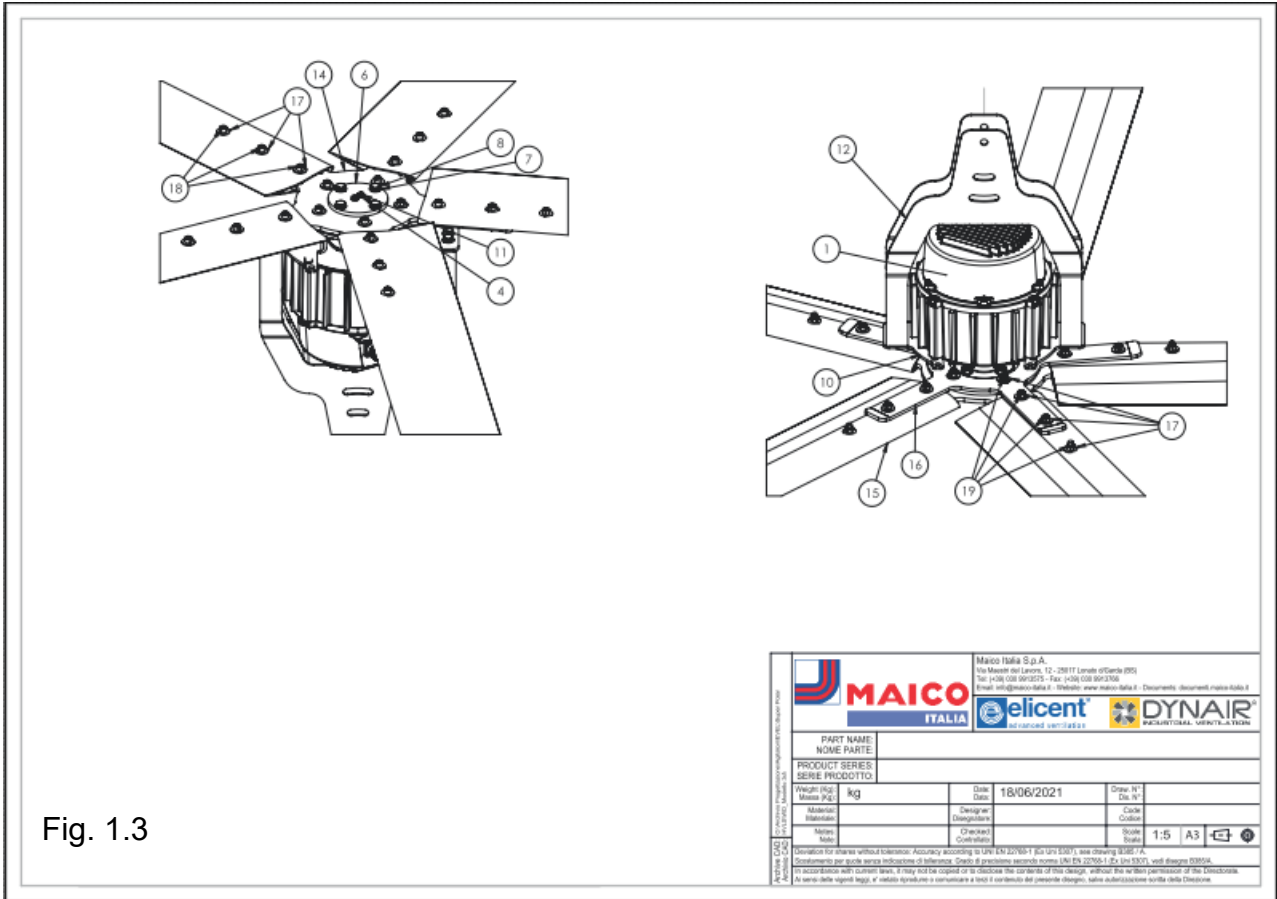
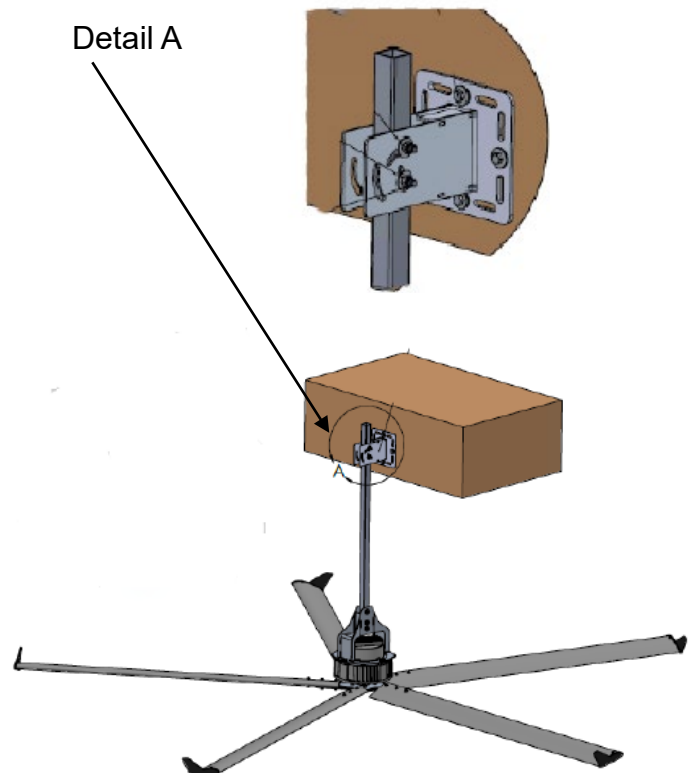


Fig. 1.3

PARTICOLARI		
Nr	DESCRIPTION	Q.ty
1	Motoinverter BL220 H 50	1
2	Mozzo albero conico per anticaduta	1
3	Piastra anticaduta spessore	2
4	Rondella glower diam. 8 zinc.	4
4	Rondella glower diam. 8 zinc.	2
5	Vite M8x25 TE 2M	4
6	Disco fissaggio Pale	1
7	Rond. 10,5x20 h2 ZN UNI6592	16
8	Vite m10x45 TE ZN UNI4018	4
9	Dado autobl. m10ZN UNI7474	8
10	Spessore anticaduta	2
11	Vite m8x20 INOX A4	2
12	Staffa sostegno motore saldata	1
13	Vite m10x35 TE ZN UNI4018	4
14	Stella 5 fissaggio Pale senza spigolo	1
15	Pala lavorata	5
16	Stella a 5 rinforzo piega	1
17	Roset.D. 8x24 h2 ZN UNI6539 Fascia Larga	40
18	Vite M8x40 TCEI ZN	25
19	Dado autobl. m8 ZN UNI7473	25
20	Terminale pala leggera	5
21	Rosetta 8,4x16 h1,6 ZN UNI6592	10
22	Rosetta m12x36 h2,5 ZN UNI6593	10
23	Vite m12x90 TE ZN UNI4014	5
24	Dado autobl. M12 ZN UNI 7473	5
25	Staffa sostegno palo	1
26	Palo 50x50x1470 forato e zincato	1

Particular pole support bracket



**1.12 Dimensions**

DIMENSIONI	
TIPO	A
300/120	3000
400/160	4000
500/200	5000
600/240	6000
700/280	7000

**Maico Italia S.p.A.**  
 Via Maico snc Locarno, IC-22017 Locarno (Glaro) (CH)  
 Tel: (+39) 0331 9913675 - Fax: (+39) 0331 9913799  
 Email: info@maicoitalia.it • Website: www.maicoitalia.it • Document: documenti/palco4441

PART NAME: \_\_\_\_\_  
 NOME PARTE: \_\_\_\_\_  
 PRODUCT SERIES: \_\_\_\_\_  
 SERIE PRODOTTO: \_\_\_\_\_

Weight (kg):	kg	Date:	24/06/2021	Draw. N°:	
Material:		Designer:		Code:	
Notes:		Checked:		Scale:	1:40 A4
		Quoted:		Scale:	

Declaration for machines without tolerance: Accuracy according to UNI EN 22769-1 (Ex Uni 5357), see drawing 03382 I.A.  
 Dichiarazione per quote senza tolleranze di precisione: Qualità di precisione secondo norma UNI EN 22769-1 (Ex Uni 5357), vedi disegno 03382 I.A.  
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 In base alle leggi vigenti, è vietata espressamente o comunque a fini commerciali la ristampa o la diffusione di questo disegno, senza autorizzazione scritta del Creatore.

**1.13. Transportation and handling**



Maico Italia S.r.l. goal is to attain maximum respect for the environment. To this end, and to facilitate the greatest efficiency possible for the end client, it avoids the use of unnecessary or excessive packaging as much as possible, in order to minimise the environmental impact. Unless the purchaser has specific needs or specific requests that are assessed in each case, the product is supplied on a timber pallet inside a cardboard box, where necessary, otherwise it is simply placed in the pallet (e.g. aluminium blades), with parts covered in protective plastic.

The packs must not be stacked.

Avoid damaging the machine's components by being very careful with opening the packaging.

Once delivered to the purchaser, they must immediately check that the product is correct and conforms.

Checking of the integrity of the ceiling fan and the completeness of the package within not more than 48 hours of delivery, is specifically assigned to the user to whom the product is delivered.

- 1) No part of the product must be damaged or cracked, or have any other visible defects due to transportation.
- 2) All the components must be in the package.
- 3) There must be no signs of chemical attack, damp, stains or anything else.
- 4) The CE Mark and pictograms must be included, especially:
  - a. The motor's identity label, which also indicates its characteristics.



If during the peremptory period of 48 hours from receipt of the goods the recipient has not lodged any complaint or reported any irregularity, even if not listed here, the product is taken as being accepted and suitable for the intended use.

Do not dispose of packaging in the environment. It must be deposited at specific collection points and stored in accordance with the specific environmental disciplines, by the user.

#### HANDLING

The Ceiling Fan is relatively heavy (see weights table) and bulky, and so it must be lifted and handled after having checked that the necessary, suitable equipment is available. All the safety conditions must be in place for the operation required, and personnel must be informed and trained on using the equipment and the specific task to be carried out. They must have personal protection equipment required for the task and called for by applicable local norms. Also, given the weight of the machinery, if suitable lifting devices are not available, the machine and its components must always be handled by at least two people.

In particular:

- For unpacking the product, use at least:
  - o GLOVES that are suitably resistant to cuts, perforation and crushing
  - o Overalls or approved clothing, type approved in terms of applicable norms
  - o Safety footwear
- Operators engaged in unpacking the ceiling fan must be adequately trained and informed by the user of the elements and the dangers they pose.

### OPERATING INSTRUCTIONS

- I) Before moving on to the subsequent steps, read this "Use and Maintenance Instruction Manual" and the enclosed specific ASSEMBLY MANUAL fully and understand them adequately. If necessary ask Maico Italia S.r.l. for specific explanations.
- I) Transport the pack that contains the product using adequate equipment, handled / operated by qualified personnel, to the vicinity of the assembly and/or installation site.
- II) Follow all the instructions given in detail. If a passage cannot be understood, or even if there is some doubt concerning it, immediately interrupt operations, make the machine and the parts involved completely safe, and ask for clarification.
- III) Once all UNPACKING operations have been completed, proceed to install in the manner specifically indicated.

The CEILING FAN can be lifted and suspended using the base of the machine as a support. Only lashing and securing methods may be used that ensure the machine's stability and prevent a risk of it falling during the operation. The area underneath must be cordoned off and kept free of people or objects, until after the fan has been started for the first time.

#### **WARNING!**

Before moving the equipment you must:

- a. Stop the machine.
- a. Switch off the power supply.



To lift the machine use adequate lifting gear (see weights table).

Lift it slowly, being careful that it does not fall, and move the belts according to the centre of gravity. Only lashing and securing methods may be used that ensure the machine's stability and prevent a risk of it falling during the operation.

#### **1.14.Warranty**

This equipment is guaranteed for 24 months from the date of production, for any faults due to proven factory or material defects. The guarantee does not cover parts damaged in transit, due to poor or incorrect maintenance, negligence, unskilled use, improper use, tampering by unauthorised personnel and/or, due to any cause for which the Maico Italia S.r.l. Company of Lonato D/Garda is not responsible. During the guarantee period, Maico Italia S.r.l. undertakes to replace or repair parts of the product free of charge, that are found to have been defective from the outset, provided they are reported by the user immediately or at most within 15 days of discovering the fault in the product.

Malfunctioning of the ceiling fan due to faults in components and/or irregularities relating to parts of the product not reported immediately, in the specific manner indicated in this manual or the sales agreement, may not, under any circumstances, infer responsibility on Maico Italia S.r.l.'s part, and must be seen to be the user's risk and danger due to unforeseeable use.

Work under guarantee must be done in Maico Italia S.r.l.'s premises, with transport paid for by the user.

## STORAGE AND LAYING-UP

The product must be kept in a cool, dry place, not subject to high humidity percentages, and correctly positioned on shelves or pallets. Especially the aluminium blades must be placed on adequate shelves, which does not allow them to bend. In any case, when drawn from the stores, check that they are not curved. The product may be stored for 6 months, after which we recommend checking that the electric motor is working properly, before installing it. Check that there are not cracks or breaks in metal parts of the ceiling fan, especially in the blade fixing hub or the blades themselves.

## SPECIFIC ASSEMBLY INSTRUCTIONS - SEE THE ASSEMBLY INSTRUCTION MANUAL

## 2 - INSTALLATION

### 2.1 Preliminary operations

For the CEILING FAN to work, the following are required:

- Electricity supply with suitable voltage and frequency characteristics for the machine, an earth connection and protective devices.



**Installation must satisfy the safety requirements laid down by current local norms.**



Then check that all the connections necessary for the equipment to work have been formed correctly by expert personnel, according to all the specific disciplines in this regard. Maico Italia S.r.l. does not accept any responsibility for damage and/or malfunctioning due to connecting the product to the power supply in a manner that does not conform to the requirements laid down herein.

### 2.2 Positioning

Once the ceiling fan has been assembled, installation operations can begin.

Make sure you have understood the enclosed Assembly Instructions fully.

To position the unit the specialist, trained operator, in terms of the requirements above, must take the following precautions:

- The use of specific PPE is absolutely necessary, and in particular the operator must use at least working gloves, approved clothing that ensures high visibility, safety footwear, and a protective device for their head.





- Before beginning installation, make sure the place available is suitable for the purpose. Especially check the connections, structure of the support / fixing point, distance from heat sources, high voltage lines, and/or other elements that may interfere with the machine's operation in some way, distance from the ground, and the operators involved.
- Before proceeding with installation, assess the possible interference risks between the operations to be carried out, fixed and moveable equipment to be used, and the working environment in which installation is to be done, according to the reference national norms.
- Proceed to install the product and its control panel in an accessible place that allows regular functioning to be checked visually at all times from the ground. It must also allow quick stoppage in case of emergency, as well as correct routine and extraordinary maintenance by authorised operators.
- Check that no operator is under or in the proximity of the installation site, until after the unit has been used for the first time.
- Make sure that the minimum lighting level in the installation area is at least 50 lux, to allow maintenance to be carried out and the equipment to be identified, as otherwise it may not be seen and perceived when it is running. We also advise against installing the ceiling fan below light sources that may generate a stroboscopic effect, which would be bothersome for the operators.

Once the checks indicated above have been completed, install as per the specific procedures listed below:

- **For installing and using the machine for the first time, see annexure 1 to this Manual, "Assembly Instructions".**

### 2.3 Optimum installation conditions

The ceiling fan must be installed at least one metre below the ceiling and at a height of 4 metres above the floor. The installer is also to assess any interference with machinery, balconies, balustrades, or anything else between the floor and the machine, that may interfere with it. Before beginning installation, the area must be specifically signposted and cleared of people or objects that may get in the way or be damaged by accidental falling of parts of the machine. The area over which the ceiling fan's action is effective is about 3 times the diameter of the fan. The manufacturer expressly forbids installations in which no space is left between one machine and another equal to the diameter of the machine itself. The installer is fully responsible for connecting the ceiling fan to the ceiling. They must therefore assess the most suitable fixing system in order to ensure that the unit is fixed in a workmanlike manner, according to the type of ceiling, beams or structure in general to which the fan is to be anchored.

#### TIGHTENING TORQUE:

It is necessary use a torque wrench or a calibrated screwdriver in order to respect the following tightening torque:

- M8 Screw: 27 Nm
- M10 Screw: 53 Nm
- M12 Screw: 92 Nm

#### TIE BARS:

The Manufacturer markets and provides a specific metal tie bar kit for the ceiling fan, supplied if requested by the purchaser.

This tie bar kit ensures additional axial stability for the ceiling fan, and keeps it at its height if, due to outside causes, the machine is stressed anomalously, or the ceiling assembly with just one central pole, does not ensure adequate solidity over time.

The installation **MUST** be completed using the tie bar kit for safety reasons, if the purchaser or installer finds any of the following, in the actual production situation and installation position of the ceiling fan inside the industrial building involved:

- The possibility that the ceiling fan may be struck by gusts of wind (e.g. opening of doors or windows), or that the ceiling fan is installed in buildings that can be opened on the sides.
- The possibility that the ceiling fan may inadvertently be struck by machines or equipment used by the purchaser or others, working inside the building in which the fan is installed.
- The possibility that the ceiling fan may be struck by flying creatures, flying around inside the building in which it is installed.
- The industrial building is located in an area defined to be seismic or, in any case, subject to appreciable sources of vibrations that affect the building.

**WARNING!!!** Since the assessment of the need to do the installation with an additional tie bar kit depends completely on objective conditions related to the property, the type of production activity and mode of the same, and these conditions cannot be ascribed to the Manufacturer, the Manufacturer does not accept any responsibility for not using the tie bar kit for installation, while stating that its use is preferable and safer.

Installing the ceiling fan in the presence of winds or draughts that strike the machine on the side, with wind speeds greater than or equal to 14 m/sec, is expressly forbidden. For wind speeds of between 10 and 14 m/sec, use of the tie bar kit for installation is obligatory, and the machine is already set up for the same.

In the case of strong side winds that strike the ceiling fan, in addition to wind bracing in the form of the tie bar kit, it is important that the machine is never stopped, but continues to rotate at minimum revs, in order to balance the side forces that strike it.

We do not advise using the ceiling fan in dusty settings, such as places in which flour or light, easily volatile elements are present.

## NOISE EMISSIONS

The acoustic pressure level of pondered emission A in workplaces does not exceed 60 dB(A).

## CLEANING

The machine can be cleaned using products suitable for cleaning aluminium and steel. Each cleaning operation deemed necessary, must be done with the power supply to the machine disconnected. Suitable precautions must be taken to avoid subsequent untimely switch-ons during the operations, and operators must wait until the fan has stopped rotating. Aiming pressurised water towards the ceiling fan for cleaning operations is expressly forbidden, even though the machine is in class IP65.

## 2.4 Electrical connection

The installation involves the use of a control unit with an output of 1 - 10 V. However, as an alternative a manual potentiometer can be used, the only difference being that starting and stopping the machine must be done manually. Each control unit chosen by the client must be CE certified, or must at least conform to the low voltage and electromagnetic compatibility directives. Failure to ensure this will render the warranty null and void, due to damage caused to the machine due to the use of unsuitable material. However, this choice does not affect the installation procedure described below.



- The electrical connection is to be formed by recognised, specialist technicians, authorised in terms of the current norm.
- Make sure that the characteristics of the electricity supply conform to the indications.
- Connecting the equipment to an effective earth line is obligatory.

The installation must include a device for disconnecting the equipment from the mains power supply. A protective fuse must also be installed, adequately sized and of a delayed type for starting motors. Attaching or hanging any object from the ceiling fan's blades for any reason, is forbidden. This is because such actions could result in the machine being out of balance, with a resulting anomalous distribution of loads and consequences such as the machine falling.

**WARNING: SPECIFICALLY INSERT A SINGLE POWER SUPPLY LINE, FITTING A CLASS A TRIP SWITCH IN THE LINE, IN ADDITION TO A PROTECTIVE CIRCUIT BREAKER IS OBLIGATORY. INSTALLING THE CEILING FAN NEAR HIGH VOLTAGE LINES (GREATER THAN 1000 V ALTERNATING CURRENT OR 1500 V DIRECT CURRENT) IS EXPRESSLY FORBIDDEN.**

**STARTING FOR THE FIRST TIME:**

Once assembly, installation and the electrical connection for the machine have been completed, power the machine and wait for about 30 seconds to allow it to complete a self-diagnosis of its default parameters, and then start rotating. Subsequently, check that:

- 1) There is no imbalance in the installation due to incorrect assembly of components, or latent defects in the same.
- 1) There are no metal noises or sounds coming from the machine itself.
- 2) The motor's diagnosis LED flashes every 2 seconds.
- 3) Rotation is clockwise, when looked at from below the ceiling fan.

**EMERGENCY STOPPAGE!**

- 4) In an emergency, switch off the power supply to the machine via the circuit breaker or the main power supply set up. Warning! Do not touch the machine for a period of 5 minutes after switching off the power, because the outside temperature of the machine may exceed 70°C.

### 3 - OPERATION

#### 3.1 Preliminary operations

Before starting the ceiling fan, check that:

1. All electrical connections have been formed according to the instructions given in this manual.
2. The ceiling fan is free and clean.



#### 3.2 Starting

The machine starts automatically as soon as electricity is supplied to it, after a delay of about 30 seconds to allow automatic setting of the operating parameters. To start the ceiling fan correctly, see the installation manual enclosed with this manual.

### 4 - MAINTENANCE



**Before doing any maintenance work, isolate the equipment from the power supply!**

#### ROUTINE MAINTENANCE

The product must be kept clean and protected against agents that may harm its integrity or use. The machine does not require routine maintenance.

#### PERIODIC CHECKING

<b>Frequency</b>	<b>Activity</b>
<i><u>Monthly</u></i>	1
<i><u>Yearly</u></i>	2, 3, 4
<i><u>2 Years</u></i>	5, 6
<i><u>5 Years</u></i>	7

## **KEY OF ACTIVITIES**

1	Visual inspection – Check direction of rotation – Check abnormal vibrations – Check LED functioning
2	Check structural integrity – Check Spider and Blade fixing – General cleaning
3	Check screws tightening and resistance – Check blades integrity – Check connectors power and signal state
4	Full cleaning from dust and other residuals
5	Check bracket's screws tightening - pole – Check anti-falling plate tightening (where required)
6	Check state of corrosion or oxidation
7	Check reinforced Spider state and possible changing of it and of the main Spider

## **EXTRAORDINARY MAINTENANCE**

Extraordinary maintenance refers to work on the electronic board, and replacing blades or other mechanical parts. The methods are described in the assembly manual enclosed.

ALL maintenance operations, including extraordinary maintenance tasks, must be strictly done with the machine stopped and disconnected from the electricity supply, by a specialist operator trained as indicated in this manual. All precautions must be taken to avoid anyone inadvertently powering the plant while extraordinary maintenance work is in progress. We therefore recommend adequately indicating the fact that the power must not be switched on during the operations, using suitable means (e.g. locking the electrical panel with a key). The specialist personnel involved must wear specific personal protection equipment, especially working gloves, protective hard hat, and safety footwear. For work done at a height, adequate means must be used such as a scaffold or mobile platform that can be raised. All of these must have strong hand railings in good condition. Personnel working at a height must be equipped with the necessary devices to prevent them falling. At the time of the work, the personnel must ensure that they are not exposed to a risk of being struck by another ceiling fan, adjacent to the one they are working on. If this is the case, the other machine must also be disconnected. On completion of the operations, before powering the machine again, all the people and equipment involved in the works must be removed and take a safe distance to the side of the blades of about 1 m, while below the machine there must be no impediment within about 2,7 m of the fan.

## **MAINTENANCE RECORDS**

We believe that for safe use of the product it is important that the user sets up a suitable register for routine checks and maintenance done, in the form called for by applicable local norms. This may be based on the "Periodic Check" table above, which may be developed graphically to form a checklist with tick boxes for the individual tasks carried out.

We recommend that accurate records be kept of each activity and/or maintenance task and/or replacement, indicating the operator, with adequate space for recording any anomaly or problem encountered.

We recommend that the safety instruction warning be clearly visible on the register as well: "If in doubt as to any operation being carried out on the machine, interrupt the work, make the machine completely safe, and contact the manufacturer to obtain the necessary technical clarifications".

## 5 - TECHNICAL CHARACTERISTICS

### 5.1 Technical data

#### Super Polar HVLS

Data	E 300/120	E 400/160	300/120	400/160	500/200	600/240	600/240 plus	700/280	700/280 plus
<b>Total Weight</b>	59,4	65	80,5	85	101	107	118	113	124
<b>Diameter [m]</b>	3	4	3	4	5	6	6	7	7
<b>Nr. Blade</b>	5	5	5	5	5	5	5	5	5
<b>Blade Material</b>	Alluminio	Alluminio	Alluminio	Alluminio	Alluminio	Alluminio	Alluminio	Alluminio	Alluminio
<b>RPM</b>	200	140	190	110	95	75	90	45	60
<b>Max Consumption [Kw]</b>	0,85	0,84	0,750	0,25	0,43	0,380	0,72	0,340	0,45
<b>Power supply</b>	200-480V 50/60 Hz	200-480V 50/60 Hz	200-480V 50/60 Hz	200-480V 50/60 Hz	200-480V 50/60 Hz	200-480V 50/60 Hz	200-480V 50/60 Hz	200-480V 50/60 Hz	200-480V 50/60 Hz
<b>Current Absorbed [A]</b>	2,03	1,98	1,4	0,7	1,29	1,15	2,1	1,1	1,3
<b>Noise [Dba]</b>	< 60	< 55	< 60	< 55	< 45	< 45	< 45	< 45	< 45
<b>Motor Type</b>	Brushless	Brushless	Brushless	Brushless	Brushless	Brushless	Brushless	Brushless	Brushless
<b>Inverter</b>	Integrato	Integrato	Integrato	Integrato	Integrato	Integrato	Integrato	Integrato	Integrato
<b>Minimun distance from ceiling Std [m]</b>	1	1	1	1	1,5	1,5	1,5	1,5	1,5
<b>Extreme Range [m<sup>3</sup>/h]</b>	280.000	330.000	310.000	370.000	530.000	600.000	670.000	650.000	850.000
<b>Maximun ventilated area [mq]</b>	1.000	1.270	1.100	1.300	1.500	1.600	1.600	1.850	1.850



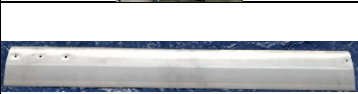
## 5.2 Spare parts list



Only original spare parts are to be used for all units made by Maico Italia S.r.l. The manufacturer does not accept any responsibility resulting from the use, assembly, removal, insertion, connection or any other operation in the machine, done using pirate parts or parts not expressly approved by Maico Italia S.r.l., as well as any works done by operators not authorised for the purpose by the Manufacturer, or trained by them.

Orders are to be made, indicating the following information:

- Equipment model
- Item reference as shown in the drawing.
- Quantities of parts ordered
- Client's address

pos.	Image	Description	Code
1		Motor + Inverter	Motor H50: 500034
2		Inverter, with box	599004
3		Individual blade	Blade 2,5m WD: 501339 Blade 3m WD: 501340 Blade 4m WD: 501341

## 6 – TROUBLESHOOTING



**Before doing any maintenance work, isolate the equipment from the power supply, and shut off the water supply!**

PROBLEM	CAUSE	SOLUTION
The machine does not start	The power is not on.	Check the electrical connection or the mains power supply.
The fan does not start.	The power supply to the motor is not on.	Check the electricity supply to the motor.
	The motor is faulty.	Contact specialist, authorised personnel to replace the motor.
The machine vibrates	The fan is dirty or broken.	Contact specialist, authorised personnel to replace the fan.

**Maico Italia S.r.l.**

*sede e stabilimento:*

Via Maestri del Lavoro, 12 - 25017 Lonato d/G (BS) – Italia

**Tel** +39 030 9913575-Fax +39 030 9913766

**e-mail:** [info@maico-italia.it](mailto:info@maico-italia.it)    [www.maico-italia.it](http://www.maico-italia.it)