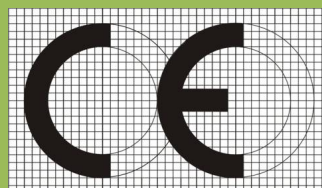


ORIGINAL INSTRUCTIONS
ENGLISH



User Instructions and Maintenance Manual

NUOVA MONDIAL MEC Srl

Bridge Saw

Model: _____

Serial No.: _____

Construction Year : _____



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1 Document Revision

Revision Index	Revision Description	Revision Date	Revisor Initials
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2 Information and Management of the Document

Revision Index	Revision Description	Revision Date	Revisor Initials
00	First Issue	01/11/2013	MB



Nuova Mondial Mec srl – Via La Pastora, 82 Cerasolo di Coriano – 47853 Rimini (Italy) – called from now onwards: **“Manufacturer”**- realized these instructions.

This manual is created in order to be used together with the machine here described; it must always be with the machine, even in case of transfer to other user.

The content of this manual cannot be reproduced or given to third parties neither totally nor partially, in any form, without express written consent by the Manufacturer.

The manufacturer reserves the right to modify the technical features of the machine here described without prior notice.

Instructions, illustrations and data provided in this publication are based on the latest information available at the time of writing and printing. Images provided in this publication are not binding for the Manufacturer. They may not be exactly identical to the machine utilized by the user. The manual is designed to ensure that this diversity does not diminish the clarity and effectiveness of the information provided. When in doubt, before proceeding, contact the Manufacturer. Therefore you are suggested to carefully follow the instructions and warnings described in the texts of the various chapters of the manual.

No part of this publication may be reproduced, stored, transmitted or otherwise recorded in any form by means of electronic, mechanical, photostatic or others without permission and without the express written consent of the Manufacturer. The Manufacturer reserves the right to change the project and to make marketable improvements without notifying customers who already have similar models.

The provided documentation is made as follows.

[Instructions and Maintenance Manual](#)

[Attachments](#)

2.1 Purpose of the User Instructions and Maintenance Manual

In order to safeguard the operator safety and avoid possible damage to the machine, before performing any operation on the machine it is essential to read and understand every part of these instructions.

These instructions are an integral part of the machine and are intended to provide all information necessary to:

- Move the machine, packed or unpacked, in conformity with the security terms provided by the Manufacturer;
- Install it correctly;
- Give a deepened knowledge of its working way and its limits;
- Use it correctly in conformity with the safety terms provided by the Manufacturer;
- Make interventions of production change and maintenance in a correct and safe way;
- Disassemble the machine in conformity with the safety terms provided by the Manufacturer according to the regulations and the laws in force in defense of workers and environment health;
- Give a correct sensitization, training and information to the Workers towards principles, prescriptions and prohibitions concerning the machine and its use in terms of security;

The information are provided in the Manufacturer's original language (Italian) and can be translated into other languages in accordance with governmental regulations and / or agreements or commercial needs.

ITALIAN is the original language of the documentation.



Time spent reading this information will help to avoid risks to the health and safety of people and economic damage.

2.2 Preservation of the User Instructions and Maintenance Manual

The Instructions and Maintenance Manual, named Instructions from now onwards, must always accompany the machine. It is an integral part of the supply. In case it is damaged or unreadable, the user must immediately request a copy according to the procedure for ordering spare parts.

Each machine is provided with a copy of the instructions in Italian and in the language of the country where it is placed on the market and / or put into service.

The Instructions are provided in hard copy and are bound by means of ring binder. Each page is numbered and the number of total pages of the document is shown on each sheet. Therefore, you can check at any time the absence and the correct placement of parts of the instructions.

The Instructions must be kept in places suitable to store paper documents, so they must be dry, well-known to the operators. Instructions should be used with care and the Binding must be kept in its original condition, that means how it appeared when delivered with the machine.

2.3 How to read the User Instructions and Maintenance Manual

The Instructions are formed only by the chapters relative to the supplied machine and the functional units composing it, except some differences anyway not prejudicing the correctness of the information. The instructions are made in this way:

- Paper Cover
- Machine Identification Sheet
- Chapters where the user can find general Information of the Machine
- Chapters where the user can find specific Information relative to: Description, Transport and Storing, Installation, Way of Working of the machine, Maintenance and Damages Searching.

It is sufficient to read the Summary to find the document composition.

General Chapters contain Information applicable to all machines of the same range.

Specific chapters contain Information relative to mechanical/electric/electronic units installed on the machine, therefore all specific information must be searched in these chapters.

Therefore, the Instructions in the user's hands describe the machine as it is supplied.

2.4 Conventions used

In order to give greater prominence to the texts not to be overlooked, the manual can make use of the following typographic conventions; it is necessary to read the manual very carefully in the sections with the following symbols:




	<p style="text-align: center;"><u>CAUTION - DANGER</u></p> <p style="text-align: center;">This symbol indicates dangers that must be carefully considered to avoid serious personal injuries</p>
	<p style="text-align: center;"><u>WARNING - CAUTION</u></p> <p style="text-align: center;">This symbol indicates procedures and actions to be taken in order to prevent damage to property.</p>
	<p style="text-align: center;"><u>NOTE - INFORMATION</u></p> <p style="text-align: center;">This symbol is used to indicate points of particular importance that should not be neglected</p>

Table 1 – Typographic Conventions

	<p style="text-align: center;">Obligation</p>
	<p style="text-align: center;">Danger</p>
	<p style="text-align: center;">Prohibition</p>

Table 2 – Other Symbols used in the document



2.5 Upgrade of the User Instructions and Maintenance Manual

Each page contains an identification code structured to contain the following information:

1. Numeric code to identify the chapter to which the page belongs
2. Progressive Revision Index
3. Language identification code
4. Page number and total of the pages

In every chapter there is a revision management table whose purpose is to maintain the historical changes and the necessary information in terms of warranty system and company quality.

On the cover of the instructions of each machine there is a revision index. It refers to the whole publication, therefore an index upgrade is created only in case of change of the machine or of the instructions after the machine is given a serial number. Generally, for changes of one chapter or more or for changes of one part after entry into the market.

2.6 Addressees of the User Instructions and Maintenance Manual

This manual is direct to: the person in charge of the working place; the workers employed to the installation, use and maintenance and the ones employed to the transport and transfer. The information contained in this manual are intended for using from both professional and not professional workers by considering therefore their given task, their formation levels and their perspicacity.

2.7 Glossary

In this section some recurrent terms are described in order to give a more complete view of their meanings and to avoid wrong interpretations.

Operator: Person authorized, trained and chosen among those who have the necessary skills and information to use and control the machine, after a suitable training course for initial use, that means to know how to drive the machine, how to load and unload the material used during working process.

Maintenance Engineer : Technician authorized, trained and chosen among the ones who have the necessary skills to make interventions of routine and extraordinary maintenance on the machine. Therefore, he must know precise information with particular skills in the intervention sector.

Installation Engineer: Technician authorized, trained and chosen by the manufacturer or by his representative among the ones who have the necessary skills to install and test the machine.

Manufacturer's technical Operator: Technician authorized, trained and chosen by the manufacturer or by his representative among the ones who have the necessary skills to install and test the machine in order to effect operations of particular kind agreed with the machine user.

Routine Maintenance: all operations necessary to preserve the functionality and efficiency of the machine. These operations are programmed by the manufacturer who defines the necessary skills, periodicity and way of intervention.

Extraordinary Maintenance: all operations necessary to preserve the functionality and efficiency of the machine. Normally, it is necessary after a certain working period of the machine or after a damage somewhere on the machine. These operations are not programmed by the manufacturer and they must be effected by a maintenance engineer. Specific knowledge and use of particular equipment can be required, not in the availability of the machine user.

Cleaning/Adjustment: way of working of the machine expected by the manufacturer for all cleaning operations and adjustment of machine's parts.

Adjustment: all operations necessary to adjust machine's parts or exchanges of materials to be destined to the work.



Material: product worked by the machine such as tile, granite, marble, ceramic, natural stone.

Cutting Blade : circular tool used for cutting

Grinding Wheel: circular tool used for profiling and/or making holes on the pieces.

Grinding Wheel: circular tool used for polishing the profiled pieces.

Diamond Tool: tool composed of two parts : a diamond part, “**segment**” or “**rim**”, and a steel core, “**core**”. The segment or rim is obtained by mixing metal powder and diamond grains.

Machine turned on: machine connected to the power supply ready to work.

Machine turned off: machine disconnected from the power supply disabled to work.









Manual Mode: Working Mode of the machine manually controlled by the operator.

Semi-automatic Mode: Working Mode of the machine not requiring continuous presence of the operator during its activity after starting, only loading/unloading operations of the material on the machine are excluded

2.7.1 Conventional Symbols – Machine Technical Data

The manufacturer identifies the technical features of his machines through typographic conventions which will be mentioned in Chapter 7 of this manual relative to machine description.

Here below there is a table of all technical meanings of symbols, only, reported in the technical data section of the machine.

		1	2	3	4	5	6	7	8
ARTICOLO ITEM ARTICLE	MOD.	 mm	 RPM	 kW - Volt	 mm	 mm	 mm	 cm	 Kg

1= Cutting Blade Diameter – Central Hole

2= Motor Rotation Speed of the cutting Blade

3= Rated Motor Power of the cutting Blade

4= Real Cutting Length

5= Max. Raise (table – electric motor)

6= Max. Cutting Depth

7= Dimensions of the machine packed without Legs (LxWxH)

8= Total Weight of the machine



3 Warranty and Customer Service

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3.1 Warranty

The warranty on the machine is valid 12 (twelve) months, except different terms reported on the sales contract and it is limited to defects due to the fabrication and to material imperfections in standard use/maintenance conditions.

The starting warranty date is the delivery date indicated on the invoice and considers clarifications and exclusions reported here below, except different explicit agreements between both sides.

Limits of the Warranty

The warranty exclusively covers the defective parts depending on Manufacturer's Responsibility and includes replacement or repair of the defective part, excluded disassembly, assembly and shipment charges. Replacement of the defective parts doesn't require a renewal of the warranty period on the whole machine.

Warranty of the components of third parties.

For all components supplied by third parties (electric, mechanical, electromechanical components) is applicable the warranty term expected by the respective constructors.

Exclusions of the Warranty



Parts damaged during transport and transfers are excluded from the warranty as well as the ones subject to normal usury and/or wasting due to weathering and environment, in any case all damages depending on events not imputable to the normal working of the machine. Also Damages caused by a missed, insufficient or wrong maintenance are excluded, as well as the ones caused by lack of skill, improper use, use not allowed or not expected, by changes or repairs not authorized, by tampering or intervention on the machine effected by not qualified staff and not complying with prescriptions provided by the Manufacturer. Component Replacement is granted for free, if effected by the reseller, after the replaced parts are returned to the office to be checked and considered effectively defective. Labor costs are not included in the warranty. When the repair would require the presence of a technician of the manufacturer, all travel expenses, room and board will be charged to the final customer. All transport costs are at charge of the buyer. Nobody is allowed to change the warranty terms or issue other ones, oral or written, without the written permission of the manufacturer Nuova Mondial Mec Srl

Checking at the delivery



It is necessary to check the machine when delivered controlling particularly the following points:

- Alignment of the flat surfaces
- Integrity of the guide bars

Good condition:

- of the electric parts and their good efficiency
- of the raise/fall handwheels (where present)
- of the adjustment and blocking devices of the stops
- of the various protections
- You are suggested not put anything on the table of the machine

These different checkings allow to formulate, as appropriate, the reserves immediately on the delivery note and in accordance with law for the carrier on one side, and by registered mail on the other side.



The machines returned under warranty must be sent at the customer's charge both ways in any case. The warranty certificate is valid only if accompanied by the delivery note.

3.2 Customer Service

For every inquiry of technical assistance concerning the machine, it is necessary to indicate all data reported on the identification plate, the approximate working hours and the kind of defect encountered.

For every need, refer to the Customer Service of the Manufacturer:

Nuova Mondial Mec Srl
Via la pastora, 82
47853 - Cerasolo di Coriano
Rimini- Italy

	+39 0541 759688
	+39 0541 756238
	info@nuovamondialmec.com



You are suggested to carefully consult the instructions before requiring assistance.



4 Main Information

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4.1 Manufacturer's Details

Nuova Mondial Mec Srl
Via la pastora, 82
47853 - Cerasolo di Coriano
Rimini- Italy

TEL. +39 0541 75 96 88

FAX +39 0541 75 62 38

info@nuovamondilamec.com



www.nuovamondialmec.com

4.2 Marking

The CE plate placed on the machine identifies the manufacturer and the model of the machine, it is the unique reference authorized by the manufacturer as means of product identification. On the plate the identification details of the machine and main technical data useful for connection are reported. Other technical information concerning the mechanical features necessary to the operators charged with maintenance and repair are indicated in the warning symbols on the machine besides this instructions manual.



Data indicated on the plate must always be communicated to the manufacturer or to his representatives, dealers and customer services in case of information inquiries.

				
NUOVA MONDIAL MEC srl Via la Pastora, 82 - Cerasolo di Coriano - Rimini - Italy Tel. +39 0541 759 688 - fax +39 0541 756 238 - mail: info@nuovamondialmec.com				
MODEL:				
Designazione Segatrice a ponte per pietra		Designation Bridge saw for stone		
A:	ph.:	kg:	lcc: 10kA	
Serial No.:			Date:	
kW:	V:	Hz:	IP:	
MADE IN ITALY				

3006_P_00

Picture 1 – Machine Plate



Line N°	Description
1	Company Name and Address of the Manufacturer
2	Model
3	Machine Type
4	Rated Electric Current of Absorption
5	No. of Phases
7	Weight - kg
8	Short Circuit Current – kA (RMS Sym)
9	Serial No.
10	Construction Year
11	Rated Power of Absorption
12	Rated Voltage of Power Supply
13	Rated Frequency
14	Protection Degree – IP
15 (*)	Pneumatic Supply – bar

(*) only cutting/docking saws where a pneumatic system is present

Picture 3 – Data on the Machine Plate

4.2.1 Position of the Machine Plate

The nameplate is located on the electrical panel cover.



4.3 Conformity Declaration

Every Machine is supplied with a Conformity Declaration together with the instructions. Machines are constructed in accordance with essential safety requirements of Community Directives:

- 2006/42/CE related to the machines
- 2004/108/CE related to electromagnetic compatibility.

The conjecture of conformity to the machine is given also through applicable parts of the regulations, type A and B, harmonized to the declared directives.

The conjecture of conformity, where applicable, is moreover given by means of regulations type C used by the manufacturer, in case they are harmonized within the meaning of Machine Directives. All references are reported on the Conformity Declaration.

DICHIARAZIONE DI CONFORMITA'	
CE	
Secondo Allegato IIA della 2006/42/CE	
Il fabbricante: Nuova Mondial Mec S.r.l. dichiara sotto la propria responsabilità che la macchina:	
denominazione commerciale....:SEGATRICE PER IL TAGLIO DI PRODOTTI LAPIDEI, MARMI, GRANITI, PIETRE NATURALI E LATERIZI	
Funzione: Taglio di prodotti lapidei	
Modello/ Tipo: _____	
Nr° serie: _____	
Anno di costruzione.....: _____	
É conforme alle direttive comunitarie inerenti:	
LE MACCHINE	LA COMPATIBILITA' ELETTRROMAGNETICA
2006/42/CE	2004/108/CE
E PER QUANTO APPLICABILI ALLE NORME ARMONIZZATE: EN 12100:2010 - EN 13849-1: 2008 - EN 13849-2: 2008 - EN 60204-1:2006	
Cerasolo li	
La persona autorizzata a costituire il fascicolo tecnico stabilita nella comunità è: Nuova Mondial Mec S.r.l. Via la pastora,82 – 47853 Cerasolo Ausa di Coriano - RN Italia	Nuova Mondial Mec Srl Sig. Marco Ballarini (Amministratore) Nuova Mondial Mec Srl Amministratore

3006_P_01

Picture 2 – Example of CE Conformity Declaration



5 Main Safety Regulations

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5.1 Main Safety Warnings



Even if the installation is effected by the Manufacturer or by authorized Technicians, this documentation must be read before any following operation, in any case.

Check that the handbook contains all sheets listed on the Summary inserted at the beginning, and immediately communicate to the Manufacturer the eventual lack or illegibility, even partial, of one of them.

In this case, consult the Manufacturer before effecting any operation on the machine.

The operators in charge of moving, installation, use, maintenance and demolition of the machine, must read the instructions paying particular attention to the general safety regulations and to the execution modes contained in sections relative to operations of their competence.

This chapter describes the general safety regulations to be observed during any operation performed on the machine. The intervention procedures, described in the following chapters, must be carried out respecting both the execution modes indicated, both the general safety regulations of this chapter and the ones contained in the specific chapters of the units installed on the machine.



Respect the perimeter spaces indicated by the Manufacturer during installation, use and maintenance in consideration of all work surrounding activities. The realization of this requirement should be made also in compliance with applicable laws on safety at work.

5.2 Types of Operators and Skill Levels

The operators authorized by the Manufacturer to intervene on the machine are the following:

Operator driving the machine

Authorized and trained Person chosen among the ones who have requirements, skills and necessary information to use and monitorize the machine, to start and reset the production.

Mechanical Maintenance Engineer

Qualified technician able to drive the machine in normal conditions, to make it work in safety mode suspended, to intervene on mechanical and pneumatic parts in order to effect all adjustments, maintenance intervention and necessary repairs.

He is not qualified to intervene on electrical equipment.

Electric Maintenance Engineer

Qualified technician able to drive the machine in normal conditions, to make it work in safety mode suspended; he is in charge of all interventions of the electric system concerning adjustment, maintenance and repair. He is not qualified to intervene on mechanical equipment.

Specialised Technician of the Manufacturer or authorized by himself

Technician chosen and authorized by the Manufacturer among the ones who have the skills to make extraordinary maintenance interventions on the machine. He is qualified to intervene both on mechanical and electric parts



The possible need to dispose of the machine with the protective devices and safety excluded, or when it is necessary to use it in safety mode suspended, requires skill and caution by all operators identified and extreme attention by the "Factory Manager" so that the said operator does in this mode only the operations established in full compliance with safety standards.

5.2.1 Main precautionary Measures of the Machine



These safety regulations complete and not replace the safety regulations in force in the place where the machine is installed.

- **The operator must have skills and competences adequate to the kind of work to do, besides being properly trained and informed on the use of the machine.**
- **At first use, if necessary and even after a proper information, simulate some operation as proof to individuate main controls and functions, particularly the ones relative to starting and stopping.**
- **Use the machine only for the purposes intended by the manufacturer. Improper use can be risky and dangerous for safety and health of people and cause economic damages.**
- **The machine is not designed to be used in environments with risk of explosion and fire.**
- **The machine is designed and built to satisfy all operating conditions indicated by the manufacturer. Tampering with any device to obtain performances different from the ones intended could be risky for safety and health of people and cause economic damages.**
- **Do not use the machine with the safety devices not perfectly installed and efficient. Failure to comply with this requirement may cause serious risks to the safety and health of people.**
- **Do not tamper, evade, eliminate or bypass the safety devices installed on the machine. Failure to comply with this requirement may cause serious risks to the safety and health of people.**
- **During operation, wear only personal protective clothes/equipment indicated in the instructions for the use provided by the manufacturer and required by the applicable laws in force concerning safety in workplace.**



Here below warnings and suggestions considered useful for the worker by the manufacturer are reported on the basis of the experience matured through time:

- Many objects worn by the operator can be dangerous and cause injuries, so take off eventual rings, watches and bracelets; safely tighten the sleeves around wrists; take off eventual tie which could get entangled somewhere; keep collected hair with appropriate accessories (bonnets, rubber bands, brooches, etc...)
- Wear always glasses or protective screens to save eyes, safety shoes, safety gloves against mechanical risks, protective equipment to save ears.
- Be careful before beginning any kind of work.
- Work only with all adequate protections at their right place and in perfect condition.
- Be sure that blades and/or tools are carefully mounted and tightened.
- Check that the motor rotations are compatible with the rotations of blades/tools.
- Turned off the main switch (OFF) when stopping the machine to adjust or disassemble some parts. The electric panel (where present) must always be blocked in the right position and with appropriate padlock. Same procedure must be followed for the pneumatic energy where present.
- Signalize maintenance condition with a sign placed on the machine.
- Stop completely the machine before proceeding with cleaning and before taking away any protection to make maintenance.
- General cleaning of the machine and the floor surrounding is an important safety factor.
- Wear protective gloves when using tools.
- Advise all people nearby before starting the machine.
- Pay attention to the warning symbols on the machine every time it is necessary to operate on it or nearby.
- It is obligation for the user to keep all warning symbols readable.
- In case of bad working of the machine or in case of damages to some parts, contact the person in charge for maintenance without proceeding with further repair interventions.

5.3 Safety Warnings for Demolition

All operations for demolition requiring a precise technical competence or particular skills must be effected exclusively by qualified staff with experience matured in the specific sector of intervention.

5.4 Safety Warnings in case of Fire



In case of fire, do not use water or other methods that may cause electrical risk in order to extinguish the fire.

Use only carbon dioxide or water extinguishers suitable for electrical equipment. In case of fire respect the following steps:

1. Disconnect the main electrical disconnecting switch;
2. Disconnect, if possible, the main power supply of the machine by means of the switch or the disconnecting switch installed on the power supply line of the machine.
3. Disconnect the main pneumatic disconnecting switch if present the pneumatic supply;
4. Disconnect, if provided with separate power supply, any suction system connected to the machine;
5. extinguish the fire with a fire extinguisher chosen among the ones described above taking care not to cause displacement of the flames towards persons or flammable materials. When the fire is extinguished, check the conditions of the machine and in case its integrity is compromised or in case of doubts always and immediately contact the manufacturer before re-starting the machine.



5.5 Machine not powered



The machine not powered is:

1. Machine disconnected from the power supply, the disconnecting switch is on 0 or OFF position;
2. Machine disconnected from the pneumatic supply (*); the feeding line is disconnected or the on-off valve is closed;
3. Machine disconnected from the water supply (*) (cooling system)

(*) **Only for semi-automatic bridge saws.**

5.6 Use expected

The machine is designed to work plates of marble, granite, natural stone, tiles and agglomerates.



The machine must not be used for cutting wood, plastic, metal or similar materials, glass.

Therefore, Treatment of different materials can be not conformed to the features of the machine and compromise the safety.

The machine **should NOT be used** to effect operations on materials whose weight, shape or size are not compatible with the structural features, leading to risks of loss of stability.

Machines can work in manual or semi-automatic mode with a single operator; in semi-automatic mode the operator works only for checking the processing on the basis of the program; in manual mode the operator must always be near the machine.

The machine described in this instructions manual allows to work manufactured articles and plates whose sizes are indicated in the table “technical data” of the manual (chapter 7).



CONSIDERATIONS: while the length of the material is an obvious parameter related to the length of the machine, the width and the height are parameters the operator must always consider to avoid danger of loss of stability with consequent bad working. Some operations such as loading and unloading of materials, unless using lifting devices, may require the presence of two people as well some adjustment, repair and cleaning operations.

The machine is expected to work in an industrial place.

The electromagnetic environment is type A (industrial).

The Operator must always be informed on the working way of the machine by means of:

- User instructions

And only if required by the manufacturer, as complementary activity:

- Training course about the machine (simulation)

5.7 Wrong Uses



Reasonably foreseeable wrong Uses are all uses and behaviors implying a working of the machine besides project limits described in the user instructions and in the technical documentation, particularly:

- All uses different from the ones expected by the manufacturer;
- All uses in places risky for explosions or fires;
- All uses with products chemically unstable which can cause dangerous emissions for people and environment, particularly all inflammable, exploding products or anyway all products able to create an explosive or toxic atmosphere;
- All Installations, changes or adjustments on the machine not expected by the user instructions or by the product layout at the moment of the order definition or all operations not authorized by the manufacturer;
- All uses and behaviors in opposition with prescriptions contained in the user instructions;
- All Maintenance Interventions effected in different ways from the ones expected by the user instructions;
- Never start the machine without having correctly installed all fixed and movable guards, particularly the blade guard and other eventual tools;
- Never work pieces too small or too big for the machine;
- Never use deformed or damaged blades/tools;
- Do not use blades not compatible with the shaft diameter;
- Do not use blades with a bigger/smaller diameter than the one indicated on the table "technical data";
- Do not allow staff not authorized/not qualified to start, adjust, drive or repair the machine;
- Do not move safety devices;
- Do not keep the machine uncontrolled while working;
- Do not climb on the machine while working;
- Never make repairs in a hurry or incomplete that may compromise good working of the machine.



The manufacturer cannot be held liable for any accidents or damages to persons or property caused by failure to follow both the safety warnings and the rules of behavior listed above.



Any Tampering by the user makes the manufacturer not responsible; the user will be the sole and unique responsible towards competent Body for accident prevention.

5.8 Position of the Operator

Main Positions of the Operator are all places where he has to be while the machine is working.

The positions indicated refer only to the places to be occupied during normal activity; places to be occupied during maintenance, repair and cleaning operations are not considered in this chapter.



The Operator Positions are reported in the Chapter 10 “use of the machine” of this manual.

5.9 Dangerous Areas – Residual Risks



Even if protective measures are considered in the project, residual risks are still possible. The manufacturer have found main dangerous areas on the machine during various working operations thanks to an adequate risks analysis.



Normally, dangerous areas identified can coincide with the operator position itself. The possible and specific areas are therefore indicated in chapter 10 “use of the machine” of this manual.

There are also other dangerous areas that could be accessible for other operations different from the ones present during normal activity, such as: maintenance and repair of parts inside the machine are not considered dangerous areas by the manufacturer because they are placed inside the guards; these operations must moreover be done exclusively by expert staff authorized by the manufacturer.

5.9.1 Warnings – Prohibitions – Prescriptions




Dangers – Dangers are indicated by means of symbols placed near their source specifying their nature. The symbol is triangle-shaped with yellow color background inside which there is a pictogram indicating the nature.

Prohibitions – Prohibitions are indicated by means of symbols placed on the machine. The symbol is circle-shaped with white color background and red color rim inside which there is a pictogram indicating the nature.

Prescriptions – Obligations – Prescriptions – Obligations are indicated by means of symbols placed on the machine. The symbol is circle-shaped with blue color background inside which there is a pictogram indicating the nature.

The list is general; in the chapters relative to the functional units, the residual risks specific of their relative unit are reported.

In the table 1, there is a general list of dangers and residual risks that could present on masonry saws for cutting bricks, marble, granite and natural stones as well the preventive and protective measures to adopt relative to the risk.

Dangers	Residual Risks	Behaviours to adopt	Warning Pictograms
<p>Mechanical Nature:</p> <p>Tools while moving</p> <p>Injuries caused by accidental contacts</p>	<p>Shearing, abrasion, tearing, impact</p>	<p>Keep the hands at a safety distance from the tools while moving.</p> <p>Always wait the tool stops before getting close to the cutting blade or removing the material near it. NEVER use the machine without a fixed guard on the tool (blade guard).</p> <p>Always wear individual protective equipment (gloves).</p>	
<p>Mechanical Nature:</p> <p>Parts thrown due to breaking of tools or materials worked.</p>	<p>Ejection, Perforation, Impact</p>	<p>Always keep the safety Operator Position indicated on the manual during cutting.</p> <p>Replace immediately the tools presenting evident signs of damage, usury/breaking.</p> <p>Never keep tools/objects uncontrolled placed upon the bench.</p> <p>Remove wastes and residues that could create danger at every cutting.</p> <p>NEVER use the machine without a fixed guard on the tool (blade guard).</p> <p>Do not remove (where present) the transparent side fixed guards.</p> <p>Always wear individual protective equipment (gloves, glasses, shoes or helmets).</p>	
<p>Mechanical Nature:</p> <p>Movable parts of the machine owing to the material to be worked.</p>	<p>Impact Limb Crushing</p>	<p>Always keep minimal safety space near movable/fixed parts of the machine (ex. Sliding carriage and sides – cutting head and sides).</p> <p>Be sure of the perfect stability of the machine to the ground; be sure of the right position of the material to be worked during loading/unloading operations.</p> <p>Do not stay in the back areas of the machine (see chapter “operator station”).</p>	






Dangers	Residual Risks	Behaviours to adopt	Warning Pictograms
Electrical Nature:	Electrocution for direct or indirect contact	<p>Always check the efficiency of the electric parts; the insulation of the cables that must be perfect; the integrity of the motors and pumps for the cooling system;</p> <p>Do not open the electric casing;</p> <p>Do not drill the electric casing;</p> <p>Do not touch parts in tension;</p> <p>Do not use the machine under rain or with water on the floor;</p> <p>Always disconnect the machine from the power supply when work time is over;</p> <p>Check periodically efficiency of the ground system and of the circuit breaker.</p>	
Caused by materials/substances	Inhalation of dust	<p>Do not use the cutting blade dry without water;</p> <p>Be sure that the cooling system is always working;</p> <p>change the water in the machines with water tray on the basis of the periodicity indicated at the Chapter 10 of this manual;</p> <p>always wear individual protective equipment (masks and/or filters)</p>	
Thermic Nature	Burns caused by contact with the tool or the material overheated.	<p>Do not use the cutting blade dry without water;</p> <p>Be sure that the cooling system is always working;</p> <p>Always wear safety gloves to keep the material to be worked, as well for all cleaning and/or replacement operations of the blade.</p>	
Caused by noise	Deafness for continuative use	<p>Follow specific prescriptions provided by the manufacturer and reported in chapter 10 of this manual with reference to the specific model of the machine;</p> <p>Wear where indicated the individual protective equipment (ear plugs).</p>	
Caused by radiations	artificial optical radiation emitted by the laser in the machines equipped with laser pointer.	Even if the light emitted by the laser pointer is classified in the class less dangerous, it is recommended not to directly watch the ray with optical equipment or reflecting objects	

Table 4- List of dangers and residual risks – prohibitions and warnings

5.10 Safety Devices

The machine is equipped with safety and protection devices in order to reduce the risk. The devices are described in Chapter 7 “description of the machine”. Please refer to the complete description in this chapter.

5.11 Information and Warnings on the Machine – Symbols



The information and warnings given through the safety symbols described in this manual are also reported on the parts of the machine in the appropriate points and they signalize the presence of potential dangers. The safety symbols should be kept clean and in perfect condition. They must be immediately replaced when they are detached, damaged or unreadable by requesting them to the manufacturer. Carefully read the meaning of safety symbols and remind it well because the safety of the operator can depend on it.

5.12 Individual Protection Devices

The following symbols are the necessary individual protection devices recommended by the manufacturer in order to move, install, use, adjust and dismantle the machine.





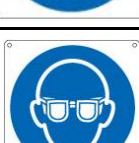

Obligation	Symbol	Phase and Recommendation
Obligation to wear gloves		During every working phase of the machine. Danger of injuries during loading/unloading, tools replacement, maintenance and cleaning operations.
Obligation to wear safety shoes		During every working phase of the machine
Obligation to wear working clothes		During every working phase of the machine. Wear adequate clothes well buttoned. Pay attention to scarves, necklaces, bracelets, ties. Long hair must be collected.
Obligation to wear ears protection devices		During every working phase of the tool on the material.
Obligation to wear protection glasses		During every working phase of the tool on the material. Danger of material throwing during cutting.
Obligation to wear masks protecting from dust		During every working phase of the tool on the material and on the basis of its composition. During every cleaning phase of the tool and of the saw bench.

Table 5 – Individual Protection Devices



6 Out of Service and Demolition

Revision Index	Revision Description	Revision Date	Revisor Initials
00	First Issue	01/11/2013	MB

6.1 Introduction

The machine is manufactured and constructed according to criteria of strength, duration and flexibility allowing to use it for many years, productively. When its service life is over, the machine should be turned off, that means it should be taken out of service so that it cannot be anymore used for the purposes for which it was designed and built. Same Deactivation Procedures must be observed in all the following cases:

- Out of Service of the machine for a long period of inactivity;
- Moving of the machine in another department or other building;
- Out of Service of the machine, disassembly and stocking;
- Final Disassembly of the machine and subsequent demolition.



The Manufacturer cannot be held liable for damage to persons or property resulting from reusing of parts of the machine, one or more. The Manufacturer can guarantee the safety, the reliability of the machine only in the conditions for which it was designed and manufactured.



6.2 Setting of the Machine to Insulation

This is the procedure:

1. Remove the residual working material from the machine, if present, by following the operations described in the chapters about its way of use;
2. Turn off the machine by stopping it by means of the provided device placed on the Operator Control Position;
3. Disconnect the machine from the Power Supply; for the machines equipped with electric panel, put the main disconnecting switch on OFF position.

6.2.1 Insulation of the Machine

1. Disconnect the cable of the power supply after having previously opened the disconnecting switch placed at the top of it.

6.3 Out of Service for Inactivity



This is the procedure to follow when the machine has to be unused for long time:

- Empty the water tray and dry every residue of water and dirt, if present;
- Carefully clean the pump and the intake guide vanes;
- Lock the carriage in order to avoid it slides on the beam;
- Cover all unpainted sliding parts with a corrosionproofing spray, for example a vaseline spray;
- Store the machine in a dry place by covering it with a cloth raised from the floor on a wooden bed in order to avoid a contact with the eventual humidity of the floor.

6.4 Demolition

Remove the plates from the machine and destroy them.

Disassemble the main units of the machine, then disassemble all single parts.

The structural parts of the machine must be disassembled only after making sure of crushing dangers. Once disassembly is over, separate the parts on the basis of the material used for its construction by considering the table of the following section.

The machine is composed of not biodegradable parts and of substances which can pollute the environment if not adequately disposed of.

Moreover, part of these material can be recycled avoiding the environment pollution.

It is your and our duty to contribute to the health of the environment.



Carry all materials to proper collection centers on the basis of National Laws of the Country where disassembly takes place.



Do not throw materials or parts of machines in the environment.



Reusing of Parts

Reusing of some parts of the machine, both mechanical parts and raw materials for other constructions, is subordinate to the total responsibility of the user.

The manufacturer cannot be held liable for damage to persons or property resulting from reusing of single parts of the machine for functions or assembly different from the original ones. The manufacturer refuses any implicit or explicit recognition of suitability to specific purposes of the machine parts reused after the definitive disassembly with a view to its demolition.

6.5 Materials used

Nature – Kind of Material	Destination- Use
Painted Steel	Base Frame and main Structures; internal Parts; Control Panel Casing;
Galvanized Steel	Base Frame and main Structures; Tops of the machine Worktable
Stainless Steel	Base Frame and main Structures
Cast Iron	Parts
Aluminium	Base Frame and main Structures; Pneumatic Cylinders; Mechanical Parts; Wheels
Copper	Electric Equipment – Cables
Plastic and polymer type ABS PC PA PS PU	Guards and Parts
Rubber and Textile Fiber	Gaskets, Belts, Pads, Wheels
Batteries	Electric Equipment
Electric/Electronic Products	Electric Equipment
Wood	Worktable
Grease and Lubricating Oil	Reduction Gears, Supports, Bearings
Bronze - Brass	Water Valves

Table 6 – List of the materials used for construction



The previous list is not exhaustive; it contains the parts composing more than 99% of the machine considering the weight. In case of any doubt on the nature of the materials, contact the manufacturer.



The components with this symbol meet the requirements of the new regulations introduced to protect the environment for electrical and electronic equipment and they must be properly disposed of at the end of their life cycle. Request information to the local authorities about the areas dedicated to the disposal of electrical and electronic equipment waste.



7 Description of the Machine

Revision Index	Revision Description	Revision Date	Reviser's Initials
00	First Issue	December 20, 2013	MB

7.1 Description of the Machine

Machine MANTA COMPAT 200-250-300 is an electrical sawing machine that allows the cut of each stony material for the construction industry.

The main feature that distinguishes the MANTA COMPAT 200-250-300 machine lies in the affordability, versatility, simplicity and, at the same time, robustness.

Suitable for both small workshop and large industry.

The sawing machine MANTA COMPAT 200-250-300 is available in two versions:

- 1) Manual version LX
- 2) Semi-automatic version SA.

The cutting of the material takes place by:

- 1) Positioning the workpiece on the work surface manually by the operator.
- 2) Longitudinal movement of the cutting head (X-axis) by the operator by means of belt transmission actuated by a mechanical hand wheel in the LX manual version, and using instead a gear motor with electronic speed variator for the semi-automatic SA version.
- 3) Adjustment the cutting height (Z-axis) by hand wheel for LX manual version, powered by geared motor for semi-automatic SA version.
- 4) The two motorized movements in the semi-automatic version are executed with a single control device (joystick) by the operator on the switchboard.
- 5) The piece remains fixed, the tool is moving during cutting.

For these unique features, the machine takes the name of "bridge saw."

Possibility of inclination of the head for cuts from 90 ° to 45 ° by moving the entire electric motor unit by means of a lever placed on the shoulders.

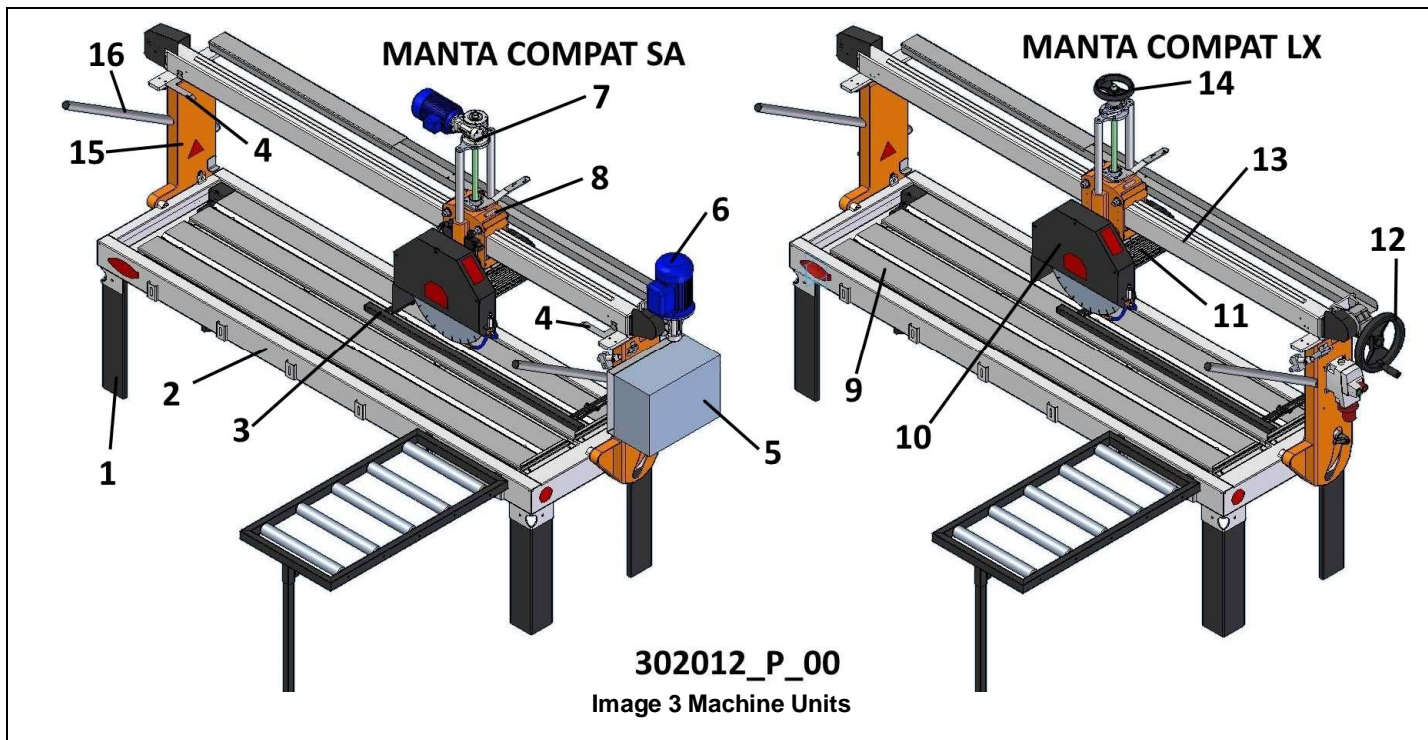
Cutting takes place by means of a water recirculating cooling system powered by electric pumps submerged in the tub formed directly on the machine base.

The structure and the base is made of painted steel, the work bench is made of galvanized steel. The cutter is raised on fixed angular legs with the possibility of being dismantled.

The machine must be moved and raised exclusively with lifting equipment as described in Chapter 8 of the manual.

7.1.1 Composition of the Machine

Machines are composed of the following units





1	Machine legs
2	Tub
3	Side jambs
4	X-axis limit switch cam
5	Electrical panel for the SA version
6	X-axis advance unit – the SA version
7	Z-axis lifting unit - the SA version
8	Head cart
9	Shelves
10	Diamond disk guard
11	Diamond disk engine
12	X-axis advance unit – the LX version
13	Head sliding rail
14	Z-axis lifting unit - the SA version
15	Shoulders
16	Rods for the 45 ° inclination

Table 7 Description of Machine Units



The identification plate showing the type or model of machine with its serial number, name and engine data is posted on the electrical panel of the machine.

7.1.2 Accessories Supplied with the Machine

Included with the machine, the following material is supplied:

- Set of service keys
- 1 submersible pump.
- 1 roller extender
- 1 Side stop

Optional devices and accessories

The MANTA 200-250-300 COMPAT machine, in its versions, may be equipped with the following optional devices and accessories, shown in the table.

	Devices and accessories
1	Diamond cutting disk
2	Additional bench extenders
3	Mark-cutting laser
4	Mechanical unit

Table 8 – Optional devices and accessories

7.2 Operating Principle

This type of machine is designed for cutting, exclusively water squaring, of stone and similar materials with diamond discs commercially available but excluded from the supply.

It is used raised from the ground with removable fixed angular supporting legs necessary for the transport phases.

The load of the material on the work surface is made directly of the operator.

The machine is designed to be used in craft and industrial environments, also semi-open or covered, and is intended to be used by operators, also not professional but previously trained.

The operation, control and stop command of the machine runs through the electrical panel located on the shoulder of the operator side of the machine equipped with protection system for accidental start-up.

For the machine in the manual version, the cut is made in single pass or multiple passes where the operator acts each time on two respective mechanical manuals hand wheels.

As for the semi-automatic version, the cutting takes place in one pass, where as a result of the operator's command to start the machine a longitudinal stroke of the head forward is completed.



Another system called "semi-automatic incremented" optional device for multiple pass cutting for large stone thicknesses, performs a longitudinal stroke to the head forward then backward in an automatic way and repeated with automatic disk descent.

7.3 Specifications

Errore. L'origine riferimento non è stata trovata. shows the main technical characteristics of the sawing machines MANTA 200-250-300 ECO in their models available in the catalog of the Manufacturer. Regarding the meaning of conventional symbols used, refer to Chapter 2 of this manual.









ARTICOLO ITEM ARTICLE	MOD.	 mm	 RPM	 kW - Volt	 mm	 mm	 mm	 cm	 Kg
150900	FRESA MANTA 200 COMPACT MANUALE	350 - 25.4	2800	3 - 400*	2000	250	110	290x91x121	237
150911	FRESA MANTA 200 COMPACT MANUALE	450 - 30	1400	4 - 400*	2000	250	150	290x91x121	290
150920	FRESA MANTA 200 COMPACT SEMIAUTOMATICA	350 - 25.4	2800	3 - 400*	2000	250	110	314x91x121	250
150931	FRESA MANTA 200 COMPACT SEMIAUTOMATICA	450 - 30	1400	4 - 400*	2000	250	150	314x91x121	305
150901	FRESA MANTA 250 COMPACT MANUALE	350 - 25.4	2800	3 - 400*	2500	250	110	340x91x121	260
150912	FRESA MANTA 250 COMPACT MANUALE	450 - 30	1400	4 - 400*	2500	250	150	340x91x121	315
150921	FRESA MANTA 250 COMPACT SEMIAUTOMATICA	350 - 25.4	2800	3 - 400*	2500	250	110	364x91x121	280
150932	FRESA MANTA 250 COMPACT SEMIAUTOMATICA	450 - 30	1400	4 - 400*	2500	250	150	364x91x121	335
150902	FRESA MANTA 300 COMPACT MANUALE	350 - 25.4	2800	3 - 400*	3000	250	110	390x91x121	300
150913	FRESA MANTA 300 COMPACT MANUALE	450 - 30	1400	4 - 400*	3000	250	150	390x91x121	350
150922	FRESA MANTA 300 COMPACT SEMIAUTOMATICA	350 - 25.4	2800	3 - 400*	3000	250	110	414x91x121	315
150933	FRESA MANTA 300 COMPACT SEMIAUTOMATICA	450 - 30	1400	4 - 400*	3000	250	150	414x91x121	365

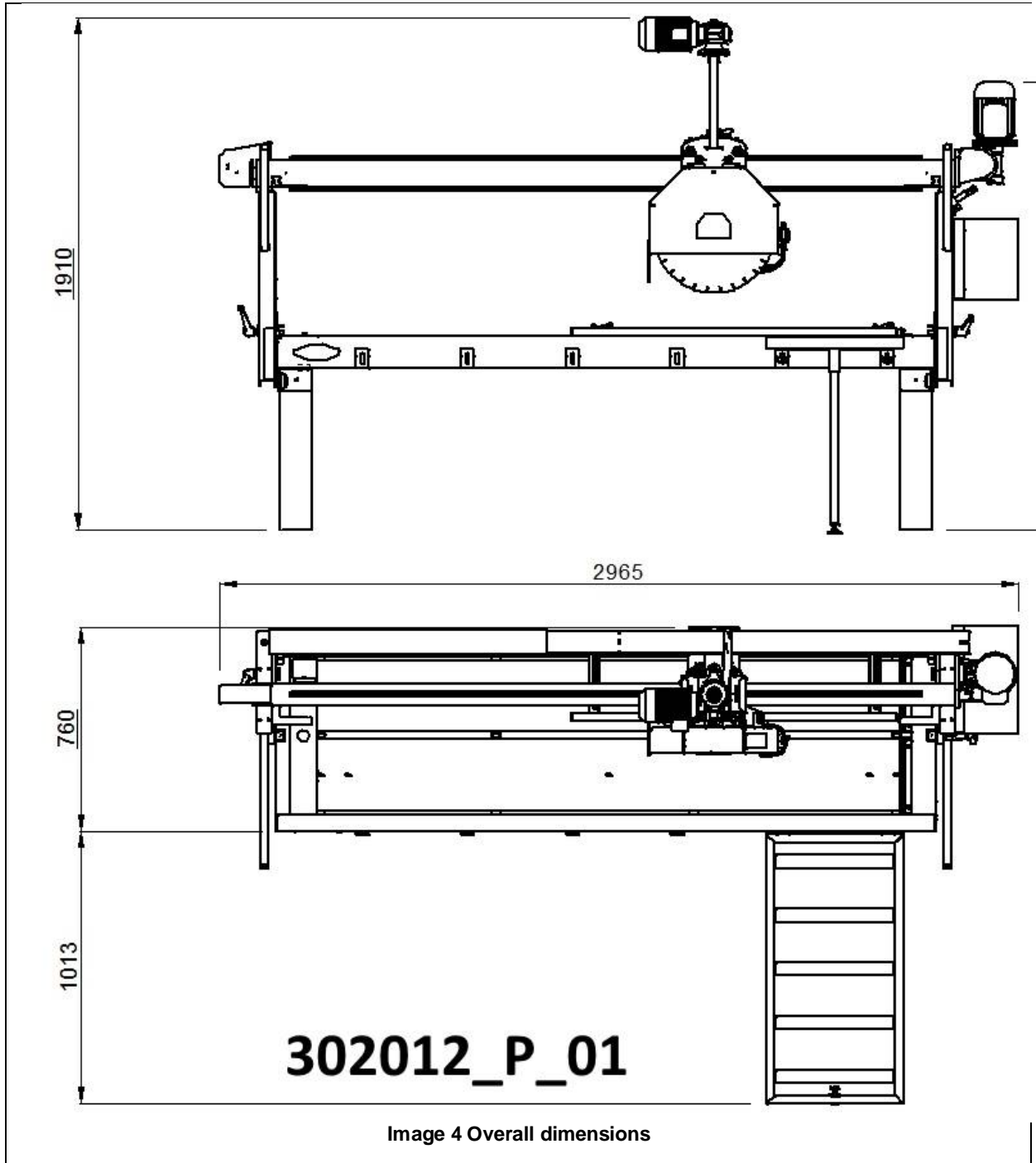
Table 9 Machines specifications

7.3.1 Overall Dimensions

The following are the overall dimensions of the machines in the environment.



Dimensions in mm.








8 Transportation and Storage

Revision Index	Revision Description	Revision Date	Reviser's Initials
00	First issue	December 18, 2013	MB

8.1 Safety Requirements for Handling



- Run the lifting and the handling in accordance with the information provided by the Manufacturer and marked on the packages, on the machine and in the instructions for use.
- When handling, if conditions require, use one or more operators to receive appropriate alerts.
- Operators who carry out the loading, unloading and handling of the machine, must have skills and experience acquired and recognized in the specific sector and in particular they must be proficient in the use of the lifting equipment to be used.
- In the case where the machine has to be transferred by means of transport, verify that they are appropriate for the purpose and perform the loading and unloading operations without risks for the operator and for the operators directly involved.
- Avoid erratic movements with the raised machine.
- Use appropriate personal protective equipment

	OBLIGATION TO USE GLOVES
	OBLIGATION TO USE FOOT PROTECTION SHOES
	OBLIGATION TO USE HEAD PROTECTION HELMET

8.2 Description of the Packaging

Transport of the machine is entrusted to these solutions.

- Road transport
- Maritime transport

It can be shipped with the following types of packaging:

Packaging type A	Machine without packaging with the shrink roll-up wrap placed on four wooden bases
Packaging type B	Machine packed in a wooden crate (Image 5)
Packaging type C	Machine packed in a wooden cage (Image 5)




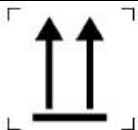


The packages are not all suitable for all means of transportation provided.

The Manufacturer will always provide a packaging suitable for the type of transport agreed upon signing of the purchase contract. The same package may not be suitable for modes of transport other than those envisaged.



Image 5 – Types of Packaging

The removed components are suitably packed and protected.
Where it becomes necessary, general information necessary for the protection of the machine can be reported on the packaging in the form of normalized pictograms.

	FRAGILE
	UP
	PROTECT FROM RAIN
	MAXIMUM AND MINIMUM STORAGE TEMPERATURE

8.3 Storage



Depending on the type of packaging, the machine must be stored always observing the following requirements:

- It is forbidden to deposit the machine outdoors and in dusty environments or in the presence of aggressive atmospheres or saline.
- It is forbidden to expose the machine to risks of mechanical type which can cause damage to the structure or parts of the machine.



- It is forbidden to deposit the machine in positions where it is directly exposed to rain or high temperature ranges.
- Grease the unpainted parts.

8.4 Transportation Modes

8.4.1 Safety Requirements

Before lifting check the load center position.



It is always necessary to disassemble the support legs in order to avoid that the latter may become damaged during the movements.

- During the loading and unloading phase be careful not to bump the machine so as to prevent any damage to the machine or to the people.
- It is recommended not to allow unauthorized persons to stand near the suspended load during lifting and handling of the machine.
- Make sure every time you have to move or transport the machine that all the machine's moving parts are securely fastened and tightened to the same.
- Lay the machine on the ground with extreme caution avoiding abrupt falls and dangerous shocks.
- The machine must be handled by professionals trained to the use of the lifting equipment.
- Operators should use personal protective equipment, refer to Chapter 5.

Damage to the machine or its parts caused by handling mode not covered by for Instructions for use are to be considered unfit. Therefore, damage to property or persons are not in any way the responsibility of the Manufacturer.

8.4.2 Lifting – Handling the Machine

8.4.3 The machine can be lifted only with lifting equipment, e.g. with forklift or crane.

8.4.4



The Manufacturer prohibits manual lifting by people because the large weight of this type of machine could cause damage to people and the machinery itself



The total mass of the machine is stated on the plate or in the table.

8.4.5 Lifting – Handling with Lifting Equipment



8.4.5.1 Lifting for Machines without Packaging.

The machine can also be transported by forklift or lifted by crane or bridge crane.

The machine devoid of legs remains raised from the ground, to the standard height (10 cm) required for the passage of the forks for the forklift.

The total mass of the machine is stated on the plate or in the table.

Proceed in the following way:



For MANTA COMPAT semi-automatic version, some phases and operations request that the machine is powered.

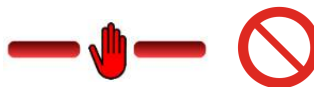
1] Put the engine cart to the center of the machine by activating the motorized drive of the blade carriage, moving the joystick clockwise or counterclockwise according to the point where the head on the X-axis is located.

* 1A] Put the engine cart to the center of the machine by activating the motorized drive, moving the joystick on the operator panel [X- or X +] according to the point where the head on the X-axis is located.

2] Raise the engine cart (Z-axis) by means of the screws, turning the hand wheel clockwise, and interpose a wooden block between the same and the shelf, then lower the cart so as to support the engine on the wood, taking care not to press it.

* 2A] Raise the engine cart with joystick control to the control panel [Z +] and perform the same procedure of step 2]

3] Lift the machine with the equipment in use making sure that it is well balanced.



IT IS FORBIDDEN TO HOOK UP THE MACHINE AT THE SLIDING RAIL

4] Remove the legs unscrewing the bolts screwed on each, taking care to keep the bolts in a container for subsequent reassembly of the legs.

*5] Stop the machine by means of the emergency stop button and turn the main switch knob to the [0 OFF] position. All protections, guards, the doors must be properly closed and secured, remove any object or material which may be located on the machine.

6] Make a last check that all locks are tight and that there is no element of the machine that can move accidentally

7] Lift slowly and handle with caution trying to avoid even the minimal swings of the machine; then place it at the set point.

Lifting Procedure with Forklift Truck

If you lift the machine with forklift at a height of 2 m to secure it to the forks with ropes or similar.

Lifting Procedure with Crane or Bridge Crane

- Proceed with the lashing inserting the slings under the base of the machine; interposing the protections, if any (sheets or cardboard), between the machine and the lashing so as to avoid damaging the painted parts, in the points indicated in (REF. Image 3)

- Always use a harness system with 4 asymmetrical tie rods, with the scope and length suitable to the machine, to limit as much as possible the top angle of the rods with respect to the gripping hook.

- Arrange the slings with small movements of the crane until the optimum stable condition is reached.

* For the semi-automatic machine



For longer trips it is better to use a wooden packaging in order to protect the delicate parts such as electrical panel, engine, etc. Use the original if it is preserved, but only if in good conditions.

8.4.5.2 Lifting from above for machines with packaging.



The procedure is valid for machines with any type of packaging provided.

- 1] Use textile slings or ropes so you always have a lashing system with 4 asymmetrical tie rods, with the capacity and length suitable to the machine.
- 2] Proceed with the lashing possibly interposing the protections (sheets or cardboard) between the machine and the lashing so as to avoid damaging the painted parts, in the points indicated in (RIF. Image 3)
- 3] Arrange the slings with small movements of the crane until the optimum stable condition is reached.
- 4] Lift slowly and handle with caution trying to avoid even the minimal swings of the machine; then place it at the set point.

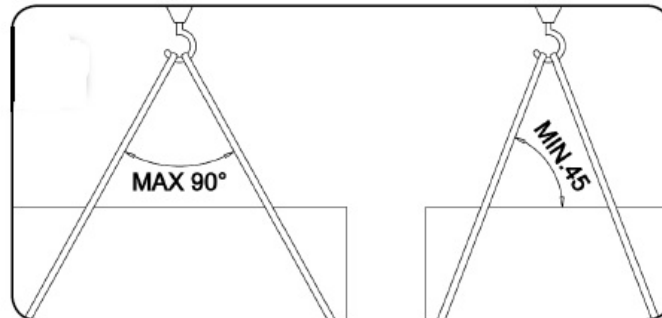


Image 6 – Lifting mode from above with equipment

8.5 Preliminary Checks

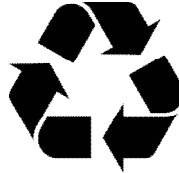


During unpacking check the following:

1. Correspondence with packages shipping list;
 2. The integrity of the machine and any units or separate components;
- In case of verification with negative results, contact the Manufacturer.

8.6 Unpacking and Disposal of Packaging

The machine must be unpacked taking care not to cause damage to the structures or components. Be careful when using knives for cutting the packaging, they can cause damage to parts of the machine and unsightly scratches. The packaging material must be properly disposed of in accordance with applicable laws.



Materials used for packaging are:

- Plastic Film
- Steel Screws
- Wood
- Cardboard



9 Installation

Revision Index	Revision Description	Revision Date	Reviser's Initials
00	First issue	December 17, 2013	MB

9.1 Safety Requirements for the Installation



- **The installation and electrical connections must be performed, as regards the machine, according to the indications provided by the Manufacturer. You must also take account of all national regulatory and legislative requirements of the country where the machine is installed, performing all the operations of installation and connection to perfection.**
- **All installation operations must be performed in the absence of energy.**

9.2 Preliminary Checks

Upon delivery, please check the condition of the machine, checking in particular the following points:

- Alignment of surfaces
- Integrity of the slide rails.
- That the different parts of the machine does not display physical damage from bumps, tears or abrasions.
- Visually check the integrity of the electrical wiring
- The integrity of the electrical controls.
- Check the adjustment / handling wheels (only for sawing machines with manual movement axes).
- Of the jambs adjustment and locking devices.
- Of the various protections.
- Make sure there are no signs or dents on the casings and on mechanical parts indicative of bumps during transport.

It is recommended not to deposit anything on the machine work space.

If there is damage, do not install the machine and contact the Manufacturer describing the anomalies.

9.3 Installation Preparations – Minimum Spaces

- Ensure that in the installation area there is room for maneuver necessary for unpacking and handling the machine.
- The floors of workplaces must have no holes or dangerous projections, or be slippery.
- It is also recommended to check the flatness of the surface on which you are going to install the machine which must be sufficient to ensure a flat and proper support.
- The support in reinforced concrete floor must ensure the support of the weight of the machine, the weight of the pieces that the machine has to process and of any transport equipment or element positioned in the vicinity of the same which serves to perform the loading and unloading of the pieces from the machine.
- The foundation must be designed and set up by the Customer and by specialized personnel.
- The space around the machine must also be left free after the installation is complete to allow subsequent routine and extraordinary maintenance operations on the machine.
- Check that the installation of the electrical power source has been prepared as indicated by the values given on the CE plate of the machine.



The installation and connections must be performed, as regards the machine, according to the indications provided by the Manufacturer. You must also take account of all national regulatory and legislative requirements of the country where the machine is installed, performing all the operations of installation and connection to perfection.

9.3.1 Admissible Ambient Conditions



The machine must be installed by following the instructions below:

- a) Voltage and frequency of the supply connections (refer to the values shown on the EC plate)
- b) Temperature: - 5 ° C + 45 ° C
- c) Altitude: up to 1000 ml. S.L.M.
- d) Humidity: between 30% and 95%.



The machine cannot work in the following environments:

- a) potentially explosive atmospheres (ATEX zones)
- b) totally open environment in presence of rain, wind, weather.
- c) environments with particularly aggressive saline atmosphere (danger of corrosion)

9.3.1.1 Lighting of the Work Environment

The lighting system (natural and / or artificial) of the installation area must provide the following minimum lighting values:

- minimum in workstations 300 lux;
- in other parts of the machine, subject to maintenance and control, at least 500 lux.

As required for the lighting of the workplace, the machine installation room must not have blind spots, flashing lights no dangerous stroboscopic effects.

9.3.2 Air Noise

The measured values for the noise emission levels are not necessarily safe working levels.

This indication cannot be used reliably in order to determine if additional precautions are required.

During operation, the noise can be more or less high, in relation to the type of material being processed and the type of tools used.

The acoustic measurements of this machine were performed in a semi anechoic chamber complying with ISO 3745-77 (test carried out in the notified laboratory)

The following values are daily values, meaning for 8 working hours. These values may decrease by 3 dB (A) if the exposure decreases by 50%.

These are the results obtained in the unloaded work conditions, with the standard blade and standard cuffs:

- Conditions of unloaded running (operator workstation) 73.4 dB(A)
- Condition of 98.4 dB(A) work operation



It is mandatory, for hearing protection, to use individual "hearing protection" devices such as cuffs or earplugs.



We remind you that you can get better results using the following accessories:

- Silenced cuff available on request
- Silenced blade available on request

The obtained values are the following:

- 1] Conditions of unloaded running 73.0 dB (A)
- 2] Condition of 88.5 dB (A) work operation

The sound emission levels depend on the place of location of the machine and on correct maintenance of all its parts.



Not being the Manufacturer, **Nuova Mondial Mec S.r.l**, the constructor diamond disks, obviously cannot guarantee the compliance of materials of third party production. The noise data can vary depending on the type of blade mounted. Therefore, these measures are only a rough estimate, given the variety of blade models available on the market.

The information, in any case, can bring the user of the machine to make a better assessment of noise-related risk.

9.4 Installation

The machine leaves our factories with all the mechanical units mounted and appropriately recorded.

9.4.1 Positioning – Space Required



The installation area must provide a clearance of at least 5 m all around the machine with respect to dimensions specified in Chapter 7 "Description of the Machine"

When choosing the placement area, you will have to take into account the space required around the machine in relation to the work stations.

Keeping with adequate warnings and barriers the layman outside the perimeter (REF. Image 7).

Check the floor surface and solidity so that the base can be uniformly supported on four corner legs.

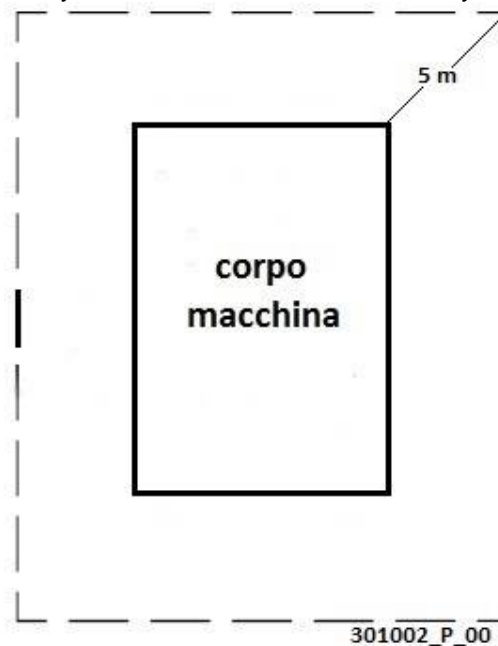


Image 7- Safety distances in the environment



9.4.2 Unpacking the Machine

For the unpacking procedure in the wooden case:

- Loosen the bolts holding one long side of the case
- Remove the wooden panel.
- Remove from above the shelf any materials that are traveling with the machine or extra accessories.
- Slightly lift the machine with a forklift truck, making sure to position the forks under the tub and in the center.
- Pull it out from the case.
- Perform the removal of any transparent film that surrounds the machine by cutting the transparent film with a cutter, being careful not to scratch or cut points of the machine that are in contact with the same.
- Proceed with lifting of the machine by following the instructions given in the separate Chapter 8 "Transportation of the machine without packaging."

9.4.3 Positioning of the Machine

9.4.3.1 Mounting of Elements

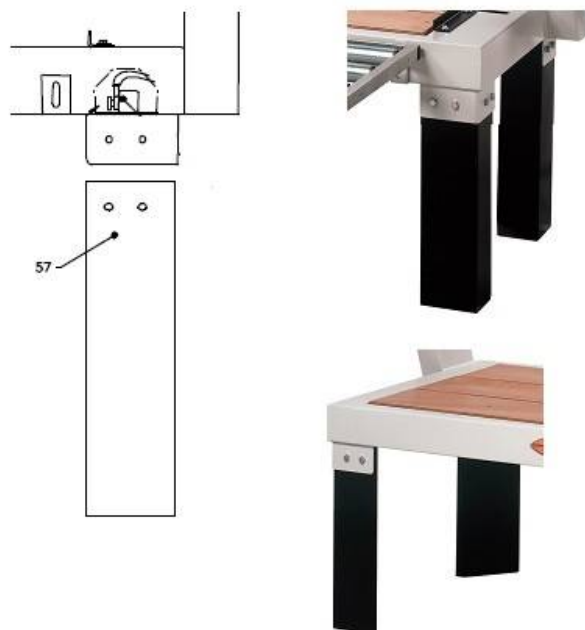
The machine requires from the user just the mounting of the four corner legs, since the Manufacturer is responsible for providing the fully assembled and tested product.

1] Install the legs without tightening them (ref. 57 **Errore. L'origine riferimento non è stata trovata.**), using the bolts and nuts supplied and maintaining the machine raised from the ground in a stable position on the mechanical lift used.

2] Carefully place the machine in a predetermined place.

3] Tighten the bolts of the legs. (ref. 57 **Errore. L'origine riferimento non è stata trovata.**)

4] Level the base using the common construction levels, placing the level first on the long sides of the base, then on the transverse support on the track.



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Image 8 Fixing of fixed angular legs

9.4.3.2 Leveling



The legs in the base of machine are provided with holes for fixing the same to the floor by means of bolts, not supplied, which can also act as registers for leveling.

9.4.4 Removal of the cutting head blockage



The machine is supplied with a special wooden blockage placed under the head of the cutting group (diamond disk), so as to prevent movement and damage to the head during transport, it is thus required to remove such blockage before performing any manual movement of the mechanical parts.

To remove the blockage:

- 1] Raise the carriage of the cutting head assembly by actuating the gear motor by means of the manipulator (joystick) device on the electric panel for semi-automatic machine, by means of a mechanical hand wheel for the manual version.
- 2] Extract the wooden block from above the work surface.

9.4.5 Electrical connection

The machine must be fed by means of a power supply system having the features described in the Technical Specifications (refer to Chapter 7) and to the values indicated on the CE plate of the machine.



Before each activity:

1. Check that the machine characteristic data are aligned to the data of the electricity supply system on the spot (voltage, frequency, number of phases, the line section in relation to the nominal absorption, value of the short circuit current at the installation point).
2. Check that the machine's starter is in the "0" ("OFF") position.
3. Check that the earthing system is efficient and meets the requirements for the country of use.



Protection against indirect contact of the machine must be secured by a safety device; that is, a differential switch (circuit breaker) to be installed upstream of the supply line of the machine, the device must be coordinated based on the impedance of the line fault which feeds the machine. **The device is the competence and responsibility of the user.** The electrical equipment of the machine does not provide for this device, the manufacturer ensures that the electrical equipment is built in accordance with CEI EN 60204-1: 2006 and that all electrical and instrument safety tests included in the Standard have been successfully performed.



Check that the power plug of the site and / or establishment is adequately protected against short circuits as well as the correct section of the cable. Approximate values, calculated in relation to the total current drawn by the machine, are shown on the CE plate. The rated short-circuit current at the installation point should not be greater than the one indicated on the CE plate.

The machines are supplied with a power cord and plug already connected to the control and stop device.

- In the case of incompatibility between the socket and the plug of the machine, replace it with another of suitable type, always performed by qualified personnel.



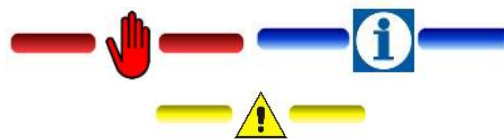
9.4.6 Power supply outlet connection to the electrical panel



The electrical connection of the machine must be carried out under the responsibility and liability of the customer and performed by a person knowledgeable and informed about electrical hazards and authorized by the client (employer).

The power supply of the machine must be carried out via the connection of the 4-wire or 5-wire cable with the presence of the neutral conductor of the supply system. The cables must have a minimum cross section of \varnothing mm² according to the rated absorption current value shown on the plate. The feeding of electrical panel is provided via a direct cable from the wall outlet to the machine (if possible avoid additions), the connection of which inside the control board takes place through the terminals L1-L2-L3-N (three-phase voltage + neutral) and PE (protective earth conductor).

9.4.7 Check and control of power supply stages



Checking should be performed unloaded and without the disc mounted on the motor blade.

Provide power to the machine.

Make sure the blue indicator light of phase control is turned off.



Image 9 Phase Control Indicator

If the warning light indicator is on, reverse two phases in the plug or in the electrical connection outside the control panel.



The hitherto described electric operations and checks must be carried out by experts and / or you must issue a warning about electrical hazards. First consult the wiring diagram in the next chapter.

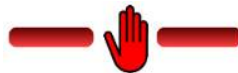
9.5 Wiring Diagrams

The circuit diagram of the machine and any inverter manuals (only for machines with electronic variation of the knife blade speed) are located inside the electrical panel.

After commissioning the machine it is advisable to store it in a dry place, available for possible interventions.

In the case the original goes missing, you can request a new copy from the Manufacturer or their dealers and / or authorized service centers, always referring to the information given on the CE plate of the machine.

9.6 The Cooling Unit



Cooling of the machine disk requires only clean water and no other refrigerants.

The water intake in the tub can be both from public network or suitably decanted into storage.

Careful PRECAUTION steps must be taken for the use of the machine with low temperatures near 0 ° C in order not to damage the electric pump and the plant, so as to ensure proper operation even in time.



Such failures are not recognized by the manufacturer in case of a fault and damage to the system coolant demand.



10 Use of the Machine

Revision Index	Revision Description	Revision Date	Reviser's Initials
00	First Issue	December 16, 2013	MB

10.1 Safety Requirements for the Proper Use



- Do not allow the use of the machine to minors, incompetent persons, and persons who present physical and / or psychological problems.
 - Move the strangers away from the surrounding work space to a distance of at least 5 m from the machine.
 - Do not touch the diamond wheel when in motion
 - Make sure that the machine is situated on a flat surface; this will increase the stability.
 - - The machine must be used only for use for which it was created, namely for cutting marble, granite, bricks, ceramics, etc. Any other use is considered improper and therefore dangerous. The manufacturer can therefore not be held responsible for any damage to persons or property resulting from improper, incorrect or unreasonable use of the same.
 - Do not use the machine after a malfunction. In this case, the machine should be switched off without modifying it. For repairs, contact the authorized retailer, who will make available authorized personnel and genuine parts (if there is a need).
- Failure to comply with the instructions may impair the safety of your machine as well as that of the operator; the responsibility of the manufacturer then decays.

10.1.1 Executive Requirements



Before use:

- Ensure the stability of the machine; the correct mounting of the diamond blade and accessories;
- Check proper state and the proper arrangement of the protections of transmission parts (belts, pulleys, etc.);
- Ensure the efficiency of the diamond blade protection;
- Ensure the efficiency of the diamond disc tool lifting and moving carriage;
- Ensure that the working area is sufficiently illuminated;
- Ensure the integrity of the electrical connections and conductors and visible of earthing connections;
- Ensure the correct operation of the starter and the correct functioning of the safety device against the automatic start in case of accidental voltage throw-in of the machine;
- - Ensure that the power cord does not impede the passages and is positioned so as to avoid being exposed to damage (caused by the material processed or to be processed, transit of persons, etc.);
- Provide for filling the containment tub with water;
- Check the presence and good condition of protection above the driving position (roof).

During use:

- Ensure that the workpiece is positioned correctly;
- Assume a stable and well-balanced position before work;
- Ensure that the tank placed under the work surface always contains a sufficient quantity of water;
- Ensure that the machine does not overheat excessively;
- Provide for keeping tidy your work area, and in particular, ensure that the work plane is always clean and free from waste materials;
- Make sure to shut off the power supply during work breaks;
- Inform the person in charge and / or the employer of malfunctions or dangers that become evident during work.

After use:

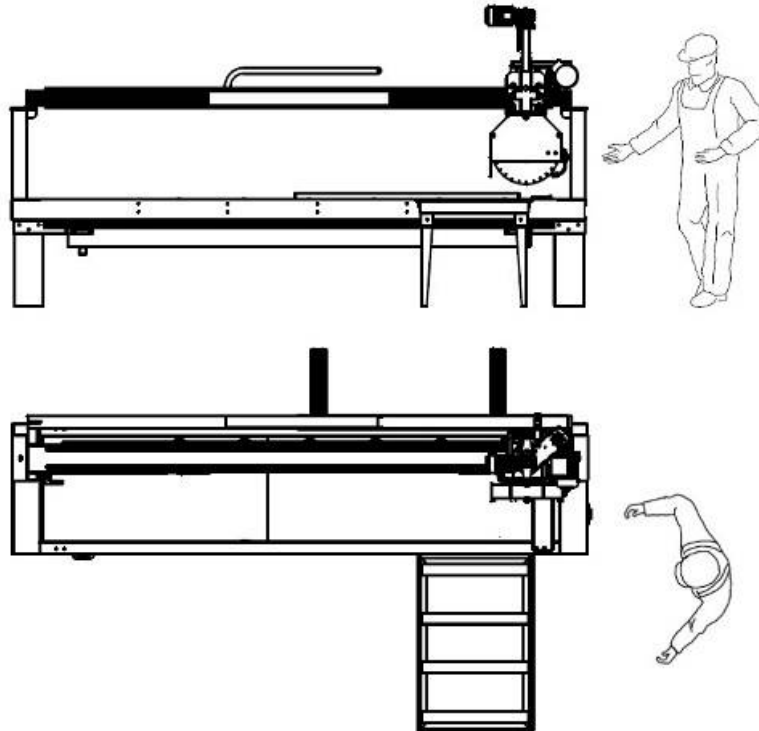
- Remember to disconnect the machine from electricity;
- Clean the machine from any residues of material, curing, in particular, the cleaning of the water tub;
- Perform all auditing and maintenance operations of the machine as described in Chapter 11 of the manual, always after making sure that the machine is turned off and not restartable by third parties accidentally.

10.2 Operator Workstation

Refer to Image 10 for the workstation that the operator must occupy during the cutting process



- Provide appropriate space for storage both for pieces to be processed, and for those already processed (possibly also using appropriate containers).
- Do not perform any work operation or intervention on the rear side of the machine without it being turned off from the power supply.
- Do not come close to the work surface during the execution of the normal work cycle of the machine
- Do not come close to moving parts of the machine without having it turned off.



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Image 10 – Operator Workstation

10.3 Vibrations Transmitted

In conditions of employment that meet the guidelines of proper use, the vibrations are not such as to create dangerous situations.

10.4 Danger Zones



The area in which the cutting head with the tool operates is defined as "work area."

The "danger zones" of the machine include the areas affected by the moving parts and their immediate surroundings.

The possible residual risks on sawing machines are also shown in detail in Chapter 5 of the manual.

10.5 Use and Functioning

10.5.1 Selection and Installation of Tools

Always make sure you turn off the machine before touching the moving parts of the machine, always by unplugging it from the power mains.



General rules for the selection of the tools:

- The tools must always be checked and not have any defect.
- The tools used must be constructed in accordance to the use for the water jet cutting.
- It is recommended to use and buy diamond blades, laser welded.

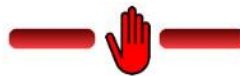
The tools used must have at least the following information:

1. Supplier's trade mark
2. Maximum output
3. Tool diameter
4. Disk rotation direction



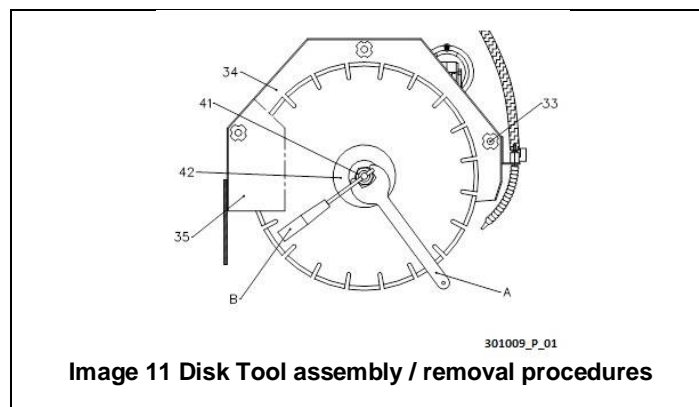
Do not mount tools differing from those specific for cutting concrete or stone materials with diamond disc. Before mounting a new tool ensure that its features are fit for the machine on which you want to set up for the material to be processed.

10.5.2 Removal and Assembly Tools



To mount the disk proceed as follows while referring to the illustrations and numbering (REF.) in **Errore. L'origine riferimento non è stata trovata.**:

- 1] For the assembly of the disc remove the front part of the cover (REF. 35).
- 2] Raise the carriage motor actuating the direction switch (manipulator) → forward, ← back, ↑ up and ↓ down, if needed.
- 3] Remove the disc clamping nut (left hand thread) using the service keys by turning it clockwise (ref. 41).
- 4] Remove the counter flange (ref. 42), and install or remove the disc (only use diamond discs, specific for the type of material to be cut).
- * 4A] For the machine in manual version, act on two mechanical hand wheels
- 5] Reinstall the bolt and counter flange; refit the front of the casing.





Before mounting the disk clean the flange and pressure plate flange

If you notice any debris, rust or oxide, eliminate them with very fine sandpaper. Clean in the same way also the parts of the disc that are in contact with the flange and the pressure plate flange.

The deposit of debris or oxidation in this position could cause the off-axis rotation of the disc resulting in strong vibrations.



For disc removal perform the steps described in reverse, using the precaution to always clean, before each operation, the flange surfaces.



- Always use personal protective equipment suitable for the work you are about to do. It is recommended to use heavy-duty gloves, suitable to handle work tools and equipment.
- Do not use the machine without having repositioned firmly in place any parts removed for tool change.
- Pay attention to the direction of the disk assembly, which must correspond to the direction of rotation indicated on the machine.

10.5.3 Filling of the Tub with Coolant Water

For the purposes of the best achievable result from processing it is necessary to refrigerate the diamond disc, so as to also prevent the early deterioration damaging the same.

It is recommended to fill the tub up to the full immersion of the recirculation pumps (REF. 20 Image 12).

10.5.4 Emptying the Tub

In order to empty the water from the tub put a sufficiently large container under the tub, in correspondence of the cap located on the bottom of it. Unscrew the plug and drain the water from the tub. (REF: 17 Image 12).

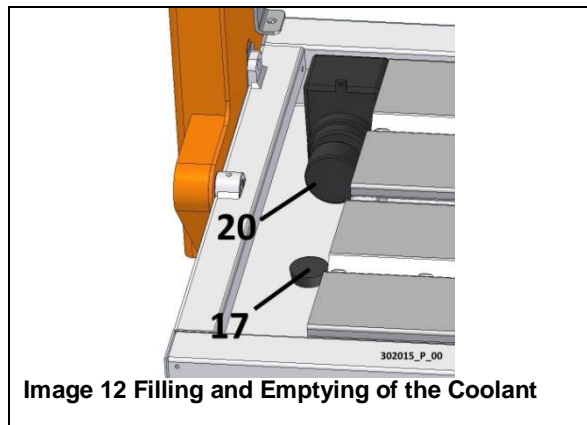


Image 12 Filling and Emptying of the Coolant

10.5.5 Disk Cutting Height Positioning

The maximum depth of the cutting tool (disk blade), as well as the maximum free lift between the work surface and the electric motor, are fixed values predetermined by the manufacturer according to the model of the machine indicated in Chapter 2 of the manual under the machine technical data section.



It is therefore recommended to always check whether these characteristics are compatible with the size of the material you intend to cut.

The adjustment of the height of the disc on the machine it is essential to allow a choice of suitable cutting depth with respect to the work surface.

Proceed to the adjustment based on the version of the machine in use by means of:

- a) **Manual version:** a mechanical hand wheel located on the cutting head
- b) **Semi-automatic version:** the joystick on the control panel of the electrical box (see [Command modes for the semi-automatic version](#))

For both versions, lower the carriage of the head until the cutting disc is **about 1 cm under the work surface.**



It is recommended that all the machine control operations be performed without loading material on the work surface so as to avoid damage or disruption due to accidental contact. Do not perform operations without the blade disk guard in place and fastened with the fasteners into place.

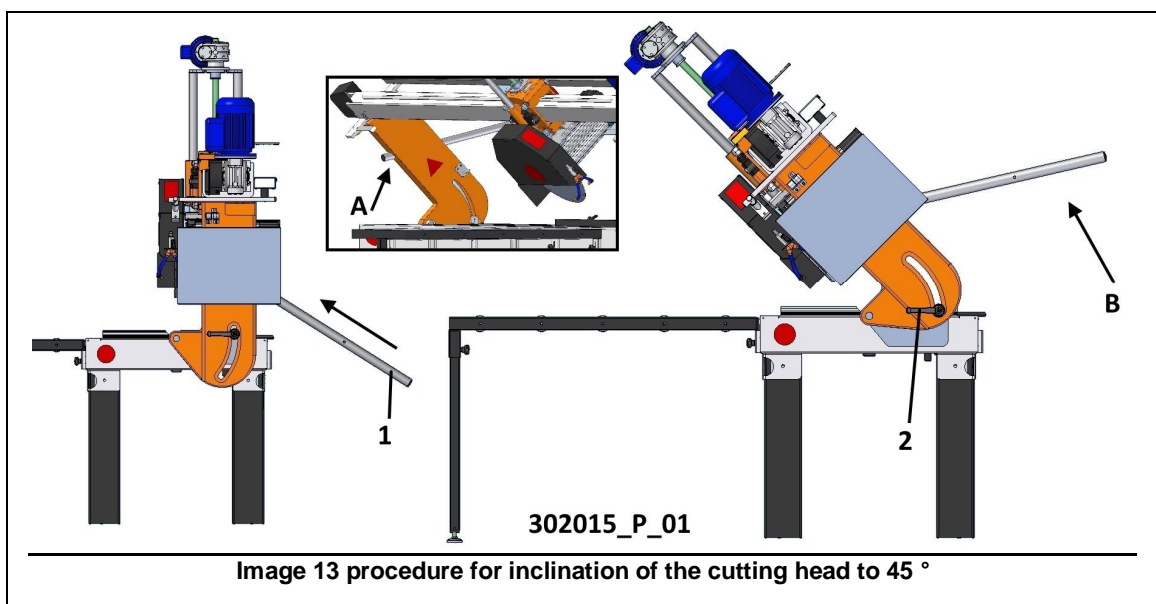
10.5.6 Disk Positioning for inclined cut at 45 °



To perform this operation we recommend the use of 2 persons and positioning the carriage to the rail center.

To execute inclined cuts:

- 1) Unlock the two levers on the carriage (ref. 2 Image 13 procedure for inclination of the cutting head to 45 °); you will notice a downward fluctuation in the engine.
- 2) Insert the rods Ref. 1 in the appropriate slots Ref. A
- 3) Raise as in ref. B up to the stop of 45 ° then tighten the two levers Ref. 21.





10.5.7 PREPARATION AND COMMISSIONING

10.5.7.1 Preliminary checks



Before starting up the machine, you must perform a series of checks and controls to prevent errors or accidents during commissioning.

- Provide appropriate space for storage both for pieces to be processed, and for those already processed (possibly also using appropriate containers).
- Do not perform any work operation or intervention on the rear side of the machine without it being turned off from the power supply.
- Do not come close to the work surface during the execution of the normal work cycle of the machine
- Ensure the free movement and the eventual free rotation of all moving parts.
- Check that the hydraulic connections are tight so as not to cause leakage and uncontrolled water sprays.

10.5.8 Operating Modes

As mentioned in Chapter 7 (Description of the Machine), there are 2 versions of the MANTA COMPAT machine, meaning with two control and operation modes:

- 1) Manual control mode
- 2) Semi-automatic control mode with motorized axes.

10.5.9 Commissioning

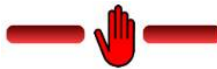
10.5.9.1 Version No. 1 - Manual:



The electrical panel of the machine is constituted in such a manner as to have both start and stop switch in the immediate vicinity of the operator position (REF. Q **Errore. L'origine riferimento non è stata trovata.**).

After making all the preparations and adjustments for the piece cut, press the start button [ON] (REF. B **Errore. L'origine riferimento non è stata trovata.** **Errore. L'origine riferimento non è stata trovata.**). The electrical system is made so that in case there is a power failure the machine shutdown occurs safely, when the power returns there is no immediate start, but you need to press the start button again.

The arrest of the machine is achieved by pressing the red push emergency stop button 0 [OFF] (REF. A **Errore. L'origine riferimento non è stata trovata.**).



Wait for the emission of water from the coolant system on the cutting disc, adjusting the flow required using the shut-off valve located above the disc blade protection.

To perform the safe cutting of the pieces, it is necessary to pull the carriage, and then the cutting blade against the workpiece.

Grip the handle of the head on the drive hand wheel and rotate it clockwise (REF.V **Errore. L'origine riferimento non è stata trovata.**) continuously without breaks, maintaining the correct working position with respect to the machine and the piece you wish to cut out, see paragraph "Workstations".

The cutting direction must be made in a concordant sense, therefore equal to the direction of rotation of the disc, so as to press the piece on the support surface.

In case of excessive resistance of the transfer, or the slowing down or locking of the disc blade on the piece, slow or stop the progress of the disk and then resume the cut gradually.



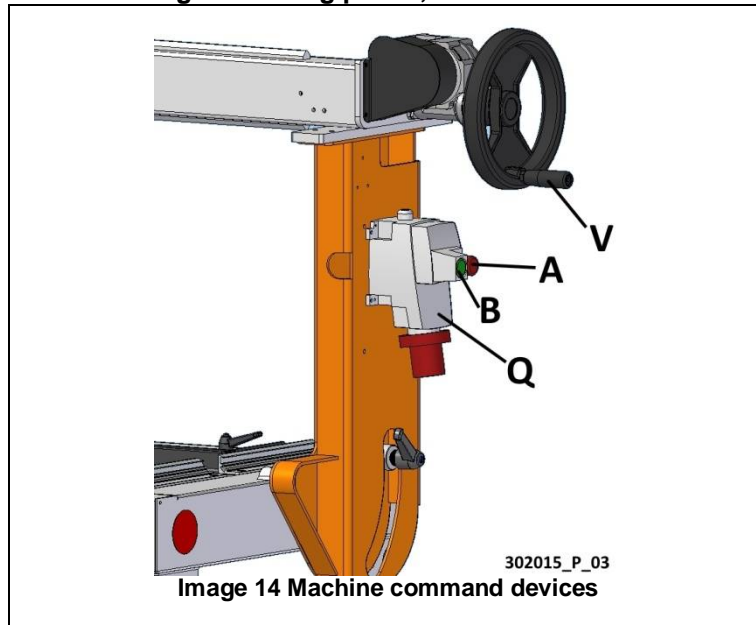
If during the cutting of hard materials you experience unnecessary strain on the engine thus causing a slowdown in the rotation of the disk, it is recommended to make the cut in several passes by gradually



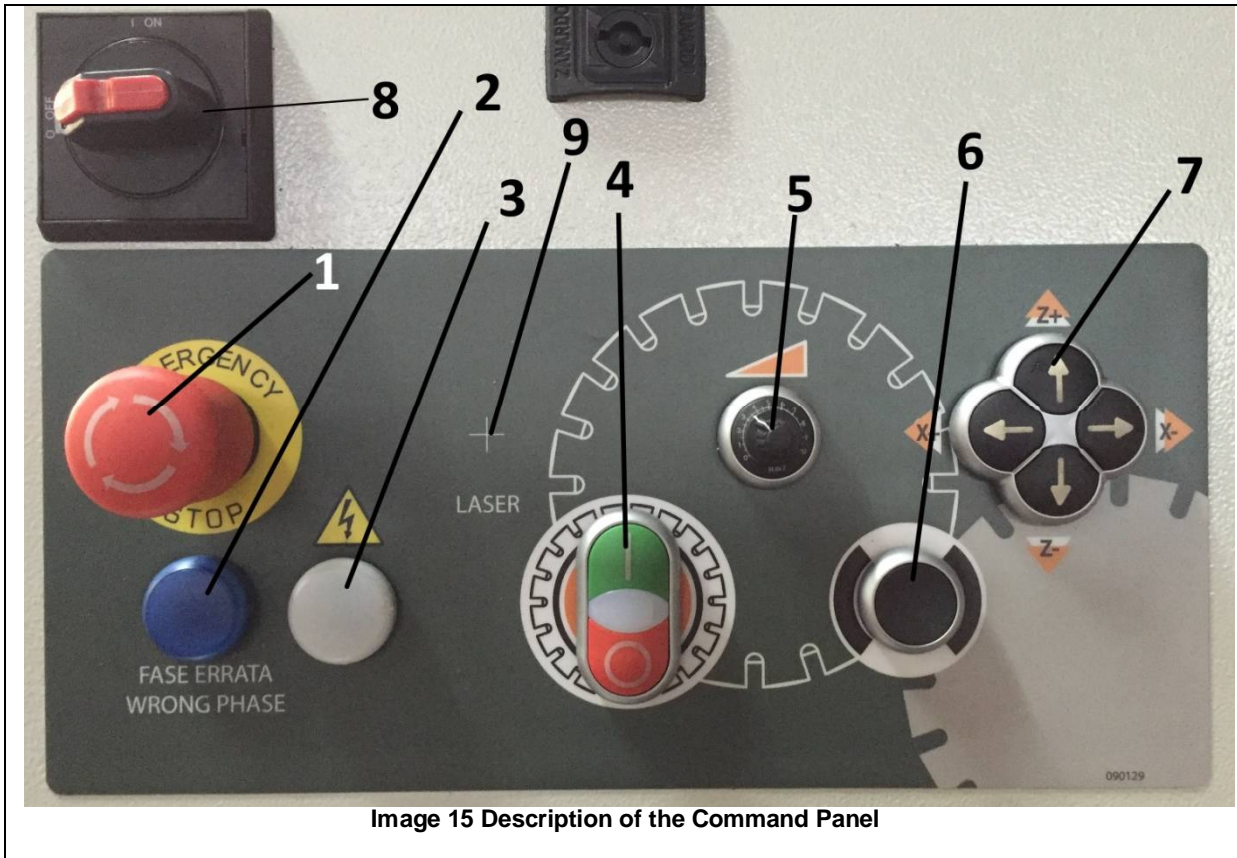
adjusting the depth of cut using the rise / descent hand wheel of the head, so as to avoid the tool overheating and damage to the electric motor.

Perform the start-up and shutdown of the machine with the disk in a position where it has no contact with the workpiece or machine components.

Never turn off the machine during the cutting phase, with the disc still inside the material.



10.5.9.2 Version No. 2 - Semi-automatic
Description of the command and control operator panel



10.5.9.2.1 Description of the Command Operator Panel

1.	Emergency stop mushroom button.
2.	Correct phases indicator.
3.	Voltage presence lamp.
4.	Engine blade start / stop.
5.	Head speed decrease / increase.
6.	The head forward / backward movement stop
7.	Rise (up arrow), Descent (down arrow) of the diamond disc and Forward (right arrow), Back (left arrow) of the head. If there is a joystick move it towards arrows as described above.
8.	General switch.
9.	Laser on / off (optional)

Table 10 - Function of the command / control devices



All operations described below refer to the Image 15 of the Command Panel

- Turn the main switch Ref.8 clockwise to position "1". The Ref. 3 network indicator lights up
- To control the up and down movement of the head, press the up and down arrow ref. 7, to stop the movement, release the button.
- To control the forward and backward movement of the head, press once the right and left arrow keys ref. 7, to stop the movement, press the button ref. 6. In any case, the axes stop on arrival of the machine limit.
- To adjust the speed of the head act on the potentiometer Ref. 5.
- Turn on and off the diamond wheel with buttons 1 and 0 Ref. 4.
- **PRESSING THE EMERGENCY MUSHROOM BUTTON STOPS ALL THE MACHINE**
- Use the selector Ref. 9 (optional) to turn on and off optoelectronic device for cutting marks

10.5.10 Unloaded Machine Testing



After powering the machine in the manner previously described, proceed with the testing of the functionality of engines mechanical parts of the machine:

- Move the head forward and back, using the controls described above, based on the model of the machine owned.
- Lift and lower the disk engine using the controls described above, based on the model of the machine owned.
- Turn on and off the disc engine.
- **Verify that the drive of the emergency stop button stops all moving parts.**
- Check the correct operation of the limit switches by pressing them manually with the moving axis to control the correct operation.



Carry out all test with disk removed and making sure that there is no danger of causing damage to persons or things in case of malfunction. In any case of malfunction or if you are unsure of what to do, call or write to the Manufacturer or to an authorized dealer.



Do not start the disc rotation without making sure that each lock is securely tightened and that there are no moving parts that could cause danger during processing.

10.5.11 Cutting Procedure



Start working only when all safety devices have been installed and are ready for operation, never use the machine without all guards having been mounted or if a part of it is missing.



All operations described below refer to the Image of the Command Panel

1. Adjust the height of the disc by using the up and down arrow keys Ref. 7
2. Turn on the disc, Key 1 Ref. 4.
3. Advance the head, press right arrow key Ref. 7 one time.
4. Adjust, if necessary, the travel speed with the potentiometer 5.
5. The head stops when you press the front end position or if you press the STOP button Ref. 6.



6. The disc remains in motion until you press the Key 0 Ref. 4 to stop it.
7. Once you have completed the cutting, turn off the disc engine and remove the cut material.

10.5.12 Rules for the cutting of the material

Start working only when all safety devices have been installed and are ready for operation, never use the machine without all guards having been mounted or if a part of it is missing.



Always wait for the water flow from the coolant system on the cutting disc, adjusting the flow required using the shut-off valve located above the disk blade guard.



NEVER stop the electric engine with the disk inside the piece.

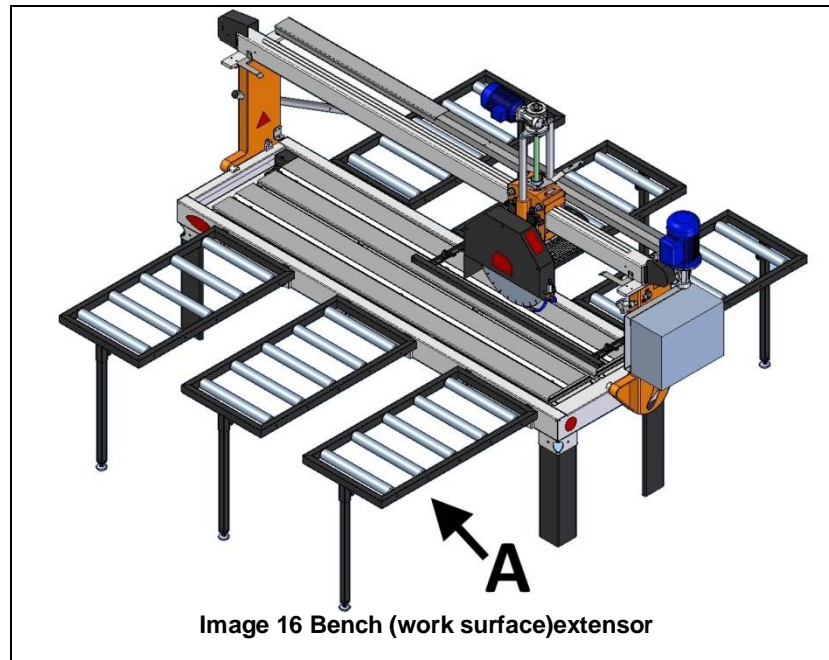
Do not process pieces that are too small or too large for the capacity of the machine.

Perform the start-up and shutdown of the machine with the disk in a position in which it has no contact with the workpiece or machine components.

NEVER use the machine in the absence of guard on the disk blade and make sure they are operating efficiently and with fastening devices present.

10.5.13 Work Surface Extensor

For processes that require greater space for supporting the material or to facilitate the loading and unloading of the workpiece, the machine is designed to house at the sides of the base, the roller or shelf bench extensor, 1 roller extensor is supplied as a standard (REF. A Image 16 Bench (work surface)extensor)





11 Maintenance and Troubleshooting

Revision Index	Revision Description	Revision Date	Reviser's Initials
00	First Issue	December 17, 2013	MB

11.1 Maintenance and Cleaning

11.2 Introduction

All those who perform maintenance must protect and ensure the maximum protection to people exposed to danger. Persons who perform any maintenance operations must first remove all sources of power and the power supply by disconnecting the power plug from the power outlet.

Such operations, even if simple, must be performed by **Qualified Personnel**.

Programmed routine maintenance includes inspections, checks and interventions to prevent stops and breakdowns.

Before cleaning or servicing the machine, make sure that the disc tool stopped rotating. During any kind of work wear CE marked gloves to avoid the risk of cuts and abrasion.

At the end of the intervention of routine or extraordinary maintenance, make sure, after removing the fixed disk blade guard or other types of protections installed on the machine, to determine the proper relocation of the parts and tighten any screws and bolts.

Before starting work, expose a "**machine for maintenance**" sign in a prominent position.

- Do not use solvents or flammable materials.
- Be careful not to release coolants into the environment.
- To reach the higher parts of the machine, use the appropriate means for the operations.
- Do not stand on machine parts as they are not designed to support people

11.3 Routine Maintenance



Before any operation, disconnect the power plug.

11.3.1 Cooling system

1] Periodically replace the water in the tub using the drain plug, removing any slimy residue deposited on the bottom. Carry out the operation, regardless of service hours, every day at the end of work shift. In particular, clean the channels and the coolant water collection tub. To access the inside of the tank, disassemble the shelves by loosening the screw placed at the ends of the same, ref. B **Errore**.

L'origine riferimento non è stata trovata.



It is recommended to replace the bolts when they start to deteriorate, grease them whenever reassembling.

To remove the slime, open the drain located under the tub, and drain the muddy water introducing clean water, remove the larger debris with a spatula (small shovel or trowel).

2] Refit the shelves and close the drain.

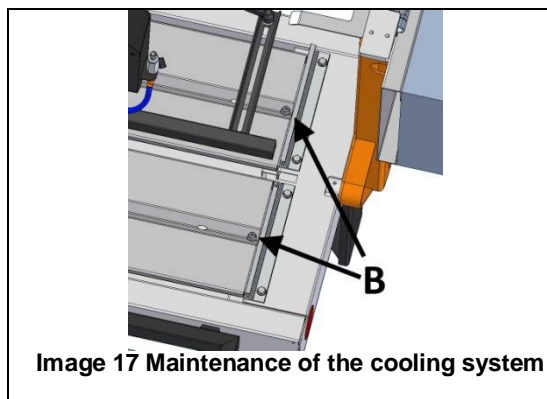


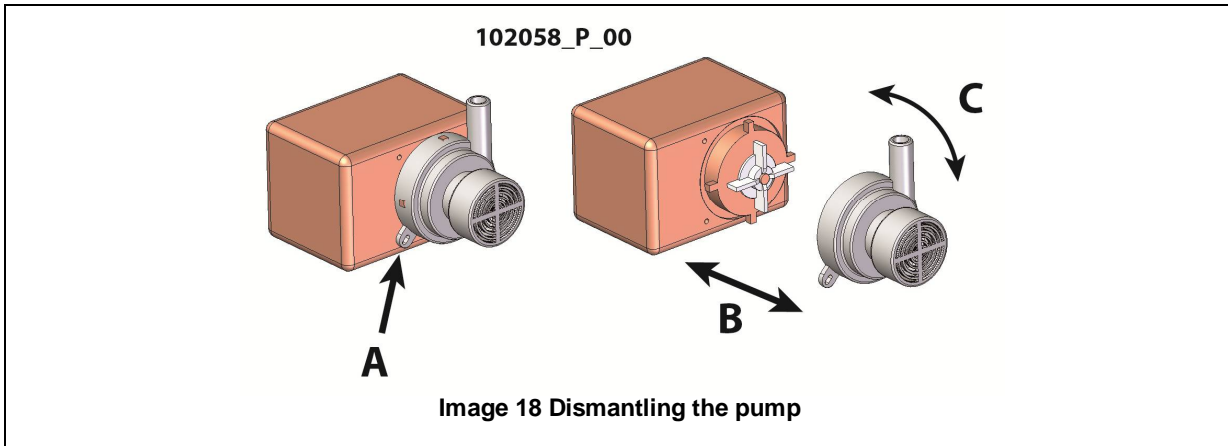
Image 17 Maintenance of the cooling system

3] Clean the pump daily by soaking in a container of clean water.





For convenience and greater cleanliness remove the front nozzle, where the water line is connected, by unscrewing the screw ref. A counterclockwise ref. C and pull it out ref. B; Spray them with clean water and reassemble.



4] In the case of prolonged stoppages of the machine, before putting it in work extract the pump and ensure that the deposits have not blocked the fan, in each case run the fan with hands by removing the front part of the same (as in the previous paragraph).
In the event that the machine shouldn't be used for a long period, it is advisable to clean and empty the tank.

11.3.2 Lubrication and greasing



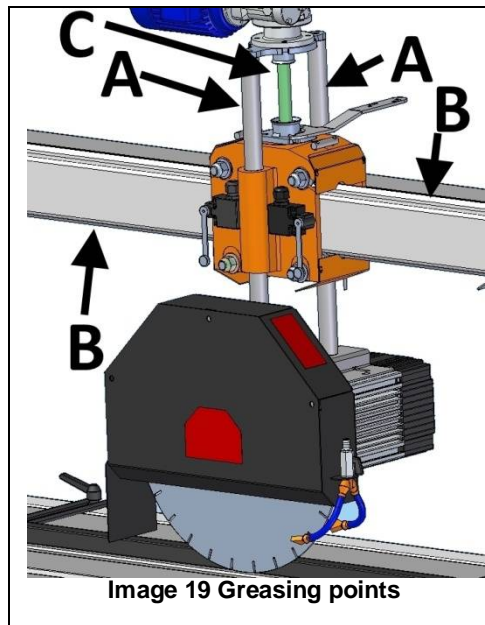
The time intervals described refer to machines operating in conditions of 8 hours daily or 40 hours weekly.



It is recommended not to use, as much as possible, compressed air since the air jet promotes the inclusion of particles of material resulting from cutting, inside mechanical components favoring wear. Instead, use rags and a valid suction system.

It is recommended to organize the following (always after a suitable cleaning machine), periodically as indicated:

- 1] **Once a month:** Clean the lifting rods with Vaseline spray (ref. A);
- 2] **Once a week:** Clean and grease the sliding tracks, using a brush and clean grease.
- 3] **Once a month:** The head lifting screw Ref. C;



11.4 Extraordinary Maintenance and Cleaning

Extraordinary maintenance activities are all activities other than routine maintenance. Extraordinary maintenance can only be performed by highly skilled operators with in-depth knowledge of the machine.

The following are the operations for which it is necessary to place a request for intervention to our Technical Assistance, but may also be carried out by qualified personnel authorized by the Manufacturer.

The extraordinary maintenance includes actions that take place during exceptional events:

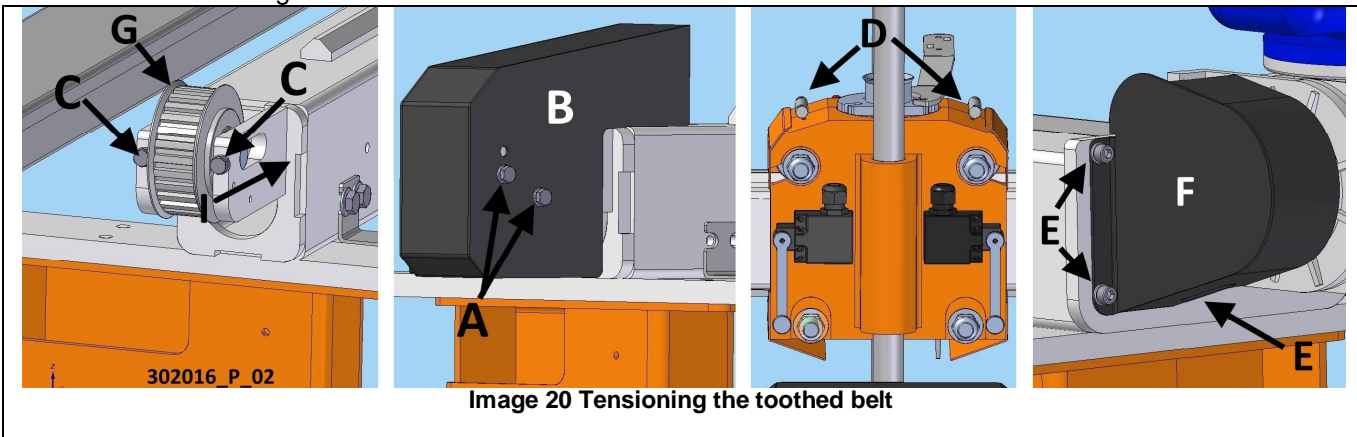
- Breakage
- Revisions
- Belt Replacement
- Head wheels Registration

11.4.1 Verification and tension of the leading group travel belt

Replace the transmission belt when it wears out and check its tension.

In the case the toothed belt is loose, tension it by following the following steps:

- Remove the cover B by removing the screws A
- Screw the screws C so as to slide rearward, and simultaneously, the pulley, until the voltage of the toothed belt is reached.
- Remount the guard



11.4.2 Replacement of the toothed belt

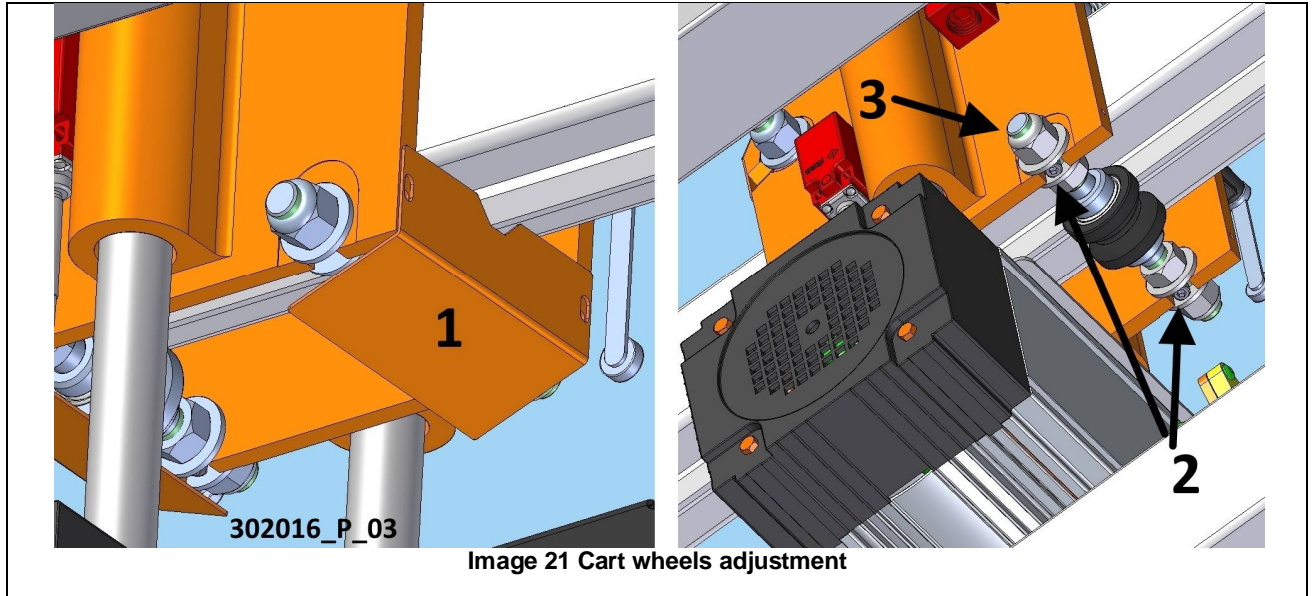
- To replace the toothed belt dismantle the protective casing B and F by unscrewing the two screws A and the 3 screws E.
- Loosen the belt fasteners D and remove the toothed belt.
- Loosen the bolts C and slide the driven pulley to the end of the slot, as shown by arrow I.
- Insert the new belt, making sure that it does not turn on itself inside the track
- Let it wind around the pulley and secure it with the belt fasteners.
- Tighten it by following the instructions of the previous chapter

11.4.3 Adjustment of the head wheels

After a long period of work, slightly curved cuts may appear.

In this case, check that the head is not running, hold a chrome bar with your hands and yank it transversally to the cutting axis.

If you feel a slight swing, a gear, proceed to the tightening of the wheels, which through use may have slightly worn.



- Remove the casing 1.
- Loosen the bolt 3 from both sides
- Slightly tighten the bolts 2 so as to join wheel to the track.
- Repeat all the steps with both lower axis.
- Refit the casing 1



11.4.4 Cleaning

Perform the daily cleaning of the machine in order to avoid the accumulation of residues on the work surface where the material to be processed is placed.

Proceed by removing the power supply by putting the switch to [0 OFF], remove debris from the work surface and wash the work surface with a jet of water being careful not to direct the jet on electrical equipment.



It is recommended to the operator who performs the cleaning of the outside of the machine never to use compressed air to blow off dust, this would favor the insertion of the dirt in the mechanical movement parts causing early wear over time, which can be a danger to the operator. Always use cloths with neutral detergent.

It is recommended NOT to clean the machine with high-pressure equipment, such as water-jet lances.

Before each wash, make sure that all guards and connections of the groups making up the machine are permanently mounted and tightened in order not to favor the inclusion of the water inside of the electromechanical parts.

11.5 Shutting down – Inactivity of the Machine



In case the machine has to be stopped for a long time:

- Set to [OFF 0] the general switch handle of the electrical panel and padlock the switch.
- Empty the tank and dry any residual water and dirt from the tub.
- Thoroughly clean the pump and the respective suction blades.
- Cover all the unpainted sliding parts with a corrosion protection spray, for example the Vaseline spray.
- Store the machine in a dry place, covering it with a towel and raise it from the ground on wooden shelf so as to avoid contact with possible moisture of the soil.



11.6 Maintenance Register

The maintenance register is part of the documents attached to the Instructions for use and maintenance. It is drawn up taking into account all the groups of which the machine can be provided. If the machine you have purchased does not include some of these groups the corresponding maintenance activity is to ignore.



11.7 Diagnostics and Troubleshooting

In the cases described in the following tables, the possible cases of failure and / or problems are presented and for each of them the sequence of controls to be performed in order to remove the causes that may have caused the problem is listed.

PROBLEMS	CAUSES	SOLUTIONS
The machine does not start	Lack of electrical energy in one or more phases.	Verify that the main power supply voltage is applied on the phases.
The disc engine is struggling hard to start or parts slowly. (Presence of noise)	Lack of a phase	Check if there is any damage to cables and / or the presence of phases with specific measurement instrument (tester). <u>Note: operations are only reserved for personnel experienced in the electric field.</u> Contact the Manufacturer or your local dealer.
The current arrives with right voltage but the machine does not start and the power indicator on the control panel is off.	Burning of fuses which protect the low voltage power supply, or transformer.	Check fuses with a tester and if necessary replace them with new ones of the same calibration.
The lubrication does not arrive to the cutting tool	Clogging of spray nozzles	Disassemble the nozzles inside the disc cover and clean them from possible deposits of material, or disassemble the cover, remove the hose from the pump, enter compressed air and blow in order to avoid deposits.
	The recirculation pumps are damaged.	Contact the Manufacturer or your local dealer.
Machine with automatic feed: The disc is rotating but the machine does not advance	Possible inverter intervention	Open the control box and look immediately the display, if it is off, check with a tester the fuses that protect it, referring to the wiring diagram. Try to turn the inverter off and reset it to any alarms.
	Possible intervention of the inverter fuses	If this is the case replace them with equal specific fuses.
The cut is not straight	Slight wear of the cutting head wheels	Read the paragraph Errore. L'origine riferimento non è stata trovata.
The sliding carriage of the head has excessive resistance to draw (machine with manual head traversing)	Presence of residual material on the slide rails.	Clean and lubricate parts as prescribed in paragraph 11.3.2
	Possible blockage and damage internal cart bearings.	Contact the Manufacturer or your trusted reseller.
The machine stops during processing	Motor protection switches intervened due to disk motor overheating or lack and / or	Control, on the basis of the disc motor plate values, the motor protection switch calibration and



	voltage sag.	reset it by pressing the reset button.
	Lack of electrical energy in one or more phases.	Make sure there is on-line voltage on the two or three phases.
	Working too heavily in relation to the power of engines.	Process pieces in relation to the engine capacity as described in technical specifications.
		Possible short circuit or overheating, or excessive absorption of current on the engine. -Turn Off the machine, switch off the mains supply and wait for the cooling of the engine.

Table 11- Troubleshooting - Solutions



If in doubt contact the Manufacturer immediately.

In case of missing or incorrectly performed maintenance, the Manufacturer cannot guarantee the reliability of the machine and, in its own discretion, may cancel the warranty.



In case the problem is not resolved, contact the Manufacturer.

11.8 Assistance Service

We recommend not to perform any repairs, operations or modification of any kind, other than those specified in this manual.

Only authorized service personnel employed by the Manufacturer or trained by the same, owns necessary knowledge of the machine and of the equipment, and the expertise to perform the appropriate technical servicing.

If you are having any issues please contact our **Customer Service Department** and expose your problem clearly giving the following information:

- Machine model
- Serial number
- The date of purchase
- Information concerning defects or anomalies arising
- Indications concerning the work involved.



12 Parts and Accessories

Revision Index	Revision Description	Revision Date	Reviser's Initials
00	First Issue	December 17, 2013	MB



12.2 Parts

The parts and components which make up the machine, are shown in the exploded diagrams below, it is thus necessary to refer to these directions included at the end of this manual.



12.2.1 How to Order Spare Parts

Locate the piece on the drawing, note the corresponding number and request it from your local reseller specifying the type, the model of the owned machine and serial number. For easy ordering we recommend you fill in all its parts and send by fax or by e-mail the application form shown in **Errore**. **L'origine riferimento non è stata trovata.**

12.3 Order References

For any requests please contact the ManufacturerCustomer Service:

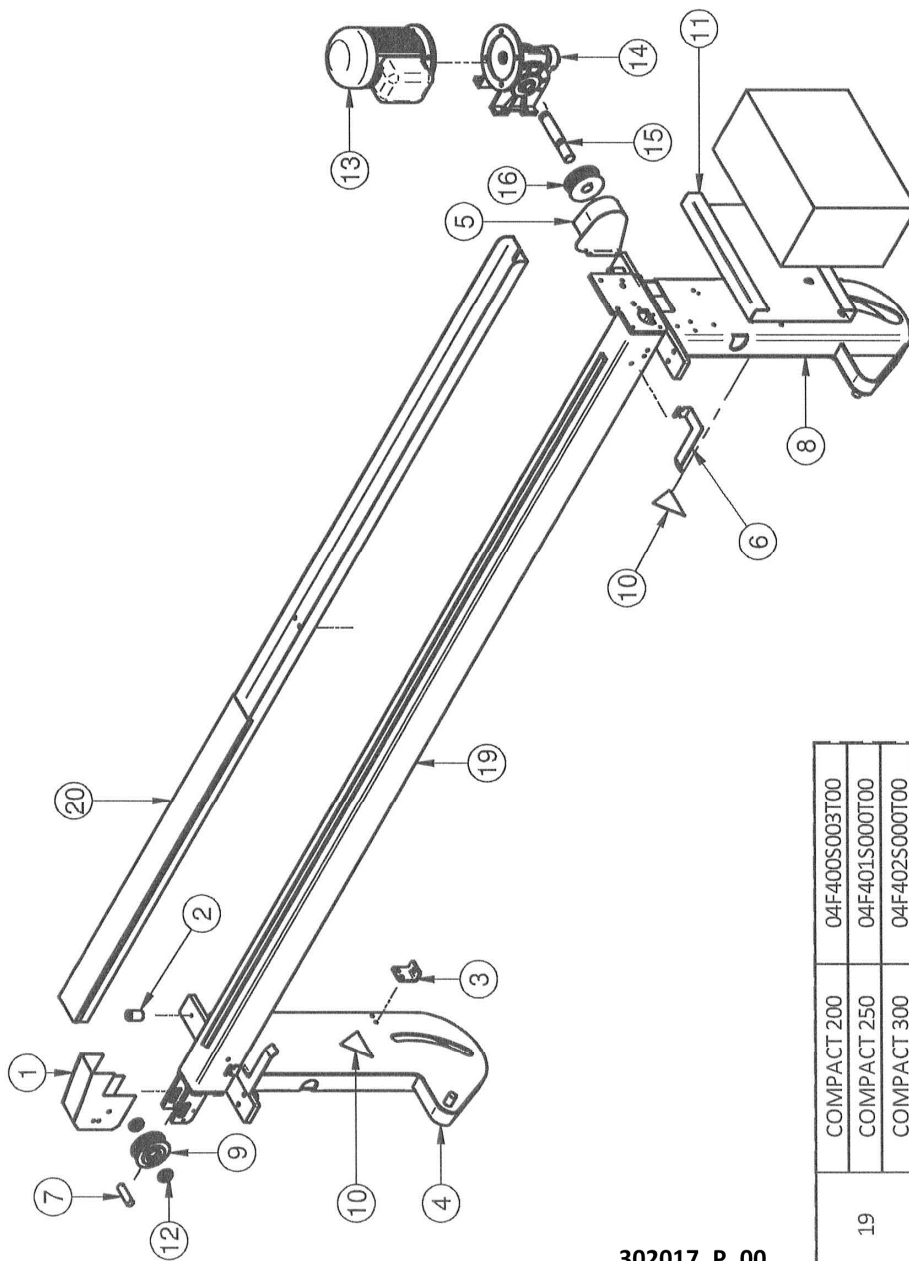
	+39 0541 759 688
	+39 0541 756 238
	info@nuovamondialmec.com



CUSTOMER'S DATA		
COMPANY:		
APPLICANT'S FULL NAME:		
ADDRESS:		
MACHINE DATA		
MACHINE MODEL		SERIAL NUMBER
VOLTAGE		
REFERENCE NO. IN THE DRAWING	QUANTITY	NOTES

Image 22 Spare Parts Request Order Form

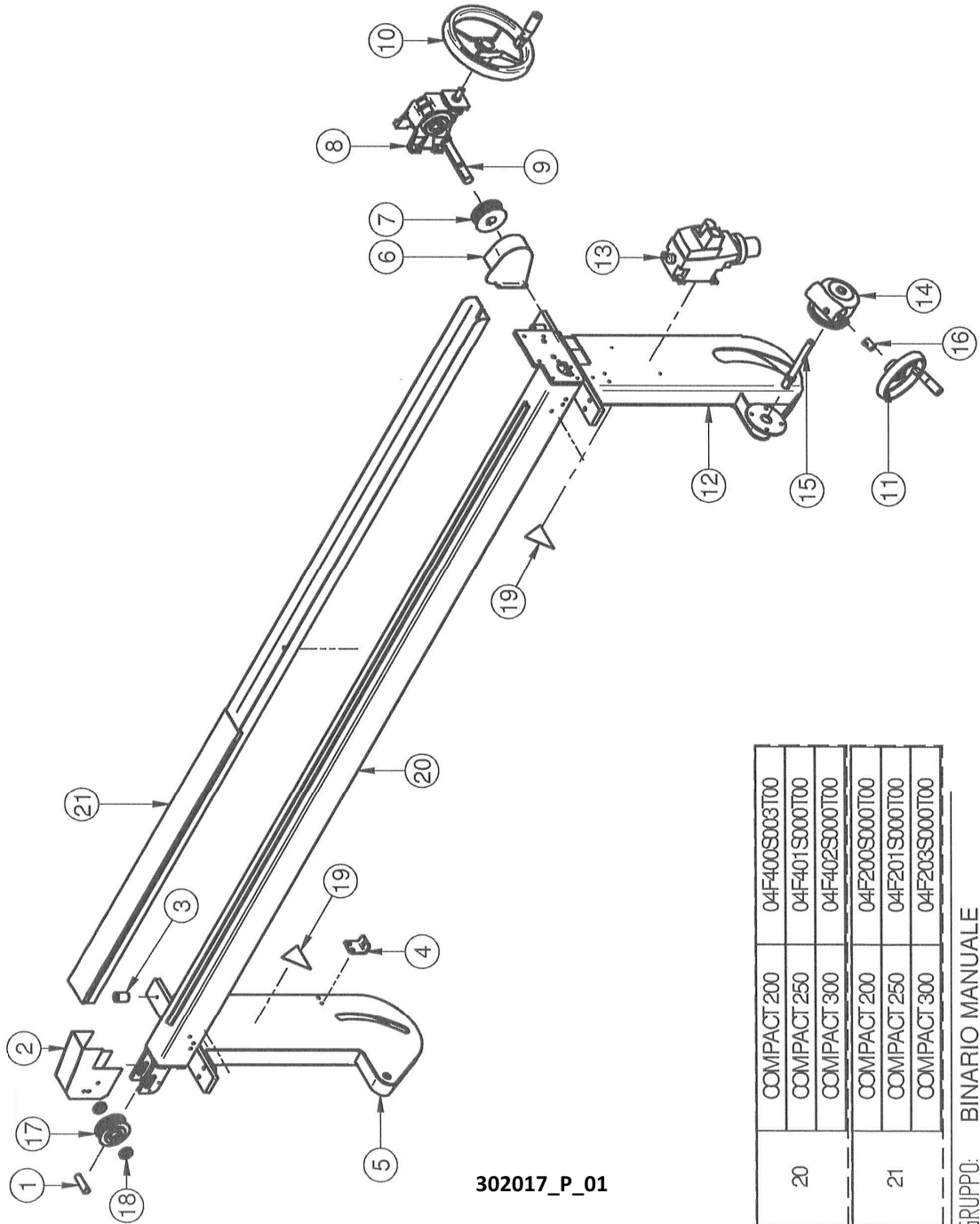
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14	030051
13	020211
12	030023
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10	090069
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8	04F700S001T00
7	04FS050T00
6	04F400S022T00
5	04FS004T00
4	04F700S004T00
3	04MS017T00
2	04F400S026T00
1	04FS044T00
Numero oggetto	
COD. RICAMBI	



19	COMPACT 200	04F400S003T00
	COMPACT 250	04F401S000T00
	COMPACT 300	04F402S000T00
20	COMPACT 200	04F200S000T00
	COMPACT 250	04F201S000T00
	COMPACT 300	04F203S000T00

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GRUPPO: BINARIO SA AUTOMATICA



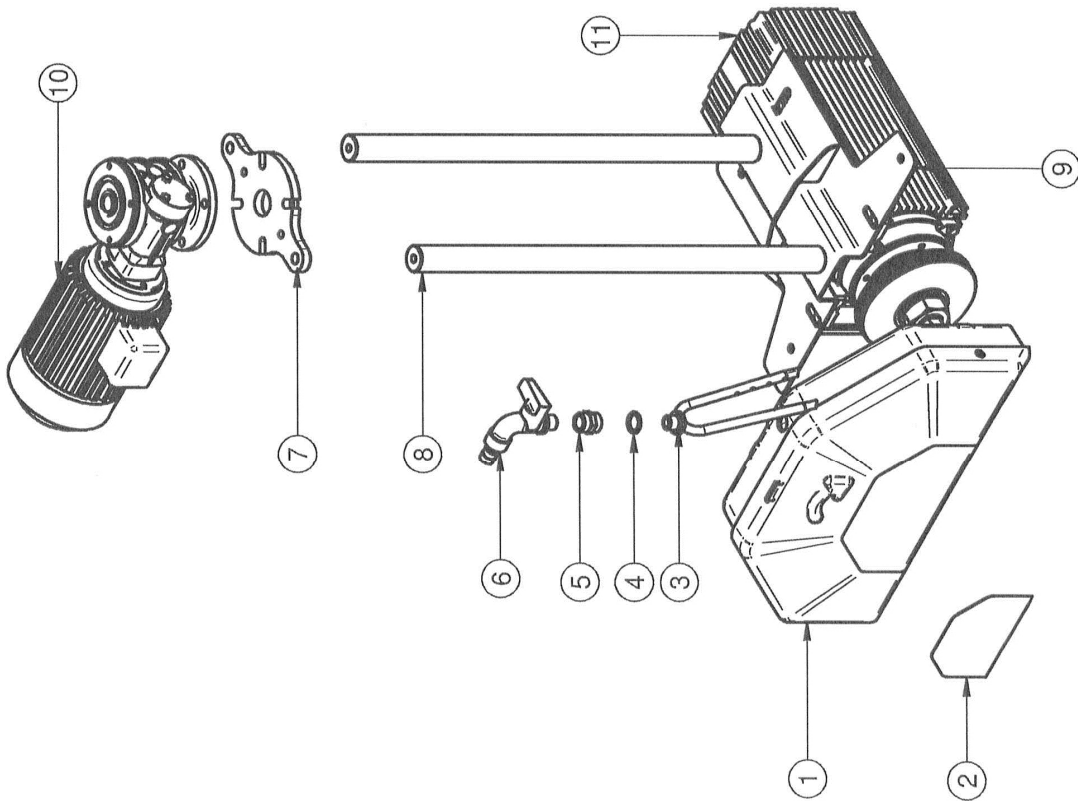
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	COMPACT 300	04F203S000T00

GRUPPO: BINARIO MANUALE

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16	04F500S144T00
15	04F700S007T00
14	030138
13	020509
12	04F700S001T00
11	070001
10	070025
9	04FS007T00
8	030086
7	030079T00
6	04FS004T00
5	04F700S004T00
4	04MS017T00
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1	04FS050T00
Numero oggetto	COD. RICAMBI

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	2800 rpm	20007

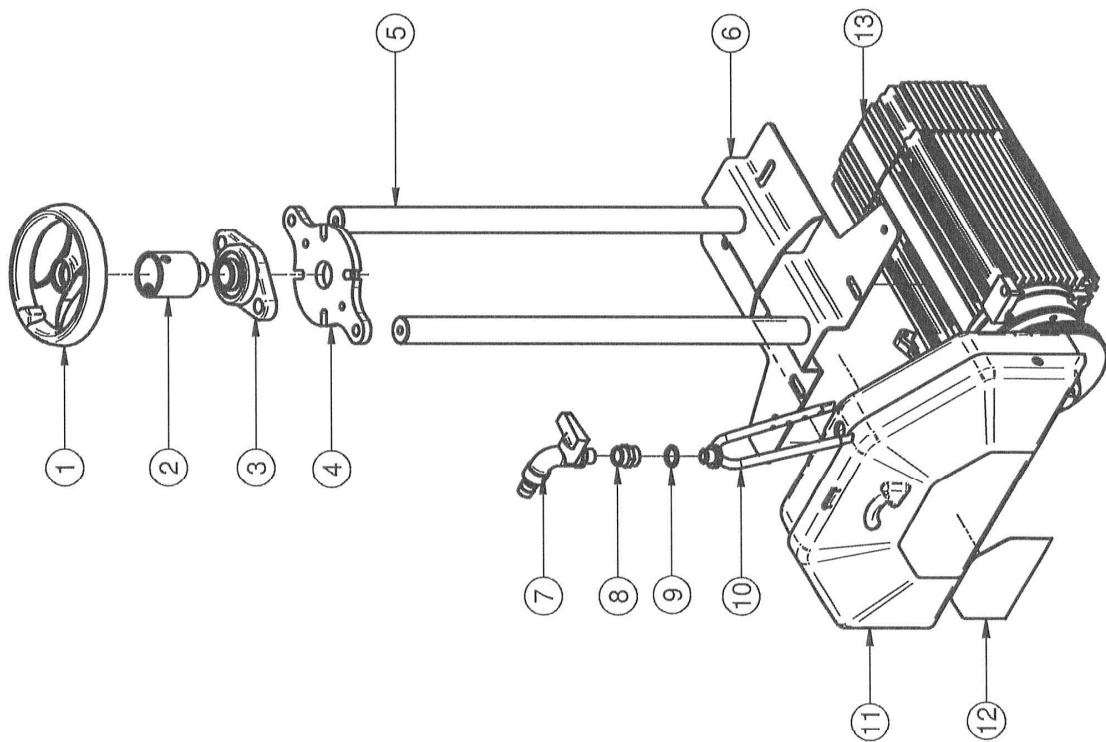


10	030104
9	04F700S002T00
8	04F700S003T00
7	04F400S006T00
6	080062
5	080002
4	06R17X24X1Z
3	04MS032T00
2	090097
1	04MS145T00
	Numero oggetto
	COD. RICAMBI

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GRUPPO: 3KW DISCO 300_350 SA AUTOMATICA

13	1400 rpm	20088
	2800 rpm	20007

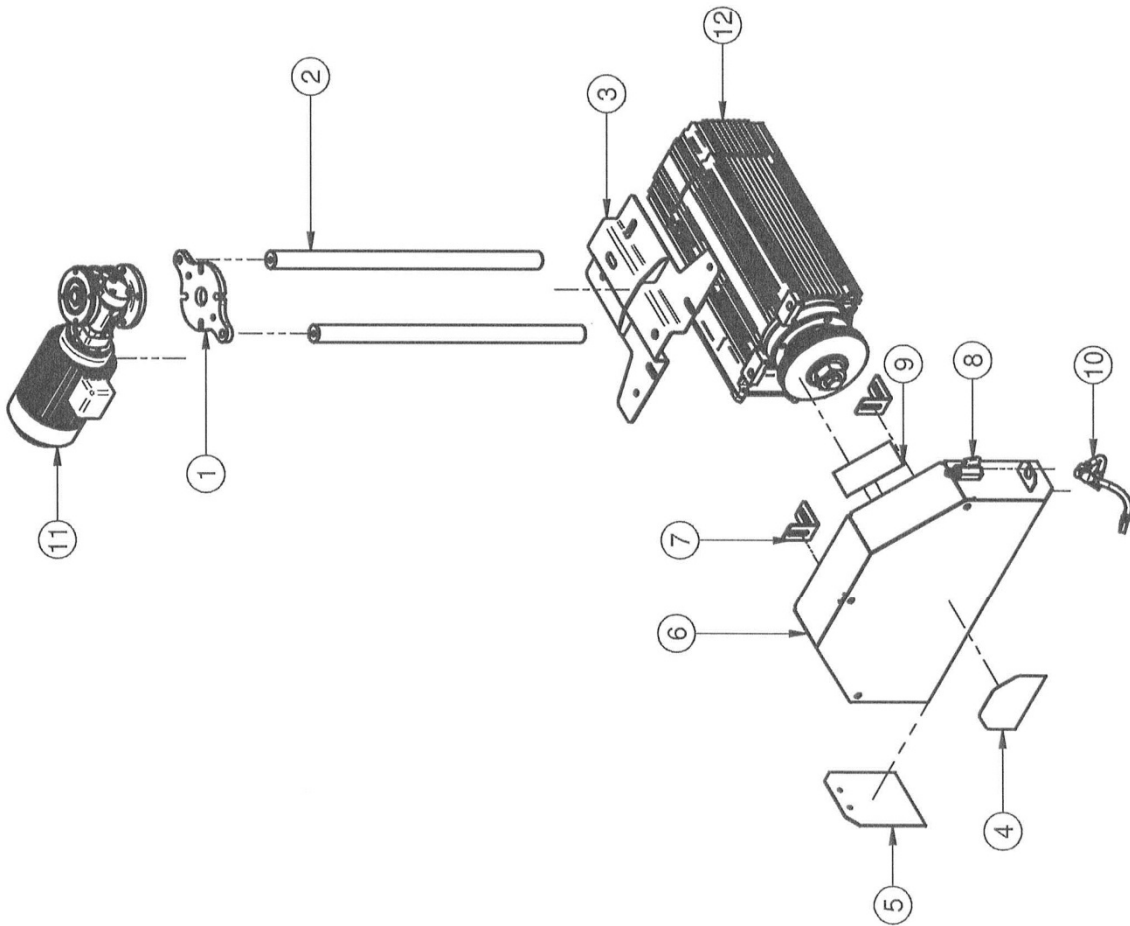


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10	04MS032T00
9	06R17X24X1Z
8	080002
7	080062
6	04F700S002T00
5	04F700S003T00
4	04F400S006T00
3	030032
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Numero oggetto	COD. RICAMBI

302017_P_04

GRUPPO: 3KW DISCO 300_350 MANUALE

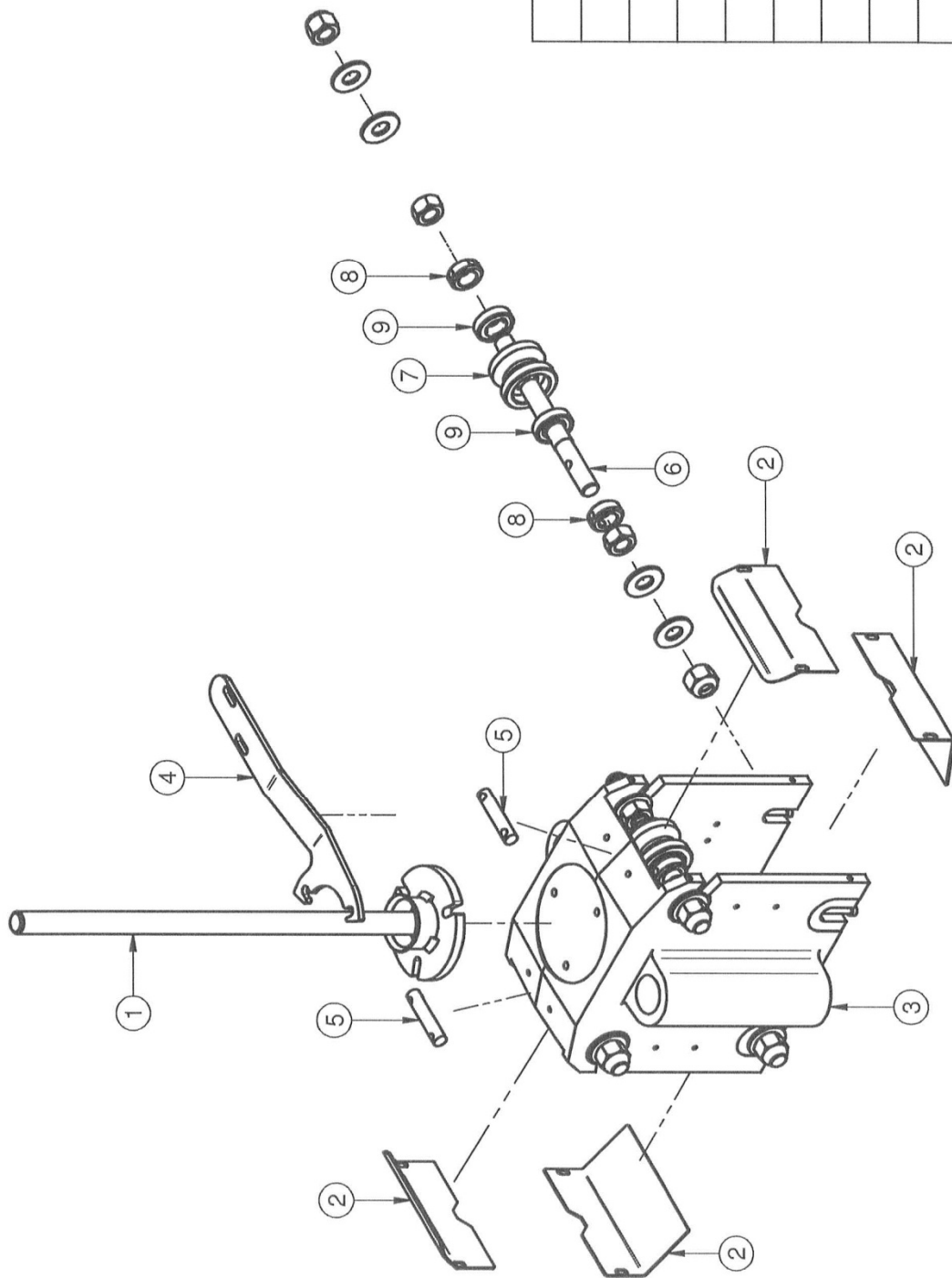
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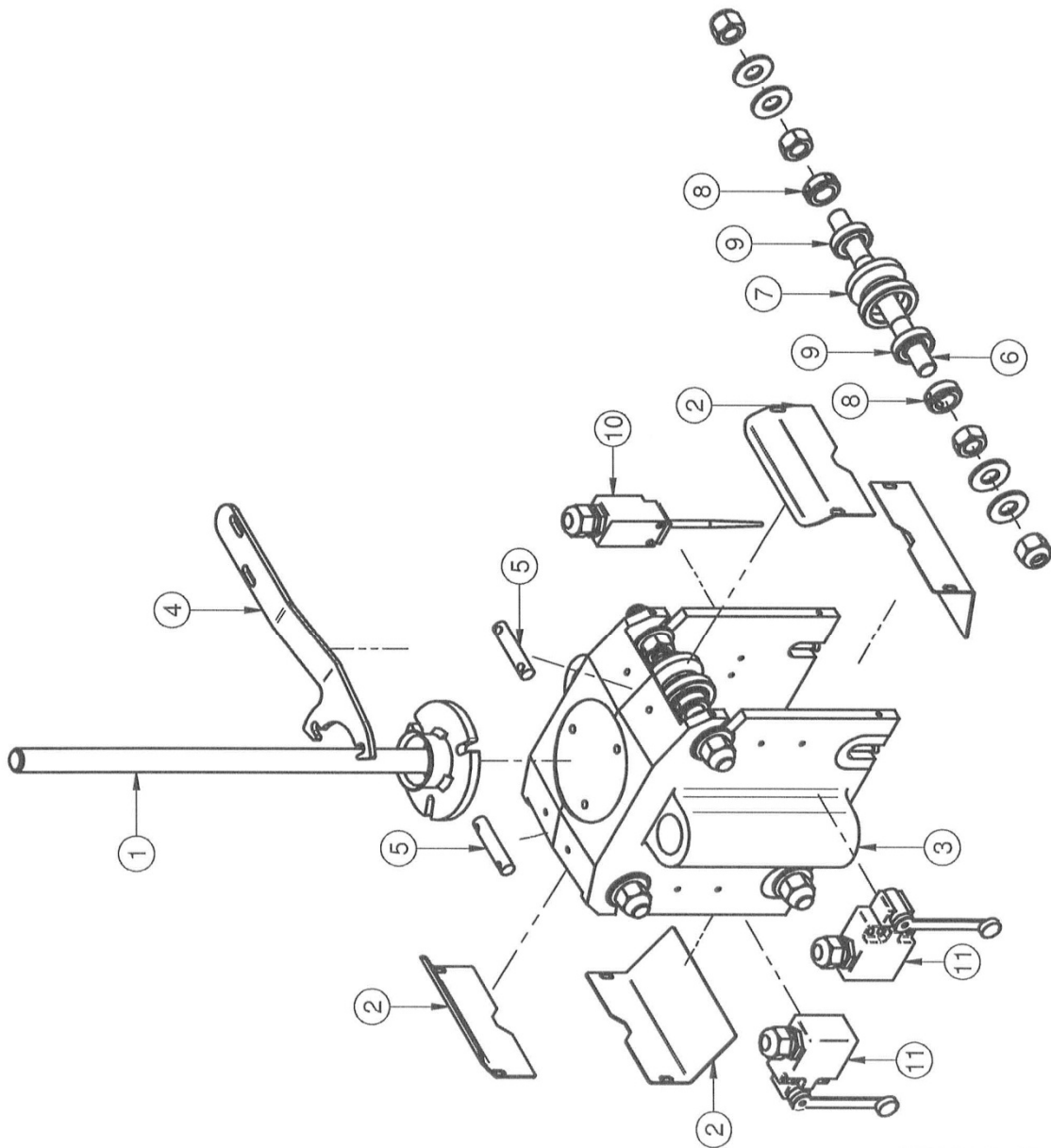
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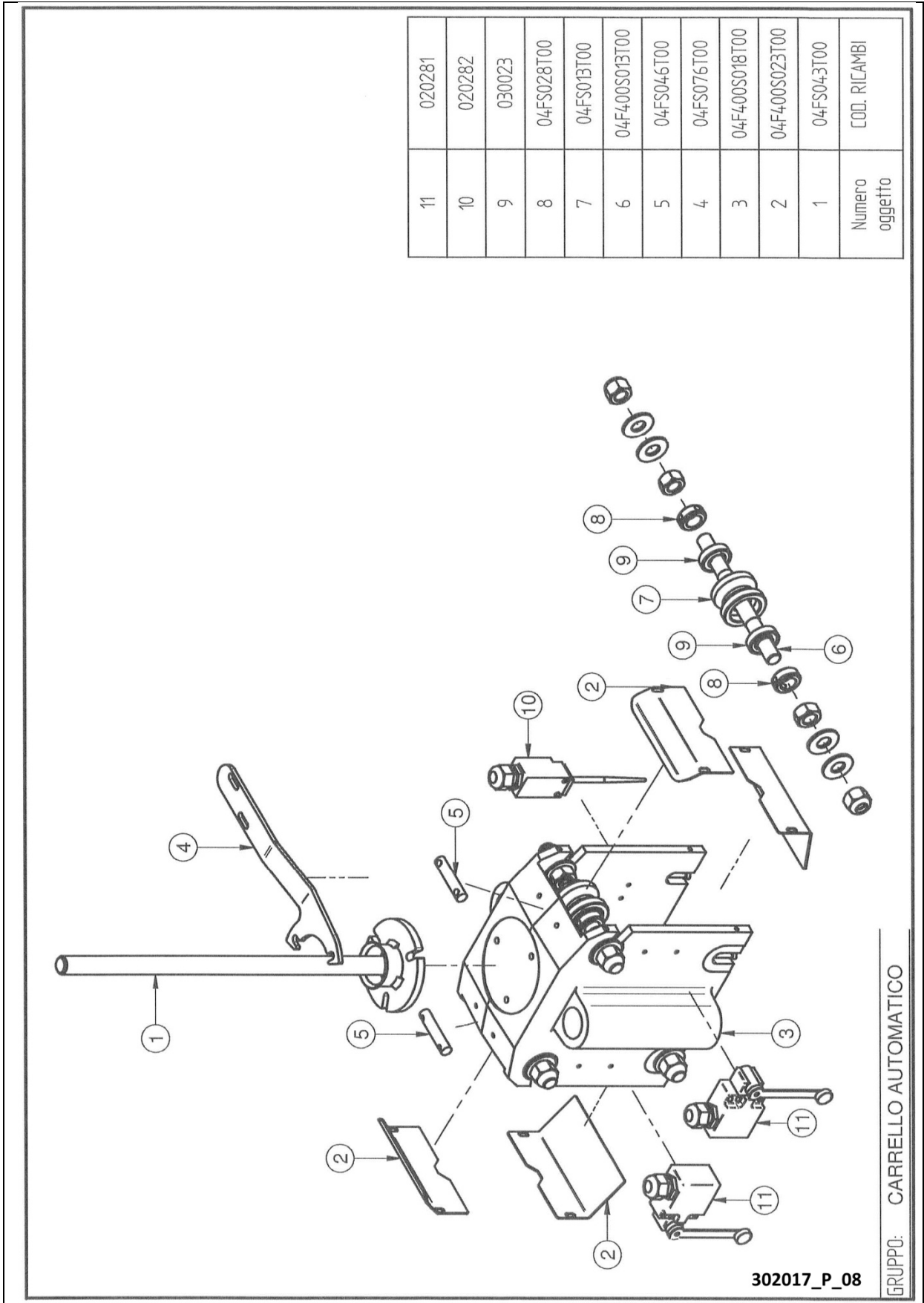
GRUPPO: CARRELLO MANUALE



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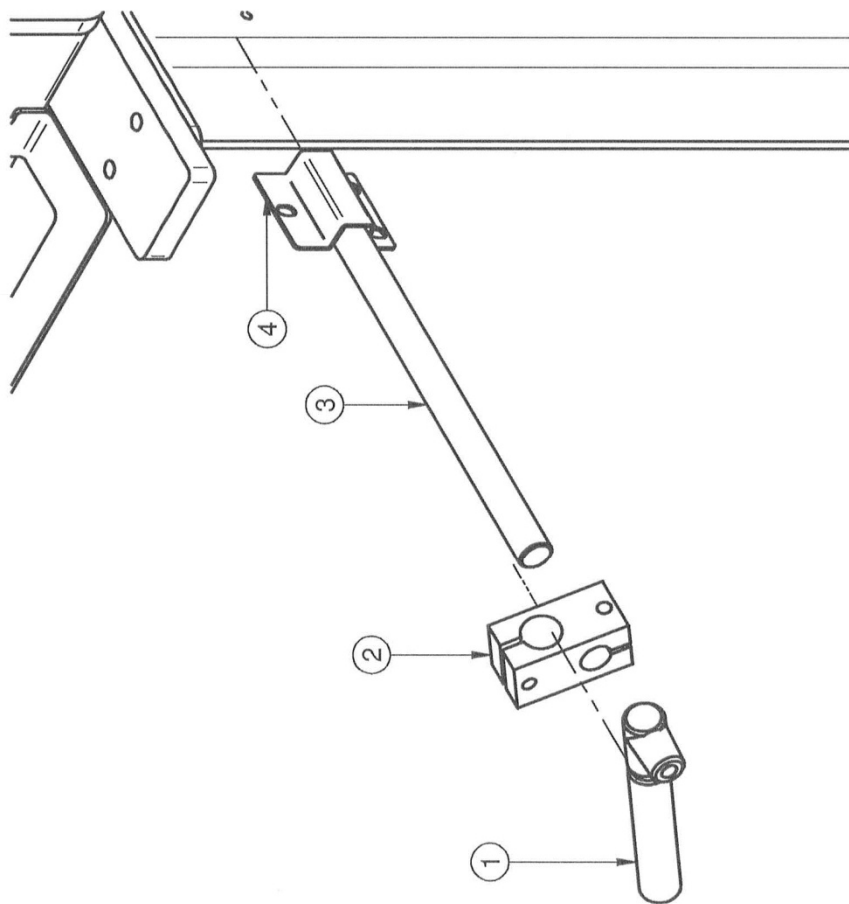
GRUPPO: CARRELLO AUTOMATICO



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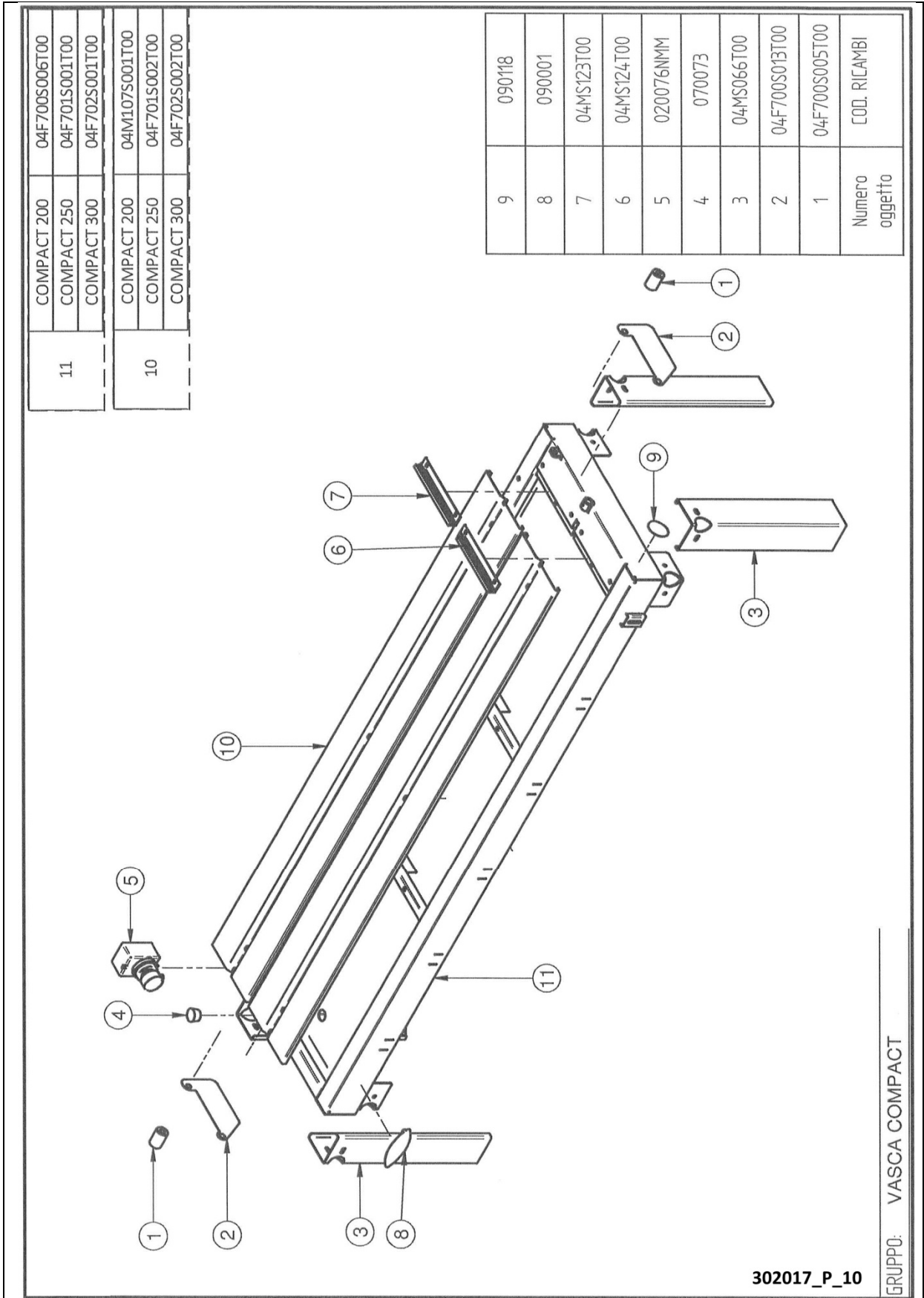
GRUPPO: CARRELLO AUTOMATICO



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Numero oggetto	COD. RICAMBI

302017_P_09

GRUPPO: GRUPPO LASER



GRUPPO: VASCA COMPACT

302017_P_10

12.3.1.1