

MAIN WARNINGS.

1) Clean the grids only forwards, go back to the freshly cleaned grid with the engine running to cool it Do not clean the grids backwards (the engine burns and the trees bend)

2) For proper operation, the traction during work must be alligned with the grid cleaner.

3) For machines with fuses: see amps of the fuse on the machine

WARNING: before using the Puligriglie view: <u>video instructions</u> on the following link <u>https://www.cflamiere.com/puligriglie.html</u>. A QR code link is also available on the nameplate on the machine

The non-observation of the instructions while using the machine might cause damage and lead to failure of the tool.

Any misuse will also cause the warranty to be voided and the manufacturer will not be liable for any damages caused even during the warranty period.



USER'S MANUAL & SAFETY INSTRUCTIONS



MACHINE WITH CE CERTIFICATION

Machine name	GRID CLEANER WITH SELF PROPEL SYSTEM
Function	GRID CLEANING OF LASER CUTTING/OXYCUTTING MACHINES
Model	SEC- <mark>T</mark>
Serial number	
Year of construction	2021

Number	11_20_1_MAN_PULISCI_GRIGLIA CON TRAZIONE_V3
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Revision Date	04/03/19
Developed by	CF LAMIERE s.a.s.
Approved by	CELAMIERESAS



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CAP. 0. PREPARATION SEC-T



TRAILER (optional) Pneumatic motor (**A**) winch (**B**) cable runner (**C**)



MODEL SEC-20-2-21 N. 1 Frame extension of 500 mm

MODEL SEC-15-2-21

MODEL SEC-20-3-21 N. 1 Frame extension of 500 mm



MODEL SEC-20-4-21 N. 1 Frame extension of 500 mm

MODEL SEC-15-4-21





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0.1. MACHINE IDENTIFICATION

The identification plate of the machine fixed on the frame shows the following data:

Via Piane, 12/C - 47853 CORIANO (RN)	Fantini Claudio, Ini M. & C. s.a.s. miere.com Italy-Tel. 0541.656410 - Fax 0541.658316
MACHINE NAME	GRID CLEANER WITH SELF PROPEL SYSTEM
MODEL	SEC- <mark>T</mark>
SERIAL NUMBER	·····
YEAR OF MANUFACTURE	
TOOL SPEED RANGE	0-260 rpm
MACHINE WEIGHT	24.4 25 kg
POWER SUPPLY	1 N PE AC 230V 50/60Hz
OUTPUT	1200W
POWER CONSUMPTION	5.5A
IP	23
STEM DIAMETER	16mm
PNEUMATIC PRESSURE	4 BAR MAX.



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0.2. EC DECLARATION OF CONFORMITY

2006/42/CE (Annex II Part A)

The undersigned, representing the following manufacturer

Manufacturer	CF LAMIERE S.A.S.
Address	Via Piane,12/C 47853 Coriano (RN) Italia

has instructed the authorized person to compile and maintain the technical file

Name	CF LAMIERE S.A.S.				
At	CF LAMIERE S.A.S.				
Address	Via Piane,12/C				
	47853 Coriano (RN) Italia				

The manufacturer hereby declares that the machine

Generic / commercial name	GRID CLEANER WITH ADVANCED SYSTEM
Function	CLEANING LASER/CUTTING MACHINES
Model / Type	SEC- <mark>T</mark>
Serial number	
Year of construction	2021

complies with all the relevant provisions of the following Community Directives (including all of them applicable changes)

2006/42/EC - Machinery Directive

2014/30/EU- Electromagnetic Compatibility Directive

In accordance with the Electromagnetic Compatibility Directive, the following harmonized standards have been applied:

EN 61000-6-2:2019 Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments EN 61000-6-4:2019 Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission for industrial environments.

CORIANO (place), 07/01/2021 (date).

(full name and identification of the person with the power to sign on behalf of the manufacturer or his representative).



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CAP. 1. CONTENT AND METHODS OF CONSULTATION

1.1. PREMISE

Dear Customer,

We thank you for choosing the machine referenced in this manual we hope you will be always satisfied; this product has been manufactured in compliance with the strictest safety standards in force in the Union European.

In order to ensure the safety of operators and personnel, the machine referred to in this manual must be handled, installed, used, maintained and dismantled/disposed following scrupulously the instructions contained in this manual and in compliance with the laws, applicable to the Employer, concerning the safety of personnel on the workplace.

1.2. PURPOSE OF THE MANUAL

1.2.1. IMPORTANCE OF THE MANUAL

This manual is to be considered as an integral part of the machine:

- 1. must be safely stored for the entire life of the machine
- 2. must accompany the machine in case of transfer of the same
- 3. in addition to reporting all useful information for operators, it contains (collected in specific chapters) the following electrical diagrams that must be consulted during any service and repair job.

1.2.2. PURPOSE / SCOPE OF THIS MANUAL



This manual is an integral part of the machine and has been entirely edited by the manufacturer to provide the necessary information to users who have been authorized to interact with it.

The publication describes the status of the product at the time of publication and in no way will it reflect future changes and any non-conforming products.

The contents of this manual have been verified for correctness and compliance with the equipment described. However, it is not possible to guarantee the absence of any differences.

CF LAMIERE S.A.S. is constantly engaged in technological research; therefore it reserves the right to make changes or improvements to its products when reputed appropriate without notice.

Reproduction or transmission in full or partial of this manual to third parties is not allowed in any form or by any electronic, or mechanical means for any use, without the prior written permission of CF LAMIERE S.A.S.

All products or trademarks referred in this booklet belong to their respective owners.

The purpose of the operating manual is to provide the user with all the necessary information to ensure the correct of the machine supplied and to allow the maintenance of the same in the most autonomous and safe way possible:

- Provide awareness to the operators of all the safety matters;
- > The handling of the machine, packed and unpacked in safe conditions;
- The correct installation of the machine;
- > A thorough knowledge the operation, capacities and limitations;
- The correct use in safety conditions;
- > Carry out maintenance and service correctly and safely;
- Dismantle the machine in safe conditions and in compliance with the regulations in force to protect the health of workers and the environment.



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The departments managers of the company where this machine will be installed have the obligation, according to the regulations in force, to read the content of this document carefully and to make it read, for the parts that they are responsible for, to the operators and maintenance workers.

The time spent for this purpose will be largely rewarded by the correct operation of the machine and by an its use in the safest conditions.

This document assumes that in the workplaces where the machine will be installed and used are in compliance with the current safety and hygiene regulations.

The instructions, drawings and documentation contained in this Manual are of a confidential technical nature, of strict property of the manufacturer and may not be reproduced in any way, entirely nor partially.

The owner of the machine is also responsible of ensuring that in case this document is reviewed by the manufacturer that the updated versions of the manual are available at the points of use and obsolete versions are scrapped.

In addition, this manual has been designed to provide directions and warnings for the use of machine supplied, to understand its principles and operating limits.

This instruction manual has been produced exclusively for CF LAMIERE S.A.S. customers and rightful machine owners and contains proprietary information.

The texts, drawings and diagrams contained in this instruction manual are of a technical nature confidential and owned by CF LAMIERE S.A.S. and may not be reproduced in any form or mean nor partially nor in its whole.



Before carrying out any operation on the machine, the user must carefully read this manual.

This manual is an essential and integral part of the machine. It contains important information which its knowledge is fundamental to be able to correctly and in maximum safety operate the machine.

The machine must be intended solely for the use for which it is expressly designated, programmed, and provided for.

Any use of the machine in ways other than those specified in chapter 2, is to be considered improper and therefore the manufacturer does not accept any liability.

The manufacturer cannot be held liable for any failure caused by unreasonable use, improper and/or wrong.

If you have any doubts, please contact the technical department of CF LAMIERE S.A.S.

The operator of the machine must read and understand carefully the information provided in this USER'S MANUAL, as the correct preparation, installation, use and maintenance of the machine are the basis of the manufacturer-user relationship.

If in doubt about the correct interpretation of the instructions, contact the machine manufacturer to obtain the necessary clarifications.



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1.2.3. STORAGE OF UPDATES, ADDITIONS AND REWIES

- These operating instructions must be kept in a safe place for immediate reference next to the machine, inside a proper container and, above all, protected from liquids, humidity, excessive heat and anything else that could compromise its readability;
- > Have care when consulting this manual not to damage or alter any part of the contents;
- Do not remove pages from the manual;
- Do not write on the pages of the manual. A space for notes and/or notes is provided on designated tables.



- If this manual is damaged or lost, please take care to ask the manufacturer, CF LAMIERE S.A.S. for a replacement copy;
- This manual reflects the state of the art at the time the machine was built; the manufacturer reserves the right to update the production and consequently other editions of the manual, without the obligation to update previous editions or manuals, whit the exception of special cases when the changes might affect the health and the safety of workers;
- The user may, however, request, by contacting CF LAMIERE S.A.S. any updates or supplements to the manual, which are reputed necessary and will then be considered to be integral parts of it;
- Should the user wish to receive further information, please contact directly the machine manufacturer: CF LAMIERE S.A.S.;
- The user is asked, in case of transfer of property of the machine, to inform CF LAMIERE S.A.S. with the contacts of the new owner, to facilitate the transmission of any additions to the manual, since as already mentioned, this manual must accompany the machine even in case of owner transfer.

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- CF LAMIERE S.A.S. reserves the right to modify the project and make improvements to the machine without notice and without updating the manual already delivered to the user;
- In case of modifications of the machine installed at the Customer's premises, agreed with the Manufacturer and that involve the modification of one or more chapters of the Instruction Manual, it will be the manufacturer's responsibility to send to the owners of the Instruction Manual involved the updated chapters affected by the change, with the new revision global template of the same;
- it is the user responsibility to follow the instructions that accompany the updated documentation, replace all copies of the old chapters with new ones, the first page and the table of contents with those with the new level of revision;
- The Manufacturer is responsible for the descriptions given in Italian; translations, if any, are required cannot be fully verified, so if an inconsistency is detected, care must be taken to the Italian language and if necessary contact our sales office, which will carry out the modification deemed appropriate.



ATTENTION

For clarification purpose some illustrations in this manual may represent the machine or parts of it with panels or casings removed.

DO NOT use the machine in such conditions.

The machine can only be operated if equipped with all its protections



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1.2.4. GENERAL INFORMATION

- Use the machine properly.
- > Observe and apply the safety instructions given in the manual.
- Pay particular attention to the content of chapter 4 where the existing residual risks on the machine are highlighted and the instructions to be followed by the operators to avoid them.
- CF LAMIERE S.A.S. is responsible for the machine in its original configuration. Any intervention that alters the structure of the machine and its work cycle must be approved and registered in the technical department of CF LAMIERE S.A.S.
- CF LAMIERE S.A.S. shall not be held liable for damage caused by the improper or incorrect use of the machine and its documentation.
- CF LAMIERE S.A.S. shall not be held liable for damages caused by the violation of mandatory regulations, negligence, inexperience, recklessness, and non-compliance with regulations by the employer, of the operator or servicer.
- CF LAMIERE S.A.S. is not responsible for the consequences caused by the use of non-certified spare parts.
- CF LAMIERE S.A.S. reserves the right to make changes to this manual and to the machinery without notice.
- CF LAMIERE S.A.S. makes itself available to provide its experience and collaboration for the resolution of any problems that may arise.
- CF LAMIERE S.A.S. is responsible only for the information reported in the original version of the manual in Italian language.
- Failure to comply with the prescriptions contained in this manual will result in immediate decay of the warranty.

1.3. CONSULTATION

During the consultation of this manual, you will find the symbol shown opposite.

It is associated with the words: DANGER, CAUTION.

This means that you are in the presence of a dangerous situation, which, if not complied with, could cause damage or wounds for the operator.

The entire machine supplied does not present any danger to the operator if used according to the instructions given here in this instruction manual and provided that the safety devices are kept in constant working order.

Before any intervention on the machine, pay close attention to the labels placed on the machine and on any electrical equipment installed.

During any activity, none of the safety devices can be tampered or switched off, for any reason whatsoever. By-passing safety devices is also forbidden as the use them for any purposes other than those planned by the manufacturer.

After any intervention, all safety devices must be restored and made operational.

Do not intentionally tamper with or damage the protective screens or remove or conceal the warning labels. If deterioration or illegibility of the previous mentioned is discovered, request the supplier of the machine the proper spare part.



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1.4. MEASUREMENT UNITS

The units of measurement adopted in the manual are those provided by the International System of Units (S.I.).

1.5. MENANING OF THE SYMBOLS

Below is clearly specified the meaning of the symbols and definitions adopted in this document.



DANGER

Indicates the presence of a danger for those working on the machine and for those in the vicinity therefore the activity reported must be carried out in compliance with the accident prevention regulations in force and the directions given in the this manual.



PRECAUTION

Indicates a to pay attention about useful information and/or further recommendations and/or precautions concerning the operation described.



ATTENTION

Indicates an operation to be carried out carefully to avoid damaging the machine.



OPERATOR

Qualified and authorized person in charge of operating the machine with engaged safety equipment and/or loading and unloading the being processed material.



SETUP TECHNICIAN

Qualified and authorized person in charge of setting up and equipping the machine with protections active, and eventually with the use of tools



MECHANICAL TECHNICIAN

Qualified and authorized technician able to install and carry out ordinary and/or extraordinary maintenance of an exclusively mechanical nature.



ELECTRICIAN

Qualified and authorized technician able to install and carry out ordinary and/or extraordinary maintenance exclusively of an electrical nature.



RIGGER

Qualified and authorized technician for the use of lifting equipment used for handling of loads.



MANUFACTURER'S TECHNICIAN

Qualified technician available to carry out complex service operations, which can only be carried out by the manufacturers certified technician.

SAFETY PICTOGRAMS

The pictograms contained in a triangle denote DANGER; the pictograms contained in a circle mean a MANDATORY/PROHIBIT action. Example of some pictograms.

Symbol	Denomination
4	Dangerous electrical voltage
	Crushing of the upper limbs
	Conveyance

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Symbol	Denomination
	High temperature
	Generic danger
	Emission of hazardous gases
×	Forbidden access to unauthorized personal
	Do not remove safety devices
	Do not manually clean, oil, grease, service or adjust organs in motion
	Do not carry out any type of work before disconnecting the power supply
	Mandatory protective gloves
	Mandatory safety footwear
	Mandatory protective helmet
	Mandatory hearing protection
	Mandatory body protection
	Mandatory respiratory protection with mask (category II)
	Mandatory face protection



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1.6. DEFINITIONS

HAZARDOUS AREA

Any area inside and/or near a machine, within which, the presence of an exposed person constitutes a risk to the safety and health of that person (annex I, article 1.1.1 directive 2006/42/CE).

EXPOSED PERSON

Any person who is wholly or partially in a hazardous area (annex I, art. 1.1.1 directive 2006/42/CE).

OPERATOR, PRODUCTION WORKER, MACHINE OPERATOR

Person in charge of operating the machine according to its intended use, aware of the potential risks which carries out the operations required to use, clean setup, etc. With only the use of the hands or with the use of the special tools made available by the manufacturer. The operator does not have available the tools.

INTEGRATOR

Person in charge of integrating the quasi-machine with equipment, components or other quasi-machines or machines to use it for a specific application

MAINTENANCE

Person in charge of maintaining the machine in accordance with its intended use, aware of the residual risks and authorized to carry out transport, handling, installation, adjustment and maintenance work, cleaning, repair, dismantling, elimination, etc... with the use also of tools normally available of the maintenance staff and taken from the toolbox at their disposal.

OPERATOR QUALIFICATION

Minimum level of skills that the operator must possess in order to carry out the described operation.

NUMBER OF OPERATORS

Adequate number of operators to carry out the described operation in an optimal way and resulting from a careful analysis carried out by the manufacturer, so that the user of a different number of employees may be unable to obtain the expected result or endanger the safety of the personnel involved.

MAN-MACHINE INTERACTION

Any situation in which an operator finds himself interacting with the machine in any of the following phases operational at any time during its life.

MACHINE - MACHINERY

The machine in object of this instruction manual.

PARTLY COMPLETED MACHINE

Assembly, which is almost a machine, but which alone is not sufficient to guarantee the correct carry out of determined application. The partly completed machine is only intended to be incorporated or assembled with other machine(s) or other instruments(s) or apparatus to constitute a machine as requested by the applicable regulations.

MACHINE STATE

The state of the machine includes the operating mode, e.g. automatic operation, old-to-run control (jog, stop, etc.), the state of the safety devices present on the machine such as protectors included, protectors excluded, emergency stop engaged, type of insulation from power sources, etc.

ORDINARY MAINTENANCE

Set of operations, provided by the manufacturer, and detailed in the instruction booklet, which are meant to limit in the normal degrade of the machine by its use and prevent the arise of faliures or anomalies (es. cleaning, adjustment, lubrication, etc.)



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EXTRAORDINARY MAINTENANCE

All the repairs or replacements jobs that allow the machine to continue to operate under normal conditions of use. The installed components must be identical to the previous existing ones, i.e. equivalent in terms of performance, dimensions, etc., according to the specifications provided by the manufacturer.

SUBSTANTIAL CHANGE

All of the interventions that are carried out on a machine to adapt its productivity to new requirements or to allow its operation after replacing a part with a non-equivalent one and therefore needing to adaptations or interventions involving a change in the manner of use or changes in performance intended by the manufacturer or the introduction of additional risks.

FIXED GUARD

Cover-guard kept in position (i.e. closed), either permanently (by welding, etc.) or by of fasteners (screws, nuts, etc.) which make it impossible to remove/open them without the use of tools.

MOBILE GUARD

Cover-guard generally mechanically connected (e.g. by hinges or guides) to the frame of the machine or a fixed element close by and which can be opened without the use of tools.

ADJUSTABLE GUARD

Fixed or mobile cover-guard that can be adjusted as a single element or incorporates one or more adjustable parts. The adjustment remains in place during a particular operation.

INTERLOCKED GUARD

Cover guard associated with an interlocking device so that:

- the dangerous parts of the machine "subject" to cover protection cannot be carried out until the cover-guard is in a closed state;

- if the guard is opened during a machine's potentially dangerous operation, a signal is given of stop any moving part;

- closing the guard allows the execution of the potentially dangerous operations of the machine for which the user is "protected" by the guard, but you do not engage its start.

INTERLOCKED GUARD WITH LOCKING OF THE GUARD

Cover-guard associated with an interlocking device and a guard locking device so that:

- the potentially dangerous operations of the machine "protected" by a cover-guard cannot be carried out until the guard is closed and locked state;

- the guard remains closed and locked until a risk of injury, due to the machine's potentially dangerous operations, persist;

- the closing and locking of the guard allow the dangerous operations of the machine, "subject" to cover, to be performed, but does not engage its start.

PROTECTIVE DEVICE

Device (other than a cover-guard) that reduces the risk, by itself or in interaction with a cover-guard.

INTENDED USE

Use the machine following the instructions and information provided in the user manual.

INCORRECT USE REASONABLY FORESEEABLE

Use of the machine in a manner other than what indicated in the user manual, but which may result from the easily predictable human behavior.

SAFETY DEVICE / COMPONENTS

A component used to ensure a safety function and of which its failure or mal-function endangers the safety and/or health of exposed persons (e.g. lifting gear; fixed cover-guard, movable, adjustable, etc., electric, electronic, optical, pneumatic, hydraulic, hydraulic device, which serves a protection, etc.).



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RESIDUAL RISK:

Danger that could not be completely avoided or sufficiently reduced through design, against which the safety measures are not effective (or only partial); information about its existence is given in the manual and instructions and warnings for overcoming them.

<u>BUILDER</u>

The company: C.F LAMIERE S.A.S. - Via piane, 12/C 47853 Coriano (RN) Italy.

CUSTOMER - EMPLOYER - USER

The company, under the responsibility of its managing director, in which the machine referred by this instruction manual will be put in operation.



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1.7. WARRANTY

CF LAMIERE S.A.S. guarantees that the machine has been tested and verified at its factory. The warranty of the machine and its accessories has a duration of 12 months for the mechanical parts from the date of delivery (however, the contractual terms prevail). This guarantee is exerted in the free of charge repair or replacement of those parts which, after careful examination carried out by the Service Manufacturer's technician, they are defective. The warranty covers the machine parts manufactured by CF LAMIERE S.A.S., for any third-party components installed, (such as groups or special devices) the warranty is provided by the manufacturer of the same part. The warranty is limited to material defects only and ceases to be valid if the damaged parts of the machine are tampered with or in any case disassembled non authorized by personnel. Warranty jobs are carried out exclusively at CF LAMIERE S.A.S. and transport costs shall be covered entirely by the purchaser. The warranty does not include the sending of technical personnel.

They are excluded from the warranty:

- Liability for direct and indirect damage caused to persons, animals, or property as a result of failure or machine malfunction.
- Expenses related to lubricant replacement, transport costs, food and lodging will be in accordance with the following current tariffs by CF LAMIERE S.A.S. for interventions carried out at the user's premises, any taxes customs duties for machines shipped outside the EU.
- taxes (VAT) and anything else not specified in the supply contract are in any case to be covered by the customer of the buyer.
- Replacements or repairs of materials under warranty do not extend the terms of the warranty in any case.

The buyer can only claim his warranty rights if he has complied with the terms and conditions of the warranty services, which are set out in the delivery contract. Should it appear that the parties do not intend submit to arbitration the disputes arising from the supply contract or in any other case in which it is requested the decision by an organ of the ordinary court, only the court of Pesaro – Italy has territorial jurisdiction.

1.8. WARRANTY EXCLUSIONS

Upon delivery, the recipient must verify that the machine has not been damaged during transport. Any complaints must be submitted within 8 days from delivery of the product. The buyer may claim his Warranty rights only if it has complied with all the terms and conditions of the warranty service, which are stated in the supply contract.

In addition to the cases contemplated by the supply contract, the warranty will be voided if:

- If an error that occurs is attributable to the operator action non-compliant or conflicting with the instructions in this user manual.
- If the damage to the machine is due to insufficient maintenance.
- If the machine is used for purposes other than those indicated in this user manual.
- When the damage to the machine is attributable to the environmental conditions in which it operates or by any phenomena not attributable to a correct operation, such as irregularities in voltage values or the frequency of the power supply from the existing electrical distribution system in the customers building.
- If any changes from the original design, or any damage, occur from any service job carried out by the user without the authorization of CF LAMIERE S.A.S. or due to the use of non-original spare parts.
- If the instructions described in this manual are not followed.



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1.9. HOW TO READ THE INSTRUCTION MANUAL

The Manual has been divided into autonomous chapters, each of which is addressed to one or more specific roles (operator, electrical installer/maintainer, mechanical installer/maintainer), for each of which have been defined the skills needed to operate the machine in safe conditions.

The sequence of chapters responds to the temporal logic of the Machine's life cycle.

To facilitate the immediate comprehension of the text some terms, abbreviations, and pictograms will be used through this manual, the meaning of which is described both in the preceding paragraphs and in the below list:

- Section = section
- Ch. = chapter
- Par. = paragraph
- Pag. = page
- Fig. = figure
- Table = table
- M.I.U.M. = Manual for use and maintenance
- A.R. = Risk Analysis
- D.P.I. = personal protective equipment
- R.R. = residual risk
- Q.E. = electrical panel
- B.M. = machine edge
- N.C. = non-conformity
- RF = fixed cover(s)
- RM = cabinet(s) with micro switch without key of yale type, mounted on hinge or on shaped cam, to avoid tampering/closing with additional keys. Possibly always mount them in the internal area of the guards and/or cover them with metal sheets
- RM + B = mobile cover(s) + mechanical lock and release with electrical impulse (micro-switch with electric lock). Do not use micro safety switches with yale type lock and/or release. They must be installed within the hazardous area of the machine having in proximity the key for unlocking in order to avoid the danger of entrapment.

In the upper margin of each page, you will find the dates of revision and latest print/edition of the manual, as well as the current level of revision.



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CAP. 2. GENERAL INFORMATION AND CHARACTERISTICS

2.1. TESTS CARRIED OUT BEFORE DELIVERY

Prior to delivery, all installed components and the machine itself are subjected to meticulous testing both visual and instrumental (e.g. as far as the equipotential protection circuit is concerned), in order to ensure the compliance with both relevant regulatory provisions and contractual requirements.

Careful observance of our instructions will ensure that your machine, under the provided for operating conditions and normal use, will experience great longevity and reliability of operation.

2.2. TECHNICAL CHARACTERISTICS

2.2.1. SCOPE - PURPOSE – CONSTRUCTION PARTS

The **GRID CLEANER WITH PULL/TRACTION SYSTEM**, hereinafter referred to as the machine, is designed and built, when used in the conditions specified by the manufacturer, for the cleaning of the cut bed grates of laser cutting/oxygen cutting machines.

WARNING: The cleaning of the grates should only be carried out in pushing the machine from the handle going FORWARD from the operator standing point and NOT pulling BACK towards the operator.

OPERATING CYCLE AND OPERATING MODE OF THE MACHINE

The main operations performed by the machine are:

> cleaning of the grids of laser-cutting/oxygen cutting machines.

The operating cycle of the bed grates cleaner is characterized by the phases described in chapter 6.

SECURITY MEASURES

During processing in automatic cycle, the working area is completely guarded by fixed protections. The machine is equipped with all the fixed guards and protection devices necessary to ensure the safety of the employees: operator and maintainer. In this case, during the automatic working cycle, the working area and the machine movements are guarded through the use of fixed interlocked guards.

For setup, servicing, etc... it is necessary to suspend the protective devices and command the machine movements with holt-to-run devices (improved safety conditions) with the mobile guards open in manual operation.

During use, the machine requires the intervention of the operator who must engage the cleaning command of the grids by acting on the hold-to-run control lever, also carrying out a visual check to assess the correct progress of the process.



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MAIN MACHINE GROUPS

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RIF.	DESCRIPTION
1	Cleaners
2	Telescopic sliding beam or fixed to the machine beams or wall

RIF.	DESCRIPTION
3	Pneumatic winch unit (optional)
4	Cassette with filter pressure regulator





RIF.	DESCRIPTION	RIF.	DESCRIPTION
5	Lever for pneumatic traction drive (predisposition)	8	Hold-to-run control lever
6	Rubber knob for grip	9	Safety peg
7	Machine support platelet	10	Frame





RIF.	DESCRIPTION	RIF	DESCRIPTION
11	Handle	15	Cutters Ø39 Ø40-Ø41
12	Commercial engine	16	Steel rope with snap hook and carabiner (optional)
13	Galvanized wheels		
14	Surface for sliding on grids		



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PNEUMATIC DRIVE AND PNEUMATIC CASSETTE (OPTIONAL)



RIF.	DESCRIPTION
17	Winch with steel rope
18	Handle
19	Cable guide

RIF.	DESCRIPTION
20	Pneumatic motor
21	Compressed air treatment unit



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Handle frame	
 The machine has a simple work cycle. It is equipped with: N° 2 rubber knobs for the handle (A); N° 1 hold-to-run control lever (C), which activates the operation of the machine, located to the right of the operator N° 1 safety peg (D) placed under the hold-to-run lever, to protect it from any accidental impacts; N° 1 lever (F), which activates a pneumatic motor, which allows the traction or advancement of the grate cleaner; N° 1 safety handle (G), located under the pneumatic traction lever; N° 1 platelet (B), placed at the end of the knobs area, to support the machine; N° 1 folding frame (E) and an optional extension. 	



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Tiller group

The cutter unit consists of: $\Box N^{\circ}$ 1 motor (O), powered by an electric cable, which is passed inside the frame together with the pneumatic tube, described below; $\Box N^{\circ}$ 2 cutters (J), activated by the drill which carry out the processing, by removing the slag;

□N° 1 collection plan (I), which retains the waste generated by processing;

 \Box a steel cable with sling and snap hook (K), to be hooked to the trolley (L) that slides in the guide (P) coming from the traction inside the grate cleaner (optional);

□N° 2 galvanized wheels (H), which leaning on the grid of the laser cutting machine, allow it to slide;

□ fuse (M), able to protect the circuit from surges, or sudden voltage fluctuations (optional).





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Pneumatic traction system (optional)	
The traction system contained in the grate cleaner is used for the traction / advancement of the grate cleaner itself. The pneumatic traction system is an optional unit and consists of: □ n.1 steel rope unwinding / winding winch (D), activated by the same pneumatic motor, which allows the steel rope to be wound or unwound, this will be hooked to the trolley using the carabiner (F) (B see previous image of sliding guide) located on the guide (A see previous image of sliding guide); > □ N° 1 handle (E), to facilitate movement and handling of the entire grid cleaner	



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The compressed air treatment unit, consists of: 1 air treatment unit (G).	

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The machine of mobile type, i.e. it is designed for the cleaning of laser/oxygen cutting machines and removed and stored when not in use.

The electrical equipment of the machine consists in:

a. electric motor and electric cable with industrial plug.

The pneumatic equipment of the machine is made of:

a. pneumatic handling and air handling unit with connection to the industrial power network.

The machine is intended exclusively for professional operators and not for consumers.

2.2.2. PERFOMANCE

As conceived, designed and constructed, the machine is the subject of this instruction manual:

- 1. If used in compliance with the safety requirements set out in chapter 4
- 2. If used in accordance with the specific procedures set out in chapter 5
- 3. If regularly serviced and regularly cleaned, according to the instructions in chapter 7



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2.2.3. MODEL DESIGNATION



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2.2.4. TECHNICAL AND CONSTRUCTION DATA OF THE SUPPLY

Description	SEC-T-15- 4-21	SEC-T-20- 4-21	SEC-T-15- 3-21	SEC-20- 3-21	SEC-15- 2-21	SEC-20- 2-21
Tool's dimension (mm)	39,5	39,5	40,5	40,5	41,5	41,5
Laser bench depth (mm)	1500	2000	1500	2000	1500	2000
Grate width(mm)	4	4	3	3	2	2
H footprint passage	≥45	≥45	≥45	≥45	≥45	≥45
Minimum space between grids (mm)	≥45	≥45	≥45	≥45	≥45	≥45



1. Features bed cleaner

- a. Feed speed of cleaner unit
- b. Pneumatic hose type
- c. Pneumatic hose length
- d. Pneumatic hose diameter

2. Features of the grid bed

- a. Maximum depth grided plane
- b. Maximum floor height grided plane

3. Support beam features (optional)

a. Maximum adjustable height of the side legs

4. Fuse characteristics

a. Rated short circuit current

0.8 m/sec – 31.5 inch/sec POLYURETHANE EXTRA FLEX PUR 1190 3020 mm / 118.9 inch Ø 8 - 1 mm wall thickness

2500 mm - 98.42 inch1105 mm - 43.5 inch

from 0 to 300 mm - 0 to 13.19 inch

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2.3. AIRBORNE NOISE EMISSION

The operating conditions of the machine during the measurement include the machine while in use and moving product and nominal speed.

INFORMATION RELATING AIRBORNE NOISE EMISSIONS	CHARACTERISTICS				
A-weighted recorded emission sound pressure level in workplaces					
Near the workstation	< 89.5 dB(A) \pm 3 dB(A) of allowance				

The values indicated are emission levels and do not necessarily represent safe levels of exposure during the use. Although there is a relationship between emission levels and exposure levels, this cannot used reliably to determine whether further precautions are necessary. The factors that affect the current level of exposure of the workforce include the characteristics of the working environment, other noise sources, etc., i.e. the number of machines and other adjacent processes. Also, the level of permitted exposure may vary from country to country. In any case, this information allows the user of the machine to make a better hazard and risk assessment.



The above values are those measured from the machine in subject.

Since the machine is of medium size, they are indicated:

- > A-weighted acoustic power levels
- > A-weighted emission sound pressure levels at specific points around the machine.

Acoustic data is measured using the methodologies defined in the harmonized standards and the code of measurement more appropriate to the machine.

Since the place or places of work are not and cannot be defined, the sound pressure levels A-weighted are measured at 1 m/3 ft from the machine surface and at a height of 1.60 m/ 5 ft above the ground or the access platform.

2.4. VIBRATIONS

The operating conditions of the machine during measurement and the methods used to carry out the measurements are described in the report included in chapter 9.

I INFORMATION ABOUT VIBRATION	CHARACTERISTICS
Total value of vibrations to which the hand-arm system is exposed	
Hand/arm system	ah : 11,5 m/s2 e K : 2 m/s2



The above values are those measured on the machine in subject.

The data is measured using the methodologies defined in the harmonized standards and the measurement code plus appropriate adapted to the machine.



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2.5. OPERATING CONDITIONS

OPERATING CONDITIONS	LIMITS FOR THE USER				
Installation method	Indoor				
Supporting floor conditions	Horizontal and flat: flatness and ground gradient errors contained in 2%				
Characteristics of support surface	Flooring in reinforced concrete or with flooring in compliance with workplace health and safety provisions in accordance with the legislation applicable therein				
Supporting floor load-bearing capacity or the wall	150 kg / m² – 31 lbs/ft²				
 Minimum space around the machine: width = 1 mt/3 Ft + width of the machine + width of any mobile opening guards. length = 1 mt/3 Ft + machine width + length of any movable opening guards. During tooling, maintenance, or setup: width = 1 mt/3 Ft + machine width + width of any movable opening guards; length = 1 mt/3 Ft + machine width + length of any movable opening guards; 					
Maximum environment temperature	+40°C / +104°F				
Minimum environment temperature	5°C/41°F (if the electrical equipment has a protection degree of at least IP54) 0°C/32°F (if the electrical equipment has a degree of protection lower than IP54)				
Working environment temperature	+5°C/+41°F < T < +45°C/113°F				
Transport and storage temperature	between tra -25° C/ -13° F e $+55^{\circ}$ C/ $+131^{\circ}$ F (for periods of less than 24 h is possible to have temperatures up to $+70^{\circ}$ C/ $+158^{\circ}$ F)				
Maximum altitude above sea level	1000m/3000ft				
Minimum illumination required	600 lux				
Relative humidity of 65% at a tempera IP54)	ture of +25°C/+77°F (if the electrical equipment has a degree of protection of at least				
Relative humidity must not exceed 509 protection lower than IP54)	% at a temperature of +40°C/+104°F (if the electrical equipment has a degree of				
Machine equipment for indoor installat	ions				
Machine inadequate to be operated in gases, salt and similar	n environments where contaminants are present: for example, powders, acids, corrosive				
Machine inadequate for operation in e	environments where potentially explosive atmospheres are present classified as zone 0				
Machine inadequate f to be operated	in environments where ionizing and non-ionizing radiation is present: i.e. microwaves,				
Electrical equipment inadequate to be	e installed at machines or to be operated in environments where vibrations and shocks				
Degrees of pollution for electrical equit	oment equal to 3 (THREE)				
Installation environment equal to two (2)				
It can be used in residential commerce	cial or light-industry environments as it complies with the standard EN 61000-6-1				
Intended for direct/exclusive service of	f industrial process machinerv				
Special and additional prescriptions, not planned, can be requested to the machine intended use:	 outdoor use the treatment of potentially explosive material use in potentially explosive and/or flammable atmospheres the use with specific risks in the processing of certain materials use in mines use in refrigeration systems use in corrosive environments use in presence of strong magnetic fields use in radioactivity conditions the use for loads whose nature could lead to a risk situation (for example, fuse metal, acids/bases, particularly fragile loads, explosives) use in contact with food substances employment in public areas 				



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2.6. POWER SUPPLY OF ELECTRICAL EQUIPMENT

The following are the technical features of the machine in subject in this instruction manual.

TYPE OF TECHNICAL CHARACTERISTICS	MANUFACTURER'S GUARANTEES	LIMITS FOR THE USER
AC POWER SUPPLY	·	
Nature of the current	1 N PE	
Value at full current load	Ref. electrical schematics ± 10%	
Nominal value of the current rating	Ref. electrical schematics ± 10%	
Rated operating voltage	Ue = AC 230 V	± 10%
Frequency	50 Hz	± 1% continuously and ± 2% for a short period of time
Rated short circuit current	Ref. electrical schematics	•
Leakage current	Ref. electrical schematics	
Recommended position of the power cable		protected in sheath or cable channel
Recommended electrical power cable type		H07VK NPI 450/750 class 5° o 6°
Recommended phase conductors cross-section		Ref. electrical schematics mm ²
Recommended neutral conductor cross-section		Ref. electrical schematics mm ²
Required section of the equipotential bonding		
conductor		Ref. electrical schematics mm ²
Harmonic distortion due to the sum of the harmonics from the second to the thirtieth		value of the total voltage between
Tension imbalance		Neither the reverse sequence component nor the sequence component zero of the three-phase supply voltage must be more than 2 % of the direct sequence component of tension
Power supply interruption		Must not be interrupted or the voltage must not go to zero for a time longer than 3 milliseconds. Between two successive interruptions, more than 1 sec
Voltage drops		Any voltage drop must not exceed 20% of the peak voltage, and for more than one cycle. Between two successive drops, more than 1 second must occur
NOMINAL VOLTAGE(S) OF AUXILIARY CIRC	UITS	
Voltage values	AC - DC 24V	
OPERATING LIMITS	•	
Short-circuit breaking capacity of the overcurrent		
protection device	0	
Rated impulse withstands voltage of power circuits	Uimp = 2500 V	
Rated impulse withstands voltage of control circuits	$\lim_{n \to \infty} \frac{1}{2000} = 500 \text{ V}$	
Nominal contemporaneity factor	1	
RECONNINCENDED OVERCORRENT PROTECT		LLi = > Def electrical achamatica > /
Neminal Current		UI = 2 REI. EIECITICAI SCHEMATICS V
Normal Current		III - > Ker. electrical schematics A
Iviagnetic relay adjustment		IIII = < Ret. electrical schematics A
		II = Ret. electrical schematics A
TYPE OF GROUNDING OF THE POWER SUP	PLY SYSTEM	
MASS AND NEUTRAL		TN
MAXIMUM POWER SOURCE IMPEDANCE		200 mΩ
LEVEL OF PROTECTION OF THE EQUIPMEN	Т	
Level of protection of electrical equipment	IP 54 minimum on-board components IP 54 minimum enclosures IP 54 minimum control actuators IP 54 minimum motors	
PROTECTION AGAINST DIRECT AND INDIRE	CT CONTACTS	



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TYPE OF TECHNICAL CHARACTERISTICS	MANUFACTURER'S GUARANTEES	LIMITS FOR THE USER			
Protection against direct contact	Protection by isolation of active/hot parts; Protection by barriers or enclosures (IP2X - IPXXB for all components)				
Protection against indirect contacts	Protection by using the protection circuit; Protection by automatic power supply interruption	Adequate power supply protection must be provided. Power supply conductors of suitable breaking power, considering an assumed short circuit current at the installation point of symmetrical kA (<i>Ref.</i> <i>electrical schematics</i>)			
INTERNAL SUDIVISION TO THE BARRIER OR DIAFRAMMIC EQUIPMENT (necessary IP XXB)					
Segregation	no segregation (form n. 1)				
ELECTRICAL CONNECTIONS OF THE FUNCTIONAL UNITS INSIDE THE EQUIPMENT					
For main input circuit	F (fixed connection)				
For the main output circuit (if connectors are present)	F (fixed connection)				
For auxiliary circuits (if connectors are present)	F (fixed connection) - M (mobile)				
VOLTAGE DROP FROM POWER SUPPLY INF	PUT POINT				
Under normal operating conditions	Less than 5% of rated voltage				

2.7. PNEUMATIC EQUIPMENT

The machine has 1 unit for compressed air treatment (see chapter n.5.), the unit is equipped with quick coupling for connection to the air supply.

The following table shows the supply characteristics valid for the air handling unit.

TECHNICAL FEATURES GROUP N.1	MANUFACTURER'S GUARANTEES	LIMITS FOR THE USER
Compressed air supply		
Minimum pneumatic supply pressure		6 bar / 87Psi
Maximum pneumatic supply pressure		8 bar / 116Psi
Pneumatic operating pressure	4 bar /58 Psi	
Dimensions of the air supply connection socket	1/4"	
Compressed air consumption		
Average value	80 l/min - 80qt/min at 6 bar/87Psi	



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2.8. NORMAL, IMPROPER, PROHIBITED / INCORRECT USE / REASONABLY PREDICTABLE MISUSE

The machine is designed to be operated:



by **ONE operator** trained and aware of the possible risks, who oversees the command and control of the machine for its use and in general for its operation / put in production. Must be instructed on the layout of the machine controls and all the management and safety commands. It must also be informed and trained on the handling of parts, working modes and limits. The operator must work only in active safety conditions. He must also be aware of handling instructions and management of processed products. The operator also carries out the tasks of the **programmer and toolmaker** for which tools are not required, i.e. they can be carried out manually, trained and aware of the potential risks but with the safety skills of service personnel, trained and particularly skilled to prepare work programs. Must be an expert in operator panel programming, of positioning of the elements to be processed and of processing methods suitable for the means of production for which it must setup work programs. It must also be trained and particularly instructed for the activities of manually executable tooling-setup and for the preparation of work programs

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<u>The normal working area</u> for the operator to operate the machine is the area around the machine for command and control operations in automatic and manual operation mode respectively outside and inside the danger zone; these areas can be accessed under normal working conditions with the fixed guards in closed and locked position, movable guards in closed position and additional protection devices active or with the mobile guards open in power off conditions and stops in guaranteed safety.

<u>The normal working area</u> for the operator in charge of tooling/setup that can be carried out manually without the use of tools, is the hazardous zone including the area inside and outside the work zone of the machine for setup and/or configuration operations in the manual operating mode; in these areas it can accessed in manual operation conditions with fixed guards in closed and locked position, movable guards closed and other active protection devices or with the mobile guards open but in disconnected power condition and stops in guaranteed safety.

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By ONE trained **setup technician** and aware of the potential risks but with the expertise in safety for maintenance personnel, who oversees the loading / unloading of tools and parts. He must be aware of the instructions related to part positioning, list of equipment, positioning devices, and workpiece clamping. Must have instructions on how to load/unload by means of lifting equipment.

<u>The normal working area</u> of the setup technician, is the hazardous zone including the inside and outside of the work area of the machine for loading / unloading tools and parts; this area can be accessed in the following conditions normal processing with fixed guards in closed and locked position, closed movable guards and additional devices active protection or with the mobile guards open but in disconnected power condition and stops in guaranteed safety.


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By **ONE mechanical technician in and ONE in the electrical technician**, each one trained and educated on the potential risks, but with the safety skills of the maintenance staff entrusted with the machine maintenance. It must carry out all service work, which also takes place within the following areas dangerous of the machine with mobile guards open and with movements disconnected and stops in guaranteed safety.



He must be an expert in mechanical, electrical, etc... and must be able to evaluate the job assigned to him and recognize possible dangers based on his preparation, knowledge, and professional experience. **He must be educated and not warned**, i.e. he must be a qualified technician or graduate with relevant knowledge of the machine and its equipment and related regulations and that it has a particular competence technique or training.

The maintenance technician can also access the electrical panel with live equipment. It must also be trained and particularly instructed for activities that can be carried out with the use of tools.

<u>The normal working area</u> of the mechancical technician is the area surrounding the machine in operation mode automatic or manual, the loading/unloading area, the hazardous area for handling of the machine in manual operation mode; these areas are accessed with the fixed guards in closed position and locked, movable guards closed and additional protection devices active or with movable guards open in power off conditions and stops in guaranteed safety.

The personnel in charge of loading / unloading the parts / workable parts can be helped **by a second personnel or lifting equipment**, which only has the function of assisting the operations of the first operator in case of objects with a mass greater than 10 kg/ 22 lbs.

Every person must be instructed and well aware of the safety devices the machine is equipped with and must be trained in their use; in addition, he must wear suitable personal protective equipment (glasses, helmet, safety non-slip shoes, gloves, noise caps, etc.) every time you enter the work area.

For setup / tooling operations it is not necessary and therefore it is not possible to suspend the protection (twohand control and hold-to-run control with enabling device) for controlling the movements of the machine with control systems for tooling at reduced speed.

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The tasks of the operator and the normal working areas are:

- 1. arrange the machine according to production requirements and carry out the start-up procedure
- 2. set the production parameters from the operator panel
- 3. manual adjustment and setup when changing formats or according to the needs of working with the fixed guards in closed and locked position and with the movable guards open with movable parts powered off and stops in guaranteed safety. Interventions may concern:
 - a. start up the maintenance service for tooling / maintenance activities
 - b. visually check the fluid levels and start up the maintenance service for topping up the fluids which are not expressly of its competence
 - c. check the status of the filters and activate the maintenance service for replacement
 - d. carry out the interventions indicated in the machine manuals and integrated partlycompleted-machines etc.
- 4. it is responsible for the machining process and has the task of controlling the machine, through the control actuators located in the control panel.
- 5. perform check operations (e.g. reading data from the control panel or instruments); such maneuvers are easy, carried out under safe conditions and clearly described in the instruction manual.
- 6. driving the machine, i.e. starting, and stopping the machine under normal conditions and stopping it in emergency conditions.
- 7. supervise the operation and running of the machine, circulating freely around the same in safety zones with closed guards.
- 8. verification operations (e.g. reading data from the computer terminal or instruments); such maneuvers are easy, carried out under safe conditions and clearly described in the instruction manual for use.
- adjustment, calibration, with fixed guards in closed and locked position but with potentially dangerous moving elements disconnected from the power source and stops in guaranteed safety. In these conditions, the operator and the maintenance technician are allowed access to the hazardous working area of the machine, opening the fixed guards.
- 10. general supervision of the operation of the machine; if necessary, it must not operate interventions but must call for the maintenance service.
- 11. maintain control and monitoring of machining operations in automatic operation of the machine near the area surrounding the ELECTRICAL PANEL with the control panel, outside the dangerous working area of the machine, with the fixed guards in closed and locked position.
- 12. carry out the cleaning of the groups of his strict competence only, within the hazardous area of the machine with the fixed guards in closed and locked position and with the movable guards open and all moving parts in stop as a result of the interruption of the power supply to the actuators (the cleaning of the internal parts of the machine which involve the dismantling of fixed guards is entrusted to the mechanical technician).
- 13. All operations that are carried out by the operator in charge must be performed with all protection devices engaged, all guards install and all safety devices in place, otherwise there is a risk of injury to the limbs, or other parts of the body.



The tasks of the setup technician and the normal working areas are:

- 1. install or replace tools according to production or wear and tear requirements, with power off and safety stops in position and open mobile guards
- 2. adjustment of working groups according to production or wear requirements, with power off and safety stops in position and open mobile guards



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The main hazardous working areas of the machine that can present risks for the operator during the maintenance and servicing operations, are:

1. The area enclosed within the fixed guard where the cutter unit is present and where the trolley is present inside the guide.



The servicing must be entrusted to a **mechanical technician**, not only trained and aware of the residual risks, but with the safety expertise of maintenance workers.

In addition to carrying out all maintenance work, which also takes place within the hazardous areas of the machine with mobile guards open and with movements disconnected and stops in guaranteed safety.

The maintenance technician can also access the electrical machine compartment with live equipment.



The mechanical/electrical technician is responsible for:



- 1. carry out the cleaning of the external parts and internal parts whose access requires disassembly by means of tools and any other part that needs to be cleaned, with the fixed guards in closed and locked position, the mobile guards open moveable parts disconnected from power and stops in guaranteed safety, with the switches for the external power supply open and locked with movements secured in stop position, of all the parts indicated in the instruction manual.
- 2. carry tooling setup, calibration, adjustment, cleaning of the internal parts of the machine (eventually disassembling parts), maintenance, servicing, troubleshooting, replacement worn or deteriorated parts or structural parts standing near the machine body in conditions of automatic operation or with switches for the external power supply open and locked with the movable parts securely parked, of all the parts indicated in the instruction manual. Interventions may concern:
 - 1. carry out the installation and commissioning of the machine, in case the manufacturer does reserve the right to not perform such task
 - 2. fill / top up the fluid tanks of his assigned competence
 - 3. perform the electrical connections
 - 4. ensure the proper greasing
 - 5. replace the flexible hoses of the systems



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- 6. replace the fluid filters
- 7. replace elements subject to wear, including electrical components
- 8. setup the machine elements using tools
- 9. replacement of solenoid valves and electrical components such as fuses, etc.
- 10. clean the filters, etc.
- 11. verification of the absence of breakages and leaks in the pneumatic circuit, lubrication, etc.
- 12. lubricate the mobile elements and top up the fluid containers etc.
- 3. verification operations (e.g. reading data from the control panel or instruments); such maneuvers are easy, safe, and clearly described in the instruction manual.

The work areas that may present risks for the machine maintainer are:

- 1. the area related to the setup, calibration, adjustment, repair, service operations, etc., of lubrication, troubleshooting and replacement of worn or deteriorated parts of the parts indicated and described in the instruction manual
- 2. the surrounding and internal areas of the machine during the handling of the movable elements
- 3. the areas surrounding electrical enclosures, electrical cables, hosing
- 4. the maintenance area surrounding the motors and their kinematic transmission chains
- 5. the areas surrounding the fixed guards
- 6. the areas of ordinary and extraordinary maintenance
- 7. the maintenance areas of the electrical equipment.



This manual lists and describes **the residual/potential risks** that could not be eliminated by design at the factory and that hence remain and hazard (see chapter no. 4).

For any residual risk, instructions and directions to be followed by the user are provided.

For safety reasons, during machining/cleaning operations in the area surrounding the machine is not permitted the presence of people other than those indicated.



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<u>NORMAL USE</u>

- In its **NORMAL USE**, and in any reasonably foreseeable USE, the machine can only be used:
- 1. for the processing of products, according to the operating logic defined in chapter no. 5 (see also chapter 2). Use of the machine to carry out machining operations other than those described in this manual is considered improper and is therefore absolutely forbidden.
- 2. with the use of the products (and materials) described and having dimensions referred to in chapter 2.

It is also mandatory:

- 1. that the machine can be used only by a single operator at a time, who has been made aware of all the functions, the performance and dangers inherent to the use of the machine
- 2. make sure that there are no exposed persons in the area affected by the machine before you begin any operation
- 3. check the perfect integrity of all safety devices before starting to operate with the machine
- 4. in the event of serious danger, release the maintained-action control lever in good time under the rubber knob.
- 5. before carrying out any work on the machine, disconnect the electrical energy sources and safely discharge the residual energy present in the circuits, etc ...

IMPROPER USE

The machine must not be used IN A IMPROPER MODE; in particular:

- 1. it cannot be operated with parameters other than those shown in the table of the technical characteristics (see chapter no. 2) and with products and/or materials having different characteristics from those of previously indicated (see chapter no. 2)
- 2. any use of the machine in ways different from those indicated in this manual, is to be considered improper and therefore the manufacturer declines all responsibility for its consequences
- 3. the user is liable for damages resulting from failure to observe the operating conditions agreed upon in the technical specification and order confirmation.



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MISUSE / PROHIBITED USE / REASONABLY FORESEEABLE MISUSE

The machine must not be used IN IMPROPER / FORBIDDEN / IMPROPER YES REASONABLY PREVIEWABLE; in particular:

- 1. it is forbidden to leave the machine unattended while switched on
- 2. it is forbidden to access the raised parts of the machine for control and disassembly needs, cleaning, etc. by climbing or standing with your feet on the upper surfaces of the machine
- 3. the use of flammable, corrosive or harmful substances for cleaning is prohibited
- 4. it is forbidden to use the machine by unauthorized personnel and in apparel other than the one recommended/intended for the task,
- 5. it is forbidden to smoke or use open flame appliances and handle incandescent materials, unless that appropriate security measures are taken
- 6. it is forbidden to operate or adjust the controls and locking devices such as knobs or similar during the operation of the machine, whether or not authorized
- 7. it is forbidden to hang objects or weights on the machine
- 8. it is forbidden to use with the protective guards open, not properly secured or removed
- 9. it is forbidden to use with micro-switches and safety interlocks deactivated and, in general, with any safety and/or protection device (mechanical, electrical) deactivated and/or not functioning
- 10. it is forbidden to partially or completely neutralize, remove, modify, or otherwise render ineffective the protections, safety micro-switches and hazard warnings
- 11. it is forbidden to use the product without the user taking all the measures concerning the elimination of residual risks indicated in this instruction manual
- 12. it is forbidden to use in operations other than those explicitly indicated in this manual (ref. Ch. 6)
- 13. it is forbidden to use in environments for which its operation is not foreseen, without previously putting in place the appropriate security measures referred to in Chapter 2
- 14. it is forbidden to allow the use of the machine to non-trained personnel
- 15. it is forbidden to operate the control devices for the movement of the machine without having previously checked and verified the absence of other people in the hazardous handling areas
- 16. it is forbidden to enter the operating / hazardous zone of the machine while the moving machine elements are being controlled (ref. Ch. 4)
- 17. it is forbidden to enter the working area of the machine with any part of the body, including hands and arms, before the dangerous moving parts have been effectively stopped (ref. Ch. 4)
- 18. it is forbidden for the operator and the service technician to enter the dangerous areas for cleaning operations, lubrication, maintenance, etc. without having previously placed in the "ZERO" position and locked, the knobs of the power isolating devices
- 19. In case of a machine stop due to the absence of electrical power supply the operator is prohibited to attempt to enter the working area of the machine by trying to bypass the guards, call for the internal maintenance service instead
- 20. it is forbidden to use the machine in critical stability conditions, such as:
 - positioned in non-horizontal, non-flat surfaces of inadequate load-bearing capacity in accordance with the directions and specifications provided in this manual
 - > outdoors or on construction sites without doors and windows
- 21. it is expressly prohibited:
 - the processing of materials or products not specified in this manual, the processing of materials of different dimensions from those indicated in Chapter 2.



The manufacturer cannot be held responsible for any failure caused by a any unreasonable, improper and/or wrong use.

The user is in any case liable for damages resulting from failure to observe the conditions of use specified. For any doubts please contact the manufacturer's technical department.

The user is always responsible for providing personal protective equipment to the operators and information to any users on allowed uses.



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2.8.1. GENERAL SAFETY INSTRUCTIONS FOR THE TOOL

WARNING Read all warnings and instructions. Failure to comply with warnings and instructions may result in electric shock, fire and/or serious injury.

Keep all warnings and instructions for future reference.

The term "power tool" in the warnings refers to power tools operated by connection to the power grid (through cable) or battery operated (cableless).

1. Safety of the work area

- a. Keep the work area clean and well lit. Cluttered and/or poorly lit areas can cause accidents.
- b. Do not operate power tools in explosive atmospheres, for example, in the presence of liquids, gases or flammable dusts. Power tools create sparks that can cause dust or fumes to ignite.
- c. Keep children and passersby at a distance when operating a power tool. Distractions can make you lose control of the tool.

2. Electrical safety

- a. The plug of the power tool must be compatible with the available socket. The plug must never be tampered or modified. Do not use adapters with earthed (grounded) power tools. Not modified plugs and corresponding sockets reduce the risk of electric shock.
- b. Avoid contact of the body with earthed or grounded surfaces such as pipes, radiators, stoves, and refrigerators. If your body is on the ground or earth, the risk of electric shock increases.
- c. Do not expose power tools to rain or use them in damp places. Presence of water into an electric tool increases the risk of electric shock.
- d. Do not wear or tear the cable. Never use the cable to carry, pull or unplug the electric tool from the main socket. Keep the cable away from heat, oil, sharp edges or moving parts. Damaged or twisted cables increase the risk of electric shock.
- e. When operating a power tool outdoors, use an extension cable suitable for use in exteriors. The use of a suitable cable reduces the risk of electric shock
- f. If you cannot avoid using a power tool in a wet place, use a power supply protected by an residual-current circuit breaker (RCCB or RCD). The use of an residual current device (RCD) reduces the risk of electric shock.

NOTE: The term "residual current device (RCD)" can be replaced by the term "ground fault circuit interrupter (GFCI)" or " earth-leakage circuit breaker (ELCB)".

3. Personal security.

- a. Do not get distracted, control what you are doing and use common sense when operating electrical tools. Do not operate the power tool when tired or under the influence of drugs, alcohol, or medication. A carelessness when operating power tools can result in serious personal injury.
- b. Use personal protective equipment. Always wear eye protection. The protective equipment such as dust masks, non-slip safety shoes, safety helmet or hearing protectors reduces the chances of personal injury.
- c. Avoid accidental ignition. Make sure that the switch is in the off position before connecting the tool to the power supply and/or battery packs before taking it or carrying it. Transport power tools with your finger on the switch or connect them to the mains with the switch in the on position can cause accidents.
- d. Remove any adjusting spanner or screwdriver before switching on the power tool. A key left attached to a rotating part of the power tool can cause personal injury.
- e. Do not get out of balance. Always maintain the appropriate position and floor stability. This allows you to control better the power tool in unforeseen situations.
- f. Dress appropriately. Do not wear loose clothing or jewelry. Keep hair, clothing, and gloves away from moving parts. Loose clothes, jewelry or long hair can get caught in the moving parts.
- g. If there are devices to be connected to dust extraction and collection systems, ensure that are connected and used appropriately. The use of these devices can reduce dust related risks.



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4. Use and maintenance of power tools

- a. Do not force the power tool. Use the appropriate tool for the operation to be performed. The appropriate power tool allows the job to be carried out more efficiently and safely while remaining within the limits of the parameters of intended use.
- b. Do not use the power tool if the on/off switch does not operate correctly. Any power tool that cannot be controlled with the switch is dangerous and must be subjected to repairs.
- c. Disconnect the plug from the main supply and/or the battery pack from the power tool before making any adjustments, change accessories or store power tools. These preventive safety measures reduce the risk of accidental start-up of the power tool.
- d. Keep unused power tools out of the reach of children and do not allow people, that are inexperienced with the tool or not familiar with these instructions, to use them. Power tools are dangerous if used by inexperienced people.
- e. Carry out the necessary maintenance on the power tools. Check for possible incorrect installation or clamping of moving parts, breakage of parts and any other conditions that may affect the operation of electric tools. If damaged, have the power tool repaired before using it. Many accidents are caused by the poor maintenance of power tools.
- f. Keep cutting tools clean and sharp. Cutting tools in good condition, well maintained and with sharp cutting edges are less likely to jam and are easier to control.
- g. Use the power tool, accessories, tips, etc., in accordance with these instructions, considering the working conditions and the operation to be carried out. The use of the electric tool for operations other than those foreseen may create dangerous situations.

5. Servicing

a. Have the power tool repaired only by qualified technicians and use only identical spare parts. This guarantees the constant safety of the electric tool.



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CAP. 3. SUPPLY CONSISTENCY

3.1. CERTIFICATION

Directive 2006/42/EC specifies the minimum conditions under which a machine may be placed on the market of the European Union.

The above-mentioned Directive prescribes that all machines may only be marketed and put into service if they do not endanger the safety and health of people, pets, or property.

The machine does not fall into one of the categories of machines listed in Annex IV of the Directive. To certify the conformity of the machine to the provisions of the Directive, CF LAMIERE S.A.S., before placing the product on the market, has carried out all the tests and verifications required by the rules of reference, including risk analysis, in order to verify timely compliance with the essential safety requirements and health provided for in the Directive. The technical dossier of the construction, which collects the fundamental data of the design and all features related to the safety of the machine, has been developed in accordance with, as provided for in Annex VII, of Directive 2006/42/EC, **is filed in our offices** and is available for verification of the supervisory entities upon reasoned request, as provided for by the related existing legislative provisions.

CF LAMIERE S.A.S. having verified through the above analysis that the machine has been designed and built in comply with the provisions of Directive 2006/42/EC, complying with the provisions concerning it, and that it can be used safely under the service conditions provided for in this manual, provides for the machine to be commercialized and placed on the market, equipping it and accompanying it with:

- EC Marking
- > EC Declaration of Conformity
- User's Manual (User Manual)



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CAP. 4. SAFETY INSTRUCTIONS

4.1. PREMISE



ALWAYS COMPLY WITH SAFETY REGULATIONS.

NON-APPLICATION OF SAFETY RULES AND PROCEDURES CAN BE A SOURCE OF DANGER AND DAMAGE TO PERSONNEL AND THE MACHINE.

The safety instructions referred to in this operating manual are of the general nature and, although they are based on experience, they do not extend to all situations that might occur.

These instructions supplement and do not replace the constant application by the user/owner of the machine, the basic safety standards known to those working in the specific field.

It is therefore recommended to comply with the safety and prevention standards already used in the places where machine will be commissioned and used.



In chapter no. 4, the residual risks present on the machine are highlighted despite the correct application of the design and safety regulations; the procedures to be applied by the buyer in order to reduce and/or eliminate the residual risks highlighted are also provided.

In chapter no. 4 it is showed the type of labels/plates that are present on the machine and those that must be applied on or in correspondence with the machine.

The machine supplied is intended to be bound in the integration and use (operation and maintenance) to the respect by you and/or the end user of:

- 1. all the rules, of inclusion in the environment and behavior of people, established by law and/or applicable standards; with particular reference to the installed fixed up-line system from the machine supplied and for its connection/operation:
- all further instructions and warnings for use forming part of the technical/graphical documentation attached to 2. the machine itself.

The machine must be installed, protected, used, maintained and finally dismantled (following its disuse), in such a way that avoids danger, as far as its reasonably possible, to people, things or animals, and care must be taken to ensure the necessary maintenance.



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4.2. OBLIGATIONS AND DUTIES

4.2.1. OBLIGATIONS OF THE PLANT MANAGENT

The plant managers, who supervise the work activities, must, within the scope of their respective attributions and competences:

- 1. implement the foreseen security measures;
- 2. make operators aware of the specific risks to which they are exposed and to bring to their knowledge the essential harm prevention regulations;
- 3. have in place and require individual operators to comply with safety regulations and use the means of protection made available to them:
- 4. put more than one operator, at the same time, working on this item.

It should also be noted that following the commissioning of the machine, at your plant, it is subject to the provisions / requirements of Directive 2009/104/EC and subsequent amendments.

4.2.2. GENERAL PERSONNEL REQUIREMENTS

The personnel interacting with the machine supplied must:

- 1. have read and understood all the safety instructions in this instruction manual for use
- 2. present normal psychophysical conditions
- 3. be previously informed and trained about:
 - 3.1. the dangers of injury or other damage that may result from direct or indirect contact
 - 3.2. the dangers caused by overheating, electric arcs or radiation produced and/or emitted by any electrical equipment present
 - 3.3. the dangers of a non-electrical nature which, as experience teaches, may derive from the electrical material possibly present
 - 3.4. the dangers of injury or other damage due to the residual risks outlined in this handbook
- 4. possess (or acquires through appropriate training and education), the following requirements:
 - 4.1. general and technical culture at a sufficient level to understand the content of this user manual and the instructions in it and correct interpretation of the enclosed wiring diagrams and all technical drawings
 - 4.2. knowledge of the main hygienic, accident prevention and technological standards
 - 4.3. overall knowledge of the machine and any electrical equipment present
 - 4.4. know how to behave in case of emergency
 - 4.5. know where to find personal protection gear and how to use it correctly if the indications give by the manufacturer prescribes it or if the collective protections are insufficient
- 5. report immediately to the employer any deficiencies in the security and safety devices and means of protection, as well as any other dangerous conditions of which they may become aware, by directly intervene, in case of urgency and within the scope of their powers and possibilities to eliminate or reduce the found deficiencies or potential dangers
- 6. do not remove or modify the devices and other means of safety and protection without having received the authorization
- 7. not to carry out, on their own initiative, operations or maneuvers which are not their responsibility, and which may compromise the safety of themselves or that of other people
- 8. do not wear rings, wristwatches, jewelry, ragged garments, scarves, ties, or whatever other garment or pendulous accessory that may be a source of risk; tighten the sleeves around the wrists, and always keep your hair well-tied
- 9. have reached the age of legal majority
- 10. be physically and psychically fit to perform jobs of particular technical difficulty
- 11. have been adequately instructed in the use and maintenance of the machine
- 12. have been judged suitable by the employer to carry out the task entrusted to him/her
- 13. be able to understand and interpret the operator's manual and safety requirements
- 14. know the emergency procedures and their implementation
- 15. have the ability to operate the specific type of equipment
- 16. be familiar with the specific rules concerning this type of job
- 17. have understood the operating procedures defined by the machine manufacturer
- 18. take care of their own health and safety and that of other people in the same workplace, on which the effects of its actions or omissions fall under his resposability, in accordance with its training, instructions, and the means provided by the employer



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- 19. contribute, together with the employer, managers, and supervisors, to the fulfilment of obligations provided for the protection of health and safety in the workplace
- 20. comply with the instructions and directions given by the employer, managers and supervisors regulating the collective and individual protection
- 21. properly use work equipment, safety devices and protective devices made available to them
- 22. participate in the training and education programs arranged by the employer
- 23. undergo the health checks provided for in the current legislative decree on the subject or in any case ordered by any doctor competent for these matters.



Except where otherwise specified, the personnel carrying out the installation work, connection, maintenance, reinstallation and reuse, troubleshooting, cleaning and disinfection, demolition and dismantling must be carried out by experienced personnel trained in safety and knowledgeable on the residual risks (ref. Chapter 6) and with the safety expertise of maintenance personnel.



All the specific skills, tasks and hazardous areas within which the operator and the maintenance technician must to carry out the functions described in this manual, are respectively indicated in chapter n. 6 (for as regards the operator), and chapter 7 (with regards to the maintenance technician).



Such experienced personnel must be able to assess the job assigned to them and recognize possible dangers on the basis of their preparation, knowledge and professional experience and their knowledge of the machines in subject, and the relevant equipment and regulations; it must also be in possession of an adequate professional qualification regarding the machines in object. It must be trained in safety and awareness of the residual risks referred to in Chapter 4

He must also be **experienced and not just made aware**, i.e. he must be a qualified technician or graduate with knowledge relevant to the machine and its equipment and the relevant regulations, and that it presents a part technical competence or training.

In addition to carrying out all maintenance/servicing work, in some cases he supports the operator in certain activities of equipment. The maintenance technician can also access the machine compartment with live equipment.

For safety reasons, in the area surrounding the machine during machining operations the presence of other people besides the operator is not allowed.

As an exception to this requirement, the presence of expressly authorized maintenance personnel by the production manager is then allowed.

Personnel responsible for the regulation/registration, use and maintenance of the machine must immediately suspend activities and inform the employer or the head of department or the specific person in charge in case of defects or malfunctions.

If the user does not have experienced or warned personnel, he must commission the activities in question to a supplier company able to provide competent personal and services for the employment of the machine and achievement its purposes.



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4.3. ENVIROMENTS, WORKPLACES AND PASSAGEWAYS

The working environment must meet the requirements of Directive 89/654/EEC. In the working area must be kept free of foreign objects. The lighting equipment must be checked periodically and kept efficient.

The employer, in compliance with Directive 89/391/EEC on the implementation of measures to promote the improvement of the safety and health of workers at work, must ensure the elimination of or reduce the residual risks indicated in this manual.

FLOORS AND PASSAGEWAYS AROUND THE MACHINE

The floors of the working areas surrounding the machine and the passageways around the machinery, must not have potentially dangerous potholes or protrusions and must be in a condition to allow the safe movement and transit of people and means of transport. Floors and passageways must not be cluttered with material that obstructs normal circulation. When for obvious technical reasons is not possible to eliminate fixed or mobile obstacles which pose a danger to the workers or the vehicles they have to drive through in the transit zones, obstacles must be properly marked.

The employer must keep the environment around the machine conveniently ventilated and equipped with openings and safety devices.

PREVENTION AND PROTECTION AGAINST FIRES

In all companies or specific processes, suitable measures must be taken to prevent fires and to protect the safety of workers in the event of fire.

In companies or processes where there are specific fire hazards:

- 1. smoking is prohibited;
- 2. it is forbidden to use open flame tools or appliances and to handle incandescent materials, unless the appropriate security measures are in place;
- 3. suitable extinguishing media must be provided in relation to the particular conditions in which can be used, including portable first aid fire extinguishers;
- 4. these means must be maintained and checked at least once every six months by experienced staff;
- 5. it must be ensured, in case of need, that workers are easily and quickly removed from the dangerous premises;
- 6. water shall not be used for the extinguishing of fires when the materials with which it would make contact can react in such a way as to increase the temperature considerably or to release flammable or harmful gases. Likewise water, unless it is water spray, and other conductive substances must not be used near live conductors, machines and electrical appliances.

The restrictions described above must be made known to staff by means of proper notices.

NOISE

The machine covered by this operating instructions manual, in the main working and control areas of the machine, produces an airborne noise indicated in chapter n.2.

However, even if the machine is basically not particularly noisy, a factor that influences the risks from noise exposure in the workplace is the duration of exposure, the characteristics of the buildings, the noise of the adjacent machines, etc.

It is therefore the employer's obligation to take the following measures:

- 1. Limit the exposure time by arranging for work shifts.
- 2. If necessary, provide means of personal protection (hearing protectors), also providing to instruct workers on their proper use.
- 3. Make sure workers undergo periodic health checks.

<u>LIGHTING</u>

The environment in which the machine is placed must be sufficiently illuminated so that the operator can give a visual check of the machine and the pictograms placed on it. In the case of underground installations, or basement, it is necessary to provide appropriate localized lighting, perhaps by means of a portable lamp that complies with the relevant regulations in place. The amount of light produced must not be such as to dazzle/cause glare, or in any case cause visual discomfort, to the safety manager or to the personnel in charge of the maintenance.



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CLIMATIC CONDITIONS

As with noise and lighting, it is also necessary to check that the climate of the working environment is "bearable". The machine, which is the subject of this instruction manual, is suitable for operation in the following climatic conditions defined in chapter no. 2 for which its technical characteristics are described.

GENERAL CONDITIONS OF THE ENVIRONMENT IN WHICH THE MACHINE IS USED

- 1. The working environment must meet the requirements of Directive 89/654/EEC.
- 2. The lighting equipment must be checked periodically and kept efficient.
- 3. There must be no foreign objects in the work area.
- 4. Cables and piping must be protected and must not get in the way.
- 5. Environmental and operational conditions must not constitute an obstacle to access any of the controls, in particular the emergency stop.

4.4. GENERAL RULES FOR THE PROTECTION OF MACHINERY

TEMPORARY REMOVAL OF GUARDS AND SAFETY DEVICES

Machine guards and safety devices must not be removed except for the maintenance/servicing reasons. If they are to be removed, measures **must be taken immediately to highlight the potential danger and to reduce the risks to the minimum possible**.

The protection or safety device must be put back in place as soon as the reasons that made their temporary removal necessary cease to exist.

PROHIBITION TO CLEAN, OIL OR GREASE MOVING PARTS

It is forbidden to clean, oil or grease by hand the organs and moving parts of the machines unless is required by specific technical requirements, in which case suitable means must be used to avoid any danger. Workers must be made aware through clearly visible warnings.

PROHIBITION OF REPAIR OR ADJUSTMENTS OPERATIONS ON MOVING PARTS

It is forbidden to carry out any repair or adjustment operations on moving parts.

If it is necessary to carry out these operations during the motion, appropriate precautions must be taken to protect the safety of the worker.

Workers must be made aware by clearly visible warnings.

MACHINE'S STOP POSITION LOCK

Machines that for loading, adjusting, changing parts, cleaning, repairing and maintenance, require the worker to get into them and protrude some part of the body between the organs which can be engaged in motion, must be equipped with devices, which absolutely ensure the stop/park position of the machine and its organs during the execution of said operations.

The necessary measures and precautions must also be taken to ensure that the machine or its parts are not set in motion by others.



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4.5. MOVING STRUCTURES



Before moving structures always make sure that the movement area is not occupied by personal or by objects that could constitute elements of danger.

If the lighting and/or visibility is poor, do not move any structure until a manager has ascertained the necessary freedom of movement within the work area; do not assume that the work area is free, but make sure by a visual inspection.

Lock electrically and mechanically all moving parts of a structure or equipment that must be transported.





4.6. LIFTING EQUIPMENT

When using lifting equipment to handle a machine, make sure that the pivots for hooking and lifting are correctly placed.

Take the necessary precautions to prevent dangerous overloads due to acceleration, deceleration or impact forces.

Before lifting a load, make sure that the load is securely tied and balanced in the lifting.

DO NOT LIFT LOADS DIRECTLY ABOVE PEOPLE; IN THESE CASES, LOWER THE LOAD OR CLEAR THE AREA FROM MOVEMENT FROM PEOPLE.



Make sure that the harnesses, used for lifting, are in good conditions and suitable for the kind of work that must be carried out.

Make sure that the safety workload of the crane is bigger than the weight to be lifted.



4.7. PERSONAL MEANS OF PROTECTION AND EMERGENCY ASSISTANCE

Use personal protective equipment in accordance with Directive 2009/104/EC and subsequent amendments and updates.

PERSONAL MEANS OF PROTECTION

The employer must make available to workers personal means of protection appropriate to the risks inherent to the work and operations carried out if the technical means of protection are missing or insufficient. This personal protective equipment must meet the necessary strength and suitability requirements and be kept in good condition.

PROTECTIVE CLOTHING

The employer must provide workers with suitable protective clothing, when job to be carried out, or operations or environmental conditions present particular hazards.

<u>CLOTHING</u>

Workers must not use personal clothing or attire in the workplace which, in relation to the nature of the operations or the characteristics of the plant, constitute a danger to personal safety.

Workers should not wear rings, wristwatches, jewelry, ragged clothing, scarves, ties, or any other garment or pendulous accessory that may be a source of risk; tighten the sleeves around the wrists well, and always keep hair well-tied.



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HAIR PROTECTION

Workers who operate or pass through rotating organs presenting dangers of entanglement of the hair, or in presence of flames or incandescent materials, must be fitted with appropriate protective hair cap, resistant and washable and that completely encloses the hair.

HEAD PROTECTION

Workers exposed to specific hazards of head injuries due to falling materials from above or in possible contact with dangerous elements must be provided with appropriate headgear.

EYE PROTECTION

Workers exposed to the danger of eye injury from splinter protection or hot, caustic materials, corrosive or otherwise harmful, must be fitted with appropriate glasses, visors, or screens.

EAR PROTECTION

Workers who are exposed to the danger of ear injuries due to tearing or insistent noises must be fitted with earmuffs or ear plugs.

HAND PROTECTION

In processes that present specific dangers of punctures, cuts, abrasions, burns, hand injuries, the workers must be provided with mitts, gloves, or other appropriate means of protection.

FOOT PROTECTION

For the protection of the feet in work environments where there are specific dangers for burns, punctures or possible foot crushing and to avoid the danger of tripping, slipping and falling onto the surface in which workers move, the workers themselves must be provided with resistant footwear suitable for the particular nature of the risk. These shoes must be able to be taken off quickly.

The employer must keep the floor/surface on which the operators move clean and free of substances that might cause slipping.

PROTECTION OF OTHER PARTS OF THE BODY

Where it is necessary to protect certain parts of the body against specific risks, workers must have suitable means of defense, such as suitable screens, aprons, bibs, boots, or gaiters.

BREATHING MASKS

Workers exposed to specific risks from inhalation of dangerous, harmful gases, dusts or fumes must have access and wear masks or other suitable devices. Such devices must be stored in a suitable place, easily accessible and known to the personal.

ACCIDENT REPORT AND EMERGENCY ASSISTANCE

Workers, unless prevented from doing so by force majeure, are required to report immediately to their employer or to their supervisors the accidents, including minor injuries, that occur to them during the execution of their assigned job.

The employer must provide first aid for accidents, including minor injuries, ensuring that immediate aid is given to the injured party.

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4.8. INDICAZIONI SUI RISCHI RESIDUI PRESENTI

maintenance managers, are provided.

GENERAL INFORMATION This manual **list and describes the residual risks** that could not be eliminated at the factory design

and that remain on the machine.

For each risk, instructions, or directions that the user must follow to avoid harms to the operator and



For safety reasons, during machining operations in the surrounding area of the machine is not permitted the presence of other people besides the operator.



After considering the possible risks related to the use and maintenance of the machine, all the solutions necessary to **eliminate the risks and limit the dangers to exposed persons** have been adopted. However, the following possible residual risks remain on the machine, which can be eliminated or reduced adopting the indicated precautions.





The employer, in compliance with Directive 89/391/EEC and subsequent amendments and updates, on the implementation of measures to promote the improvement of the safety and health of workers in the European Union workers during work, must eliminate or reduce the residual risks indicated in this manual.



The employer must ensure that staff is trained on the risk of accidents, safety devices and the general rules on accident prevention laid down in Community directives and in the legislation of the country where the machine is installed.



It is the user responsibility to make sure that the instructions given are adequately received and understood.



It is the employer's responsibility to instruct operators and maintainers by engaging a training class, possibly in collaboration with the machine manufacturer, so that they are adequately trained on the risks in general and the residual risks indicated in this manual.



It is therefore necessary that the **use, the servicing and maintenance carried out by the user and the cleaning** are entrusted to staff trained and competent.

It is the responsibility of the employer to ensure that the instructions given have been properly implemented.

For safety reasons, the presence of other people besides the operator is not permitted in the area surrounding the machine during machining operations.

As an exception to this rule, the presence of maintenance personnel expressly authorized by the production manager is permitted.

When necessary, it is also the responsibility of the user:

- 1. activate a training/training class, possibly in collaboration with the manufacturer of the machine, so that **operators and maintainers** are adequately instructed on the risks in general, and on the residual risks indicated in this manual;
- 2. **use personal protective equipment** in accordance with Directive 2009/104/EC and subsequent amendments and updates.



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There is a residual risk for both the operator and the maintenance technician, due to possible contact with cutting elements of the machine, due to the presence of sharp-edged plates and cutting tools.







The operator and the maintenance technician must work with caution and respect the indications given on the labels posted and in the user manual and use the required PPE

Therefore, both the operator and the maintenance technician, in addition to complying with the intended use, must respect the following uses permitted and prohibited in chapter 2 and in the appropriate signs affixed on the machine, wear appropriate protective clothing to avoid contact with elements that create a cutting hazard and for the short duration jobs for which it is not possible to use protection.







Protective aloves

RESIDUAL RISK DUE TO ENTANGLEMENT

There is a residual risk for both the operator and the maintenance technician during the winding in the winch area, due to the possible entanglement on rotating organs of hair or fluttering clothes such as ties etc.





The operator and the maintenance technician must work with caution and respect the indications given on the labels posted and, in this instruction manual, and use the PPE provided.

Therefore, both the operator and the maintenance technician, in addition to complying with the intended mode of use, must not wear fluttering dresses, rings, necklaces, scarves, ties etc. It is advisable to equip the staff with light headgear to protect the scalp (cap, hat, hair net, etc.). They must wear proper working gear that do not have any parts that could get caught in the moving organs of the machine; avoiding, where possible, the use of gowns or lab coats and paying particular attention that cuffs and wrist bands are tightly closed.





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USE OF THE MACHINE



The machine must be used exclusively for the purpose to which it is expressly dedicated, such as specified in chapter no. 2.

The use of the machine should be reserved only to personnel who have followed a specific class on use and of safety and that has read this instruction manual carefully.



The operator, in addition to being adequately informed, trained and operate the machine with caution and staying focused on the job, **must always use the utmost care during normal use and comply with the intended methods of use.**



PPE to be used:

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Protective gloves	Safety footwear	Body protection	Hard- hearing protection	Respiratory protection: mask (category II)	Eye protection

RESIDUAL RISK DUE TO THE IGNITABILITY OF THE SUBSTANCES USED IN THE MACHINE

To avoid the dangers of fire:

- 1. of the substances used in the machine;
- 2. in any case, against the residual risk due to the development of a fire;

the employer, as well as adequately training and informing the operator and the maintenance technician, in the vicinity of the command post of the machine, must provide **suitable permanent fire-fighting systems**, suitable for the type of materials that may catch fire.

Respiratory protection: mask

(category II)





Protective

gloves







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RESIDUAL RISK DUE TO FAILURE OF THE PLANT LIGHTING



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As indicated in chapter 2, in the working areas of the operator and the maintenance technician, the lighting of the factory **must not be less than 600 lux.**

If the plant's lighting fixtures fail, during normal operation or during the cleaning operations and, in general, during adjustment/setup and maintenance work, there is a residual risk for the operator and the maintenance technician, who would be forced to work with non-sufficient illumination.



In this case any operation with or on the machine must **stop immediately and the service staff or factory maintenance must be warned, in order to have the damaged lamp(s) replaced**. Any intervention by the operator or the maintenance technician can only take place after the restoration of adequate lighting.



RESIDUAL RISK DUE TO THE NATURE OF THE PRODUCTS USED IN CLEANING, LUBRICATION OPERATIONS



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There is a residual risk for both the operator and the maintenance technician, **due to the nature and the chemical composition of the products used in cleaning and lubrication**, due to their use during cleaning operations.

Please refer to the technical safety data sheets of these materials in chapter no. 8, in which are also indicated the specific residual risks that these products present together with the precautions to be taken.







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RESIDUAL RISK DUE TO LIFTING OPERATIONS AND INTERVENTIONS THAT REQUIRE MANUAL OPERATIONS



The lifting and transport operations of the machine or its parts, the tooling or the handling, loading / unloading of products and handling of parts in general, even if carried out in the compliance with the instructions in this manual, are manual operations that involve a residual risk **mainly due to impacts**, **crushing**, **dragging**, **slipping or abrasion**.

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These operations require a considerable degree of attention from those in charge; the person responsible for the operations must adequately inform staff about these residual risks.



There is also a residual risk of impact, abrasion, cut, puncture and abrasion during **tooling setup**, **maintenance**, **cleaning operations and further manual operations involving the possible loss of parts or components from above**, for the operator and the maintenance technician also due to the need to carry out manuals interventions on the machine.



Therefore, both the operator and the maintenance technician, in addition to being adequately informed and trained, every time they carry out manual operations, in addition to complying with the intended modes of use, they must also use devices of protection for the head (if there is a danger of falling objects), hands, feet and clothing suitable for the workplace such as: safety helmet, cut-resistant gloves, footwear, etc. non-slip footwear, resistant and adapted to the particular nature of the risk, with an steel tip.







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RESIDUAL RISK DUE TO THE OPENING OF INTERLOCKED COVERS, REMOVAL OF FIXED GUARDS, INTERVENTION ON BROKEN/WORN OUT PARTS

Under any circumstances, the operator must try to open a cover during the planned working phase or remove a fixed shelter.





- With the guards open, there is a residual risk during **tooling**, **maintenance and cleaning**, **and during any of the possible manual operations** that take place by introducing the hands or other body parts into the dangerous areas of the machine, mainly due to:
- 1. impacts with machine parts or with the keys that operate the safety interlocking microswitches, mounted on the internal parts of the mobile guards,
- 2. creep and/or abrasion with rough machine parts,
- 3. slipping or falling.

These operations require a considerable degree of attention from those in charge; the person responsible for the operations must adequately inform staff about these residual risks.

Workers must not wear rings, wristwatches, jewelry, ragged clothing, scarves, ties, or any other garment or pendulous accessories that may be a source of risk; tighten the sleeves and cuffs tightly around the wrists, and always keep your hair well tied.

The operator and the maintenance technician, in addition to being adequately informed and trained, whenever they carry out the operations mentioned above, **must use head protection devices (if there** is a danger of falling objects), hands, feet, clothing suitable for the workplace and the respiratory tract, such as for example shockproof helmet, cut-resistant gloves, non-slip footwear, resistant and suitable for the special nature of the risk, with steel tip and dust masks or other suitable devices.

In addition, the operator and the maintenance technician **must be trained for the intervention related to manual operations with open guards or with safety devices momentarily excluded**, must be instructed on the consequent associated risks and must be authorized by a supervisor or person in charge.

If, during ordinary or extraordinary maintenance operations, the safety devices **should be temporarily** removed, measures must be taken immediately to highlight and to reduce the resulting danger to the lowest possible limit.

The protections or safety devices must be put back in place as soon as the reasons that made their temporary removal necessary.

PPE to be used:





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4.9. PLATES & LABELS

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Plates, signs, and labels must always be clearly visible and must never be removed. Plates, signs, and labels are a safety tool and should not be ignored. The user is obliged to immediately replace all safety and/or warning signs that might wear-off, tear, or should become illegible.

LIST AND MEANING OF THE PLATES ON THE MACHINE

All signs of prescription, danger, signaling, etc... must be indicated at the danger / access area and in the instruction manual.

M 2	A				
Protective gloves	Body protection	Safety footwear	Hearing protection	Respiratory protection: mask (category II)	Eye protection



POINT OF INSERTION OF LIFTING BELTS OR FORKLIFT FORKS

Affixed near the fork insertion points of the forklift forks for lifting



Affixed near the eyebolts provided for lifting



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DO NOT REMOVE GUARDS AND PROTECTIVE DEVICES

Affixed on the upper support surface of the machine



(The label must be affixed on the control panel or electrical panel.).



Protection class II



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WARNING ALWAYS UNPLUG THE POWER-PLUG AFTER FINISHING THE PROCESSING AND IN ANY CASE BEFORE INSPECTING THE TOOL



WITH THE FIXED COVER REMOVED THERE ARE MOVING PARTS WHICH CAN CAUSE CRUSHING.

WAIT AT LEAST SEC BEFORE ACCESSING DANGEROUS MOVING PARTS AFTER THE INTERRUPTION OF THE POWER SUPPLY AND IN ANY CASE ACCESS WHEN THE MOVING PARTS ARE STATIONARY

(The label is affixed on the fixed access guards to the machine's moving parts)



IT IS FORBIDDEN TO INTRODUCE THE HANDS.

THERE ARE ELEMENTS WHICH REPRESENT A CUT HAZARD.

Affixed near the access cover to the cutters



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4.10. DESCRIPTION OF SECURITY FUNCTIONS

Since faults or disturbances in the electrical equipment can lead to a dangerous condition or cause damage to the machine or to production, appropriate measures have been taken to reduce the probability of such damage to occur.

Below is the degree of adoption of each measure, whose level of application depends on the level of risk related to the respective application.



The protections and safety devices must not be removed except for required interventions conducted by the entitled maintainer.

If they are to be removed, measures must be taken immediately to highlight and to reduce the hazards to the minimum possible.

The protection or safety devices must be put back in place as soon as the reasons that made their temporary removal necessary cease to exist.

The cutter unit is protected by a casing/hull, also made by means of fixed guards, which does not allow access to any dangerous parts except in the loading/unloading areas.



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Mounting the guards and safety devices provided on the machine





Ref.	REARSHOOTING / PROTECTION DEVICES	DANGER POSITIONING
1	Fixed guard	□ Fixed guard: metallic sheet guard, fixed to the machine structure with socket head screws; protects against the risk of hands being crushed by internal moving parts.
2	Mobile guard	□ Mobile guard: metallic sheet guard, fixed with captive screws to the fixed guard, to replace the steel cable.
3	Fixed guards	□ Fixed guards: metallic sheet guard, fixed with screws to the machine frame, designed to prevent the upper limbs from reaching the pneumatic valve and the power button.



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As far as **fixed cover guards** are concerned, it should also be noted that:

- 1. the dimensions of the fixed guards are such that they do not leave openings in the protected dangerous working area when they are fixed in place
- 2. the fixed guards not permanently welded to the machine are fixed with screws that require the use of special keys (Allen keys) and can only be removed, with the appropriate key, by those in charge of the maintenance
- 3. access to compartments protected by a fixed cover is allowed only to the maintenance technician. For no reason, the operator should attempt to open a fixed shelter
- 4. it is not possible nor allowed to reassemble a cover in the wrong position and leave dangerous openings it in the casing
- 5. if the guards are not fixed in place with special screws, they cannot remain in place closed and resting in that seat in the absence of fasteners.
- in the event of loss of the fixing systems of the fixed guards, uses devices/fasteners of the same or 6. equivalent type, which in any case require the use of tools.

In the sizing and choice of guards and safety devices, it was considered the accessibility capabilities of people aged 14 years and over.

The movable guards, as opposed to fixed guards, remain attached to the machine when in the open position, to avoid, as far as possible, tampering with the safety microswitches.

As for the fixed guards, the fixing systems of the mobile guards is done by means of screws that require the use of special tools (Allen keys) and can only be removed, with the appropriate tools, by those in charge of the maintenance/servicing and not by the operator..



Access to the compartments protected by a mobile cover is permitted to both the operator and the maintenance technician. No matter what the reason, the operator must never attempt to deliberately circumvent a mobile shelter.



Access to rooms protected by a fixed cover is allowed only to the maintenance/service technician. For no reason, the operator must attempt to deliberately circumvent a mobile shelter.



Before commissioning, all guards and safety devices must be correctly installed, adjusted/registered and made operational by scrupulously and carefully following the instructions in the installation, use and maintenance manuals of the same safety devices (all delivered with the equipment) and described in this instruction manual.



It is forbidden to tamper with any of the installed safety devices, even partially or just momentarily since they serve precisely for the physical safety of both the operators and the staff present. Violation of this precept is a cause of risk and is in contrast with the current provisions of security



regulations at work.

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CAP. 5. TRANSPORT, COMMISSIONING AND HANDLING

5.1. INSTALLER REQIREMENTS



The installation/commissioning involves a range of mechanical and electrical issues of a magnitude that requires the operator to have a good theoretical-practical knowledge of the machine.



In particular, the personnel responsible for the installation is a qualified maintenance technician, who must ensure the following goals:

- 1. limit the deterioration of wear parts
- 2. reduce accidents to a minimum
- 3. contain the costs for accidental breakdowns
- 4. limit the number and duration of interventions
- 5. act in collaboration with the line operators for the best efficiency of the system.



If the **installation** activities are carried out by the user, it is absolutely required that **for the task be entrusted to experienced**, competent and employer-authorized personnel.

Such experienced personnel must be able to assess the job assigned and recognize possible dangers on the basis of their preparation, knowledge and professional experience and their knowledge of the machines in object together with the relevant equipment and regulations; it must also be in possession of an adequate professional qualification regarding the machines in question.

It shall be trained in safety and aware of the residual risks referred to in Chapter 4.

He must also be **educated and not just made aware**, i.e. he must be a qualified or graduate technician with knowledge relevant to the machine and its equipment and the relevant regulations and possessing specialized technical competence or training.

In addition to carrying out all installation tasks:

- 1. can also access the machine compartment with the live equipment;
- 2. within the hazardous areas of the machine with open movable guards and movements in safely ensured stop, is allowed to access the machine compartment with live equipment.



The personnel who carries out the operations included in this paragraph, in addition to presenting characteristics given in **chapter 4**, **must read and understand** the safety instructions given in the **chapter n. 4**.



If the **user does not employ properly trained and experienced or warned personnel**, he must agree on an installation contract with special companies such as the machine manufacturer.







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5.2. WORKSTATIONS AND TASKS OF THE INSTALLER

The useful references for the traceability and identification of electrical components are contained in the relative diagrams, tables, etc. All these documents are delivered with the machine (see chapter no. 9). All the documents for the use and maintenance of the safety components need to be referenced also when conducting maintenance/service operations.



Before any installation intervention, pay close attention to the labels in the machine and on the electrical equipment.



During such activities, none of safety devices must be tampered with or disengaged or by-passed for any reason, nor use them in ways other than those intended by the manufacturer.



After each of the above interventions, all safety devices must be restored and made operational.



Do not intentionally tamper or damage the protective screens or remove or conceal the warning labels. If deterioration or illegibility signs are detected, immediately request the supplier of the electrical equipment the spare part.





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5.3. INSTALLATION ISTRUCTIONS



All **installation** operations, none excluded, must absolutely be carried out with this machine, and with the previously and subsequently connected machines, completely stopped and only after ensuring that all external power supplies have been cut off; the machines must not simply be arrested.

The external power supply circuits must be completely discharged. Please refer directly to manuals of

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In addition, all the devices for disconnecting the external energy supply of the machines placed there before and afterwards, must be locked with a padlock in the zero "OFF" or "ISOLATED" position. In order to be able to carry out the task described in this chapter in the safest possible condition, areas

surrounding the machine, for one area of 360°, must, be free from walls, other machinery, equipment,

or other elements of encumbrance such as columns for at minimum distance of 2000 mm/ 6 ft.



It is forbidden to carry out any maintenance operations on moving parts.

said machinery, for the safe isolation and discharge operations of the said systems.

In certain cases some maintenance tasks cannot be carried out with the machine at a standstill position because of the technical requirements of the job or because there is a need for execution to avoid greater dangers or greater damage; however in such cases, additional measures and precautions must be taken to ensure safety of all people

5.4. STORAGE, TRANSPORTATION AND HANDLING



During the activities, safety measures and directions against residual risks referred to in Chapter 4 must always be observed,.





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5.4.1. STORAGE

The machine is intended for indoor installation, in case of storage, must be stored in proper storage area, in a ventilated room, protected from dust. The delivered items must remain packaged until the time of final installation. All parts of the machine subject to oxidation risks are adequately protected with grease and protective sprays at the time of shipment to prevent oxidation by atmospheric agents.

In the event of **long periods of inactivity**, the machine must be stored with precautions relating the location and period of storage:

- 1. Store the machine in a closed area.
- 2. Protect the machine from impacts and any kind of stress.
- 3. Protect the machine from humidity and excessive temperature fluctuations (refer to table below).
- 4. Avoid for the machine to come in contact with corrosive substances.
- 5. Check that the packaging has not been damaged and that it is perfectly dry.
- 6. In particular, if the machine is housed inside a container, the area of storage must be covered and protected from direct atmospheric agents such as rain, snow and hail and must be accessible only to authorized personnel.

The machine has been designed to withstand the temperatures, humidity and vibrations of transport and storage.

Environment temperature	-25° / +40°C ;-13° / 104°F (if the electrical equipment has a degree of protection of at least IP54) 0° / +40 °C ; 32° / 105°F (if the electrical equipment has a degree of protection lower than IP54)	Avoid locations
Storage temperature	-25° / +55°C ; -13° / 131°F (if the electrical equipment has a degree of protection of at least IP54) 0° / +55°C ; 32° / 104°F (if the electrical equipment has a degree of protection below IP54)	subject to sudden changes in temperature that can cause
Relative humidity	100% at a temperature of +25°C / +77°F (if the electrical equipment has at least IP54 degree of protection) Less than 50% at a temperature of +40°C / +104°F Less than 90% at a temperature of +20°C/+68°F (if the electrical equipment has a degree of protection below IP54)	condensation or freezing
Vibration	5.9 m/s² – 19 ft/s² (0.6G) or less	
Atmospheric pressure	900 mbar or higher	

Storage temperature is understood **as short-term values** such as transport. The condensation or freezing normally takes place in places where temperature changes are high. Even if the relative humidity in such cases may fall within the values indicated in the table, it is necessary to avoid such places.



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5.4.2. INSPECTION UPON RECEIVAL

It is very important to take a **thoughtful inspection upon the receival of the parcels**, that compose the machine in subject. The inspections are carried out in two stages for each package received in order to avoid possible miscarriage of the carrier.

Administrative confirmation

- 1. n. of the crate and number of packages
- 2. weight and dimension
- 3. correspondence of the information of the bill of lading with what has been actually delivered (description, fabrication numbers, etc.). The technical data shown on the machine's identification plate correspond to the following reported in the technical documentation delivered)
- 4. details of the transport document correspond to the order placed.

Technical confirmation

- 1. condition and integrity of the packaging
- 2. the packaging has not suffered any visible damage during transport and handling operations.

All these inspections require a **visual check**, in the presence of the carrier's delivery personnel. In case of damage or incomplete or incorrect supply, report the fact directly to the sales office of the manufacturer.



With regard to the above, the manufacturer reminds the user that, according to international regulations and national, the goods always travel at the risk of the latter and, unless otherwise undersigned at the time of order confirmation, the goods travel uninsured.

5.4.3. TRANSPORTATION, LIFTING AND HANDLING - GENERAL RULES

REQUIREMENTS FOR THE PERSONNEL



Transportation, lifting and handling activities are of fundamental importance, if any operation/intervention is not performed in accordance with the following directions, or even an restricted way, may result in damage of the machine, its internal parts, the power system, the processed product / production or even injuries to operators, and immediately cause warranty to lapse.



All transport, lifting and handling operations must be carried out by **personnel adequately informed and trained** about the risks and dangers that may arise during the performance of the activity in question.

Such personnel **must have read and understood** the safety instructions given in this manual and also must be **trained and possess the required professionalism and skills as indicated in chapter n. 4** and n. 6.

The whole area involved in the movement of the machine between the parking area and the area of installation, must be identified and inspected in advance in order to detect the presence of possible "DANGEROUS ZONES".

No exposed persons must be present during transport, lifting and handling operations in "DANGEROUS AREAS": nobody must pass under or near the moving machine.

Beware of power lines, fluid or gas pipes with high pressure or high temperature. If existing, along the MANDATORY route, intervene in advance by intercepting and insulating such pipelines, in accordance with the local laws and regulations, ensuring that there are no energy retentions of any kind.

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GENERAL RULES FOR TRANSPORTATION

The machine can be transported by container or hauler.



The inspections, methods and safety precautions to be taken when **transporting the machine for the first time** on the first site of use, must be carried out each time the machine is **disassembled and transported to another working site for subsequent use**.

The manufacturer of the machine reserves the duty and responsibility for these activities; therefore, in this manual, there is no information on the positioning, levelling, and fixing to the working table/bed of the single functional units.

GENERAL RULES FOR LIFTING AND HANDLING



- The handling for the machine without packaging is mandatory only in sheltered areas/ construction sites.
- 2. Make sure that the **maximum stated working load of the lifting gear** is greater than the mass of the machine to be lifted and its overall dimensions.
- 3. Lifting equipment must be of the **approved type and undergo regular maintenance** in accordance with the laws and regulations in force.
- 4. Take all necessary measures to ensure maximum stability of loads in relation to their masses and centers of gravity, as indicated by the manufacturer on the machine itself.
- 5. Before lifting a load, make sure that the load **is properly tied and balanced** in the lifting device.
- 6. Take the necessary precautions to **prevent dangerous overloads** due to accelerations, or decelerations or impact forces.
- 7. If the load does not allow sufficient visibility of the ground below, **require the presence of a second person on the ground.**
- 8. The movement must be carried out with smooth continuous movements, without jerks or repeated impulses.
- 9. When handling the machine, **keep the load at the minimum possible height from the ground** enough to allow the overcome any obstacles present; this is for a better stability of the load itself and for a better visibility.
- 10. All possible parts, or groups of parts and sub-groups, **that may move or shift during the handling** (parts inside the box), must be firmly fixed (by means of sealing systems), avoiding dangerous displacements that could compromise the stability and load balancing with accidental dropping of parts or possible overturning, even partial, of the vehicle used for handling.
- 11. For stability purposes, in order to avoid **mechanical stress during lifting, the handling and transport**, electrical panels and various elements delivered separately, regardless of form and morphology, **must remain standing upright**.
- 12. In addition, the safety directions set out in Chapter 4 must be followed.



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5.4.4. SIZE, MASS AND HANDLING OF INDIVIDUAL PARTS

Description	SEC-T-15- 2/3/4/-21	SEC-T-20- 2/3/4/-21			
Maximum height (mm) / (inch)	From 355 to 400 /	From 355 to 400 /			
	13,97 to 15,74	13,97 to 15,74			
Maximum width (mm) / (inch)	296 / 11,65	296 / 11,65			
Maximum depth (mm) / (inch)	1616 / 63,62	2115 / 23,26			
Weight (kg) / (lbs)	24,4 / 53,79	24,4 / 53,79 25,3 / 55,77			





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SUPPORT BEAM (OPTIONAL)	
A = Overall height of the columns	From 1017 to 1317 mm / 40 to 51,8
B = total length of both guides	3350 mm / 131,8 variable
C = total width	150 mm / 5.9




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5.4.5. LIFTING AND HANDLING - STABILITY

Every single part and the packed machine body must be transported as close as possible to the installation site, which must have been checked beforehand for overall dimensions, and needed maneuverability room, including space for indispensable for installation maneuvers.

Do not lift loads over people. In such cases, lower the load or free the movement area from the people.

Handling and lifting are exclusive responsibility of the personnel appointed by the manufacturer of the machine, therefore the instructions relating these operations are not included in this manual.



STOP

Before moving structures always make sure that the movement area is not occupied by personal or from objects that could constitute elements of danger.



If the lighting and/or visibility is poor, do not move any structure until a manager has ascertained the necessary freedom of movement within the working area; do not assume that the working area is free, but visually verify so.

Electrically and mechanically lock all moving parts of a structure or equipment that must be transported.



The lifting and handling, depending on the type of functional unit, must take place strictly observing what is indicated below and can be done with:



1. MANUAL handling

The functional unit must be lifted, handled, and transported MANUALLY using the handles applied on the fixed cover and on the upper end of the frame (see previous paragraph for dimensions and weights).



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5.4.6. LIFTING THE MACHINE WHILE PACKED IN A CRATE

DESCRIPTION OF THE PACKAGING.

The machine and the parts transported separately can be transported by truck.

Adequate **packaging** is provided to ensure the integrity and preservation during transportation and final delivery to the customer.

The type of packaging of the machine changes depending on the size, weight, and destination, therefore the customer can receive the machine in one of the following ways:

- 1. machine and transported parts separately packed with pallet, string tied and shrink-wrapping plastic
- 2. machine and transported parts separately packed with pallet, string tied, shrink-wrapped plastic and wooden cage
- 3. machine and transported parts separately wrapped with transparent polyethylene film
- 4. machine and transported parts separately packed in boxes and/or cages or simply fixed on pallet.

For dimensions and weights, see the technical data in the previous paragraph.

For handling, do not harness the packed machine with straps









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5.4.7. PACKAGING REMOVAL/OPENING INSTRUCTIONS



Only after each individual part and the machine body has arrived at the site of use where it will be leveled and fixed to the working bench, the packaging covering the machine can be removed as well as any locks that lock the internal parts of the machine.

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The various materials that make up the packaging must be disposed of in accordance with the laws in force by contacting to the entities in charge and/or companies specialized in the disposal of polluting or recyclable waste.



The opening of the packaging must be carried out with great care and the user must ensure that:

- 1. during the transport and handling operations no part of the machine has been damaged
- 2. the machine corresponds to the type ordered.



To carry out the installation, remove the packaging taking care not to cut electrical cables or hydraulic hoses using pliers, hammer and cutter-knife if necessary.

Before opening the packaging, **any blocks must be removed**, they were placed to prevent possible movement, and damage in transport and handling operations.



To open the cage, proceed as shown below:

1. unnail and lift the lid (top) of the cage







- 3. remove the heat-shrinkable coating
- 4. remove the strings
- 5. unnail the pallet locking boards
- 6. remove the front panel to insert the lift forks.



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When placing the machine in the work site, the **machine's overall dimensions and space** necessary to allow the operator's maneuvers, and to ensure his own **safety**, must be taken into account.

HOW TO DISPOSE THE PACKAGING MATERIAL



The polyethylene or cardboard packaging can be disposed without the need to reduce it into small pieces, it is sufficient to divide the main parts according to their chemical/physical nature and place them on the designated scrap bin, paying attention to/respecting the general principles of differentiated collection.



Dispose of all items in accordance with the regulations in force, by contacting the entities in charge of their disposal and/or companies specializing in the separate collection / disposal of waste, so that separation takes place between plastic material, metal material and electrical components **that must be sent to differentiated collections**.

It is the final user's obligation to be aware of the relevant laws in force in his country and to operate in order to comply with such legislation.

It is forbidden to leave the machine and the electrical equipment in the environment, and it is also subject to sanctions.

Only at this point the machine can be freed by removing any packaging that covers the machine, bearing in mind that the various materials/components that cannot be reused for subsequent re.-packaging are must be first removed from the work site and disposed of in accordance with the laws in force by contacting the relevant entities and/or companies specialized in the disposal of polluting or recyclable waste.



Warning pollution hazard: do not disperse the packaging in the environment but store it for possible repackaging or entrust ti to the recycling agencies.

The evaluation and management for the biological compatibility of the products used in the packaging if competence and responsibility of the user.



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5.5. POWER SUPPLIES



During the use operations, safety measures and directions to avoid residual risks must always be observed, ref. to **Chapter 4**.



5.5.1. ELECTRICAL



The installation must be in accordance with all relevant legislation of the country/state in which the machine is used.

The installation and design of power supply systems from external energy sources requires a great deal of attention, in order to avoid hazards during normal operation and in the event of malfunctioning of the components assembled and connected to it.

Check, in advance, that the **user's electrical system** guarantees the requirements listed in chapter 2. and subsequently, those listed below.

All the activities of connecting the external energy supplies to the machine **are of exclusive** competence of the machine user's electrician.

USER'S ELECTRICAL SYSTEM

The user's system upstream of the machine's control and command equipment must be designed, installed and maintained in full compliance with the applicable requirements of the safety regulations for "low voltage consumer systems" according to IEC 60364 / HD384 / CEI 64-8 (latest editions).

With regards to the **electrical energy distribution system that supplies the command and control equipment** of the machine, it is also compulsory its regular/integral belonging to **one of the following standardized systems TT or TN or IT** according to IEC 60364_4_41 / HD382_4_41 / CEI 64.8 (4_41) (latest editions)

Within the scope of the above requirements / indications, the correlative earthing system must be in all in accordance with the applicable requirements for coordination with associated active devices, according to IEC 60364-5-54 / HD382-5-54 / CEI 64.8 (5-54) (latest editions).

EQUIPOTENTIAL PROTECTION CIRCUIT

To prevent dangerous contact voltages in case of insulation failure between active parts and ground/earth, voltages between ground and ground, untimely consents or inhibitions that may occur on the control circuits as a result of more ground faults, **all the electrical masses present on the machine are connected** to the equipotential node belonging to the PE clamp present inside the main casing.

The terminal must be connected to the earthing system from the power supply network, with a conductor with a cross section at least equivalent to that specified in the wiring diagram.



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PROTECTION OF PEOPLE AGAINST INDIRECT CONTACT

Protective measures against indirect contacts through automatic interruption of the power supply circuit of the equipment, consisting in the interruption of one or more line conductors by means of the automatic intervention of the failure protection device.

This interruption must occur in a sufficiently short time to limit the duration of the voltage of contact at a period within which it is not dangerous. Interruption times are indicated in the standard IEC 60364 / HD384 / CEI 64-8 (latest editions).

This measure requires coordination between:

- 1. the **type of power supply** and the earthing system;
- 2. the impedance values of the various elements of the equipotential protection system;
- 3. the characteristics of the **protection devices** that reveal insulation faults.

The automatic interruption of the power supply of any circuit affected by an insulation fault is designed to avoid a dangerous situation resulting from contact voltage.

This protection measure includes:

- 1. is the equipotential bonding of mass protection
- 2. is:
- 1. overcurrent protection devices that ensure automatic interruption of the power supply in the event of an insulation fault in **TN systems**, or
- 2. differential current protection devices to start the automatic interruption of the power supply in the event of a fault in the insulation of an active part to ground or to earth in the **systems TT**, or
- 3. insulation controllers or differential current protection devices to start the interruption automatic feeding of **IT systems**.

The electrical equipment of the machine **DOES NOT INCLUDE** the contact protection device indirect (see wiring diagram).

In any case, who will take care of the first commissioning or of any subsequent installations following the transfers of the machine, will have to:

- 1. verify the presence of the protection device that detects insulation faults
- 2. check the type of power supply and the earthing system
- 3. measure the value of the failure loop impedance (TN systems) or the earth resistance (TT systems and IT)
- coordinate the protection device and the impedance value of the fault loop or the earth resistance, based on the R x I_a ≤ U_L (for TT systems) or Z_s x I_a ≤ U₀ (for TN systems), so that the protection device intervenes within the maximum interruption times specified in the standard IEC 60364_4_41 / HD382_4_48 / CEI 64.8 (4 48) (latest editions).

OVERCURRENT PROTECTION DEVICE

The equipment is designed to withstand a **symmetric short-circuit current of short duration not higher than** (see wiring diagram). If the presumed permissible short-circuit current rating, at the point of installation it is higher than the indicated value, it must be adequately limited.

Since the electrical equipment supplied for the control and monitoring of the machine **incorporates** power electronic circuits that operate on direct current, it is recommended to take suitable measures to ensure protection: as part of automatic interrupt protection of the power supply provide **APPROPRIATE DIFFERENTIAL DEVICES (e.g. type B** (Pubb. IEC 755 Mod. 2). The differential device must be of the type strongly resistant to impulse overvoltages of origin atmospheric and maneuvering (see EN 61008-1 latest editions).

- It should also be noted that:
- 1. At the power supply disconnection device, at the head of the electrical panel is not rated breaking power is commensurate **as this is a switch-disconnecting device** must also be protected against short circuits with a protective device with a rated current no higher than technical data,
- 2. Upstream to the power cable of the electrical equipment must be installed and maintained an **overcurrent protection device** in compliance with the requirements of the technical regulations. In the power circuits diagram supplied with the electrical equipment, recommendations are indicated to guide such choice.



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CABLE PROTECTION

In the event of an overload **the overcurrent protection device** must intervene in a time-lapse compatible with the overloading characteristic of the cable. This check is carried out by comparing the rated current of the release device with the rated capacity of the cable.

In the event of a short circuit **the overcurrent protection device** must not let specific energy through higher than that what can be tolerated by the cable. This check is made by comparing the characteristic (I^2t) of the protective device with the permissible specific energy of the cable (K^2S^2).

POWER SUPPLY

The connection to the power supply, must be in accordance with the **relevant legislation of the country in which is used**.

The power supply must therefore be maintained in accordance with the following technical requirements:

- 1. **the power supply** must always be of the type and have an intensity corresponding to the specifications shown on the first page of the electrical diagram and those indicated in chapter no. 2. If excessive stresses are applied, components will be irreparably damaged;
- 2. **the power supply of the electrical equipment or component of the system of power supply**, must be provided with a protection device coordinated with the protection circuit as part of protection against indirect contacts due to automatic interruption, respecting the laws and regulations in force in the country of installation;
- 3. **the power supply cable inside the machine casing** must be routed in the spaces prepared by us (see layout attached to the wiring diagram) and suitably marked with the sign Graph No. 5036 of IEC 60417-2, all in accordance with graphic sign B 3.6 of ISO 3864
- 4. **the cable for power supply outside the machine casing** must be routed through the spaces prepared by the user, adequately protected and suitably marked with the graphic sign no. 5036 of IEC 60417-2, all in accordance with graphic sign B 3.6 of ISO 3864;



______ graphic sign no. 5036 of IEC 60417-2

- 5. **the cable for the power supply** must be of section and have characteristics corresponding to the specifications shown on the first page of the power circuit diagram and those indicated in chapter no. 2.
- Cables with a different cross-section than the one indicated can cause the short circuit current values to change and therefore compromise the cable protection in the event of a short circuit;
- 6. the material used for the power supply conductors must be copper.
- 7. the cable connecting the battery overcurrent protection device to the point of connection to the machine, must be in one piece, without intermediate interruptions.
- 8. before powering the electrical equipment, **the neutral conductor (N)** must be guaranteed the its continuity (connected and available).
- 9. before powering the electrical equipment, the continuity (connected and available) of the yellow green equipotential protection circuit conductor must be guaranteed.

Connect the power cable to the machine following strictly the sequence of phases indicated:

 $L1 \Rightarrow R$ N PE \Rightarrow yellow green

Only respecting the cyclic sequence shown the expected rotation direction of the motor will be obtained.

With regard to the minimum recommended cross-sections/gauge, of the conductors coming from the power source external, refer to the electrical diagram (see chapter 9) and to the ones indicated in chapter no. 2.



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POWER SUPPLY DISCONNECTION DEVICE

The power supply disconnection device, as described in the electric diagram delivered with the electrical equipment, is supplied only for the **power source of the machine**.

In the event of incompatibility between the main socket and the appliance plug, <u>have the socket replaced by</u> <u>maintenance personnel with a suitable type of socket.</u>

The power supply disconnection device allows the **separation (isolation) of the electrical equipment of the machine** from the power supply, in order to make it possible to carry out interventions without risk of electrical shocks.

The isolating device has two possible positions:

OFF or "switched off", the electrical equipment is	ON or "plugged in", the electrical equipment is
disconnected from the power supply	connected to the power supply



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5.5.2. PNEUMATICS



We would like to point out some tasks/responsibilities, (without however being complete/exhaustive) which concern you, as users/customers of the machine and responsible of the safety of the people and the preservation of the environment involved. The installation must be in compliance with the **relevant legislation of the country/state/county in which it is used**.



The pneumatic supply system must be maintained in accordance with the following technical requirements:

- 1. **the pneumatic power** supply must always be of the type and have an intensity corresponding to the specifications shown on the first page of the "pneumatic diagram". If excessive pressure is applied, components will be irreparably damaged
- 2. the pneumatic supply: taking into account that the pneumatic system of the machine is seen as a component with respect to the distribution system, as part of overpressure protection, a protection device coordinated with the machine's pneumatic circuit must be provided, respecting the laws and regulations in force in the country/state/county of installation
- 3. **the feeding pipes for the pneumatic system supply of the machine** must be passed through the spaces provided by the user and must be adequately protected
- 4. **the pipe/hose for the** feeding must be of section and have characteristics corresponding to the specifications shown on the first page of the "pneumatic diagram". Pipes with a different section from the one indicated can cause change of the pressure values and therefore compromise the correct operation of the machine.



In the presence of two or more separate air handling units, **it is necessary to supply a supply tube for each group**, coming directly from the main conduct.

The correct functioning of the machine is not guaranteed if the inputs are connected to a single pipe using of "T" fittings.

The machine has n. 1 air treatment unit, located in the area indicated in the following picture:





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Air handling group N.1

- A. pressure adjustment knob
- B. compressed air supply inlet
- C. impurities and condensation collection tray
- D. condensation drain tap

- E. compressed air outlet
- F. lubricant tray
- G. pressure gauge





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CAP. 6. USE OF THE MACHINE



The management of the machine is permitted only to authorized and suitably qualified personnel educated and with sufficient technical experience.



The personnel responsible for operating the machine must be aware that the knowledge and application safety standards is an integral part of your work.

Unqualified personnel must not have access to the operating area when using the machine.

Before switching the machine on, carry out the following operations:

- > Read the technical documentation carefully,
- know which protections and emergency devices are available on the machine, their location in the shop, and their functionality.

Partial removal of guards and warning signs is prohibited.

The unauthorized use of commercial parts and accessories forming part of the protections and devices of safety can lead to malfunctions and dangerous situations for staff operator.



Before starting the production cycle, the operator must be fully acquainted with it:

- > the position, function and use of all controls,
- the position, function and use of all safety devices,
- the characteristics of the machine,
- > this manual and how to consult it.

The operator must also have received appropriate training.



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6.1. DESCRIPTION OF ACTUATORS, SIGNALS AND ALARMS

6.1.1. COMMAND ACTUATORS AND SIGNALS

For a clear and unambiguous reference, all the installed work and control stations and their location are shown, including those exclusively for emergency stops, with the relative references to the layout attached to the electrical diagram delivered with the machine.

	LIST OF WORKSTAITONS	WORKSTATIONS
1.	LIST OF WORKSTAITONS Pneumatic traction drive lever (optional) Hold-to-run control lever, is used to operate the machine.	WORKSTATIONS



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6.1.2. START-UP FUNCTION

Any start function operates only and always by means of the corresponding power supply circuit.

An operation can only be started if all safety guards are present and functioning. In the control logic, suitable interlocks are provided to ensure correct sequential start-ups. **For starting modes in manual and automatic operation**, see chapter n. 5.

The closing or reactivation of the interlocking protections, of all the other protections/interlocks referred to in the chapter no. 4 and those in this paragraph, do not engage the operation of the machine.



For any eventuality, the operator must never start and operate the machine when it is not under normal operating conditions.



STARTING FUNCTIONS

Switching on and activating the machine

1	2		3	4	5
Connect the electrical cable to the power socket	Hold the machine in the knobs and handle (placed in the fixed cover) and place it over the grid/bed of the laser-cutting / oxy-cutting machine.	►	Operate the hold-to-run control lever to switch the machine on.	Operate the lever of pneumatic traction drive to start the machining.	Release only the lever of drive control, go back with the engine running, once the cleaning operation is finished, also leave the motor control lever.

RESTART FROM MACHINE STOP BY EMERGENCY DEVICE

1
Reverse the direction
of rotation/travel of the
machine by operating
on the button, (located
in the buttonhole of the
fixed guard) only in
case of machine lock.

2 Identify and remove the causes that led to the arrest of emergency.



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6.1.3. STOP FUNCTIONS (IN PHASE AND SAFETY)



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In the event that any safety device (including the emergency stop device), present on the equipment or machine, engages, the user must:

- identify the cause that led to the arrest: 1.
- 2. decide whether or not to bring the machine to zero energy status, see directly chapter n. 6;
- 3. after a power failure shutdown, the equipment must be inspected;
- 4. if the anomaly cannot be found contact the supplier of the equipment;
- 5. once the cause of the anomaly has been eliminated, make sure that no operator or animal or object is present withing the working area of the equipment or machine;
- 6. check that **no safety devices** have been tampered with, disconnected or that any by pass has been created, nor used for purposes other than those indicated by the manufacturer. If so, make sure any affected safety device is restored and made operational;
- 7. following the positive outcome of the previous checks, restore the power supply to the equipment:
- press the holdto-run control lever to restore the normal use of the machine. 8.

Do not reset/restore security devices automatically by an external sequence without verifing/assessing the cause of the arrest.

SHUTDOWN DUE TO ABSENCE OF VOLTAGE

The shutdown due to the absence of voltage leads to a category 0 shutdown, i.e. shutdown through immediate suspension of the power supply to the machine (uncontrolled shutdown).

In the event of a shutdown due to temporary or prolonged absence of voltage, before restarting the machine, all products/materials that were undergoing processing must be removed.

The instructions in this chapter 5 must then be followed when restarting operations.

SHUTDOWN DUE TO THE INTERVENTION OF OVERCURRENT PROTECTION DEVICES

The overcurrent protection devices located inside the electrical equipment casing, determine a stop of the equipment functions according to a stop in category 0 (zero) or stop by immediate suspension of the machine power supply (uncontrolled stop).

The intervention of one of these protective devices, is caused by an overcurrent that can be of overload or short circuit.

As a result, there may be either an abnormal state or failure of the electrical equipment, the operator of the equipment must immediately stop further functions of the equipment, and activate the maintenance service.

STOP DUE TO THE MAIN DISCONNECTION DEVICE

The main disconnection devices of the external power supplies, determine a stop of category 0 (zero) or shutdown by immediately suspending the power supply to the machine (non-controlled).

Further precise information on their operation can be found in chapter no. 6.



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6.2. ASSEMBLY AND ADJUSTMENT

Assembly of the trolley sliding guide:

1. Wall-mounted guide

The centre of the trolley's guide has to be adjusted to the same hight as the laser bench to polish + 164mm - 0 + 50 (so the guide, can only be put at a hight taller than 50 mm and not lower);

> Insert the guide in the specific locations in the wall locking guides (**A**), then tighten the pre-mounted screws M6x70, with the appropriate key, to block the sliding of the guide;

> Secure the wall blocking guides to the wall with plugs 8x75 or screws M8 (**B**), not further than 350mm from the last tooth of the cutting plane to be cleaned at the beginning of the guide.





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2. Ground-mounted guide

The centre of the trolley's guide, has to be adjusted to the same hight as the laser bench to polish + 164mm - 0 + 50 (so the guide, can only be put at a hight taller than 50 mm and not lower) with the fastening of the screw M8x90;

> Insert the guide in the specific locations in the pedestals, then tighten the screws M6x20 that fasten the guide to the pedestals;

> Fasten the pedestals to the floor with plugs 8x75 (**A**) no further than 350mm from the last tooth of the cutting plane to be cleaned at the beginning of the guide.





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3. Assembly of the trolley

- > Insert the trolley in the guide
- > Pierce both ends of the guide with a 7 mm tip
- > Mount screws M6x60 with self-locking nut to prevent the trolley from rolling out.





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Mechanical adjustment of the machine's end-of-run

- 1. Position the machine on the last tooth to clean
- 2. Check that the traction cable is completely collected in the machine
- 3. Mount the end-of-run adjustment cable between the carabiner mounted on the machine and the trolley mounted on the guide: the adjustment cable provided is 1500mm long;
- 4. Tension the adjustment cable and with the three provided clamps block the cable
- 5. Cut the excess cable
- 6. The end-of-run adjustment cable fine stays fixed to the trolley.





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6.3. ENGAGE CONTROLS – CHECKS – ADJUSTMENTS - START



All functions/operations relating to the operating modes must always be carried out in compliance with the safety measures and directions **against residual risks**, referred to in Chapter 4.

In its normal productive use, the machine must be used for processing of products specified in chapter n. 2.

During the processing cycle, the safety **measures**, and the regulations to avoid residual risks (see chapter 4).

To get an overview of the functions of each control and information device, see the "Layout and the description of the control and signaling devices" shown in the **wiring diagram attached here in this manual** (see chapter 6.).

The **need for a training class** for the personnel of the concerned user is also highlighted. Define with the manufacturer the contents, methods and timing of the proposed training class.

6.3.1. START-UP





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6.3.2. CONTROLS – SAFETY CHECKS AT THE START OF THE CYCLE AND PERIODIC CHECKS



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All **adjustment and adjustment jobs are** to be carried out **by the machine operator** (see Chapter 4) for the correct and safe operation of the machine, including all **periodic checks/verifications adjustment and setup operations** (electrical components and positions detection devices, including electromechanical and/or magnetic) before each startup and in any case periodically, are described:

- 1. in chapter no. 6
- 2. in chapter no. 7 "Interventions that can be carried out by Operators".
- 3. in the specific parts concerning startup.

Once the operating operator **is satisfied that all safety conditions** described in this manual have been met, it is allowed to **proceed to start the machine** and carry its normal productive use.



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6.3.3. MECHANICAL ADJUSTMENTS

6.3.3.1. INTERVENTIONS THAT CAN BE CARRIED OUT BY THE SETUP TECHNITIAN

Below are all the adjustment and setup operations to be carried out during the production cycle and which must be carried out **by the setup technician of the machine**, as defined (see chapter n. 4).Safety measures and regulations to avoid residual risks must also be observed (see Chapter 4)).



Before carrying out any maintenance operation, completely isolate the machine from its sources of energy.

- 1. Turn the main power switch to "0 Off" and lock it with a padlock.
- 2. Switch off the pneumatic energy by closing the tap upstream the machine and by unplugging the air-hose on the air handling unit.

Burn hazard: do not touch the hot units for the first 30 minutes after switching off the heating elements and/or the machine, wear cut-resistant gloves.





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6.4. PROCESSING CYCLE



In its normal use in production, the machine must be used for the hobs and tasks indicated in the chapter n. 2.



During the processing cycle, the safety measures, and the instructions to avoid the residual risks, referred to in **Chapter 4**, **must be always followed**.



For information on the functions of each control device, see the "Lay out and the description of the control and signaling devices" shown in the **electrical diagram attached hereto manual**.



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The cicle of work of the machine consists in the cleaning of laser cutting/oxycutting machines' grids. Before starting the work cycle, carry out the following steps:

> Place the grid cleaner by holding the handle and bringing it over the grid of the laser cutting/oxycutting machine to be cleaned (see picture 1)

> Move into position the sliding guide

(see picture 2) which can be telescopic or fixed with the clamps to the columns or the wall

Hook the carabiner connected to the steel cable on the grid cleaner to the trolley in the guide (see picture 2);

➢ Once the machine is connected, (ready for use), place the tool between the two grids, first press the maintained-action control lever, to turn on the machine, then the pneumatic drive lever to pull the machine and begin the cleaning phase. This operation has to be executed only on one side of the machine, forward. Once reached the end of the first ridge, release the traction lever and pull back the machine with the engine on. At this point move on to the next one and repeat the actions previously said, until the completement of the cleaning of all units.

The work cycle of the machine is completely manual.







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6.5. STOPPING THE CYCLE

To stop the normal operating cycle of the machine it is necessary to release the two hold-to-run control levers. To resume the cycle, simply push/pull the levers.



6.6. SWITCHING OFF



To switch off, disconnect the plug from the power supply socket and the connection to the compressedair supply from the plant system.





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CAP. 7. MAINTENANCE, TROUBLESHOOTING AND CLEANING

7.1. MATAINACE/SERVICE TECHNICIAN REQUIREMENTS



The term **"maintenance"**, for the purpose of this manual, does not mean only the periodic checking of the normal operation of the machine, but also the analysis and the consequent remedy of all those causes that for any reason put the machine out of service.

It is therefore clear that maintenance involves a range of mechanical and electrical problems of considerable entities that require the employee to have a good theoretical-practical knowledge of the machine.



In particular, **the personnel** responsible for **maintenance. service, cleaning, parts replacement and troubleshooting** must set the following objectives:

- 1. limit the decay of parts subject to wear and tear;
- 2. reduce injuries risk to a minimum;
- 3. contain the costs for accidental breakdowns;
- 4. limit the number and duration of interventions;
- 5. act in collaboration with the production operators for the best efficiency of the system.

The personnel in charge of maintenance, cleaning, parts replacement and troubleshooting in order to achieve the above objectives will be subject to compliance with certain fundamental rules and in particular will have to:

- 1. fill in maintenance forms, relative to the various machines with the type and frequency of the interventions carried out or to be carried out;
- 2. carry out timely lubrication programs (if applicable);
- 3. participate in the definition and management of spare parts/consumables list, reintegrating their stock as soon as possible after use or if the quantity reaches the established minimum.

It is mandatory that for **maintenance**, **cleaning**, **parts replacement and troubleshooting** operations carried out by the user, such **tasks is entrusted by the employer to experienced**, **competent and authorized personnel**.

Such experienced personnel must be able to assess the job assigned and recognize possible dangers on the basis of their preparation, professional experience, their knowledge of the machines in question, and the required equipment and regulations; it must also be in possession of an adequate professional qualification regarding the machines in question.

It must be trained in general work-safety and made aware of the residual risks referred to in Ch. 4.

He must also be **educated and not just warned**, i.e. he must be a qualified technician or graduate with knowledge relevant to the machine and its equipment and the relevant regulations, and in possession of a specialized technical competence or training.

He also carries out all maintenance tasks:

1. in some cases, it gives support to the operator in tooling setup activities.



The personnel assigned to the operations included in this chapter, in addition to having the following characteristics **must have read and understood** the safety instructions in **Chapter No. 4**.



If the **employer does not have suitably trained and experienced or warned personnel**, he must agree to engage a maintenance contract with a specific company such as the supplier of the electric equipment.



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Some scheduled service operations that are part of maintenance routine, whose execution does not require any particular professional skills, can be carried out **by aware but not expert personnel**, i.e. by machine operators and general maintenance technicians employed by the user who are always informed or supervised by an expert maintenance technician in order to avoid or remedy the dangers inherent to the machine in the its complex.

Warned personnel must be instructed on the tasks assigned and the possible dangers due to their negligent behavior and to which, if necessary, he has been given a level of preparation. Subsequently there must be either **qualified by the user's internal training service** or have participated in the training class, held by the manufacturer, as indicated on the following page.



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7.2. MAINTENANCE REQUIREMENTS



All maintenance, servicing, cleaning and replacement of parts and additional tasks in chapter 6, none excluded, must absolutely be performed both with this machine and with the all the connected/related machinery, completely stopped and after the interruption of all the power supplies of external energy; the machinery must not simply be stopped.



The external power supply circuits must be completely discharged.

Please refer directly to the manuals of these machines, for disconnection/isolation and discharge operations in safety of the same systems.



In addition, all the devices for disconnecting the external energy supply of the machines placed there previously and subsequently, they must be locked in the zero position "OFF" or "ISOLATED".

In order to be able to carry out the job described in this chapter in the safest way possible, areas surrounding the machine, for one area of 360°, for at least a distance of 2000mm / 6 ft must be free from walls, other machinery, equipment or other elements of encumbrance such as columns.

It is forbidden to carry out any maintenance operations on moving parts.

In certain cases some maintenance tasks cannot be carried out with the machine at stop, this might be due to the technical requirements of the job or because there is a need for execution to avoid greater dangers or greater damage; however, additional measures and precautions must be taken to ensure safety of all people.

GENERAL WARNINGS



Before performing any maintenance, cleaning, parts replacement and troubleshooting tasks, please pay great attention to the labels placed on the machine and on the electrical equipment. During such activities, all safety devices must NOT be tampered with or disengaged for any reason, nor

must create by pass, nor use them for purposes other than those foreseen by the manufacturer.



After each of the above interventions, all safety devices must be restored and made operational.



Do not intentionally tamper with or damage the protective screens or remove or conceal the warning labels. If deterioration or illegibility is detected, request immediately the supplier of the electrical equipment for the spare part.



Before starting any maintenance, service, cleaning and parts replacement task, always indicate with a clearly visible sign that there are interventions in progress and restart the machine only after making sure that all the interventions have been completed and all the protections have been reassembled.

Before any maintenance, service, cleaning, replacement of parts and troubleshooting task, pay attention to the to the labels placed on the machine and on the electrical equipment.

During such activities, none of the safety devices must be tampered with or disengaged for any reason, nor any by-pass created, nor use them for purposes other than those indicated by the manufacturer. After any of the above interventions, all safety devices must be restored and made operational.

Do not intentionally tamper with or damage the protective screens/guards or remove or conceal the labels of warning. If deterioration or illegibility is detected, request immediately the supplier of the electrical equipment for the spare part.



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7.2.1. INSULATION FROM EXTERNAL POWER SOURCES



During **maintenance**, service, cleaning and parts replacement, the machine must not be in use and no command must be given.



Before carrying out any **maintenance**, **service**, **lubrication**, **cleaning and parts replacement**, **etc.**, all external power sources must be cut-off/isolated.

All disconnecting devices must also be locked in the zero position with padlocks (see chapter n. 5).





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POWER SUPPLY SOURCE			SWITCH DISCONNECTOR POSITION	TO BE CARRIED OUT	CHECK	HAZARDS DUE TO RESIDUAL ENERGY
E1	ELECTRICAL	Power supply cable that plugs into the industrial electrical network		1 2 2	Ensure the absence of energy from the main switch by means of an electrical instrument	Ref. Ch. 4

POWER SUPPLY SOURCE			SWITCH DISCONNECTOR POSITION	TO BE CARRIED OUT	CHECK	HAZARDS DUE TO RESIDUAL ENERGY
A1	PNEUMATICA	Hose-plug into the plant compressed- air supply system			Check that the pressure gauge needle is in the "zero" position	Ref. Ch. 4



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POWER SUPPLY DISCONNECTION DEVICE

In order to carry out interventions without the risk of electric shock or burns, a disconnecting device for electrical equipment is provided.

The power supply disconnection device, as described in the electrical diagram delivered with the electrical equipment, is supplied for the only **power source of the machine**.

In the event of incompatibility between the main socket and the appliance plug, have the socket replaced with suitable type by the electrical maintenance personnel.

The power supply disconnection device allows the **separation (isolation) of the electrical equipment of the machine** from the power supply, in order to make it possible to carry out interventions without risk of electrical shocks.

The isolating device has two possible positions:





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7.2.2. ACCESSIBILITY AND IDENTIFICATION

All control and command equipment are positioned and oriented in such a way that they can be identified without having to remove them or the wiring.

All control equipment is mounted to facilitate operation and maintenance operations from the front.

7.2.3. OPENING AN ELECTRICAL ENCLOSURE

The opening of a casing is allowed to:

- 1. educated person (= a technician must have a diploma or degree with knowledge of the relevant electrical equipment and the relevant regulations, and which possess a specific technical competence or training) if:
 - it is necessary to use a spanner or tool; in addition, the active parts that can be touched during the restoration or adjustment of devices that provide for such operations when the electrical equipment is still live, must be protected against direct contact with a degree of protection equal to IP2X or IPXXB;
 - after the isolation of active parts located inside the casing with the use of a special device or tool can neutralize the interlock and give power back to the equipment.
- 2. warned person (=an operator of the machine and general maintenance technician who is always informed or possibly supervised by an instructed operator to avoid or remedy the relevant electricity dangers) only if the use of a key or tool is necessary; also the active parts that can be touched during the restoration or adjustment of devices that provide for such operations when the electric equipment is still live, are protected against direct contact with a degree of protection equal to IP2X or IPXX.

Some drawings in the technical documentation inside the electrical equipment, show the electrical connection and the boxes (shown open) containing electrical components, in order to illustrate in detail, the various components.

Before powering up the electrical equipment, close all the doors and guards and make sure that all the operations have been carried out according to the instructions given in this manual.

During the normal operating cycle of the machine, when the machine is powered by the presence of voltage in the power cable:

1. the fixed part/cover protecting the moving parts must not be removed.



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ELECTRICAL INTERVENTION

The Italian standard CEI 11-27 and the equivalent European standards, EN 50110-1 and EN 50110-2, dictate the following requirements for the execution of a job on electrical systems belonging to category I systems (nominal voltage up to 1000v n AC and up to 1500V DC).

The standards define the essential terms and indicate the methods and measures to be taken for electrical job on a live line, not under tension and in proximity of active parts. Basic aspects are:

- 1. staff preparation
- 2. the identification of the parts subject to the jobs and of the adjacent active parts with which it is possible to come in contact
- 3. the definition, signaling and when necessary, the delimitation of the work area
- 4. the safety and/or protection of the part of the equipment on which work is carried out
- 5. the disclosure
- 6. measures against untimely maneuvers
- 7. the reliability of the operating and protection means used.

During the job it is necessary to create a condition for the operator of double insulating protection towards the parts (e.g. using insulating gloves and insulated tools, etc.).

Care must also be taken not to approach with parts of the body not protected by insulation (in this regard, the following should be noted: remember that the daily used clothing does not constitute insulation).

Regarding the residual risks present during the interventions and the relative D.P.I. to be used, please refer to Chapter 4.



The machine is equipped with an isolating device that cuts-off/insulates the electrical equipment from the power supply.

With the machine open (fixed covers removed) it is possible to re-power the electrical equipment to carry out inspections, operations, and maneuvers under voltage such as troubleshooting, etc.







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7.3. ORDINARY MAINTENACE

- The personnel in charge of carrying out the operations described in this chapter, in addition to having the characteristics listed in **chapter 4**, **must have read**, **understood and must comply** with the safety instructions given in **chapter n. 4**, in particular:
- 1. wait for the complete-stop, before introducing limbs or body parts into the hazardous areas of the machine;



machine;the use of suitable protective devices and safety accessories for cleaning tasks within the hazardous areas of the machine.











It is forbidden to carry out any repair or setup operations on moving parts.

Before carrying out any **maintenance**, **service**, **cleaning and replacement of parts** all external power sources must be detached and insulated (see **Chapter 2**).

If it is necessary to carry out these operations during the motion, appropriate precautions must be taken to protect the safety of the worker. Workers must be made **aware by clearly visible notices and warning signs**.



Please note that better the care taken with regards to adjustments, setup and maintenance ordinary/programmed the longer the machine will keep its ideal working conditions and chances of extraordinary maintenance/repair interventions will be decreased.



In any case, always carry out all the checks, controls and cleaning according to the indicated periodicity, described **herein this paragraph**.

In any case, general rules must be observed to keep the machine in perfect running order:

- 1. keep the machine clean and tidy;
- 2. avoid any preventive damage;
- 3. prevent temporary or emergency repairs from becoming systematic;
- 4. avoid machining operations that produce mechanical chips on the machine; for example if drilling holes on the casing, carefully check that no fragments remain on the machine organs.

For the disposal of worn and then replaced materials, please refer to the prescriptions in Chapter No. 8.



During all operations, both the operator and the maintenance technician must scrupulously comply with the following requirements reported for each type of intervention.



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7.3.1. INTERVENTIONS THAT CAN BE CARRIED OUT BY OPERATORS



Below is a list of all the periodic **controls/verifications**, **adjustment and setup** interventions and the **ORDINARY MAINTENANCE** interventions that can also be carried out by the **machine operator**, as defined in Chapter 4.

The position of the components in the machine is indicated in the layouts in chapter 9.

FREQUENCY	CHECK	VERIFICATION AND FEEDBACK			
Before each work shift	Work area verification: • must be clean and dust-free	The workplace and all the external parts of the machine must be cleaned and all dust or objects that could prevent them from being properly operate and which could compromise the safety conditions originally present in the machine must be removed. Remove all impurities from the machine with vacuum cleaner and preferably with non-filamentous rags. For any type of intervention or parts replacement, engage the maintenance service.			
Before each shift	Visual integrity check: of covers and guards 	All covers must perform the function for which they are intended. Check their integrity, both on the inside and outside of their surface and th absence of marks of erosion or breakage. For any type of intervention or parts replacement, activate the maintenanc service.			
At least once a week	 Visual integrity check all warning plates/labels 	In the event of their being illegible, either they are requested from the manufacturer or they are replaced by the user with others bearing the same information, as indicated in chapter no. 4.			
During use	Check the wear condition of the tools	If during the operation of the machine the intended operation has an unsatisfactory result, require a service intervention to replace the tools (cutters).			
Following the action of any emergency button	Check the causes of the action of the device	 Detect the causes that determined the action of the emergency stop device: In the event that the emergency stop device has been operated incorrectly, reset the machine and proceed with restart. In the event that the emergency stop device has been actuated following a situation of danger, fault, malfunction, contact the maintenance service or the machine manufacturer in order to eliminate of the condition. Only after the complete resolution of the fault/error or malfunction, reset the machine and proceed with restart 			



Any replacement must be made with original manufacturer's products or at least products of equivalent quality and safety standards: the installation of non-original products or products self-made by the user will invalidate the warranty of the machine.

Instructions for replacement do not appear in this manual and should therefore be explicitly requested from the machine manufacturer, who reserves the **responsibility for the replacement interventions**.



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7.3.2. OPERATIONS THAT CAN ONLY BE CARRIED OUT BY MAINTENANCE/SERVICE TECHNICIANS



The following are the **ORDINARY MAINTENANCE** interventions, which must be carried out **by maintainers i.e. mechanical and electrical technicians** as defined in chapter no. 7.

Any replacement must be made with original manufacturer's products or at least products of equivalent quality and safety standards: the installation of non-original products or products self-made by the user will invalidate the warranty of the machine.

Instructions for replacement do not appear in this manual and should therefore be explicitly requested from the machine manufacturer, who reserves the **responsibility for the replacement interventions.**

FREQUENCY	CHECK	VERIFICATION AND FEEDBACK		
At least monthly	Check for effectiveness: • of mechanical connections	Check with proper tools and devices the tightness of clamps, screws, nuts, bolts and connections in general of all the components of the equipment and machine.		
At least every six months	 Check effectiveness of the equipotential circuit and protection circuit connections 	With adequate instruments measure and verify the mass/ground resistance of the equipotential and protection system and of every other connection, so that the measured values are within the acceptability limits defined by the installation standards and according to the regulations in force at the place of installation. Within the scope of the above mentioned requirements - indications, the correlative earth/ground-termination system must be in all in accordance with the applicable requirements for the associated active devices, according to IEC 60364-5-54 / HD382-5-54 / CEI 64.8 (5-54) (latest editions).		
When required by the operator	Tool wear status check	Informed by the operator, when necessary, must replace the tools (milling cutters) immobilize the movement of the cutter with a wooden stop; first remove the 2 invitations (A), then unscrew the screws with an Allen key; unscrew the screw with an Allen key and remove the cutter; insert the new cutter and repeat the same procedure to tighten the screw; finally fix it with a thread-locker. 		



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Any replacement must be made with original manufacturer's products or at least products of equivalent quality and safety standards: the installation of non-original products or products self-made by the user will invalidate the warranty of the machine.



Instructions for replacement do not appear in this manual and should therefore be explicitly requested from the machine manufacturer, who reserves the responsibility for the replacement interventions.

The position of the components in the machine is indicated in the layout shown in chapter 9.
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How to replace the traction cable Twist-proof steel cable Ø3 mm length = 3 mt

ATTENTION before replacing the cable, disconnect the electrical and pneumatic systems



1) Loosen the terminal screws without removing them, extract the steel cable. Collect the clamp and thimble

2) Remove the cover by unscrewing the 6 captive screws



3) unroll the entire cable and reveal the screw that secures the cable



4) unscrew the screw and remove the old cable



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5) insert the new cable into the cable guide

6) insert the new cable into the winch making sure to pass under the **bars**, tighten the screw (tightening torque = 4 Nm)

7) Reassemble the clamp and thimble removed at the beginning, tighten the 4 clamp screws (tightening torque = 6 Nm)

8) reassemble the cover by tightening the 4 captive screwsTo rewind the cable, connect the pneumatic system and activate the lever



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7.4. CLEANING



It is forbidden to manually clean, oil or grease organs and moving parts of the machines, unless this is not required by specific technical reasons, in which case suitable means must be used to avoid any danger.

Workers must be made aware by clearly visible notices.

The following are the **cleaning** operations, which may be **carried out by maintenance workers**, in possess of the professionalism, as defined in Chapter 7.



Normally, some cleaning operations **can be carried out by the operator**; this when it comes to normal operations outside the machine requiring the use of simple means of individual protection.

The cleaning operations of the internal parts of the machine must be carried out by the maintenance service technicians.



In order to avoid untimely and dangerous unintentional runs of the machine or undue modifications of any nature, even if unintentional or accidental, it is good practice that the cleaning is carried out by the same personnel operating on the machinery, rather than by the general cleaning company personnel, who cannot give guarantees of respect of all the given recommendations.

All cleaning operations must be carried out only and exclusively, **after isolating and discharged the machine from external energy sources** (ref. chapter no. 7..).



For the cleaning of the machine, electrical equipment, and components on board the machine, never use petrol, solvents or flammable and/or corrosive fluids. **Use non-flammable and non-toxic solvents, commercial and homologated**.



Respect the methods of use and adopt any personal protective equipment, provided for by supplier of such substances.



The machine, electrical equipment, and components on board the machine must never be washed using water, especially in the form of jets of any nature and quantity; therefore, without "bucket" nor "water hose" or "sponge".



For **the identification of the mentioned components and their position**, please refer to the "components" lay out mechanics" (chapter 9) and refer to the electrical diagram delivered with the machine.

Residual risks





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Fixed guards must be removed for access to certain components subject to periodic check and cleaning.

These are identified by the presence of the following sign:



At the end of the cleaning operations, all fixed guards must be repositioned and locked in position (see drawings in chapter 9).



For the disposal of waste products that come in contact with the medical liquid product, do reference to the technical and safety data sheets of the product itself, which the employer must attach to this document.

Please also refer to the disposal regulations in force in the country/state/county of use of the machine.

FREQUENCY	PERSONAL	ZONE - MODE/METHODS
In case of product dispersion	Even the operator	The inside of the machine must be kept clean also by removing the residues of dispersed product. Whenever the presence of residues or dust due to the processing of the product occurs, stop the machine and vacuum clean and remove all the dispersed product. When cleaning, use dust masks and other PPE prescribed for the type of job.
At the end of the shift	Even the operator	The work station and the command post must be kept tidy and free of dust and any contaminating/staining matter. Untidiness leads to the danger of accidents. During cleaning, use dust masks and the additional PPE prescribed for the type of task and according to the substances used in cleaning. Respect the methods of use and adopt any personal protective equipment, provided for by supplier of such substances.
At the end of each work shift	Even the operator	Metal devices of the various groups , coming to contact with the dispersed product, may oxidize, corrode, rust. Use a vacuum cleaner and a brush to remove the excess of product, wipe the metal surfaces with a cloth to remove imprints left during processing, which can ruin the surface treatment of metals. Do not use abrasive or acidic products, spatulas, or wire brushes.
At least once every six months	The maintenance technician	Must remove the rust that might had formed on unpainted parts during transport, or storage. For this operation, anti-rust substances specifically designed for this purpose must be used. Respect the methods of use and adopt any personal protective equipment , provided for by supplier of such substances .



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FREQUENCY	PERSONAL	ZONE - MODE/METHODS
		The following operations must be carried out on the air treatment group present in the machine.
		The condensation is drained through the special tap (B) placed on the bottom of the cup (A); the cup is removable for cleaning.
At least once every six months	The maintenance	Condensation must always be drained before its level reaches the filter elements or filter separators.
	Commonan	When cleaning, do not use degreasing compounds based on synthetic solvents.
		After cleaning, the filters must be placed back in the same position they were taken, and the grids must be properly reassembled and locked. When cleaning, use dust masks.

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7.5. TROUBLESHOOTING BREAKDOWNS/FAILURES - UNLOCKING MOVING PARTS

STOP

If one of the mobile elements is blocked/seized, in order to unblock it in conditions of safety, it is **necessary for the operator to stop the machine** (possibly with action on the emergency button) **and to inform those responsible for maintenance/service**, if it has not been previously authorized to this operation.

The following are the interventions for troubleshooting of breakdowns or failures and unlocking **mobile elements** that may be carried out by professional maintenance technicians, as defined in Chapter 7.

Residual risks





Taking into account the possible types of information that the machine control system transmits it is possible to identify/interpret the fault that has occurred.



All information devices (visual, auditive), aimed to avoid potential ergonomic dangers, with the related explanations and the type of information to be transmitted to the operator(s) are indicated in chapter no. 6.

Depending on the type of information, a specific action must be taken to remove the cause that determined/generated the visual/auditive signal.

The type and methods of intervention **depend exclusively on the information provided**. For the correct identification and interpretation refer to the pantographic inscription or the symbol shown above the information device and as indicated in the electrical diagram delivered with the machine.

Before resuming normal productive operation, the maintenance service must check the integrity and the functionality of the mechanical and electrical parts, if necessary, according to the indications of chapter n. 5 and 6 and in any case always contact the machine manufacturer (see chapter no. 10).

The machine is built with the most advanced technology and all the components are carefully selected in function of their quality.

Nevertheless, during the normal use of the machine, **some inconveniences may occur that are easily solvable** by following the directions here given.

Instructions for replacement do not appear in this manual and should therefore be explicitly requested from the machine manufacturer, who reserves the responsibility for the interventions of replacement.

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Before proceeding with any intervention or investigation:

- 1. Signal, with a visible sign, that maintenance is being carried out on the machine.
- 2. Ensure that the machinery connected to it upstream and/or downstream does not endanger or hinder the maintenance operations; in any case, switch them off, using the appropriate procedures.
- 3. Before restarting the machine, always make sure that there is no personnel still working on it performing cleaning and/or maintenance operations.
 - 4. For inspections and minor electrical repairs only have electricians and/or qualified and regularly qualified professional electrical technicians.
 - 5. For mechanical repairs, always contact the manufacturer.
 - 6. Always and in any case, consult the manufacturer of the product as indicated in the first pages of this manual.
 - 7. Do not reset/clear the security device automatically via an external sequence without verifying/assessing the cause of the arrest.

FAULTS OR BREACKDOWNS that could lead to a MACHINE STOP are:

FAILURE / BREAKDOWN	POTENTIAL FAILURE(S) / CAUSE(S)	MODE(S) OF INTERVENTION AND FEEDBACK		
Stonning of	Operation of an emergency stop device or of safety device	After eliminating the causes that led to the intervention of any device in question, restore it. It is recommended to open all the surge-protection/switches/disconnection devices and insert one after the other in sequence.		
machining	No power supply voltage	Check that the electrical cable is correctly attached to the socket and try again to operate the machine.		
	Unidentifiable cause(s)	Contact the manufacturer directly		
	General black out	Contact the power supply company		
Main-power failure	Triggering of the short-circuit protection device or any other device placed upstream of the power supply line for electrical equipment	After eliminating the causes that led to the intervention of a device in question, restore it. It is advisable to open all the surge- protection/interruption/disconnection devices and engage the one after the other in sequence.		
The machine does not work	No power supply voltage.	Check that the electrical cable is correctly attached to the socket and try again to operate the machine.		
The machine produces excessive noise	Wear of internal moving elements	Check the condition of the internal parts of the machine if worn, see chapter 6.		
	Absence of voltage from power supply.	Check and restore electrical power.		
	Lack of pneumatic energy from the main line.	Check and restore pneumatic energy.		
Pneumatic actuators do	One or more emergency/safety systems activated.	Restore emergency systems and check their efficiency if necessary.		
not start	The solenoid valves do not activate.	Check the efficiency of the solenoid valves and electrical continuity.		
	Fuses tripped or magnetothermal fuses not working.	Replaced the burnt fuses, check the status of the circuit breakers.		
	Mechanical defects	Contact the machine manufacturer's service department		



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7.6. REINSTALLATION AND REUSE



Moving and reinstalling the machine are especially delicate operations that require considerable experience, therefore they must be carried out exclusively by the staff directly commissioned by the manufacturer, or authorized by the manufacturer and by no one else, in order to be carried out without risk for the personnel or the machine.

In case of need to move elsewhere and/or deliver elsewhere the machine (in concession of use and/or due to resell), it is obligatory to contact the machine manufacturer with reasonable advance for the indispensable necessary technical assistance; in fact, these interventions are **the exclusive responsibility of the machine manufacturer's personnel.**

References for the traceability of the machine manufacturer are given in chapter no. 10.

7.7. MEANS OF FIRE-EXTINCTION

The indications of the **fire-extinguishing devices** are of fundamental importance as possible operations/interventions not carried out in accordance with the following or even not foreseen directions, may result in damage to the machine, its internal parts, the feeding system, of the processed/produced product or even accidents to the operators and cause the warranty to be voided.



All fire extinguishing operations, if any, must be carried out by personnel adequately informed and trained about the risks and dangers that may arise during the performance of the and must have read and understood the safety instructions contained in this manual and must present normal psychophysical conditions.

In the event of a fire in the electrical equipment, other parts of the machine or the processed product, it is recommended the use of type C CO₂ fire extinguishers.



One of them must be placed permanently near the main working place of the machine



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CAP. 8. DEMOLITION AND DISPOSAL



If you decide to no longer use the machine covered by this manual because it is obsolete and/or irreparably damaged or worn to the point where repairing it is uneconomic, it is necessary to **put the machine out of service making it inoperative and free of potential hazards**.



The machine must be taken out of service by **specialized and equipped personnel**, who possess the **professionalism of the maintainers, indicated in chapter 6**.



If the customer does not have adequate personnel or instrumentation to carry out the demolition procedure in conditions of absolute safety and in such a way as to guarantee the safety of the operators, please contact the technical personnel of the machine manufacturer (see chapter no. 10)).

Before starting the **demolition**, please signal that there are interventions in progress.

8.1. DEMOLITION



In order to carry out the task in maximum safety, the **areas surrounding the machine**, for an area of 360° and for at least a distance of 2000mm/ 6ft, must be free from walls, other machinery, equipment or others encumbering elements such as columns.



The main steps for disassembly and dismantling include (indicative list does exhaustive): dismantle all the components and send them to separate waste collection entities or companies in compliance with the regulations in force.



All disconnection operations must be carried out using **suitable tools and utensils of suitable dimensions** (e.g. slotted or Phillips screwdriver, hexagonal spanner, Allen keys etc.), depending on screw/bolt type.



During disassembly operations, under no circumstances the operator/technician is allowed to enter the machine or stand underneath it or above it: always stay at the side of the machine.



Before disassembling any part and/or disconnecting and/or loosening any connecting element, make sure that the following is properly secured that the connected elements wont collapse/fall creating danger.

To do this, also use any available supports, or auxiliary stops, or approved and certified lifting devices according to the laws and regulations in force in your country/state/county.

Never carry out the dismantling operations alone but **always have someone who can assist** and/or help in the event of an error and that in any case possess at least the professionalism of the maintenance technician indicated in chapter no. 7.

Pay particular attention to **any labels affixed** directly on the components to be disconnected and in proximity to the terminal blocks (see chapter no. 4).

At the end of the dismantling activities all the identification plates of the machine and electrical equipment and any other documents relating it must be destroyed.



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8.2. DISPOSAL



Before disposing of the components that make up the machine and the electrical equipment, consult the machine manufacturer (refer to chapter no. 10), that will indicate the **operating procedures in compliance with the principles of safety and environmental protection.**



The machine can be **disposed of without the need to reduce it to minute pieces**; simply disconnect the main groups that compose it and place them on the scrapping means of transport/hold units.



To do this it is still required suitable lifting and moving equipment such as forklifts, hoists, mobile bridge cranes, etc., all approved and certified in accordance with legal and regulatory provisions regulations in force.

Dispose of them in accordance with the regulations in force, by contacting the entities regulating and assigned of their disposal and/or companies specializing in the scrapping of industrial machinery and/or waste disposal, ensuring the separation between plastic and metal material and electrical components **that must be sent to separate waste collections units**.

It is the employer's obligation to be aware of the relevant laws in force in his country/state/county and to operate in compliance with such legislation.

It is forbidden and subject to sanctions to dump the machine and the electrical equipment in the environment.



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CAP. 9. APPENDICES / ATTACHMENTS

9.1. MAINTENACE/SERVICE LOG

This maintenance log contains records of installation, maintenance, repair and modification activities carried out, and should be made available for inspection to authorized entities.

Customer:

(name, address, and contact person)

Description of the intervention (Tick the box corresponding to the intervention done. Describe any residual risks and/or misuse foreseeable)								
Inst	Installation Start-up Settings Service Repair Modifications							
Date:		Signatur	e of the nnician:		Signature of the customer:			

	Description of the intervention (Tick the box corresponding to the intervention done. Describe any residual risks and/or misuse foreseeable)								
Insta	Installation Start-up Settings Service Repair Modifications								
Date:		Signature of t	he an		Signature of the customer:				

Description of the intervention (Tick the box corresponding to the intervention done. Describe any residual risks and/or misuse foreseeable)								
Inst	allation	Start-up	Settings	Service	Repair	Modifications		
Date:		Signature	of the		Signature of the			
		tech	nician:		customer:			



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Description of the intervention (Tick the box corresponding to the intervention done. Describe any residual risks and/or misuse foreseeable)								
```	1 0		,		/			
Installation	Installation Start-up Settings Service Repair Modifications							
Date:	Sign. of the te	echnician:	Sig	n. of the customer:				

(Tick the b	ox corresponding to	Description of the intervention done	of the intervention e. Describe any residu	al risks and/or misuse	e foreseeable)
Installation	Start-up	Settings	Service	Repair	Modifications
Date:	Sign. of the te	echnician:	Sig	n. of the customer:	

(Tick the boy	c corresponding to	Description the intervention dor	of the intervention ne. Describe any residu	ual risks and/or misu	se foreseeable)
Installation	Start-up	Settings	Service	Repair	Modifications
Date:	Sign. of the te	chnician:	Sig	gn. of the customer:	

(Tick the bo	ox corresponding to	Description o the intervention done	f the intervention Describe any resid	ual risks and/or misus	se foreseeable)
Installation	Start-up	Settings	Service	Repair	Modifications
Date:	Sign. of the te	echnician:	Si	gn. of the customer:	

<b>Description of the intervention</b> (Tick the box corresponding to the intervention done. Describe any residual risks and/or misuse foreseeable)						
Inst	allation	Start-up	Settings	Service	Repair	Modifications
Date:		Sign. of the te	echnician:	Si	gn. of the customer:	



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### 9.2. EVENT RECORDING FORMS

### **REPLACEMENT OF STRUCTURAL ELEMENTS**

Replaced part:		Date:	
Code:	. Manufacturer:		Serial number:
Replaced with part:			
Code:	. Manufacturer:		. Serial number:
Reason for replacement:			
Company responsible for repla	acement:		
The servicer:		The customer:	
Replaced part:		Date:	
Code:	. Manufacturer:		Serial number:
Replaced with part:			
Code:	. Manufacturer:		. Serial number:
Reason for replacement:			
Company responsible for repla	acement:		
The servicer:		The customer:	
Replaced part:		Date:	
Code:	. Manufacturer:		. Serial number:
Replaced with part:			
Code:	. Manufacturer:		. Serial number:
Reason for replacement:			
Company responsible for repla	acement:		
The servicer:		The customer:	



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### REPLACEMENT OF COMPONENTS

Component replaced:	C	code of the wiring diagram:.	Date:
Code:	Manufacturer:	Serial n	umber:
Replaced with component:			
Code:	Manufacturer:	Serial n	umber:
Reason for replacement: The person in charge of the part replaced and the original	replacement declares to ha safety conditions restored.	ive verified, after installatio	n, the perfect efficiency of the
Company responsible for rep	lacement:		
The servcer:	Th	e customer:	
Component replaced:	c	code of the wiring diagram:.	Date:
Code:	Manufacturer:	Serial n	umber:
Replaced with component:			
Code:	Manufacturer:	Serial n	umber:
Reason for replacement: The person in charge of the part replaced and the original	replacement declares to ha safety conditions restored.	ive verified, after installatio	n, the perfect efficiency of the
Company responsible for rep	lacement:		
The servcer:	Th	e customer:	
Component replaced:	c	code of the wiring diagram:.	Date:
Code:	Manufacturer:	Serial n	umber:
Replaced with component:			
Code:	Manufacturer:	Serial n	umber:
Reason for replacement: The person in charge of the part replaced and the original	replacement declares to ha safety conditions restored.	ive verified, after installatio	n, the perfect efficiency of the
Company responsible for rep	lacement:		
The servcer:	Th	e customer:	



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### MAJOR BREAKDOWNS AND REPAIRS

Description of the failure:	
Causes :	
Poppirs corried out :	
Repairs carried out	
Place	Date
The person responsible for the repair	The user
Description of the failure:	
Causes :	
Repairs carried out	
Diago	Data
LIG02	
The person responsible for the repair	The user



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### 9.3. TORQUE TABLE



Diametro nominale	Coppia di serraggio (Nm)			
(d - D)	8.8 (8G)	10.9 (10K)	12.9 (12K)	
M6	9,3	13,2	15,8	
M8	22,6	31,7	38	
M10	45	64	76,8	
M12	77	109	131	
M14	123,7	174	208	
M16	189,3	266	301	
M18	261	367	440	
M20	369	519	623	
M22	499	702	843	
M24	639	898	1078	
M27	941	1324	1589	
M30	1280	1800	2141	

The following table shows the tightening torques for bolts in AISI 304/316. **The class of resistance on the AISI screw is indicated after the material code E.g. A2-70**. The coupling between screw and nut in AISI 304/316 must always be lubricated in order to avoid surface seizing. For applications standard MoS2 molybdenum disulfide grease is recommended. For food applications, use a special fat.

Diametro	Classe di resistenza 70	
	Passo	M (Nm)
M8	1,25	14,5
M10	1,5	30
M12	1,75	50
M16	2	121
M20	2,5	224
M24	3	400
M27	3	N.D.

M = torque adjustment (Moment): torque value set on torque spanner.



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### CAP. 10. IDENTIFICATION DATA

### 10.1. MANUFACTURER

CF LAMIERE S.A.S. Via Piane,12/C 47853 Coriano (RN) Tel. 0541/656410 Fax 0541/658316 Website www.cflamiere.com Email. cflamiere@cflamiere.com Head office: Via Piane,12/C 47853 Coriano (RN) Italia

### 10.2. DOCUMENT

INSTRUCTION MANUAL No. of volumes: 1 Data: 11/11/2021 Review no.: 00

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