

# INSTRUCTION, USE AND MAINTENANCE MANUAL

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## ELECTRIC PRESS







### **Production site**

ALFAMATIC srl  
20034 San Giorgio su Legnano (MI) Italy  
Via Magenta 25  
Tel. +39 0331 406911  
[www.alfomatic.com](http://www.alfomatic.com)  
[info@alfomatic.com](mailto:info@alfomatic.com)

### **Disclaimer**

We have checked the contents of this manual to correspond to the associated machine. We cannot, however, rule out discrepancies and accept no responsibility for incorrect compliance. The content of this manual is constantly checked and the necessary corrections are included in subsequent editions.

### **For more information visit the website**

<http://www.alfomatic.com/it/presse-e-unita-elettromeccaniche.html>

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## ***PREFACE***

All rights reserved. No part of this instruction manual may be reproduced or transmitted by any electronic or mechanical means, including photocopying, recording or any other storage and retrieval system, for other purposes other than the purchaser's personal use only, without express written permission from the Manufacturer.

The Manufacturer is in no way responsible for the consequences deriving from any incorrect operations carried out by the user.

## ***EDITOR'S NOTE***

This documentation is expressly intended for technicians, therefore some information that can be easily deduced from reading the texts and from examining the drawings may not have been further specified.

The Publisher is in no way responsible for the information and data contained in this manual: all the information contained therein has been provided, checked and approved during verification by the Manufacturer / Agent.

The Publisher is in no way responsible for the consequences deriving from any incorrect operations carried out by the user.

## ***GENERAL CONSIDERATION***

All operating, maintenance and recommendations described in this manual must be respected.

To obtain the best results, the Manufacturer recommends carrying out cleaning and maintenance operations regularly to keep the system in the best conditions.

The training of the personnel in charge of the system is of particular importance, both as regards its use, as for the maintenance and control of compliance with the operating procedures and all the safety standards indicated in this manual.

Please note that, in any case, the writing company always makes itself available for any clarifications or additional information.

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# 1 IDENTIFICATION OF THE MACHINE

## 1.1 IDENTIFICATION OF THE MANUFACTURER

Any request for information or assistance must be sent to this office:

MANUFACTURER :	ALFAMATIC srl 20010 San Giorgio su Legnano (MI) Italy Via Magenta 25 Tel. +39 0331 406911 Fax. +39 0331 406970 www.alfamatic.com info@alfamatic.com
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## 1.2 IDENTIFICATION OF THE MODEL



MACHINE:	ELECTRIC PRESS
TEMPLATE:	EP10 EP15 EP25 EP50 EP70 EP100 EP 200 EP 300

This manual contains information and confidential drawings owned by ALFAMATIC srl.

The production, even partial, of the manual is forbidden without the written authorization of ALFAMATIC srl

## 1.3 CE IDENTIFICATION PLATE

The CE plate on which the machine identification data is indicated is permanently fixed on the machine:

		ALFAMATIC S.r.l. via Magenta, 25 20010 S. Giorgio su Legnano (Mi) www.alfamatic.com			
DENOMINAZIONE		TENSIONE ALIMENTAZIONE (V)			
SERIE		ASSORBIMENTO (A)			
MODELLO		CORSA LAVORO (mm)			
MATRICOLA		FORZA DI LAVORO (kN)			
ANNO DI COSTRUZIONE		MASSA (kg)			



IT IS STRICTLY FORBIDDEN to remove the CE identification plate and / or replace it with other plates.

If, for accidental reasons, the plate is damaged, detached, or simply removed the seal of the manufacturer that binds it, the customer must inform the Manufacturer.

## 1.4 DECLARATION OF CONFORMITY (COPY)



### DICHIARAZIONE CE DI CONFORMITA'

ai sensi dell'Allegato II, punto 1, parte A, punto 5 della Direttiva 2006/42/CE  
ai sensi dell'Allegato IV della Direttiva 2014/30/UE



**Prodotto:** PRESSA ELETTRICA

**Nome del fabbricante:** ALFAMATIC S.r.l.  
**Indirizzo:** Via Magenta, 25  
20010 S. Giorgio su Legnano (MI)

La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante.

#### OGGETTO DELLA DICHIARAZIONE

**Denominazione generica:** PRESSA ELETTRICA  
**Denominazione commerciale:** PRESSA CON SERVO AZIONAMENTO ELETTROMECCANICO  
**Serie:** EP  
**Modello:** EP1 – EP2 – EP5 – EP10 – EP22 – EP25 – EP50 – EP70 – EP100 – EP200 – EP300  
**Matricola:** ----  
**Dotazioni:** sistema per il controllo del processo di pressatura CSQ-Visual

#### L'OGGETTO DELLA DICHIARAZIONE DI CUI SOPRA E' CONFORME ALLA PERTINENTE NORMATIVA DI ARMONIZZAZIONE DELL'UNIONE

Direttiva 2006/42/CE Direttiva Macchine  
Direttiva 2014/30/UE Compatibilità elettromagnetica

#### e alle seguenti norme tecniche

UNI EN ISO 12100:2010 Sicurezza del macchinario – Principi generali di progettazione – Valutazione del rischio e riduzione del rischio  
UNI ISO/TR 14121-2:2013 Sicurezza del macchinario - Valutazione del rischio - Parte 2: Guida pratica ed esempi di metodi  
UNI EN ISO 13850:2008 Sicurezza del macchinario – Arresto di emergenza – Principi di progettazione  
UNI EN 953:1997+A1:2009 Sicurezza del macchinario – Ripari – Requisiti generali per la progettazione e la costruzione di ripari fissi e mobili  
UNI 10893:2000 Documentazione tecnica di prodotto – Istruzioni per l'uso – Articolazione e ordine espositivo del contenuto  
UNI 10653:2003 Documentazione tecnica – Qualità della documentazione tecnica di prodotto  
CEI EN 60204-1:2006+A1:2010 Sicurezza del macchinario – Equipaggiamento elettrico delle macchine – Parte 1: Regole generali

#### LA PERSONA AUTORIZZATA A COSTITUIRE IL FASCICOLO TECNICO E'

ALFAMATIC S.r.l. - Via Magenta, 25 20010 S. Giorgio su Legnano (MI)

Numero di certificato di "esame CE del tipo" ai sensi dell'art. 12 della Direttiva Macchine 2006/42/CE:  
IMQ CT 513 DM Rev.0 dell'Organismo Notificato IMQ, via Quintiliano, 43 Milano (notifica nr 0051)

#### Firmato a nome e per conto di:

Enrico Colombo - Legale Rappresentante di Alfamic S.r.l.

S. Giorgio su Legnano, \_\_/\_\_/\_\_

## 1.5 REFERENCE DIRECTIVES

The machine supplied by ALFAMATIC srl is a machine that falls into one of the categories of machines listed in the list set out in Annex IV of the Directive; therefore, for the purpose of certifying the conformity of the machine with the provisions of this directive, ALFAMATIC srl applies the relative conformity assessment procedure.

To certify the compliance of the machine with the provisions of the Directive, before placing it on the market, ALFAMATIC srl carried out the risk assessment in order to verify compliance with the essential health and safety requirements of the Directive as well as the tests and checks required by the reference standards applied.

The technical construction dossier was produced in accordance with the provisions of Annex VII of Directive 2006/42 / EC and is available for verification by the supervisory bodies upon reasoned request, as required by the applicable laws in force.

ALFAMATIC srl then places the machine on the market by equipping it and accompanying it with the following documentation:

- CE marking.
- EC declaration of conformity.
- Instruction and warnings manual (documentation prepared according to point 1.7.4 of the Machinery Directive 2006/42 / EC).

We also remind you that the machine has been designed according to the following Directives:

- UNI EN ISO 12100: 2010 Safety of machinery - General design principles - Risk assessment and risk reduction
- UNI ISO / TR 14121-2: 2013 Safety of machinery - Risk assessment - Part 2: Practical guide and examples of methods
- UNI EN ISO 13850: 2008 Safety of machinery - Emergency stop - Design principles
- UNI EN 953: 1997 + A1: 2009 Safety of machinery - Guard - General requirements for the design and construction of fixed and mobile guards
- UNI 10893: 2000 Product technical documentation - Instructions for use - Articulation and display order of the content
- UNI 10653: 2003 Technical documentation - Quality of the technical product documentation
- CEI EN 60204-1: 2006 + A1: 2010 Safety of machinery - Electrical equipment of machines - Part 1: General rules

## 2 GENERAL PRELIMINARY INFORMATION

### 2.1 NOTES ABOUT THE MANUAL

The manual is intended for operators in charge of using and managing the system in all its phases of technical life.

It contains the themes that refer to the correct use of the machine, in order to maintain its functional and quality characteristics unchanged over time. All the information and warnings for correct use in total safety are also reported.

The manual, likewise the CE declaration of conformity, is an integral part of the machine and must always accompany it in every move or resale. It is the user's task to keep this documentation intact, to allow consultation, throughout the life of the machine itself.

### 2.2 SUPPLY AND STORAGE

The manual is provided in paper and electronic format.

All additional documentation (pneumatic and electrical diagrams, sub-supplier manuals) is provided in the annex to this manual.

Keep this manual supplied with the machine, so that it can be easily consulted by the operator.

The manual is an integral part for safety purposes, therefore:

- must be kept intact (in all its parts). If it is lost or damaged, a copy must be requested immediately;
- must follow the machine until it is demolished (even in the event of moving, selling, renting, renting, etc ...).

The accompanying manuals are an integral part of this documentation and the same recommendations / prescription of this manual apply.

### 2.3 UPDATES

If the machine requires functional modifications or replacements, the revision or updating of the manual is the responsibility of the machine manufacturer. The manufacturer is responsible for delivering the manual update.

The user is also responsible for ensuring that, in the event that this document undergoes changes by the manufacturer, only the updated versions of the manual are actually present at the points of use.

### 2.4 TONGUE

The original manual was written in Italian.

Any translations into additional languages must be made starting from the original instructions.

The Manufacturer is responsible for the information contained in the original instructions; translations into different languages cannot be fully verified, so if an inconsistency is detected, it is necessary to stick to the original language text or contact our Technical Documentation Office.





### 2.5 MANUAL PAGE STRUCTURE



At the foot of the page are the page number and the company logo.

### 2.6 OPERATING QUALIFICATIONS

In order to establish with certainty what are the skills and qualifications of the operators assigned to the various tasks (start-up, cleaning, ordinary maintenance), consult the following table:

QUALIFICATION	DEFINITION
---------------	------------




<p>OPERATOR</p> 	<p>User personnel trained and authorized to use and run the machine for production purposes for the activities for which it was built and supplied.</p> <p>He must be able to perform all the operations necessary for the proper functioning of the machine and for the safety of himself or of any collaborators.</p> <p>He must have proven experience in the correct use of these types of machines / systems and be trained, informed and instructed in this regard.</p> <p>If in doubt, he must report any anomaly to his superior.</p>
<p>MECHANICAL MAINTENANCE</p> 	<p>Qualified technician capable of carrying out preventive / corrective maintenance on all mechanical parts of the machine subject to maintenance or repair.</p> <p>Qualified technician able to have access to all parts of the machine for visual analysis, control of the state of the equipment, adjustments and calibrations.</p> <p>Qualified technician capable of:</p> <ul style="list-style-type: none"> <li>• drive the machine as the operator;</li> <li>• intervene on the mechanical parts for adjustments, maintenance and repairs;</li> <li>• read technical drawings and spare parts lists.</li> </ul> <p>In extraordinary cases, he is trained to operate the machine with reduced safety.</p> <p>If necessary, it can give the operator instructions for a good use of the machine for production purposes.</p> <p>Note: it is not enabled to work on live electrical systems (if any).</p>
<p>ELECTRICAL MAINTENANCE ENGINEER</p> 	<p>Qualified technician capable of performing preventive / corrective maintenance on all electrical parts of the machine subject to maintenance or repair.</p> <p>Qualified technician able to have access to all parts of the machine for visual analysis, control of the state of the equipment, adjustments and calibrations.</p> <p>Qualified technician capable of:</p> <ul style="list-style-type: none"> <li>• drive the machine as the operator;</li> <li>• intervene on the adjustments and on the electrical systems for maintenance, repair and replacement of worn parts;</li> <li>• read electrical diagrams and check the correct functional cycle.</li> </ul> <p>If necessary, it can give the operator instructions for a good use of the machine for production purposes.</p> <p>It can operate in the presence of voltage inside the electrical panels, junction boxes, control equipment etc. only if it is a suitable person (PEI). (Refer to EN50110-1 standard).</p>
<p>MANUFACTURER TECHNICIAN</p> 	<p>Technician qualified by the manufacturer and / or its distributor for complex operations, as they are aware of the production cycle of machine / plant construction.</p> <p>This person intervenes in accordance with the user's requests.</p> <p>The skills are, as appropriate, mechanical and / or electrical and / or electronic and / or software.</p>

<b>LIFTING VEHICLE CONDUCTOR</b> 	<p>Personnel authorized to use means for lifting and handling materials and machines (scrupulously following the instructions of ALFAMATIC Srl, in compliance with the laws in force in the country of the user of the machine).</p>
<b>SOFTWARE EXPERT TECHNICIAN</b> 	<p>Qualified technician capable of:</p> <ul style="list-style-type: none"> <li>• carry out preventive / corrective maintenance on all electronic parts and / or software of the machine subject to maintenance or repair;</li> <li>• have access to all parts of the machine for visual analysis, checking the state of the equipment, adjustments and calibrations.</li> </ul> <p>Qualified user technician with proven experience and training of systems based on: PLC / PC drives, etc. (knowledge of programming, machine functions etc.) for complex operations such as modifying machine data, creating work programs, adjusting drive parameters etc. in terms of knowledge of the production, technological and construction cycle of the machine supplied.</p> <p>It can operate inside electrical panels, junction boxes, control equipment etc. in the presence of voltage only if it is a suitable person (PEI) (See EN 50110-1).</p> <p>The skills are electronic and / or software.</p>

The qualifications shown in the table on this page are mandatory within a category of people called "trained person".

SYMBOL	DESCRIPTION
TRAINED PERSON	He who has been informed, instructed and trained on the job and on any dangers deriving from improper use. He also knows the importance of safety devices, accident prevention regulations and safe working conditions.

## 2.7 SYMBOLS USED IN THE MANUAL

SYMBOL	DESCRIPTION
	Symbol used to identify information of particular importance in the manual. The information also relates to the safety of personnel involved in using the machine.
	Symbol used to indicate warnings or procedures related to operator safety.
	Symbol used to indicate warnings or procedures related to electricity.

## 2.8 TERMINOLOGY USED

In the manuals, technical terminology or with a meaning other than the common is used. The terms and abbreviations used are explained below:

TERM	DESCRIPTION
INTERCHANGEABLE EQUIPMENT	Device which, after commissioning a machine, is assembled to the machine by the operator himself in order to modify its function or make a new function, insofar as this equipment is not a tool.
SAFETY COMPONENT	<p>Component:</p> <ul style="list-style-type: none"> <li>• intended to perform a safety function,</li> <li>• placed on the market separately,</li> <li>• the failure and / or malfunction of which endangers the safety of people, and</li> <li>• which is not essential for the purpose for which the machine was designed or which for this function can be replaced with other components.</li> </ul> <p>Annex V contains an indicative list of safety components which can be updated according to Article 8 (1) (a).</p>
MARKET PLACEMENT	First making available within the Community, whether in return for payment or free of charge, of a machine or partly completed machine for distribution or use.
MANUFACTURER	Natural or legal person who designs and / or manufactures a machine or partly completed machinery subject to this directive, and is responsible for the compliance of the machinery or partly completed machinery with this directive for the purpose of placing it on the market under his own name or with its own brand or for personal use. In the absence of a manufacturer as defined above, the natural or legal person who places a machine or partly completed machinery subject to this Directive on the market is considered to be a manufacturer.
REPRESENTATIVE	Any natural or legal person established within the Community who has received a written mandate from the manufacturer to perform in his name, in whole or in part, the obligations and formalities connected with this Directive.
COMMISSIONING	First use, in accordance with its destination, within the Community, of a machine covered by this Directive.

<b>RULE HARMONIZED</b>	Technical specification adopted by a standardization body, namely the European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (Cenelec) or the European Institute for Telecommunication Standards (ETSI), under a mandate issued by the Commission in accordance with the procedures established by Directive 98/34 / EC of the European Parliament and of the Council of 22 June 1998, which provides for an information procedure in the field of technical standards and regulations and of the rules relating to information society services ( 1), and not binding.
<b>DANGER</b>	It is the word for a hazard with high risk which, if not avoided, will result in death or serious injury.
<b>DANGEROUS AREA</b>	Any area inside and / or near the machine where the presence of an exposed person constitutes a risk to the safety and health of that person.
<b>EXPOSED PERSON</b>	Any person who is wholly or partially in a danger zone.
<b>RISK</b>	Combination of the probability and severity of an injury or damage to health that may arise in a dangerous situation.

## 2.9 SAFETY PICTOGRAMS APPLIED TO THE MACHINE

The machine was accompanied by a series of pictograms whose purpose is to warn the operator of residual risks.



**WARNING!**

It is absolutely forbidden to remove the monitor plates on the machine.






ALFAMATIC Srl declines all responsibility for the safety of the machine in the event of non-compliance with this prohibition.



**WARNING!**

The user is required to replace the monitor plates which, following wear, are illegible.

Below is the list of plates that ALFAMATIC Srl uses in its machines and the layout with the relative positioning.

SYMBOL	DESCRIPTION
	Read the Use and Maintenance Manual carefully before carrying out any operation on the machine or system. It is posted at the fixed guards of the machine.
	Electrical hazard! Voltage presence signaling and is affixed on the electrical panel and other electrical components present in the machine.
	Generic danger! Attention generic danger (completed by caption that specifies its type).
	Projection of pieces! Equip the machine to avoid the projection of the pieces. It is posted at the fixed guards of the machine.
	Prohibition of removing protective devices! Do not remove the safety devices. It is posted at the fixed guards of the machine.



Prohibition of maintenance with moving parts!

Do not carry out lubrication and cleaning operations during motion. It is posted at the fixed guards of the machine.








Lifting points for the forklift



## 2.10 PERSONAL PROTECTIVE EQUIPMENT

When working near the machine, both for assembly operations, and for maintenance and / or adjustment operations, it is necessary to strictly comply with the general accident prevention regulations, for this reason it will be important to use the personal protective equipment (PPE) required for each individual operation.

Here is the complete list of personal protective equipment (PPE) that may be required for the various procedures:

SYMBOL	DESCRIPTION	
	<b>It is mandatory to wear protective or insulating gloves.</b>	Indicates a requirement for personnel to use protective or insulating gloves.
	<b>Obligatory to wear safety shoes.</b>	Indicates a prescription for staff to use safety shoes to protect their feet.
	<b>Protective clothing required.</b>	Indicates a requirement for personnel to wear specific protective clothing.
	<b>Protective glasses are mandatory.</b>	Indicates a prescription for staff to use protective eye glasses.
	<b>It is mandatory to wear a protective helmet.</b>	Indicates a prescription for staff to use the protective helmet.

The clothing of those who operate or maintain the line must comply with the essential safety requirements defined by EU Reg. 2016/425 and with the laws in force in the country in which it is installed.

## 2.11 USER SAFETY AREAS

The areas around the machine are divided as follows:

TERM	DESCRIPTION
COMMAND AREA	These are the areas in which the user and the other operators can carry out the command and control operations of the cyclical functions of the machine ("driving position"), both automatically and semi-automatically, by acting on the appropriate control panels or for the execution of manual operations.
MAINTENANCE / ADJUSTMENT AREA	These are the areas in which mechanical and electrical maintenance workers can carry out maintenance or adjustment operations. These areas are considered at risk and not accessible during normal automatic machine operation. Operators must be fully aware of the safety warnings and the individual devices to be worn.
DANGEROUS AREAS	All areas inside (or surrounding) the machine with the presence of residual risks that can cause damage to people are considered as such. In these areas access is forbidden to anyone during the operation of the machine.

The dangers and risks existing in these areas are protected, as far as possible, with guards (guards, doors) and with safety devices (photoelectric barriers) which, in the event of activation, provide for a total stop of the machine itself.



**WARNING!**

When the machine is running, it is absolutely forbidden to operate in hazardous areas as some risks may not have been totally canceled.

## 2.12 WARRANTY

- The seller guarantees the absence of defects, taking into account the current technological stage in relation to the type of machine and this for a period of one year starting from the invoice date.
- The right to warranty services is recognized only if, as soon as the defect is found, it is communicated to ALFAMATIC srl while passing the relative repair order.
- Without prejudice to the time limit set in the previous warranty point, it also extends to those parts of the machine not directly produced by ALFAMATIC Srl with the exclusion of the electrical parts.
- The seller gives warranty by proceeding at his discretion, according to technical requirements, to repair or replace defective parts.

There is no guarantee right when the defect that occurred is related to the following cases:

- when the buyer has not reported the defects to the seller within eight days of their discovery, in writing and instructing them to carry out the relevant intervention;
- the machine or its parts have been used in a different way from the intended use;
- the machine was previously entrusted for repair to a service not authorized by ALFAMATIC Srl;
- parts have been installed or replaced on the machine, the use of which has not been authorized by ALFAMATIC Srl;
- the prescriptions regarding the use and maintenance of the machine, reported in the respective manual, have not been respected.

The guarantee does not include:

- Defects, vices and damages deriving from normal wear, bad weather and natural events, improper use or lack of maintenance.

The warranty provides for the free replacement of defective parts.

Labor costs and eventual technician travel expenses, spare parts shipping and any other possible burden of the repairing action are excluded from the warranty.

Without prejudice to the right of the buyer to provide warranty under the terms indicated above, it is expressly excluded that the buyer himself may request the termination of the contract, the replacement of the machine, the reduction of the sale price, as well as compensation for any damages direct or indirect.

The warranty right must be exercised only against dealers authorized by the manufacturer, or directly to ALFAMATIC S.r.l.

## 3 SAFETY

### 3.1 SAFETY DEVICES

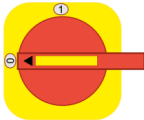
In order to guarantee total operator safety and prevent access to the inside of the machine when it is in motion, the machine has been equipped with a series of safety devices which, in the event of activation, provide for its total stop. .

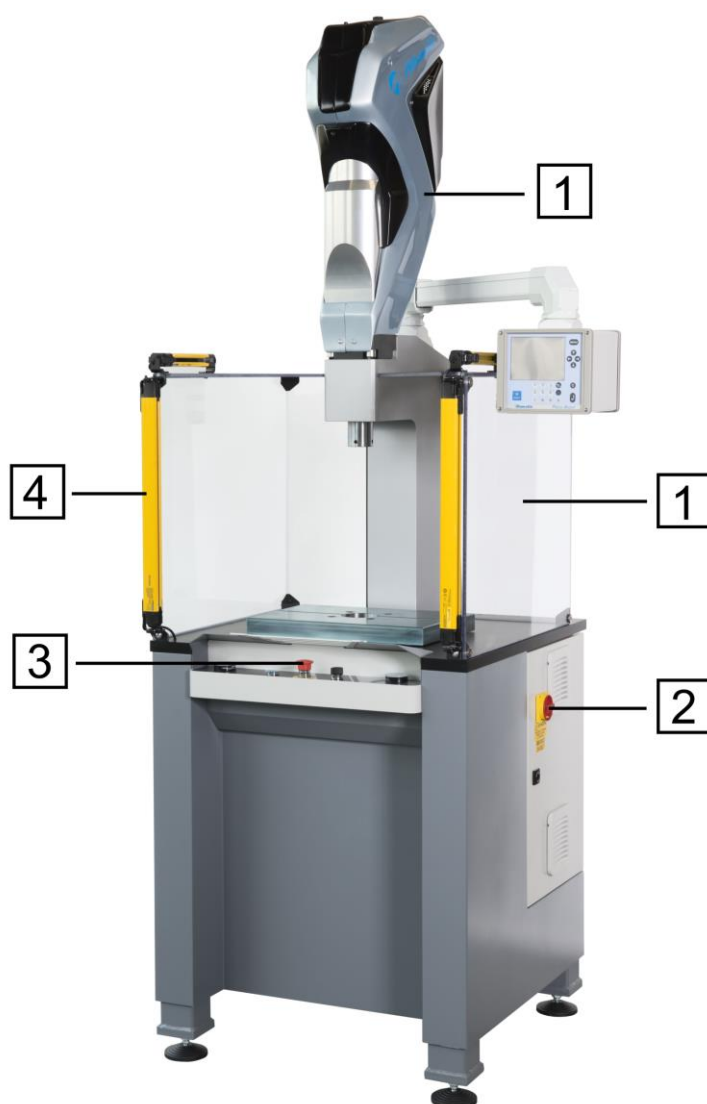
**WARNING!**




Removing or tampering with safety devices implies a dangerous situation for the operator, who could incur serious accidents that could lead to serious physical damage. The removal or tampering with the safety devices relieves ALFAMATIC srl from any type of civil or criminal liability and / or any compensation in favor of the injured party.

The machine is equipped with the safety devices listed in the following table.  
For the position of these devices, refer to the indications below.

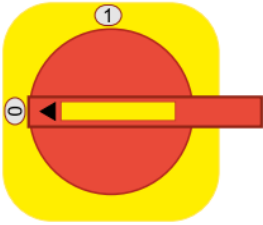
POS.	DESCRIPTION
1	CARTER AND PROTECTION PANELS
2	ELECTRIC DISCONNECT 
3	EMERGENCY BUTTON
4	PHOTOELECTRIC BARRIERS



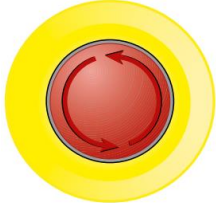
### 3.1.1 CARTER AND PROTECTION PANELS

DESCRIPTION	
<p>Characterizations are installed on the machine, which limit the access of the operators in the area of the electrical panel and in the area of action of the electric cylinder.</p> <p>There is a side hatch inspection / evacuation hatch, which is completely guarded to prevent reaching the work surface.</p>	
	<p><b>WARNING!</b></p> <p>The user can replace the internal casing with a scrap removal system that prevents this access. If in doubt, contact the manufacturer.</p>

### 3.1.2 ELECTRIC DISCONNECTOR

IMAGE	DESCRIPTION
	<p>It is located on the electrical panel. It cuts off the power supply to the entire machine.</p> <p>The switch can be locked with a padlock in the open / closed switch position "0 / OFF - 1 / ON".</p> <p>The switch must be disconnected in the case of:</p> <ul style="list-style-type: none"> <li>• electrical danger on the machine, on the system or on the electrical panel;</li> <li>• mechanical intervention on the machine or on the system;</li> <li>• electrical intervention on the machine or on the system.</li> </ul>

### 3.1.3 EMERGENCY BUTTON

IMAGE	DESCRIPTION
	<p>It is located on the operator panel. Allows the machine to stop immediately in any operating situation.</p> <p>The button is surrounded by a yellow border in which the following indications are present:</p> <p>"STOP - EMERGENCY".</p>



**WARNING!**


The emergency buttons must be used in a timely manner in the event of danger, possible danger or presumed danger.



**WARNING!**

The emergency button must not be used for the normal stopping of the machine.

### 3.1.4 PHOTOELECTRIC BARRIERS

IMAGE	DESCRIPTION
	The safety system of the photoelectric barriers requires that the mobile element is set in motion by manual or pedal control. The protection structure guarantees adequate protection against the risk that the operator or third parties may reach the working area of the press with the upper limbs.



#### WARNING!

The presses with photoelectric barrier are NOT suitable for protecting against projection of materials deriving from processing.

## 3.2 NOISE

The noise measurements were made in accordance with the provisions of UNI EN 11200 and UNI EN ISO 3746.

During the operating cycles, the exposure to noise of the personnel in charge does not exceed 70 dB.

The actual noise level of the machine installed during operation at the site in a production process is different from that detected since noise is influenced by some factors such as:

- type and characteristics of the site;
- type of material worked;
- other adjacent machines in operation.

It is the responsibility of the user to apply the consequent preventive and protective measures, in accordance with the legislation of the country of installation and use of the machine.

## 3.3 VIBRATIONS

The vibrations produced by the machine, according to the way it is run, are not dangerous to the health of the operators.



#### WARNING!

Excessive vibration can only be caused by a mechanical failure which must be immediately reported and eliminated, so as not to jeopardize the safety of the machine and operators.

## 3.4 ELECTROMAGNETIC COMPATIBILITY

The machine supplied contains electronic components subject to Electromagnetic Compatibility regulations, conditioned by conducted and radiated emissions.

The emission values comply with regulatory requirements thanks to the use of components compliant with the Electromagnetic Compatibility directive, suitable connections and installation of filters where necessary.

The machine therefore complies with the Electromagnetic Compatibility (EMC) directive.



#### WARNING!



Any maintenance activities on the electrical equipment carried out in a non-compliant way or incorrect replacement of components can compromise the efficiency of the solutions adopted.

### 3.5 RESIDUAL RISKS

The design of this machine was carried out in such a way as to guarantee the essential safety requirements for the operator. As far as possible, safety has been integrated into the design and construction of the machine; however, risks remain from which operators must be protected, especially during:

- transport and installation;
- normal operation;
- adjustment and adjustment;
- maintenance and cleaning;
- dismantling and dismantling.

For each residual risk, a description of the risk and the area or part of the machine subject to the residual risk is provided (unless it is a valid risk for the whole machine). Information is also provided on the correct use of the personal protective equipment provided and prescribed by the manufacturer.

RISK	DESCRIPTION AND PROCEDURAL INFORMATION
<b>ELECTRIC RISK / ELECTRIC SHOCK</b> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <b>PPE needed</b>   </div>	Relating to electrical components (electrical panel) in the event that voltage operations are carried out. Such operations are possible only for adequately trained, informed, trained and qualified personnel.
<b>ELECTRIC RISK / ELECTRIC SHOCK</b> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <b>PPE needed</b>   </div>	Relating to the manual operations of setting up the machine: tool on the cylinder and handling of the work piece. These operations are possible with the machine stopped and with safety devices active, in normal operation.  The trained, informed and trained operators must be equipped with the appropriate PPE, intervene in the work area of the machine only with the machine stopped or in a controlled manner.



#### WARNING!

Do not carry out maintenance activities unless you have previously de-energized the energies present.



#### WARNING!

It is absolutely forbidden to remove the safety protections or open parts of the machine with inspection doors equipped with fixing screws without first having disconnected the machine's power supply.



Do not introduce objects or tools unrelated to the operating and working area of the machine.



#### WARNING!

In the event of a fire in the vicinity of the ALFAMATIC srl machine (or on the machine itself), the use of water or other extinguishing agents of a watery or humid nature is prohibited as it presents a risk of electric shock due to indirect contact.

The user will take care of:

- analyze the risks that could occur during a handling and installation phase within its premises (the analyzes made on the handling of the machine were made only in consideration of its characteristics);
- delimit the path of forklifts and / or laser vehicles driven with signs on the floor;
- sensitize and instruct the personnel in charge of operations on the workstations and the personnel in charge of operating the machine;
- apply the visual safety signs in the workplace after assessing the risks inside the transit or command areas.

## 4 DESCRIPTION OF THE MACHINE

In order to ensure maximum operational reliability, ALFAMATIC srl has made an accurate choice of materials and components to be used in the construction of the machinery, subjecting it to regular testing before delivery. Its good performance over time depends on correct use and adequate preventive maintenance, according to the instructions given in this documentation and in the documentation supplied with the machine.

All the construction elements, the connection and control elements have been designed and manufactured with a degree of safety such as to be able to withstand anomalous stresses or in any case higher than those indicated. The materials are of the best quality and their introduction into the company, storage and use in the workshop is constantly monitored, in order to guarantee the absence of damage, deterioration and malfunction.

Despite the design and construction measures, it is of fundamental importance, in order to ensure correct use, safety, durability and reliability of the machine, scrupulously follow the manufacturer's instructions.

The instructions for use and warnings in the maintenance section indicate the types of maintenance envisaged for the machine (ordinary and extraordinary maintenance) as well as the frequency of maintenance and all the information necessary for the correct performance of the same.

### 4.1 INTENDED USE (CORRECT)

The machine described in this manual called "ELECTRIC PRESS" has been designed and built to carry out molding operations such as marking, deep drawing, chamfering, stapling and assembly in general.

The machine in question is intended for:

INTENDED USE	NOT EXPECTED	WORKING ENVIRONMENT
Axial processing of metallic materials such as marking, deep drawing, chamfering, stapling and assembly in general	Any use other than the intended use.	Metallurgical industrialist

The machine was created for:

- satisfy the specific needs mentioned in the sales contract;
- be used according to the instructions and limits of use given in this manual.

The machine is designed and built to work safely if:

- is used within the limits stated in the contract and in this manual;
- the procedures of the user manual are followed;
- ordinary maintenance is carried out in the times and in the ways indicated;
- extraordinary maintenance is carried out promptly in case of need;
- the safety devices are not removed and / or bypassed.

#### 4.1.1 IMPROPER USE REASONABLY FORESEEABLE

The reasonably foreseeable incorrect use is listed below:

- installation in ways other than those specified in this user manual;
- use of the machine as a support point;
- use of the machine in ways other than those specified in this user manual.

It is not allowed:

- use where the reaction point (the workpiece) is not placed on the central axis of the unit's stem;

- the use, if the working tool applied to the moving part of the pusher unit cannot be duly centered on the axis of the part itself;
- the use for working on products which, due to their structural characteristics, can cause fragments or splinters to project after breaking;
- the use for working on products which, under pressure, compression, cutting or deformation, can explode or explode.

Any other use of the machine other than that intended must be previously authorized in writing by the Manufacturer. In the absence of such written authorization, the use is to be considered "improper use"; therefore, the Manufacturer declines all responsibility in relation to any damage caused to things or people and considers any type of guarantee on the line and on the machines supplied to have expired.

## 4.2 OBLIGATIONS AND PROHIBITIONS

### 4.2.1 OBLIGATIONS OF THE USERS

The user (entrepreneur or employer) must:

- take into account the operators' skills and conditions in relation to their health and safety;
- provide the means of individual protection appropriate to the individual procedures;
- require individual workers to comply with company rules and regulations regarding safety and the use of collective and individual means of protection made available to them;
- educate staff on accident procedures;
- instruct the staff on the devices designed for operator safety;
- instruct staff on the risks of noise emissions in the workplace;
- instruct the staff on the general accident prevention rules envisaged by European directives and by the legislation of the country of destination of the system.

Only operate personnel on the machine who have read this manual and who are properly trained.

### 4.2.2 OBLIGATIONS OF THE OPERATORS

- Always carry out maintenance work with the machine off. Do not lubricate the moving parts.
- When the machine is in operation, do not operate near with chains, bracelets, ties, or other clothing that could get caught in the mechanisms.
- Carry out work on the electrical panel, on the junction boxes, on the cables and on all the components of the electrical system, always with the main switch turned off.
- When starting the machine, make sure there is no person in dangerous areas.
- During manual operations, take the utmost care that there are no people who can directly access the moving parts.
- Use appropriately the protective devices made available by the employer.
- Immediately report the deficiencies of the safety devices to the employer, manager or manager.

### 4.2.3 PROHIBITIONS OF OPERATORS

In particular, operators must not:

- insert objects other than the product into the press;
- bring parts of the body closer to the moving and working areas, during the production phase;
- use the machine improperly, ie for uses other than those indicated in the "Intended Use" paragraph;
- remove or modify the safety or signaling devices without authorization;
- carry out operations or maneuvers on their own initiative which are not within their competence or which may compromise their own safety or that of other workers;
- wear bracelets, rings or chains that can dangle and be dragged by moving parts creating danger for the operator;

- work with products other than those indicated;
- replace or modify the speeds of the machine components without being allowed by a manager;
- modify the system cycle;
- modify the electrical connections to exclude internal safety devices;
- use the machine if it has not been correctly installed according to current regulations;
- use the machine as a support point even if it is not working (under penalty of risk of ruinous falls and / or the risk of damage to the machine);
- use the machine outside the permitted environmental conditions (consult the chapter 5).

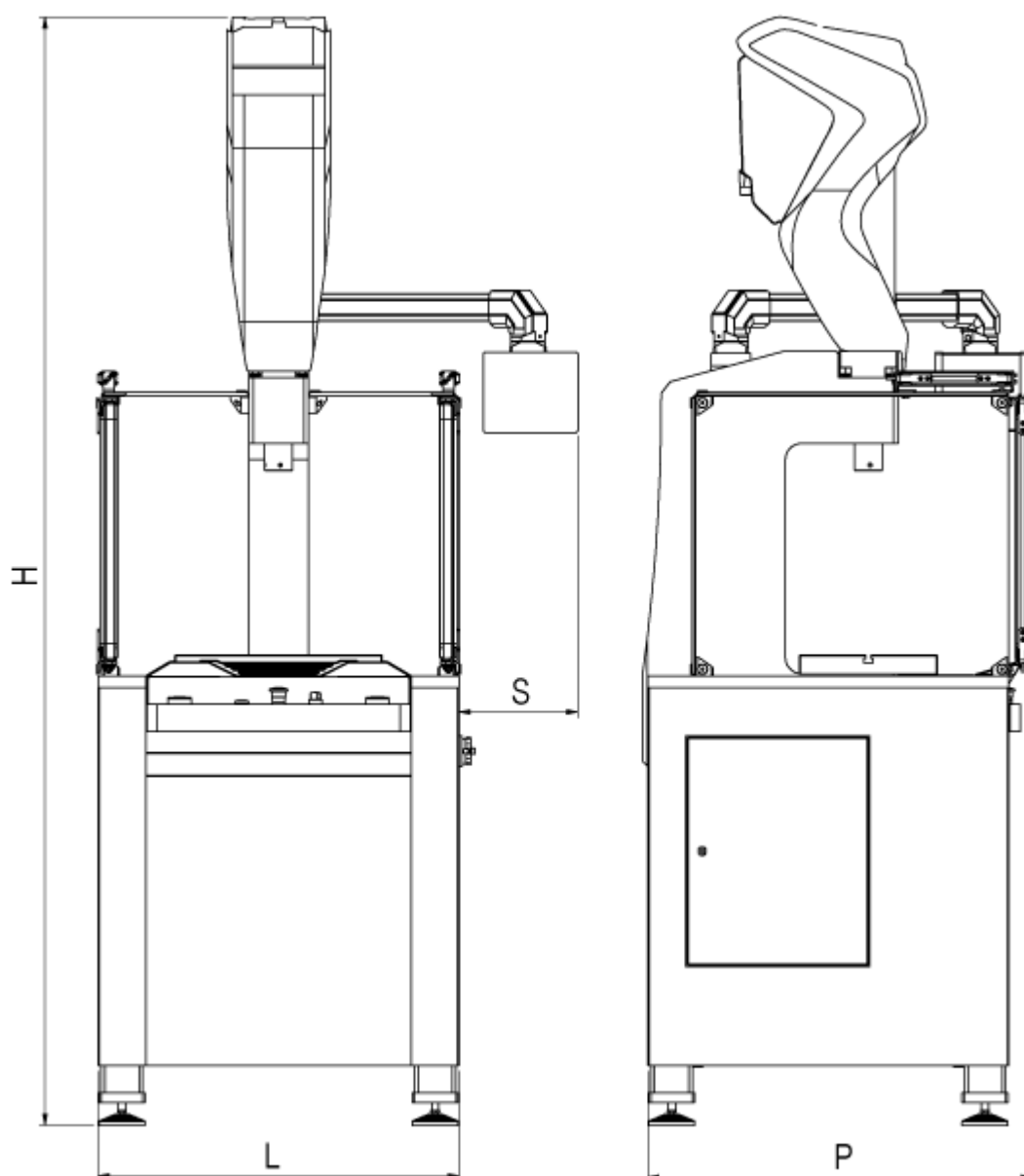
**WARNING!**

The ALFAMATIC srl company is not liable for damage caused to things or people in the event that it is ascertained that the machine has been used in one of the environments listed above.

- It is forbidden to disassemble the safety devices during operation.
- It is forbidden to introduce any object inside the machine.
- It is forbidden to inhibit the safety devices.
- It is forbidden to use the machine, even part of it, for uses other than those listed in this manual.
- It is forbidden to modify and / or move the parts of the machine.
- It is forbidden to use the machine with devices or elements other than those recommended by the manufacturer without the specific written consent of the manufacturer.
- Do not operate the machine or equipment when under the influence of alcohol, psychotropic drugs or drugs.

### 4.3 DIMENSIONS AND WEIGHT OF THE MACHINE

DIMENSIONS	EP1, EP2	EP5	EP10, EP25	EP50, EP70, EP100	EP200, EP300
WIDTH (L)	810 mm	810 mm	810 mm	810 mm	1100 mm
DEPTH (P)	845 mm	845 mm	845 mm	860 mm	885 mm
HEIGHT (H)	2100 mm	2150 mm	2350 mm	2480 mm	3000 mm
MAXIMUM INSTRUMENT PROJECTION (S)	300 mm	300 mm	300 mm	300 mm	300 mm
WEIGHT	395 kg	400 kg	430 kg	650 kg	1000 kg



## 4.4 TECHNICAL DATA

CHARACTERISTIC	EP1	EP2	EP5
MAXIMUM FORCE	1 kN	2 kN	5 kN
FULL SPEED	265 mm / s	265 mm / s	265 mm / s
RESOLUTION	0.01mm	0.01mm	0.01mm
STANDARD STROKE	280 mm	280 mm	280 mm
ABSORBED POWER	0.7 kW	1 kW	1.2 kW
INSTALLED POWER	2 kW	2 kW	2 kW
SUPPLY	230 V single phase 50 Hz		
ANTIROTATION PRECISION	1st	1st	1st

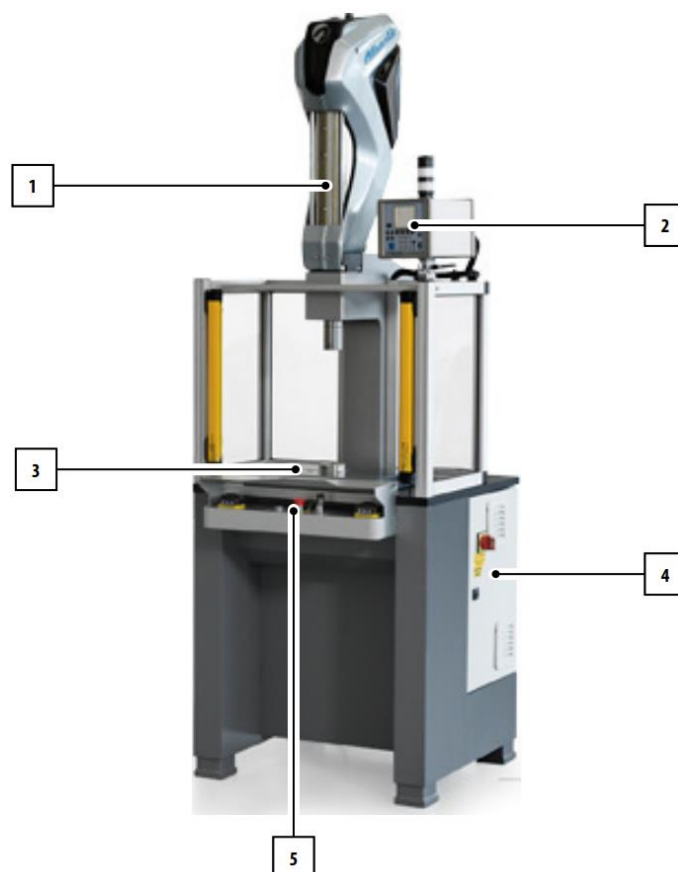
CHARACTERISTIC	EP10	EP15	EP25
MAXIMUM FORCE	10 kN	15 kN	25 kN
FULL SPEED	250 mm / s	220 mm / s	140 mm / s
RESOLUTION	0.01mm	0.01mm	0.01mm
STANDARD STROKE	300 mm	300 mm	300 mm
ABSORBED POWER	3.3 kW	3.3 kW	3.3 kW
INSTALLED POWER	5 kW	5 kW	5 kW
SUPPLY	400 V three-phase 50 Hz		
ANTIROTATION PRECISION	0.7 °	0.7 °	0.7 °

CHARACTERISTIC	EP50	EP70	EP100
MAXIMUM FORCE	50 kN	70 kN	100 kN
FULL SPEED	250 mm / s	180 mm / s	100 mm / s
RESOLUTION	0.01mm	0.01mm	0.01mm
STANDARD STROKE	250 mm	250 mm	250 mm
ABSORBED POWER	5 kW	5 kW	5 kW
INSTALLED POWER	7 kW	7 kW	7 kW
SUPPLY	400 V three-phase 50 Hz		
ANTIROTATION PRECISION	0.7 °	0.7 °	0.7 °

CHARACTERISTIC	EP200	EP300	
MAXIMUM FORCE	200 kN	300 kN	
FULL SPEED	150 mm / s	100 mm / s	
RESOLUTION	0.01mm	0.01mm	
STANDARD STROKE	420 mm	420 mm	
ABSORBED POWER	16 kW	16 kW	
INSTALLED POWER	20 kW	20 kW	
SUPPLY	400 V three-phase 50 Hz		
ANTIROTATION PRECISION	0.7 °	0.7 °	

## 4.5 MAIN COMPONENTS

POS.	DESCRIPTION
1	ELECTRIC CYLINDER
2	CONTROL TOOL
3	WORK PLAN
4	ELECTRICAL CABINET
5	CONTROL PANEL



## 4.6 WORKING CYCLE

The machine is made up of various groups that allow you to work on the details you want to work on.

The phases of the work cycle are described below:

PHASE	DESCRIPTION
1	The parts to be machined are inserted into the machine manually through the front opening.
2	The operator places the parts on the work surface below the electric cylinder.
3	The operator starts the cylinder using the two-hand control on the control panel.
4	After pressing, the operator removes the processed parts.

## 5 TRANSPORT AND INSTALLATION

### 5.1 INTRODUCTION



**WARNING!**

Lifting and handling operations must be carried out exclusively by specialized and trained personnel who are suitable for carrying out these activities.

To move the machine, follow the instructions and pictograms shown using suitable tools and equipment.

The machine has been designed so that a forklift truck must be used in the packaging, transport and assembly phases.

The machine is equipped by ALFAMATIC srl with special gripping points on the structure in the case of a forklift truck.

### 5.2 PACKING

Depending on the distance of the transport, the specific requests of the customer, and the time of permanence of the load in the packaging, the shipment of the machine takes place in the following ways:

- protective packaging with fixing of the machine on a wooden base (with possible protection box).

The shipment must be made with covered or curtained means of transport depending on the type of load.



**WARNING!**

Before opening the packaging, it is necessary to check its integrity and report any anomalies to ALFAMATIC srl

Upon receipt of the machine, the customer must verify that there are no damages caused by the mode of transport or by the personnel in charge of specific operations.

If any damage is ascertained, leave the packaging in question in the state found and immediately request the damage shipment to be ascertained by the competent shipping company, after which communicate the damage detected to the competent transport insurance with a certificate of damage and at the point of sale.

After checking the integrity of the machine, it is possible to remove the fixing screws to the wooden base and then proceed with handling as indicated in the next paragraph.

All the packaging material must be kept for any transport.

In particular, if there is a base and / or a wooden crate it is necessary to pay attention to the conservation in addition to the same also of the fixing brackets of the machine to the packaging.

The material must be stored in a suitable place so that it does not undergo deterioration which could be dangerous due to the decrease in the capacity of the packaging structure (e.g. weakening of the wood due to constant humidity or pests).

### 5.3 TRANSPORT AND HANDLING

ALFAMATIC s.r.l., depending on the mode of transport and the type of machines to be shipped, uses suitable packaging and fasteners to guarantee the integrity and conservation of the machine during transport.

The handling activities described in this paragraph must be carried out by qualified personnel for these operations: personnel specially trained to safely carry out the loading, unloading and handling of packages by means of lifting means, forklift truck, and who is aware of the accident prevention rules.

**WARNING!**

For the handling of machines model EP2M 300 see annex A

**WARNING!**

Delicate components and equipment must be packed in such a way that they cannot be damaged during transport.

**WARNING!**

ALFAMATIC s.r.l. is not liable for damage to things or persons caused by accidents caused by failure to comply with the instructions given in this and the following chapters.

**WARNING!**

The installation of the machine must take place according to the layout agreed with the Manufacturer.

### 5.3.1 PRELIMINARY INFORMATION ON TRANSPORT AND HANDLING

**WARNING!**

Considering that the installation operations (including assembly and start-up) require specific knowledge of the machine, they may present risks for non-specialized personnel, the manufacturer prescribes that the machine must be handled and installed by the customer user only by specialized personnel .

Before installing the machine and therefore before each movement, check that:

- the stability of the load cannot be the source of dangers and / or accidents;
- the means and logistic structures used comply with the use (for example they are suitable in relation to the maximum capacity) and in perfect operating conditions;
- each operator keeps away from suspended loads (transit under suspended loads is prohibited);
- operators are equipped with the appropriate personal protective equipment;
- the installation surface is sufficient, considering the additional space required for assembly;
- the utility connection points are set up as per the attached schemes (and agreed with the Customer);
- the area provided for the installation and the access routes are free of obstructions;
- the height and width for the passage are sufficient (in any case leave a distance of 1000 mm from walls, pillars, and anything that can create impediments to maintenance or escape in case of need);
- the specific capacity of the floor is sufficient to support the weight of the machine.

Observe the precautions and warnings listed below in order to ensure stability by avoiding the risks associated with the handling of the machine.

- Do not improvise any maneuver that is not formalized by competent personnel.
- For lifting and positioning use a forklift.

Delegate these operations only to trained personnel (harnesses, crane operators, etc.). in the event that the size of the load does not allow sufficient visibility, the presence of a person in charge of the signals for the operator who supervises all the handling phases is mandatory.

### 5.3.2 UNLOADING AND HANDLING

Always make sure, before each movement, that the lifting device with relative tools is suitable for lifting the load to be moved and the necessary stability of the volume before lifting it.

**WARNING!**

The handling activities described in this paragraph must be carried out by qualified personnel for these operations: personnel specially trained to safely carry out the loading, unloading and handling of packages by means of lifting means, such as cranes or forklifts and which is at knowledge of accident prevention rules.

On the machine, a series of indications are applied which accurately recall the lifting points for loading / unloading and those relating to subsequent handling on the ground.

**WARNING!**

ALFAMATIC srl is not liable for damage to things or persons caused by accidents caused by failure to comply with the instructions given in this and the following chapters.

**WARNING!**

In case of dimensions, and / or operating situation, they do not allow the operator to have a perfect view, the presence of personnel must be provided, placed outside the range of action of the lifting vehicle, with the task of making warnings.

**WARNING!**

Never pass under suspended loads. Never move the load over the personnel operating on the site / plant.

**WARNING!**

Unloading, handling, lifting, etc. of the machine and its units must not be carried out in the event that the weather conditions are adverse such as for example with a wind higher than 0.3 m / minute.

### 5.3.3 TABLE OF GROUPS AND WEIGHTS

The following table shows the weight information relating to the movement of the individual groups making up the machine.

GROUP	WEIGHT
PRESS	Consult the chapter 4.3.
PACKING	30 kg

The machine transport procedures are described on the following pages.

**IMPORTANT!**

Check the total mass: in case of coupling or packaging of the machine with other units, it is necessary to refer to the transport documents and if not available, contact the manufacturer.

## 5.4 TRANSPORT TYPES

The machine can be transported:

- in wooden cases;
- on the truck bed.

Whatever the means of transport used, the Manufacturer adopts adequate protections against atmospheric agents.

**WARNING!**

During the machine handling operations, pay the utmost attention to the protruding parts such as mechanical parts, pipes and cables so that they do not suffer damage

caused by incorrect mechanical stresses.



**IMPORTANT!**

In case of handling difficulties, ALFAMATIC srl is available for all the necessary clarifications.







**WARNING!**

It is absolutely forbidden to use other systems to move the machine, whether it is packed or not. ALFAMATIC srl is not responsible for accidents or damages caused by incorrect machine movement.

### 5.4.1 TRANSPORT WITH FORKLIFT

To transport the machine, use the PPE shown in the table below:

PPE REQUIRED			
			

Before proceeding with the transport operations, check:

- that the affected area is cleared;
- that there are no moving parts or tools on the packages to be handled;
- the status of the devices designed for lifting;
- the capacity of the lift truck to be used (check the weights in the specific section of this manual);
- that the forks protrude from the front of the load for a length sufficient to eliminate any risk of overturning;
- that the forks can be spaced adequately to prevent the machine from overturning.

After that, follow the steps below:

PHASE	DESCRIPTION
1	Adjust and insert the forks of the forklift to the side of the machine to be transported (as indicated by the pictograms applied on the machine.)
2	Raise the forks until they touch the load.
3	Slowly lift the load a few centimeters and check its stability.
4	Slightly tilt the mast backwards (towards the driver's seat) to take advantage of the tilting moment and ensure greater stability of the load during transport.
5	Adjust the transport speed according to the pavement and the type of load.



**IMPORTANT!**

Respect the safety regulations in force in the State of the end user relating to the methods of use of the equipment and / or lifting devices.



**WARNING!**

During handling operations, extreme care must be taken to avoid overturning.

## 5.5 CUSTOMER PROVISIONS

With the due exceptions made in the contract, the customer who uses the machine must arrange:

- premises (including masonry, such as foundations or canalizations that may be required, etc.).

- electrical systems up to the machine power points, in compliance with the standards in force in the country of installation and / or required by the machine manufacturer. All the technical specifications required by the manufacturer are contained in the sales contract. The Manufacturer declines all responsibility if the customer cannot guarantee the technical characteristics of the electrical system required in the sales contract.
- the power supply for the machine, including the earthing conductor, according to the characteristics and tolerances required and specified in this manual.
- any auxiliary services suitable for the needs of the system (such as compressed air network, etc.). The required features are contained in the sales contract.
- any safety devices upstream and downstream of the energy supply lines (such as differential switches, earthing systems, safety valves, etc.) envisaged by the legislation in force in the country of installation.
- commercial tools and consumables needed for assembly and installation.
- lubricants necessary for starting the machine.
- the feeding of products for production purposes.
- the appropriate lifting means for the parts that compose it in accordance with the loads to be handled.

The above data are described in the respective paragraphs.



**WARNING!**

ALFAMATIC srl does not respond to operating anomalies if the supply of power supply does not correspond to the specifications required for the installation of the machine.

## 5.6 PLACE OF INSTALLATION

This paragraph describes the physical characteristics and the preparation procedures of the room where the machine will be located.

The area foreseen for the installation and the access routes must be prepared, freeing them from clutter of materials or machines within the times foreseen for assembly.

For installation, an area suitable for the dimensions of the machine and the lifting means used must be provided, paying attention to any obstacles (other machines, walls or the like) present along the path that the handling means must perform.

The installation site must:

- be equipped with exit routes for emergencies;
- have a floor suitable for supporting the weight of the machine and well leveled;
- be easy to clean to ensure adequate hygienic conditions;
- have passageways and access routes.

ALFAMATIC srl does not authorize any other type of installation other than the layout shown.

The area for installing and using the machine must be large enough to comply with:

- operating spaces,
- passageways,
- escape routes,
- maintenance spaces.

However, it is a precise responsibility of the customer to verify the final installation in compliance with the relevant regulations in force.

The floor / floor of the site chosen for installation and use must be regular, level and compliant with the application specifications and with the ability to withstand the weight specifications of the machine as per the static and dynamic loads provided.

**WARNING!**

Unloading, handling, lifting etc. of the structure and the machine must not be carried out if the weather conditions are adverse (wind higher than 0.5m / minute etc.).

**WARNING!**

The machine, having to be used inside a production plant, is not equipped with its own fire prevention system. The user must evaluate the need for an adequate fire prevention system for the machine / site where the machine is installed and used.

### 5.6.1 GROUND SIGNALS

The skills of the employer-end user also include that of carrying out the overall risk assessment in the work environment in which the machine is installed in relation to passageways, escape routes (in accordance with the national regulations in force in these environments) .

On the basis of this analysis, it will take steps to adopt any technical or procedural solutions in order to establish an internal circulation plan to prohibit the access of personnel to forbidden areas.

As far as ALFAMATIC srl supply machines are concerned, the employer-user will have to trace a signal on the ground (yellow strip) in order to immediately identify the areas inhibited by the transit and parking of unauthorized personnel.

**WARNING!**

The area delimited by the yellow stripes is inhibited by the transit and stopping of the staff. In addition, it must also be kept clear of material.

### 5.6.2 ENVIRONMENTAL CONDITIONS ALLOWED

The environment in which the machine is installed and used is an internal environment protected from atmospheric agents such as rain, hail, snow, fog, suspended dust, combustible dust and must not be a classified environment and protected from aggressive agents such as vapors. corrosive or excessive heat sources.

ENVIRONMENTAL CONDITIONS ALLOWED	
ROOM TEMPERATURE	Between 5 ° C and 40 ° C
RELATIVE HUMIDITY	Up to 90%
LIGHTING	200 Lux (by the customer)

The use of the machine, associated control systems and drive equipment in conditions other than those listed is not permitted.

**WARNING!**

This machine cannot operate in premises classified as environments with an explosive atmosphere or at risk of fire.

**WARNING!**

The area of action of the machine and the work areas:

- NEVER be occupied by objects that can create a hindrance;
- they must be kept clean in order to avoid slippery floors creating dangers of slipping and falling;
- must have adequate lighting;
- must be reserved for authorized maintenance persons.
- the user will be responsible for highlighting these prohibitions with special signs placed near the machine.



If these instructions are not respected, the Manufacturer declines all responsibility.

If these requirements are not present, the machine cannot be put into operation.

**WARNING!**

Environmental conditions other than those specified can cause serious damage to the machine and in particular to electrical and electronic equipment.

Positioning the machine in environments that do not correspond to what is indicated will void the warranty for the parts to be replaced.

Even the unauthorized replacement of one or more parts of the machine, the use of accessories, tools, consumables other than those prescribed by the manufacturer, can represent an accident hazard and release the manufacturer from civil and criminal liability.

## **5.7 INSTALLATION**

The press is supplied to the customer / user ready for use.

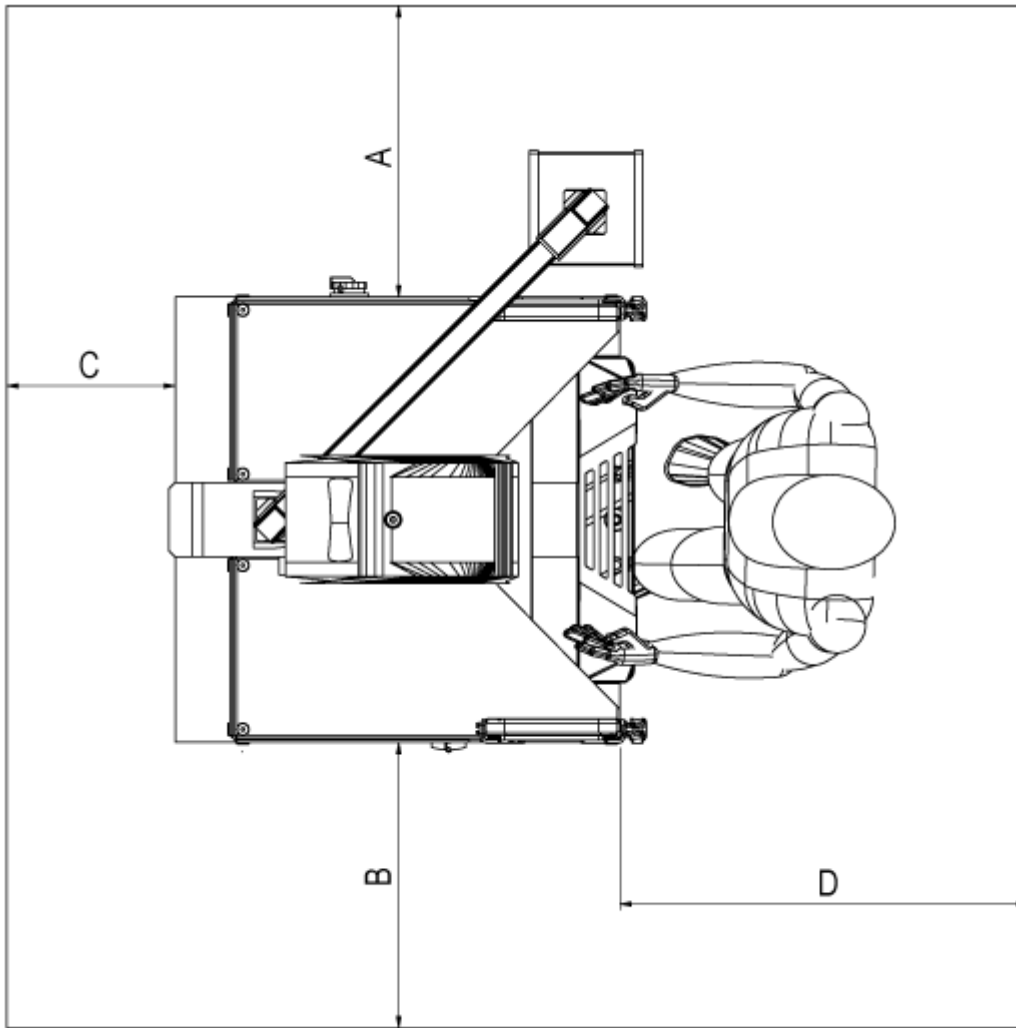
However, the customer is responsible for positioning, setting up and connecting the machine.

### **5.7.1 PLACEMENT**

The correct positioning of the machine is an important operation for its correct functioning and from the production line in which it is inserted.

The placement of the machine must take place following some general rules:

- identification of the correct position within the production line;
- positioning of the machine (the floor on which the machine will be laid must be completely level, in order to avoid any inclination of the same);
- control of the full stability and alignment of the machine;
- verification of full accessibility to the machine by the operator.



EP1 EP2 EP5 EP10 EP15 EP25	A = 1 m	B = 1 m	C = 0.1 m	D = 1.5 m
EP50 EP70 EP100				
EP200 EP300	A = 0.6 m	B = 0.6 m	C = 1 m	D = 1.5 m

## 5.7.2 TOOLING

### WARNING!



The maximum size of the tool towards the operator with respect to the axis of the press is:

EP1-EP25: 65 mm

EP50-EP100: 75 mm

EP200-EP300: 85 mm

### WARNING!



The maximum tool weight is:

EP1-EP15: 7 kg

EP25-EP100: 9 kg

EP200-EP300: 15 kg



### WARNING!

The tools or molds or equipment connected to the pusher unit must be sized to withstand the stresses and force that the press is capable of expressing.

### 5.7.3 Tool attachment



**IMPORTANT!**

The dimensions of the attachment of the presses model EP1, EP2 and EP5 are different from those shown here, contact Alfamatic s.r.l. for further information.



**IMPORTANT!**

The dimensions of the attachment with external load cell are different, contact Alfamatic srl for more information.

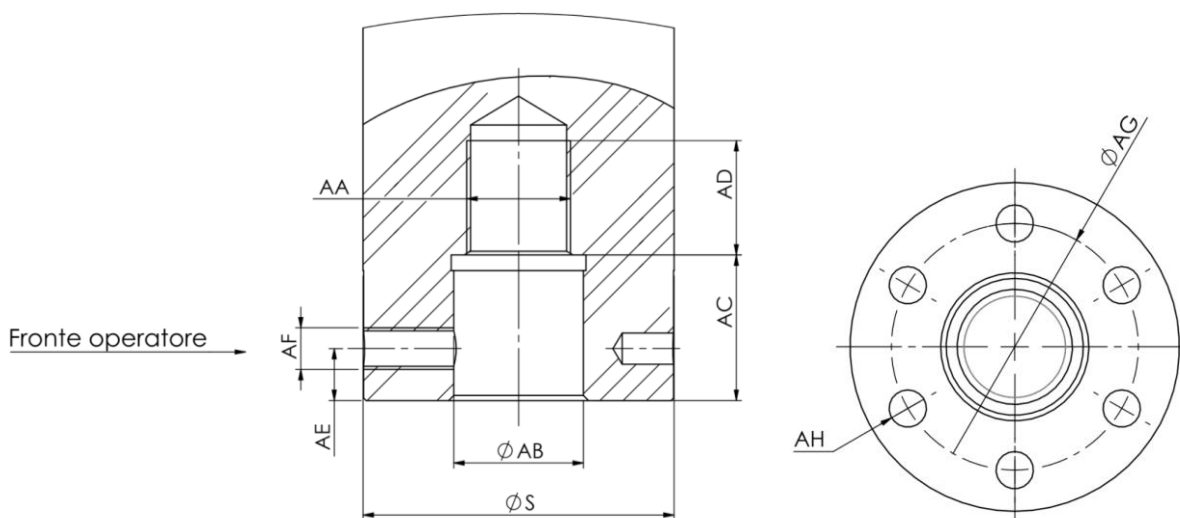


**IMPORTANT!**

The dimensions of the attachment for traction operation are different, contact Alfamatic s.r.l. for more information.

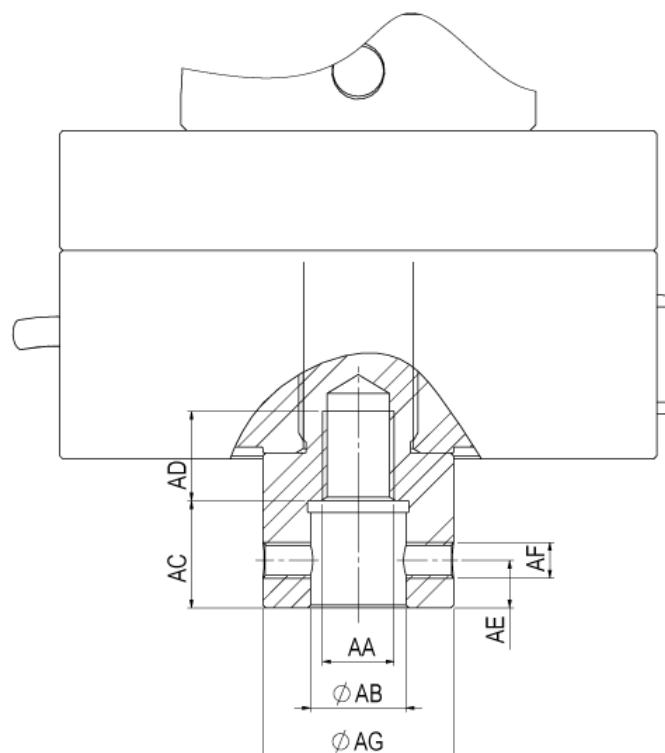


The size of the head of the stem:



CHARACTERISTIC	SA10 SA15 SA25	SA50 SA70 SA100	SA200 SA300
AA	M16 x 1.5	M20 x 1.5	M50 x 2
AB [mm]	Ø 20 H8	Ø 25 H8	Ø 54 H8
AC [mm]	22	28	35
AD [mm]	18	22	30
AE [mm]	10	10	12
AF	1 x M8	1 x M8	1 x M10
AG [mm]	Ø 45 ± 0.1	Ø 45 ± 0.1	Ø 77 ± 0.1
AH	6 x M8	6 x M8	6 x M10
AH profondità [mm]	12	12	15
S [mm]	Ø 60	Ø 60	Ø 100

Stem connection dimensions with external force transducer:



EXTERNAL LOAD CELL	SA10 SA15 SA25	SA50 SA70 SA100	
AA	M12 x 1.5	M20 x 1.5	
AB [mm]	Ø 16 H8	Ø 25 H8	
AC [mm]	18	28	
AD [mm]	15	22	
AE [mm]	8	12	
AF	1 x M6 Not oriented	1 x M6 Not oriented	
AG [mm]	Ø 32	Ø 60	

HIGH PRECISION TRANSDUCER	HPT1 HPT2 HPT4 HPT10	HPT20	
AA	M12 x 1.5	M20 x 1.5	
AB [mm]	Ø 16 H8	Ø 25 H8	
AC [mm]	18	28	
AD [mm]	15	22	
AE [mm]	8	15	
AF	2 x M6 Not oriented	2 x M10 Not oriented	
AG [mm]	Ø 32	Ø 60	

#### 5.7.4 Radial loads and moments

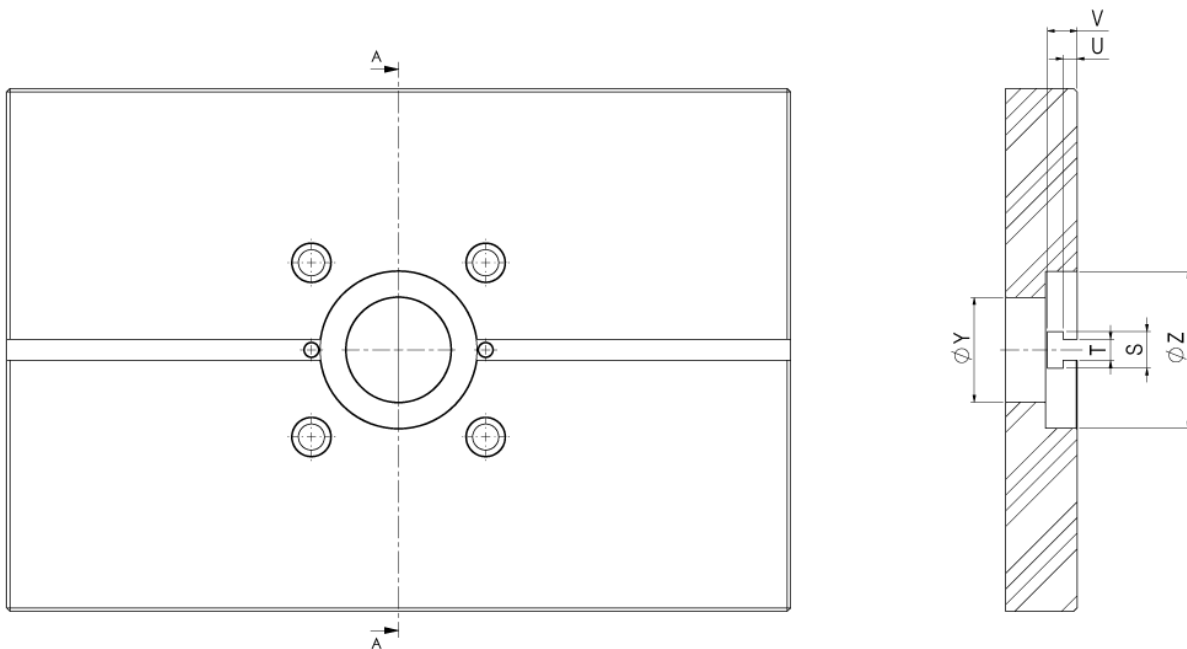
Radial loads and moments must be absorbed by a guide system external to the cylinder. It is very important to solve these problems early on. These abnormal loads are highly harmful to life and performance in terms of efficiency, stiffness, noise, etc ...

Any radial load or moment on the press rod will overload some contact surfaces, thus considerably reducing its life.

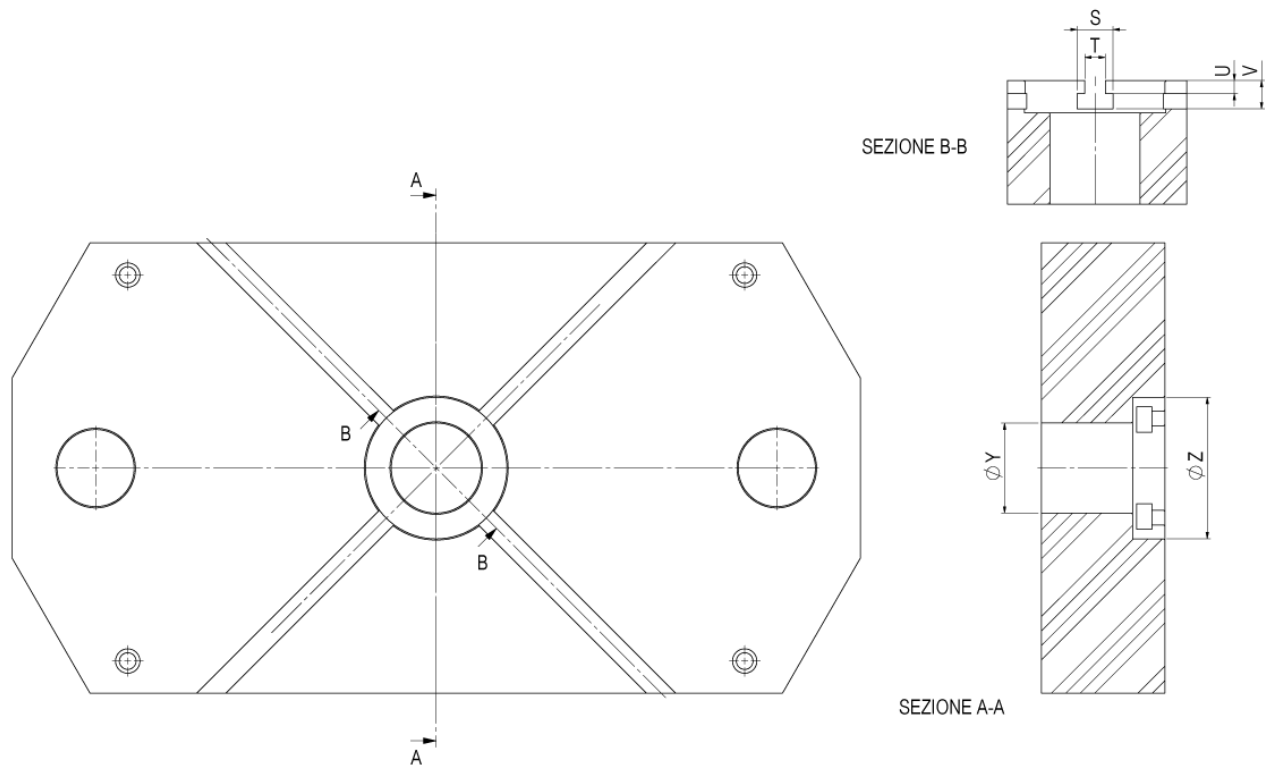
If it is not possible to bring the pressing point on the axis, it is possible to use guided mold holders.

#### 5.7.5 WORK PLATE

For EP presses with C-pillar



For EP2M presses with two column upright



CHARACTERISTIC	EP10 EP15 EP25	EP50 EP70 EP100	EP200 EP300
Y [mm]	Ø 50	Ø 60	Drawing plate
Z [mm]	Ø 70 H7	Ø 90 H7	
S [mm]	21	21	
T [mm]	12	12	
U [mm]	8	8	
V [mm]	17	17	

## 5.8 CONNECTIONS

To start the machine, the necessary connections and connections to the local networks must be ensured:

- electrical connection (including earthing connection), in compliance with the standards in force in the country of installation.

It is the user's responsibility to guarantee the required connection characteristics.

SOCKET	EP1-EP5	EP10-EP25	EP50-EP100	EP200- EP300
POLY	2P + E	3P + N + E	3P + N + E	3P + N + E
DIMENSION	16 A	16 A	16 A	63 A

### 5.8.1 ELECTRIC CONNECTION



**WARNING!**

Before carrying out any electrical connection operation, it is important to check that the machine is turned off. Then set the main power switch on the electrical panel to "0 - OFF".



**WARNING!**

Make sure that the customer's power supply line has been previously disconnected.



**WARNING!**

Connections to the electrical network of the plant must be carried out by specialized personnel of the customer (electrical maintenance technician).

The conformity of the connection between the machine and the earthing system is the responsibility of the purchaser.

Before proceeding with the electrical connection, check that:

- the maintenance technician is aware of the regulations in force in the country of installation;
- the frequency and voltage values of the machine correspond to the values of the power supply network;
- the section of the electric cables used is adequate for absorption;
- the power supply line is adequate to withstand the maximum absorption of the machine;
- the circuit grounding complies with EN 60204-1 standards;
- the materials used in the earthing system have adequate strength or adequate mechanical protection.



**WARNING!**

Do not operate with wet hands and objects. In case of fire, do not use water on electrical components.

It is possible to supply voltage to the machine by connecting the power cables directly to the electrical panel. The machine is equipped with terminals for the electrical connection.

Wiring is the responsibility of the user.

For the characteristics of the power supply it is necessary to refer to the data shown on the CE plate on the machine.



**WARNING!**

The customer is responsible for protecting the power line to the electrical panel of the machine.

### 5.9 DISMANTLING AND DISPOSAL

**WARNING!**



Decommissioning and dismantling operations must be entrusted to personnel specialized in these activities. In particular, only the person in charge of the dismantling phase and the end of life disposal can carry out:

- mechanical and electrical disconnection of the parts according to the disassembly instructions and project plans.
- transport of the parts from the plant position to the disposal center for the separation of the parts.

In particular, for the decommissioning, the following operations must be taken into consideration as well as the indications in the manuals of the equipment, machines, partly completed machinery and components used supplied by ALFAMATIC srl as an integral part of its instruction and warning manual.

The materials that make up the machine are essentially:

- painted, plasticized or galvanized ferritic steel;
- stainless steel 300/400 series;
- polyethylene plastic material;
- elastomers, PTFE, graphite;
- gear oil;
- grease for lubrication;
- electric engines;
- electric cables with relative sheaths;
- electronic control and implementation devices.
- etc.



**IMPORTANT!**

The machine does not contain components or dangerous substances that require special removal procedures.

The end-of-life dismantling and disposal worker works on the whole machine only and exclusively during the removal and disposal of end-of-life machinery.

Follow the procedure described below to take the machine out of service, dismantle and remove it at the end of its operating life; for decommissioning, both the following operations must be taken into consideration, as well as the indications in the manuals of the equipment, machines, partly completed machinery and components used supplied by ALFAMATIC srl as an integral part of its instruction and warning manual .

STEP	ACTION
1	Create enough space around the machine to perform all movements without risk for personnel by setting up the appropriate equipment and operating means such as forklifts, cranes etc.
2	Disconnect the energies present using the power supply disconnecting devices of the machine and lock them in the open position (refer to the electrical, pneumatic and hydraulic diagrams - if present - for more information).
3	Disconnect the power cable from the disconnecting device (first disconnect the power conductors and then the earth conductor).
4	Disassemble the machine by proceeding from top to bottom and paying particular attention to the machine units subject to gravity fall and to all the parts where product residue may be present.
5	Separate, as far as possible, the various components by type of material that must be disposed of through separate collection. Entrust the disposal of the materials obtained from the demolition to the companies in charge.
6	Remove the various parts of the machine from the work area.



**IMPORTANT!**

For the disassembly of commercial parts (machines and / or units) or of sub-supply material that are part of the machine supplied by ALFAMATIC srl please refer to the relative manual of the supplier.



**IMPORTANT!**

After having disassembled the machine according to the previous disassembly procedure, it is necessary to segregate the various materials in accordance with the provisions of the regulations of the country in which the machine is to be disposed of.



Pursuant to the "WEEE" directive 2012/19 / EU if the purchased component / equipment is marked with the following crossed-out wheeled bin symbol, it means that the product at the end of its useful life must be collected separately from other waste.



**IMPORTANT!**

We would like to remind you of the laws in force regarding the disposal of mineral oils and processing residues.

## 6 METHOD OF USE

During the work phases of the machine, the responsible person in charge of driving must always operate the machine in compliance with the safety devices provided, checking:

- the correct positioning of the safety devices;
- the correct functioning of the safety devices;
- compliance with individual safety rules.

Verify that the work cycle takes place in full efficiency, ensuring maximum productivity, checking:

- the integrity and functionality of the main parts of the machine;
- the state of wear of the work equipment in order to avoid interruptions in the work cycle;
- that the working parameters are optimal for the type of material and processing to be performed;
- the homogeneity of all the material prepared for processing.

### 6.1 COMMANDS

The command area is the area in which the operators can carry out the command, control and adjustment operations of the machine functions by acting on the specific command panels.

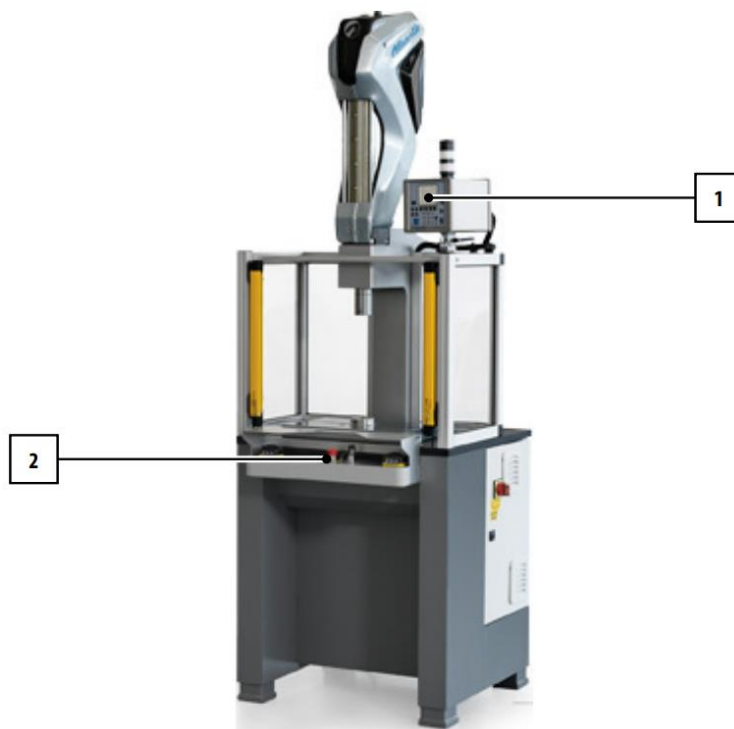
Before using the machine it is important to know perfectly:

- the operator station;
- all its commands and their main functions.

The control devices are located on the control panel.

For the location of the push-button panels, refer to the figure below:

POS.	DESCRIPTION
1	CONTROL TOOL
2	CONTROL PANEL



**WARNING!**

The electrical panel contains the automatic electrical and control devices for the work cycle.



For safety reasons, all electrical cabinets must be permanently closed.

The electrical cabinet can only be opened by authorized personnel.

The main switch, located on the door of the electrical panel where there is a dangerous voltage, enables and disables the voltage to the system, to the electromechanical and electronic devices.

**6.1.1 OPERATOR STATION**

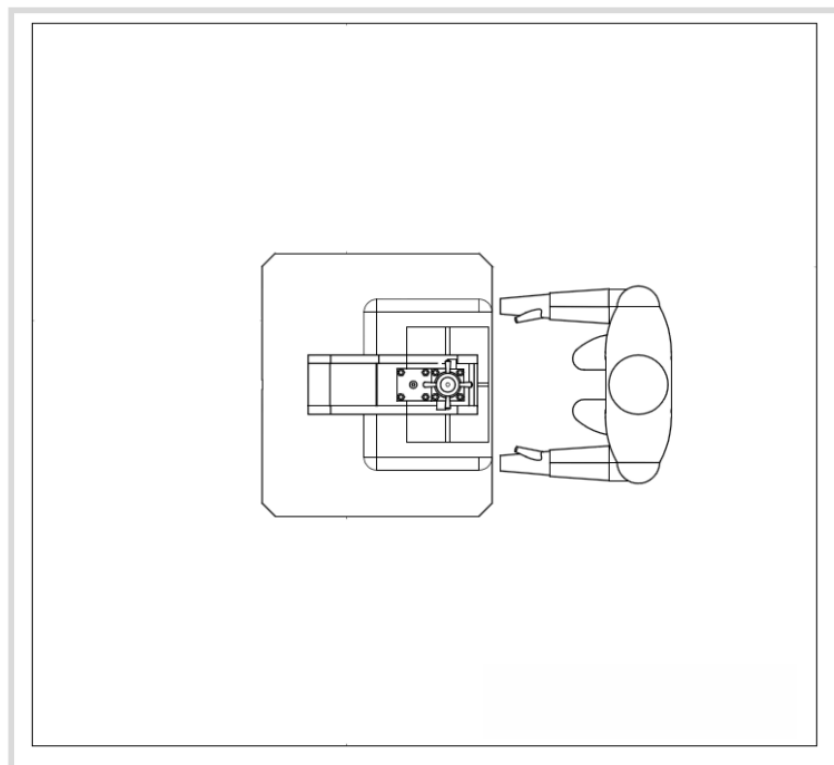
The production operator must supervise the machine by placing himself on the front of the same, having all the emergency controls at hand.

The machine has only one work station, therefore only one operator will have to act for any production intervention on the machine.

If more than one operator is required, the machine must be turned off by acting on the main switch.

**WARNING!**

The presence of only one operator is required.

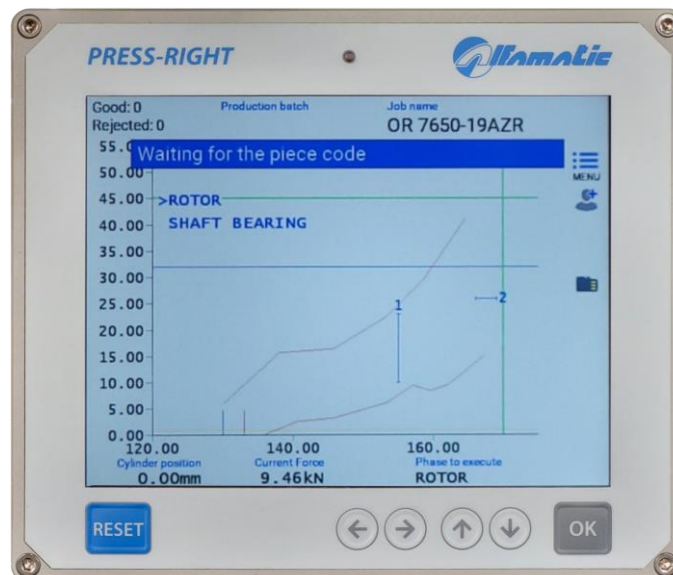
**6.1.2 CONTROL PANEL**

The control panel consists of the following elements:

POS.	DESCRIPTION
1	WASTE RESET
2	ESCAPE BUTTON FOR EMERGENCY STOP
3	SWITCH
4	TWO-HAND CONTROL



### 6.1.3 PRESS-RIGHT CONTROL INSTRUMENT



For the operation of the PRESS-RIGHT control instrument, refer to the specific manual.

## 6.2 USE PROCEDURES

### 6.2.1 PRELIMINARY CHECKS WHEN THE MACHINE IS TURNED ON

Before starting the machine, it is necessary to carry out appropriate preliminary checks to avoid malfunctions or damage to the machine itself:

- check the correct connection of all electrical conductors;
- check the consistency between the electrical characteristics applied and the data shown on the CE plate;
- check that the movement of the cylinder is free from obstacles.
- set the main power switch on the electrical panel to "1 - ON".

- switch on the control instrument using the switch on the back.

### 6.2.2 WORK PREPARATION

Before starting the production cycle of the day (8 working hours) or at start-up, the following checks must be carried out:

- check the efficiency of the security systems
- check that the equipment is the one designed for the work to be carried out
- check that the job selected in the tool is the correct one
- check that the mushroom-head emergency stop button is released, otherwise turn it in the direction indicated by the arrows for release.
- check that the switch is in position 1

### 6.2.3 STARTING THE MACHINE

The machine cycle is started by operating the two-hand control device and allows it to perform a work cycle.

Light curtains cannot be interrupted until the cylinder has returned to the rest position.

### 6.2.4 MACHINE DISCONNECTION PROCEDURE

If the operator must move away from the machine, even momentarily, he must turn the switch to position 0.

When not in use, the machine must be protected from voluntary or involuntary activation, set the main power switch on the electrical panel to "0 - OFF".

### 6.2.5 RESTORATION PROCEDURE AFTER ANOMALY / EMERGENCY

To reset the machine following an anomaly / emergency, turn the emergency button by turning it in the direction indicated by the arrows.

## 6.3 ANOMALIES AND POSSIBLE SOLUTION

As described in the previous paragraphs, through the tools on the electrical panel it is possible to identify some anomalies of the machine during its normal operation.



**WARNING!**

In whatever condition it is necessary to mechanically release the cylinder rod, act by unscrewing the relative screws.



**WARNING!**

In the event that more complex damage is ascertained on the machine, contact ALFAMATIC srl

## 7 MAINTENANCE

### 7.1 INTRODUCTION



**WARNING!**

Maintenance operations must be carried out by qualified and authorized personnel.

The maintenance of the machine includes the interventions (inspection, verification, control, adjustment and replacement) that are necessary following the normal use of the machine.

At the end of the maintenance operations, the manager of the same must carry out a check of the safety systems together with the safety manager as described in this manual.

For good maintenance:

- Use only original spare parts, tools suitable for the purpose and in good condition.
- Respect the intervention frequencies indicated in the manual for scheduled maintenance (preventive and periodic). The distance (indicated in time or in work cycles) between one intervention and another is to be understood as an acceptable maximum; therefore it must not be overcome; it can instead be abbreviated.
- Good preventive maintenance requires constant attention and continuous surveillance of the machine.

Verify promptly the cause of any anomalies such as excessive noise, overheating, etc. ... and remedy it.

- Timely removal of any causes of anomaly or malfunction avoids further damage to the equipment and guarantees the safety of the operators.

In case of doubts it is forbidden to operate. Contact the manufacturer for the necessary clarifications.

The staff in charge of maintenance of the machine must be well trained and must have a thorough knowledge of the accident prevention regulations; unauthorized personnel must remain outside the work area during operations.

Cleaning and adjustment of the machine are also carried out only and exclusively during the maintenance phase and with the machine stopped and de-energized with the electrical panel sectioned as shown in the use and maintenance manual.

The maintenance operations of the machine are divided, from an operational point of view, into two main categories:

	DESCRIPTION
ORDINARY MAINTENANCE	All those operations that the operator must carry out, in a preventive way, to ensure the proper functioning of the machine over time; ordinary maintenance includes inspection, control, adjustment, cleaning and lubrication.
EXTRAORDINARY MAINTENANCE	All those operations that the operator must carry out when the machine requires it. Extraordinary maintenance includes the overhaul, repair, restoration of nominal operating conditions or the replacement of a faulty, defective or worn group.

## 7.2 SAFETY WARNINGS



**WARNING!**

For maintenance activities, de-energize the machine (electric and pneumatic).



**WARNING!**

When the machine is under maintenance, to prevent it from being accidentally started, press the mushroom-head emergency button and affix signs with the words: "ATTENTION! MACHINE IN MAINTENANCE".

- Maintainers must wear all the personal protective equipment necessary (gloves, goggles, all) for the operation to be carried out.
- During maintenance operations, unauthorized personnel must remain outside the operation area.
- If the operation involves the removal of protections, block the intervention area and report the prohibition of access to persons unrelated to maintenance work.

The need to place the machine in operating conditions and / or with disabled protections requires adequate competence and knowledge, and extreme attention by the maintenance technician who must be adequately trained on the possible and present risks.

The accident prevention precautions contained in this paragraph must always be strictly observed during the maintenance of the machine, in order to avoid personal injury and damage to the equipment:

- Before proceeding with any maintenance activity, check the disconnection of the energy sources (electricity, compressed air, hydraulic energy, etc.).
- Carry out the interventions only and exclusively with the machine stopped and de-energized.
- Padlock the electrical panels and the pneumatic supply tap.
- Place specific warning signs such as: EQUIPMENT UNDER MAINTENANCE - DO NOT SWITCH THE POWER ON, WORK IN PROGRESS - DO NOT OPERATE OR OPERATE at the main switch and the machine's access areas.
- After having de-energized the electrical panel, enclose the panel itself in all those cases in which it is necessary to carry out work on it apart from it open.
- Carry out the operations for which it is competent (Mechanical, Electrical, Fluidic) for which it is authorized to intervene.
- Be able to use the most suitable and suitable instrumentation for troubleshooting and must know the most suitable equipment for maintenance operations.

To carry out certain maintenance operations, it may be necessary that the protections and safety devices are deactivated and the guards open. In this case, the personnel in charge is in dangerous conditions and it is therefore necessary to strictly respect the following rules:



#### WARNING!

The personnel in charge of carrying out the maintenance activities must be authorized and specifically instructed on the safety and operational procedures to be followed, the dangerous situations that could arise and the correct methods to avoid them.



#### IMPORTANT!

During these operations, personnel must in any case work with the utmost attention and operate with extreme caution.

## 7.3

## 7.4 ORDINARY MAINTENANCE

The machine, when it is delivered to the user, is already adjusted to work correctly; however, to ensure its proper functioning over time, periodic and preventive checks and maintenance must be carried out.

Routine maintenance includes inspections, checks and interventions which, to prevent breakdowns, keep under control:

- security systems,
- the mechanical condition of the machine,
- lubrication of the machine,
- cleaning the machine.

The following tables list a series of checks and interventions to be performed following a recommended schedule.

The periodicity of the ordinary maintenance operations indicated refer to normal operating conditions, that is, in compliance with the expected conditions of use.

OPERATION	FREQUENCY			
	daily	1 month	6 months	12 months
Visually check the integrity of all the protective devices of the machine.	♦			
Verification of security systems	♦			
Visually check the state of wear and cleanliness.	♦			
Check the state of wear of the insulation (connection cables, connectors).		♦		
Check the fastening of the protections.		♦		
Check the correct tightening and the absence of oxidation of the panel terminals.			♦	
Lubricate the cylinder.				♦

### 7.4.1 VERIFICATION OF SECURITY SYSTEMS

To check the correct operation of the safety systems, carry out the following procedure with the machine ready for normal operation:

PHASE	DESCRIPTION
1	To check the correct operation of the mushroom-head button for emergency stop, press the button and check that it remains in a stable locked position.
2	Press the cycle start buttons; the press must NOT start.
3	To verify the correct operation of the photoelectric protection, insert the test object in the controlled area and move it slowly from top to bottom (or vice versa), first in the center and then in the vicinity of both the Emitter and the Receiver. The warning lights on the barrier must light up red. In this condition, the moving part must NOT move.

### 7.4.2 CLEANING THE MACHINE

#### WARNING!



Before starting any cleaning operation on the machine, dissect and padlock all energy sources, and put the mobile units that make it up in a locked condition. Place the sign "Machine under maintenance - do not switch on the power" at the main switch.

IT IS FORBIDDEN to cleaners to remove the guards and protective devices on the machine.

FREQUENCY	DESCRIPTION
2 months	Clean the plexiglass panels.
6 months	Clean the lenses of the photoelectric protections.

### 7.4.3 LUBRICATION MATERIAL

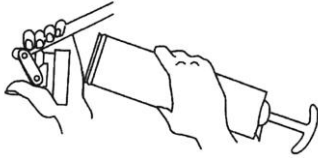
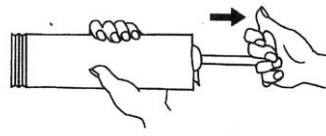
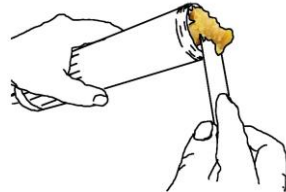
The grease to be used is the following: THERMOPLEX 2 TML



Greasing pump:



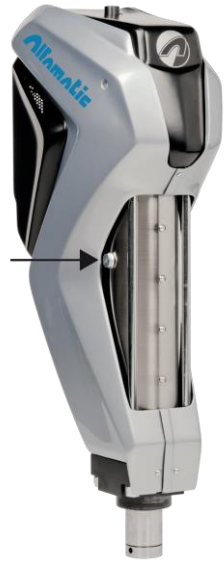
Pump filling:

PHASE	DESCRIPTION	
1	Unscrew the head cover from the cylinder.	
2	Pull the piston handle	
3	Introduce the fat with a spatula	
4	Close the cylinder by screwing the cover.	
5	Release the lock of the rear handle and release the residual air through the bleed valve on the cover.	

#### 7.4.4 SCREW LUBRICATION

FREQUENCY	DESCRIPTION
Every 50000 hours of use (or once a year)	Lubricate the screw. Consists in: <ul style="list-style-type: none"> <li>• fill the roller cage with grease. To do this, there is a passage hole that allows access to the cage inside the cylinder.</li> </ul>


## Procedure:

STEP	ACTION	
1	Lower the cylinder using the greasing function from the control tool.	
2	Set the main power switch on the electrical panel to "0 - OFF".	
3	Remove the cap shown in the figure.	
4	Screw on the greasing pump.	
5	Operate the pump to advance the piston by about 1 cm (equivalent to about 20 cm <sup>3</sup> ).	
6	Disconnect the greaser.	
7	Close the cap.	

**7.4.5 BEARING LUBRICATION**

FREQUENCY	DESCRIPTION
Every 50000 hours of use (or once a year)	Lubricate the screw. Consists in: • fill the roller cage with grease. To do this, there is a passage hole that allows access to the cage inside the cylinder.
Every 100000 hours of use (or every two years)	Lubricate the bearings. Consists in: • inject grease into the two upper greasing holes. Insufficient lubrication causes the bearings to overheat and break.

Procedure:

STEP	ACTION	
1	Set the main power switch on the electrical panel to "0 - OFF".	
2	Padlock the main switch.	
3	Remove the caps shown in the figure.	
4	Screw the grease pump to the first hole.	
5	Operate the pump to advance the piston by about 0.5 cm (equivalent to about 10 cm <sup>3</sup> ).	
6	Disconnect the grease gun and repeat on the second hole.	
7	Close the caps.	

## 7.5 EXTRAORDINARY MAINTENANCE



### WARNING!

Extraordinary maintenance and repair of the machine are reserved for qualified, educated and authorized technicians employed by the Manufacturer or by the authorized service center.

The interventions not included among those listed in the "ordinary maintenance" are to be considered "extraordinary maintenance" interventions.

If exceptional events occur, which require extraordinary maintenance, the user's ordinary maintenance personnel must follow these procedures:

- check the status of damaged or out of phase groups;
- carry out the operations described in the paragraph "Extraordinary maintenance";
- if the operations to be carried out are not covered in this manual, send the Manufacturer the report of the events that have occurred, the result of the inspection and any observations.

The manufacturer or the authorized service center will assess the situation on a case-by-case basis.

Then they will agree with the ordinary maintenance technicians the type of intervention to be carried out, choosing the most suitable solution among those listed below:

- the Manufacturer sends an authorized technician, trained and qualified to carry out the necessary interventions;
- or the Manufacturer authorizes the user's ordinary maintenance technicians to carry out the interventions, sending any additional instructions.

**WARNING!**

The spare parts to be replaced are to be ordered from ALFAMATIC srl



If the customer does not use original spare parts or those authorized in writing by the manufacturer, the latter considers himself free from any responsibility for the operation of the machine and the safety of the operators.

Authorization and / or instructions must always be communicated in writing. In the absence of written authorization, it is forbidden to operate and the Manufacturer declines all responsibility.

**7.5.1 CYLINDER REPLACEMENT**

To replace the cylinder, contact ALFAMATIC srl technical assistance

**7.5.2 BELT ASSEMBLY PROCEDURE**

The Alfamatic cylinder uses an absolute encoder therefore if you disassemble the motor or the belt you must follow the following assembly procedure.

**WARNING!**

Absolutely follow all the following steps.

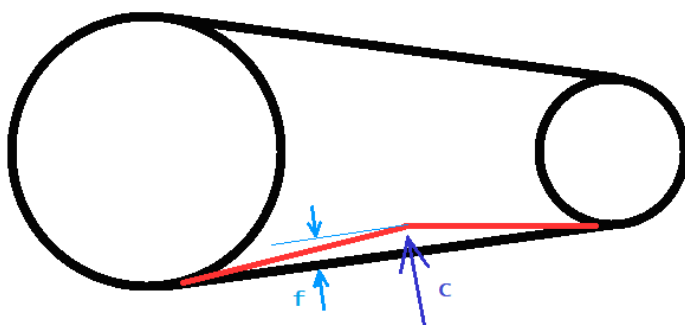
Belt assembly errors cause the cylinder to break.

**WARNING!**

Damage caused by incorrect fitting of the belt is not covered by the warranty.

STEP	ACTION
1	Remove the belt.
2	Remove any equipment from the cylinder rod.
3	Secure the engine securely to the cylinder.
4	Fasten the pulley correctly on the motor shaft.
5	Manually move to the 0.00 mm dimension
6	Set the main power switch on the electrical panel to "0 - OFF".
7	Padlock the main switch.
8	Turn the pulley mounted on the cylinder shaft by hand to bring it all the way back (completely retracted). Check that nothing external prevents movement of the cylinder rod.
9	Found the whole point on getting down to 10mm accurate.
10	Mount the belt without rotating the pulleys. The motor pulley cannot rotate because it is blocked by the brake. The cylinder pulley must be held still by hand.

To retire the belt, refer to the following table where the values for belt tensioning for each cylinder of the SA series are indicated:



CYLINDER	f [mm]	C [N]
SA10	2.3	15
SA15	2.3	16
SA25	2.3	17
SA50	2.0	60
SA70	2.4	60
SA100	2.6	60
SA200	4.4	323
SA300	4.4	479

## 8 OPTIONAL COMPONENTS

The press can be supplied with the following options:

- Machine light stopped for free access in the work area.
- Lighting of the working area.
- Precision external force transducer.
- Ready for traction operation.
- Additional probe wiring.

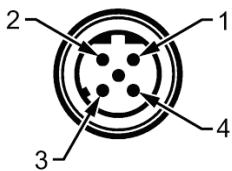
### 8.1 Probe wiring arrangement (PROBE)

If required there is a cable with connector for the connection of an additional analog transducer. The type of signal normally used is 0-10 V but it is possible to request 0-20 mA or 4-20 mA. The choice of the type of signal is made by jumper on the internal board of the instrument.

Shielded cable with five-pole M12 connector.

First name	Function	Pin
+ 24VDC	Supply	1 (red)
S +	Signal +	2 (white)
0VDC	Power supply ground	3 (black)
S-	Signal -	4 (yellow)
SHIELD	Shielding	5

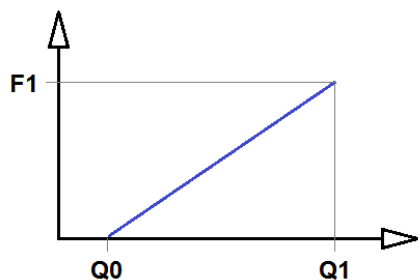
Transducer M12 male connector pinout:



## 9 DURATION

The life of the screw depends very much on the pushing force required and on good maintenance. It is therefore very important to keep the screw well lubricated. Insufficient lubrication manifests itself in the increase in the temperature of the screw (and in the duration of the same).

The wear of the screw depends on the force it exerts. Wear is negligible in empty movements.



Graph of the force-displacement curve used for calculations

$$L_{10} = \left( \frac{C_a}{F_m} \right)^3 \text{ or } C_{req} = F_m (L_{10})^{1/3}_{req}$$

$L_{10}$  = durata in milioni di giri  
 $C_a$  = carico dinamico  
 $C_{req}$  = carico dinamico minimo necessario  
 $F_m$  = carico medio equivalente (N)

$C_a$  for SA200-SA300 = 395 kN

$C_a$  for SA50-SA100 = 129 kN

$C_a$  for SA10-SA25 = 92 kN

$F_m = (F_{min} + 2 \times F_{max}) / 3$

This table shows the stroke that the cylinder can travel in the Q1-Q0 section of work in a typical drive with uniform interference.

GUY	LOAD F1 [kN]	LIFE Q1-Q0 [m]
SA200 SA300	100	41 x 108
SA200 SA300	200	52 x 107
SA300	300	15 x 107

GUY	LOAD F1 [kN]	LIFE Q1-Q0 [m]
SA50 SA70 SA100	10	37 x 106
SA50 SA70 SA100	30	13 x 105
SA50 SA70 SA100	50	30 x 104
SA70 SA100	70	11 x 104
SA100	100	37 x 103

GUY	LOAD F1 [kN]	LIFE Q1-Q0 [m]
SA10 SA15 SA25	5	10 x 107
SA10 SA15 SA25	10	13 x 106
SA25	20	16 x 105
SA25	25	79 x 104

Examples:

SA100 cylinder which drives a 20mm high bearing and which requires a maximum force of 70KN has a calculated minimum life of 5.5 million plantings.

SA50 cylinder which plants a 5mm high bearing and which requires a maximum force of 30KN has a calculated minimum life of 260 million plantings.

## 10 CALIBRATION

The cylinder is supplied already calibrated. In case of cell replacement or alteration of measured force values, for example for the variation of the tool weight, a new calibration must be used.

In general, the new offset and gain values must be entered.

Careful attention must be paid to the position transducer because the motor is equipped with an absolute encoder. The replacement of the belt or the disassembly of the motor requires the assistance of the manufacturer on pain of irreversible damage to the press mechanics.

### 10.1 FORCE TRANSDUCER CALIBRATION

To calibrate the force transducer, use a sample load cell connected to the relative display to which reference can be made.

Obviously, the sample load cell must be able to easily withstand the maximum force provided by the cylinder.

The values to be calibrated are OFFSET and GAIN.

The offset is the value that the Press-Right would display without corrections when there is no load on the cell. It depends on the tolerance of the amplification chain and the weight of the equipment mounted on the load cell. Calibrating this value allows you to reset the force value displayed by the Press-Right.

The gain, on the other hand, is the multiplicative factor of the electrical signal supplied by the load cell and allows you to view the right force value.

**Caution:** incorrect calibration of the force transducer can compromise the integrity of the cylinder itself. The system is supplied calibrated. These values must NOT be modified improperly: the integrity of the cylinder could be put at risk.

#### 10.1.1 CALIBRATION PROCEDURE

Note: For calibration you need to know the calibration password.

Reset the offset with the following procedure:

Put the press in rest conditions

Access the menu | accessories | diagnosis | force calibration

Temporarily enter zero as the offset value

Read the force transducer value shown above and enter it as an offset

Check that the force measurement is about zero

Correct the gain with the following procedure:

Place the sample load cell under the cylinder

Descend manually until it touches and then compresses the sample cell up to a value of approximately  $\frac{3}{4}$  of the maximum cylinder force.

Store the two force values displayed by the Press-Right and the sample instrument at the same time.

Calculate the correction coefficient with the following formula:  $COEFF = (\text{value displayed by the sample instrument}) / (\text{value displayed by the Press-Right})$

Access the menu | accessories | diagnosis | force calibration

Multiply the GAIN value by the coefficient just calculated,

Check that the value displayed by the Press-Right coincides with that of the sample instrument

## 10.2 ANALOGUE INPUT

The Press-Right has a 0-10V analog input with 12bit analog-to-digital converter.

The offset is the digital value that is subtracted from the output value of the analog-digital converter.

Gain is the multiplication factor that adjusts the displayed odds value.

The theoretical value of the gain to obtain the hundredths of a millimeter is obtained from the following formula:

$Gain = (\text{Nominal stroke in millimeters}) / 40.96$

This input is used with the presence of an external probe for a more precise height measurement.

