ORIGINAL INSTRUCTIONS

Manual of instructions, use and maintenance

ELECTRIC PRESS

CE

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PREFACE

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The Manufacturer is in no way responsible for any consequences arising from incorrect operations performed by the user.

PUBLISHER'S NOTE

This documentation is expressly intended for technicians, therefore, some information easily inferred from reading the texts and 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 information herein has been provided, verified, and approved during checks by the Manufacturer/Representative.
The Publisher is not responsible for any consequences arising from incorrect operations performed by the user.

GENERAL CONSIDERATIONS

All operational instructions, maintenance procedures, and recommendations described in this manual must be followed. For optimal results, the Manufacturer recommends performing cleaning and maintenance operations regularly to keep the system in the best condition.
The training of personnel responsible for the system is of particular importance, both regarding its use and maintenance, as well as ensuring compliance with operational procedures and all safety regulations outlined in this manual.
tt is reminded that, in any case, the undersigned company is always available for any clarifications or additional information.

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SUMMARY

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SUMMARY

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Chapter 1
IDENTIFICATION OF THE MACHINE

CHAPTER 1

1. IDENTIFICATION OF THE MACHINE

1. IDENTIFICATION OF THE MANUFACTER

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

MANUFACTER:	ALFAMATIC s.r.l. Via Magenta, 25 20010 San Giorgio su Legnano (MI) - ITALY Tel. 39-0331-406911 Fax +39-0331-406970 email: info@alfamatic.com Indirizzo Internet: www.alfamatic.com

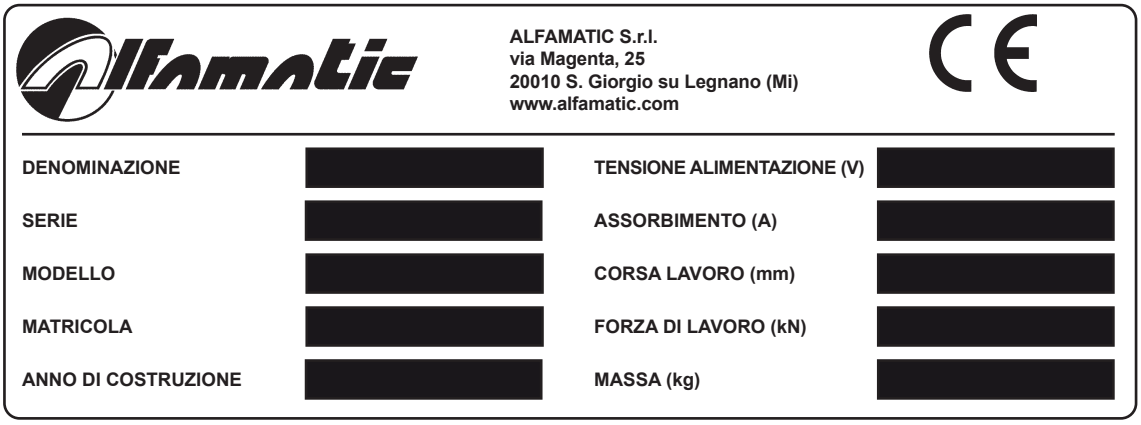
1.1. IDENTIFICATION OF THE MODEL

MACHINE:	ELECTRIC PRESS
MODEL:	EP1 - EP2 - EP5 - EP10 - EP22 - EP25 - EP50 - EP70 - EP100 - EP 200 - EP 300

This manual contains confidential information and drawings owned by ALFAMATIC s.r.l.
The production, even partial, of the manual is prohibited without written authorization from ALFAMATIC s.r.l.

1.2. CE IDENTIFICATION PLATE

The CE label is permanently affixed to the machine, indicating the identifying data of the machine:



WARNING!

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 if the manufacturer's seal that binds it is removed, the customer must immediately inform the Manufacturer.

1.3. 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

CE

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
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:
_ _ _ _ _ _ _ dell'Organismo Notificato IMQ , via Quintiliano, 43 Milano (notifica nr 0051)

Firmato a nome e per conto di:
Enrico Colombo - Legale Rappresentante di Alfamatic S.r.l.

_____

S. Giorgio su Legnano, __/__/____

1.4. RELEVANT DIRECTIVES

The machine supplied by ALFAMATIC s.r.l. falls under one of the categories of machines listed in the annexed IV of the Directive. Therefore, for the purpose of certifying the machine's conformity with the provisions of this directive, ALFAMATIC s.r.l. applies the corresponding conformity assessment procedure.

To certify the machine's compliance with the provisions of the Directive, ALFAMATIC s.r.l., prior to market release, has conducted a risk assessment to verify compliance with the essential health and safety requirements set forth by the Directive, as well as the tests and checks required by the applicable reference standards.

The technical construction file has been created in accordance with the provisions of annex VII of Directive 2006/42/EC and is available for review by the relevant supervisory authorities upon motivated request, as required by the current legislative provisions.

ALFAMATIC s.r.l. therefore places the machine on the market, equipping and accompanying it with the following documentation:

CE Marking.
CE Declaration of Conformity.
Instruction manual and warnings (document prepared according to point 1.7.4 of the Machinery Directive 2006/42/EC).
It is also noted that the machine has been designed according to the following Directives:

UNI EN ISO 12100:2010 Machinery Safety – General Principles of Design – Risk Assessment and Risk Reduction
UNI ISO/TR 14121-2:2013 Machinery Safety – Risk Assessment – Part 2: Practical Guide and Method Examples
UNI EN ISO 13850:2008 Machinery Safety – Emergency Stop – Design Principles
UNI EN 953:1997+A1:2009 Machinery Safety – Guards – General Requirements for the Design and Construction of Fixed and Movable Guards
UNI 10893:2000 Technical Product Documentation – Instructions for Use – Structure and Order of Content
UNI 10653:2003 Technical Documentation – Quality of Technical Product Documentation
CEI EN 60204-1:2006+A1:2010 Machinery Safety – Electrical Equipment of Machines – Part 1: General Rules

CHAPTER 2

Chapter 2
GENERAL PRELIMINARY INFORMATION

CHAPTER 2

2. GENERAL PRELIMINARY INFORMATION

2.1. NOTES ON THE MANUAL

The manual is intended for operators responsible for using and managing the system throughout all stages of its technical life. It covers topics related to the proper use of the machine in order to maintain its functional and quality characteristics over time. It also includes all the information and warnings necessary for correct and safe operation.

The manual, along with the CE Declaration of Conformity, is an integral part of the machine and must always accompany it during any movement or resale. It is the responsibility of the user to keep this documentation intact to ensure it can be consulted throughout the entire lifecycle of the machine.

2.2. SUPPLY AND STORAGE

The manual is provided in both paper and electronic formats.
All additional documentation (pneumatic and electrical diagrams, sub-supplier manuals) is supplied as attachments to this manual.
Store this manual with the machine so that it can be easily consulted by the operator.
The manual is an integral part of the safety requirements, therefore:

- It must be kept intact (in all its parts). If it is lost or damaged, a copy must be requested immediately;
- It must accompany the machine until its demolition (even in the case of movement, sale, rental, leasing, etc.).

The attached manuals are an integral part of this documentation and are subject to the same recommendations/ instructions as this manual.

2.3. UPDATES

If the machine requires modifications or functional replacements, the revision or update of the manual is the responsibility of the machine manufacturer. The manufacturer is responsible for delivering the updated manual.
The user is also responsible for ensuring that, if this document is modified by the manufacturer, only the updated versions of the manual are present at the points of use.

2.4. LANGUAGE

The original manual has been 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 other languages cannot be fully verified, so if any discrepancies are found, the original text should be followed or our Technical Documentation Office should be contacted.

2.5. MANUAL PAGE STRUCTURE

At the bottom of the page you will find the page number and the company logo.

2.6. OPERATORS QUALIFICATIONS

To determine the qualifications and competencies of the operators assigned to various tasks (starting up, cleaning, regular maintenance), please refer to the following table:

QUALIFICATION	DEFINITION
OPERATOR	Personnel trained and authorized by the user to operate and manage the machine for its intended productive activities. They should be capable of performing all necessary operations to ensure the machine's proper functioning and the safety of themselves and any coworkers. They must have proven experience in correctly operating such machines/systems and be trained, informed, and instructed accordingly. In case of doubts, they should report any anomalies to their supervisor.
MECHANICAL MAINTENANCE TECHNICIAN	A qualified technician capable of performing preventive/corrective maintenance on all mechanical parts of the machine that require maintenance or repair. A qualified technician able to access all machine parts for visual analysis, equipment status checks, adjustments, and calibrations. A qualified technician capable of: - operating the machine like an operator; - working on mechanical components for adjustments, maintenance, and repairs; - reading technical drawings and spare parts lists. In extraordinary cases, they are trained to operate the machine with reduced safety. When necessary, they can provide the operator with instructions for proper machine use for productive purposes. Note: Not authorized to work on live electrical systems (if present).
ELECTRICAL MAINTENANCE TECHNICIAN	A qualified technician capable of performing preventive/corrective maintenance on all electrical parts of the machine that require maintenance or repair. A qualified technician able to access all machine parts for visual analysis, equipment status checks, adjustments, and calibrations. A qualified technician capable of: - operating the machine like an operator; - working on electrical systems for maintenance, repairs, and replacement of worn-out parts; - reading electrical diagrams and verifying the correct functional cycle. When necessary, they can provide the operator with instructions for proper machine use for productive purposes. Can work live on electrical panels, junction boxes, control equipment, etc., only if they are a qualified person (PEI). (Refer to EN50110-1 standards).
MANUFACTURER TECHNICIAN	A technician qualified by the manufacturer and/or its distributor for complex operations, due to knowledge of the machine/system's production cycle. This person intervenes based on the user's requests. The competencies may be mechanical, electrical, electronic, or software-based, depending on the case.

QUALIFICATION	DEFINITION
LIFTING EQUIPMENT OPERATOR	Personnel authorized to operate lifting equipment for handling materials and machines (strictly following ALFAMATIC S.r.l.'s instructions and complying with the laws in the user's country).
EXPERT SOFTWARE TECHNICIAN	A qualified technician capable of: - performing preventive/corrective maintenance on all electronic and/or software parts of the machine requiring maintenance or repair; - accessing all machine parts for visual analysis, equipment status checks, adjustments, and calibrations. A qualified technician with proven experience and training in 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., due to their knowledge of the production, technological, and construction cycle of the provided machine. Can work within electrical panels, junction boxes, control equipment, etc., in the presence of voltage only if they are a qualified person (PEI). (Refer to EN 50110-1 standards). Competencies are electronic and/or software-based.

The qualifications listed in the table on this page must necessarily fall within a category of individuals defined as "trained persons."

QUALIFICATION	DEFINITION
TRAINED PERSON	A person who has been informed, trained, and instructed on the job and the potential dangers arising from improper use. They also understand the importance of safety devices, accident prevention regulations, and safe working conditions.

2.7. SYMBOL USED IN THE MANUAL

SYMBOL	DESCRIPTION
	Symbol used to identify information of particular importance within the manual. This information also concerns the safety of personnel involved in the use of 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 terms with a different meaning than common usage are used. Below are the terms and abbreviations used:

TERM	DESCRIPTION
INTERCHANGEABLE EQUIPMENT	A device that, after the commissioning of a machine, is assembled to the machine by the operator to modify its function or add a new function, as long as the equipment is not a tool.
SAFETY COMPONENT	A component: - Intended to perform a safety function, - Placed on the market separately, - Whose failure and/or malfunction endangers the safety of people - That is not essential for the purpose for which the machine was designed or can be replaced by other components for that function. - Annex V contains an indicative list of safety components that may be updated in accordance with Article 8, paragraph 1, letter a).
MARKET PLACEMENT	The first making available within the Community, for a fee or free of charge, of a machine or a nearly-machine for distribution or use purposes.
MANUFACTER	A natural or legal person who designs and/or manufactures a machine or nearly-machine under this directive, and is responsible for the compliance of the machine or nearly-machine with this directive for placing it on the market under its own name or trademark, or for personal use. In the absence of such a manufacturer, the person who places or puts a machine or nearly-machine into service under this directive is considered the manufacturer.
AUTHORIZED REPRESENTATIVE	Any natural or legal person established within the Community who has received a written mandate from the manufacturer to perform, on their behalf, in whole or in part, the obligations and formalities related to this directive.
COMMISSIONING	The first use, in accordance with its intended purpose, within the Community of a machine under this directive.
HARMONIZED STANDARD	A technical specification adopted by a standardization body, such as the European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (Cenelec), or the European Telecommunications Standards Institute (ETSI), under a mandate from the Commission in accordance with the procedures established by Directive 98/34/EC of the European Parliament and Council, of June 22, 1998, which provides a procedure for informing the sector about standards and technical regulations and rules relating to services in the information society, and is not legally binding.
HAZARD	A term that indicates a danger with a high risk that, if not avoided, could result in death or serious injury.
DANGEROUS ZONE	Any area within and/or near the machine where the presence of a person constitutes a risk to their safety and health.
EXPOSED PERSON	Any person who is fully or partially located in a dangerous area.
RISK	The combination of the probability and the severity of injury or damage to health that could arise from a hazardous situation.

2.9. SAFETY PICTOGRAMS APPLIED ON THE MACHINE

The machine is equipped with a series of pictograms designed to warn the operator of any residual risks.

WARNING!
It is strictly prohibited to remove the monitoring plates present on the machine.
ALFAMATIC S.r.l. declines any responsibility for the safety of the machine if this prohibition is not observed.

WARNING!
The user is required to replace the monitoring plates that have become illegible due to wear.

Below is a list of the plates used by ALFAMATIC S.r.l. in their machines, along with the layout and positioning.

SYMBOL	DESCRIPTION
	Read the User and Maintenance Manual carefully before performing any operation on the machine or system.
	Electrical hazard! Warning of electrical voltage presence, located on the electrical panel and other electrical components present on the machine.
	Generic hazard! Warning of a generic hazard (accompanied by a caption specifying the type).
	Risk of flying debris! Ensure the machine is equipped to prevent flying debris. Located on the fixed guards of the machine.
	Prohibition of removing safety devices! Do not remove safety devices. Located on the fixed guards of the machine.
	Prohibition of maintenance with moving parts! Do not perform lubrication or cleaning operations while parts are in motion. Located near the cylinder.
	Lifting points for the operator carriage.

2.10. PERSONAL PROTECTIVE EQUIPMENT (PPE)

When working near the machine, whether for assembly, maintenance, and/or adjustment operations, strict adherence to general safety regulations is required. For this reason, it will be important to use the personal protective equipment (P.P.E.) required for each specific operation.

Below is the complete list of personal protective equipment (P.P.E.) that may be required for different procedures:

SYMBOL	DESCRIPTION	
	Mandatory use of protective or insulating gloves	Indicates that personnel must use protective or insulating gloves.
	Mandatory use of safety shoes	Indicates that personnel must use safety shoes to protect their feet.
	Mandatory use of protective clothing	Indicates that personnel must wear specific protective clothing.
	Mandatory use of protective goggles	Indicates that personnel must use protective goggles for eye protection.
	Mandatory wearing safety helmet	Indicates that personnel must wear a protective helmet.

The clothing worn by those working or performing maintenance on the line must comply with the essential safety requirements defined by EU Regulation 2016/425 and the applicable laws in the country where the machine is installed.

2.11. OPERATOR SAFETY ZONES

The areas around the machine are divided as follows:

TERM	DESCRIPTION
COMMAND ZONE	These are areas where the operator and other personnel can perform the control and monitoring operations of the machine's cyclic functions ("control station"), either automatically or semi-automatically, by acting on the appropriate control panels or performing manual operations.
MAINTENANCE/ ADJUSTMENT ZONE	These are areas where mechanical and electrical maintenance personnel can perform maintenance or adjustment operations. These zones are considered high-risk and are not accessible during the normal automatic operation of the machine. Operators must be fully aware of the safety warnings and the personal protective equipment required.
HAZARDOUS ZONE	All areas inside (or around) the machine with residual risks that can cause harm to people are considered hazardous. Access is prohibited to anyone during machine operation in these zones.

The hazards and risks in these areas are protected, as much as possible, by guards (covers, doors) and safety devices (photoelectric barriers) that, in the event of activation, cause the machine to stop completely.

WARNING!
When the machine is in operation, it is strictly prohibited to operate in hazardous areas as certain risks may not have been fully eliminated.

2.12. WARRANTY

The seller guarantees the absence of defects, considering the current technological stage in relation to the type of machine, for a period of one year from the date of the invoice.
The right to warranty services is granted only if, as soon as a defect is detected, it is reported to ALFAMATIC S.r.l. along with the corresponding repair order.
Without prejudice to the time limit set in the previous section for the warranty, this also applies to parts of the machine not directly manufactured by ALFAMATIC S.r.l., excluding electrical parts.
The seller provides warranty by repairing or replacing defective parts at their discretion, according to technical requirements.

The warranty does not apply in the following cases:

- When the buyer has not reported defects to the seller within eight days of their discovery, in writing, and has not authorized the related intervention;
- When the machine or its parts have been used in a way different from their intended purpose;
- When the machine has previously been handed over for repair to a service not authorized by ALFAMATIC S.r.l.;
- When parts have been installed or replaced on the machine, the use of which has not been authorized by ALFAMATIC S.r.l.;
- When the usage and maintenance instructions in the respective manual have not been followed.

The warranty excludes:

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

The warranty includes the free replacement of defective parts.
It excludes the costs of labor, technician travel expenses, spare part shipping, and any other related repair costs.

While the buyer maintains the right to warranty services under the conditions outlined above, it is expressly excluded that the buyer may request contract termination, machine replacement, reduction of the sale price, or compensation for any direct or indirect damages.

The warranty right must be exercised exclusively through authorized dealers or directly with ALFAMATIC S.r.l.

CHAPTER 3

Chapter 3
SAFETY

CHAPTER 3

3. SAFETY

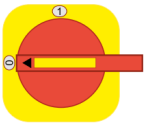
3.1 SAFETY EQUIPMENT

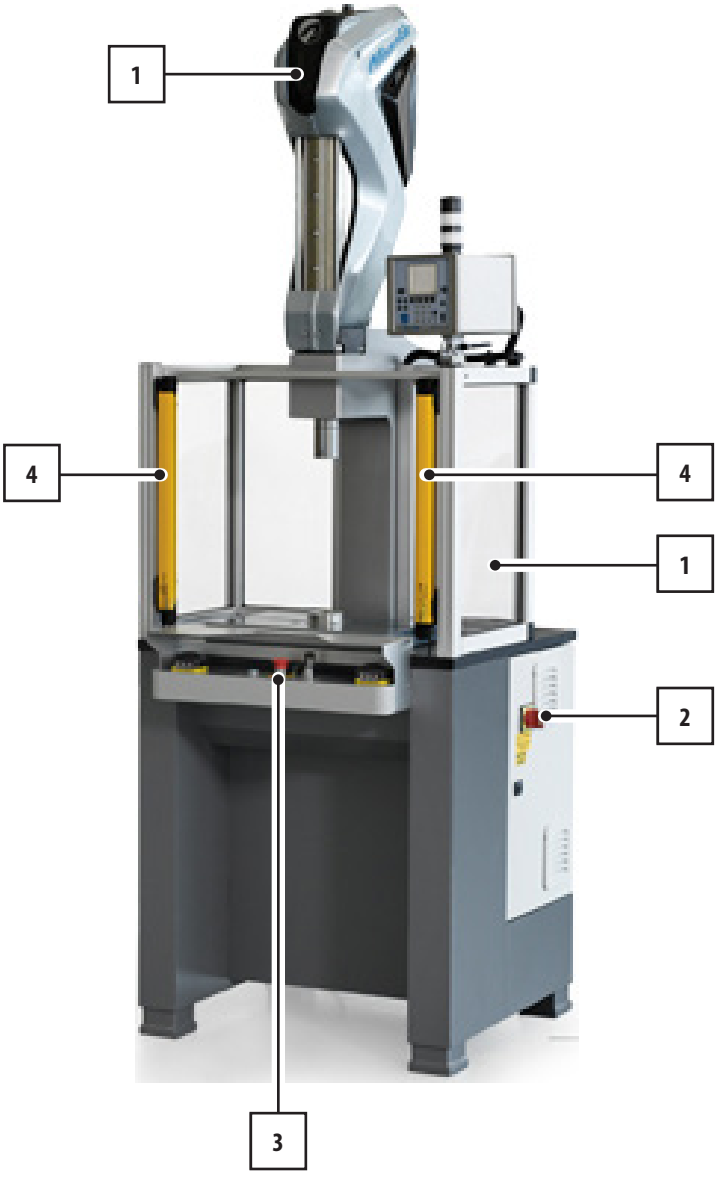
In order to ensure the complete safety of the operator and prevent access to the inside of the machine when it is in motion, the machine is equipped with a series of safety devices that, when activated, ensure its complete stop.

WARNING!

Removing or tampering with safety devices creates a hazardous situation for the operator, who could experience severe accidents leading to serious physical harm. The removal or tampering with safety devices releases ALFAMATIC s.r.l. from any civil or criminal liability and/or any compensation claims from the injured party.

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

POS.	DEVICE NAME
1	PROTECTIVE COVERS AND PANELS
2	ELECTRICAL DISCONNECT SWITCH 
3	EMERGENCY BUTTON
4	PHOTOELECTRIC BARRIES

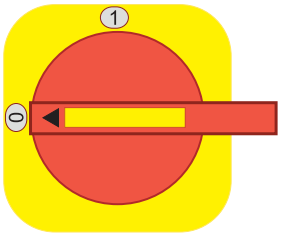


3.1.1 PROTECTIVE COVERS AND PANELS

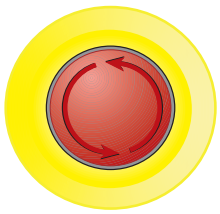
DESCRIPTION
The machine is equipped with enclosures that limit operator access to the electrical panel area and the electric cylinder operating area. There is a lateral inspection/debris evacuation hatch, which is fully enclosed to prevent access to the working area.

WARNING!
The user may replace the internal enclosure with a debris evacuation system that prevents such access. In case of doubt, contact the manufacturer.

3.1.2 ELECTRICAL DISCONNECT SWITCH

PICTURE	DESCRIPTION
	It is located on the electrical panel. It disconnects the electrical power to the entire machine. The switch can be locked with a padlock in the open/closed switch position ("1/ON - 0/OFF"). The switch must be turned off in case of: - electrical danger on the machine, system, or electrical panel; - mechanical intervention on the machine or system; - electrical intervention on the machine or system.

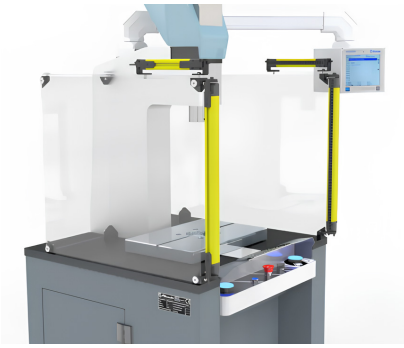
3.1.3 EMERGENCY BUTTON

PICTURE	DESCRIPTION
	It is located on the operator's control panel. It allows the immediate stopping of the machine in any operating situation. The button is surrounded by a yellow border with the following indication: "STOP - EMERGENCY".

WARNING!
Emergency stop buttons must be used promptly in case of danger, possible danger, or suspected danger.

WARNING!
The emergency stop button should not be used for the normal stopping of the machine.

3.1.4 PHOTOELECTRIC BARRIES

PICTURE	DESCRIPTION
	The safety system of the photoelectric barriers ensures that the activation of the moving element occurs via manual or foot pedal command. The protection structure provides adequate protection against the risk of the operator or third parties reaching the press's work area with their upper limbs.

WARNING!
Presses with photoelectric barriers are NOT suitable for protecting against material projections resulting from operations.

3.2 NOISE MEASUREMENTS

Noise measurements have been carried out in accordance with the standards UNI EN 11200 and UNI EN ISO 3746.
During operating cycles, the sound pressure level is 76 dB with a maximum instantaneous value of 93 dB.
The actual noise level of the installed machine during operation at the site in a production process is different from the measured one, as the noise is influenced by several factors such as:

- Type and characteristics of the site;
- Type of material being processed;
- Other adjacent machines in operation.

It is the responsibility of the user to apply the necessary preventive and protective measures in accordance with the legislation of the country where the machine is installed and used.

3.3 VIBRATIONS

The vibrations produced by the machine, depending on the operating conditions, are not harmful to the health of the operators.

WARNING!
Excessive vibration can only be caused by a mechanical fault, which must be immediately reported and eliminated to avoid compromising the safety of the machine and operators.

3.4 ELECTROMAGNETIC COMPATIBILITY (EMC).

The supplied machine contains electronic components subject to Electromagnetic Compatibility regulations, affected by conducted and radiated emissions.
The emission values comply with regulatory requirements thanks to the use of components conforming to the Electromagnetic Compatibility directive, appropriate connections, and the installation of filters where necessary.
Therefore, the machine complies with the Electromagnetic Compatibility (EMC) directive.

WARNING!
Any maintenance activities on electrical equipment carried out incorrectly or incorrect replacement of components can compromise the efficiency of the adopted solutions.

3.5 RESIDUAL RISKS

The design of this machine has been carried out to ensure the essential safety requirements for the operator.
Safety has been integrated into the design and construction of the machine as much as possible; however, there are still risks that the operators need to be protected from, especially during:
- Transport and installation;
- Normal operation;
- Adjustment and setup;
- Maintenance and cleaning;
- Disassembly and dismantling.

For each residual risk, a description of the risk and the area or part of the machine associated with the residual risk is provided (unless the risk applies to the entire machine). Information is also provided on the proper use of personal protective equipment (PPE) as required and prescribed by the manufacturer.

HAZARD	DESCRPTION AND PROCEDURES INFORMATION
ELECTRICAL RISKS MANDATORY PPE 	Related to electrical components (electrical panel) if operations are performed with voltage. Such operations are only possible for personnel who are properly trained, informed, qualified, and authorized.
CRUSHING RISKS MANDATORY PPE 	Related to manual operations such as preparing the machine: placing the tool on the cylinder and moving the workpiece. These operations are only possible when the machine is stopped and safety systems are active during normal operation. Operators, who are trained, informed, and qualified, must wear the appropriate PPE and intervene in the machine's working area only when the machine is stopped or in a controlled manner.

WARNING!
Do not perform maintenance activities unless the machine's power is de-energized.

WARNING!
It is strictly forbidden to remove safety protections or open parts of the machine with inspection hatches that are secured with screws without first disconnecting the machine's electrical power supply.

Do not introduce objects or tools into the machine's operating and work area.

WARNING!
In case of fire near the machine ALFAMATIC S.r.l. (or on the machine itself), it is forbidden to use water or any aqueous or wet extinguishing agent, as it presents a risk of electric shock through indirect contact.

It will be the responsibility of the user to:

- Analyze the risks that may occur during handling and installation within their premises (the analyses conducted on the handling of the machine were based solely on its characteristics);
- Define the route for forklifts and/or laser-guided vehicles with floor markings;
- Raise awareness and train the personnel assigned to workstations and the personnel operating the machine;
- Apply visual safety signs in the workplace after assessing the risks in transit or control areas.

CHAPTER 4

Chapter 4
DESCRIPTION OF THE MACHINE

CHAPTER 4

4. DESCRIPTION OF THE MACHINE

In order to ensure maximum operational reliability, ALFAMATIC S.r.l. has carefully selected the materials and components to be used in the construction of the machine, subjecting it to regular testing before delivery.
The machine's good performance over time depends on correct use and adequate preventive maintenance, according to the instructions provided in this documentation and the documentation supplied with the machine.

All construction elements, connection and control components have been designed and manufactured with a level of safety that allows them to withstand abnormal stresses or those exceeding the specified limits. The materials used are of the highest quality, and their introduction into the company, storage, and use in the workshop are constantly monitored to ensure the absence of damage, deterioration, and malfunctions.

Despite the design and construction measures, it is essential for correct use, safety, durability, and reliability of the machine to strictly follow the manufacturer's instructions.

In the instruction manual, under the maintenance section, the types of maintenance required for the machine (ordinary and extraordinary maintenance) are indicated, along with the maintenance frequency and all necessary information for proper execution.

4.1. INTENDED USE (CORRECT)

The machine described in this manual, referred to as the "Electric Press," has been designed and built to carry out stamping operations such as marking, deep drawing, trimming, engraving, and general assembly tasks.
The machine is intended for:

INTENDED USE	NOT INTENDED USE	WORKING ENVOIROMENT
Axial processing of metallic materials such as marking, drawing, flanging, embossing, and general assembly.	Any use other than the intended uses.	Industrial metallurgy

The machine was designed to:
- Meet the specific requirements mentioned in the sales contract;
- Be used according to the instructions and usage limits provided in this manual.
- The machine is designed and built to operate safely if:

It is used within the limits specified in the contract and this manual;
- The procedures in the user manual are followed;
- Regular maintenance is carried out within the specified times and methods;
- Extraordinary maintenance is carried out promptly when needed;
- Safety devices are not removed or bypassed.

4.1.1. REASONABLY FORESEEABLE INCORRECT USE

The following are examples of reasonably foreseeable incorrect use:

- Installation in a manner different from that specified in this user manual;
- Using the machine as a support point;
- Using the machine in a manner different from that specified in this user manual.

The following are not allowed:

- Use where the reaction point (the workpiece) is not placed on the central axis of the stem of the unit;
- Use if the working tool applied to the moving part of the push unit cannot be properly centered on the axis of the part;
- Use for processing products that, due to their structural characteristics, may cause fragment or shard projections in the event of breakage;
- Use for processing products that, when subjected to pressure, compression, cutting, or deformation, could deflagrate or explode.

-Any other use of the machine not specified must be pre-authorized in writing by the manufacturer. Without such written authorization, the use is considered “incorrect use”; therefore, the manufacturer disclaims any responsibility for damages to property or persons and considers any warranty on the line and the machines provided as void.

4.2. OBLIGATIONS AND PROHIBITIONS

4.2.1. OBLIGATIONS OF USERS

Obligations of Users
The user (employer or company owner) must:
- Take into account the capabilities and conditions of operators with respect to their health and safety;
- Provide appropriate personal protective equipment (PPE) for each procedure;
- Ensure that each worker observes the company's safety rules and uses the provided collective and individual protective equipment;
- Train the staff on procedures in case of injury;
- Instruct the staff on the safety devices in place for operators;
- Instruct the staff on noise emission risks in the workplace;
- Educate the staff on general accident prevention rules provided by European directives and the legislation of the country where the plant is located.
- Only allow personnel who have read this manual and have received proper training to operate the machine.

4.2.2. OBLIGATIONS OF OPERATORS

- Perform maintenance operations only with the machine turned off. Do not lubricate moving parts.
- When the machine is in operation, do not work near it with chains, bracelets, ties, or any other clothing that could get caught in the mechanisms.
- Always perform electrical panel, junction box, cable, and all electrical system component interventions with the main switch turned off.
- Before starting the machine, make sure no one is in dangerous areas.
- During manual operations, use the utmost caution to prevent anyone from gaining access to moving parts.
- Appropriately use the protective equipment provided by the employer.
- Immediately report any deficiencies in safety devices to the employer, manager, or supervisor.

4.2.3. PROHIBITION FOR OPERATORS

Operators must not:

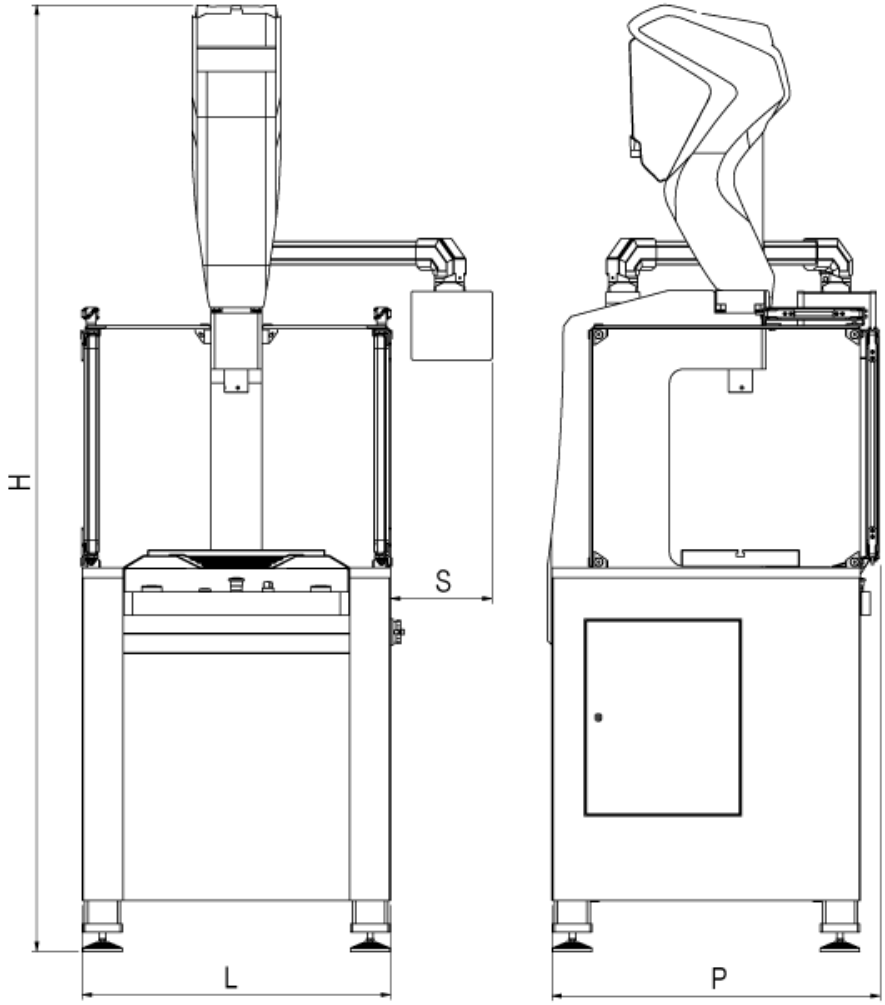
- Insert objects other than the product inside the press;
- Bring body parts into moving areas or the work area during production;
- Use the machine improperly, i.e., for purposes other than those indicated in the "Intended Use" section;
- Remove or modify safety or signaling devices without authorization;
- Take actions or perform maneuvers outside their competence or that could compromise their own or others' safety;
- Wear bracelets, rings, or chains that could dangle and be dragged by moving parts, posing a danger to the operator;
- Work with products other than those specified;
- Replace or modify machine component speeds unless authorized by a supervisor;
- Alter the plant's cycle;
- Modify electrical connections to bypass internal safety features;
- Use the machine if it hasn't been correctly installed according to current regulations;
- Use the machine as a support point, even if not functioning (as it may cause falls or damage to the machine);
- Use the machine outside of permitted environmental conditions (see chapter 5).

WARNING!
ALFAMATIC S.r.l. is not responsible for damages caused to property or persons if it is found that the machine has been used in one of the above-mentioned environments.

- It is prohibited to disassemble safety devices during operation.
- It is prohibited to insert any object inside the machine.
- It is prohibited to disable safety devices.
- It is prohibited to use the machine, or any part of it, for purposes other than those listed in this manual.
- It is prohibited to modify or move parts of the machine.
- It is prohibited to use the machine with devices or components 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, psychoactive drugs, or narcotics.

4.3. MACHINE DIMENSIONS

		EP1, EP2	EP5	EP10, EP25	EP50, EP70, EP100
DIMENSIONS	WIDTH (L)	810 mm	810 mm	810 mm	810 mm
	DEPTH (P)	845 mm	845 mm	845 mm	860 mm
	HEIGHT (H)	2100 mm	2150 mm	2350 mm	2480 mm
	MAXIMUM TOOL OVERHANG (S)	300 mm	300 mm	300 mm	300 mm
	MAXIMUM WEIGHT	395 kg	400 kg	430 kg	650 kg



WARNING!
In case of the need to use a tool that exceeds the limits described, it is mandatory to contact the Manufacturer.

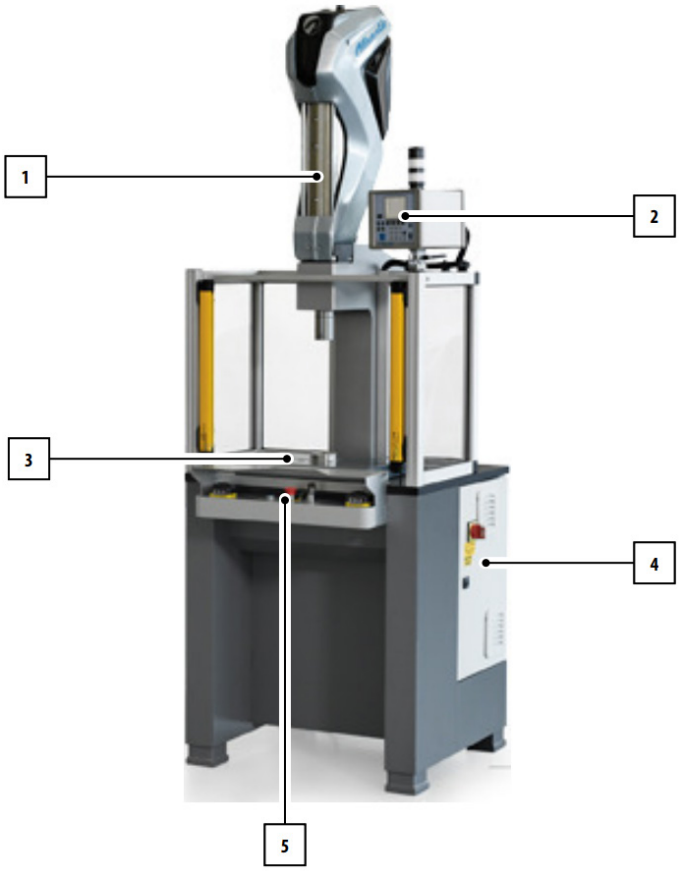
4.4. TECHNICAL DATA

		EP1	EP2	EP5	EP10	EP15
CHARACTERISTICS	MAXIMUM STRENGHT	1 kN	2 kN	5 kN	10 kN	25 kN
	MAXIMUM SPEED	265 mm/s	265 mm/s	265 mm/s	250 mm/s	160 mm/s
	RESOLUTION	± 0.01 mm	± 0.01 mm	± 0.01 mm	± 0.01 mm	± 0.01 mm
	STANDARD STROKE	280 mm			300 mm	
	ABSORBED POWER	0.7 kW	1.0 kN	1.2 KW	3.3 kW	
	INSTALLED POWER	2 kW			5 kW	
	POWER SUPPLY	230V single-phase 50 Hz			400V three-phase 50 Hz	
	ANTI-ROTATION PRECISION	1°			0.7°	

		EP25	EP50	EP70	EP100
CHARACTERISTICS	MAXIMUM STRENGHT	25 kN	50 kN	70 kN	100 kN
	MAXIMUM SPEED	140 mm/s	250 mm/s	170 mm/s	100 mm/s
	RESOLUTION	± 0.01 mm	± 0.01 mm	± 0.01 mm	± 0.01 mm
	STANDARD STROKE	300 mm	250 mm		
	ABSORBED POWER	3.3 kW	5 kW		
	INSTALLED POWER	5 kW	7 kW		
	POWER SUPPLY	400V three-phase 50 Hz			
	ANTI-ROTATION PRECISION	0.7°			

4.5. MAIN COMPONENTS

POS.	COMPONENT
1	SA CYLINDER
2	CONTROL INSTRUMENT
3	WORK TABLE
4	ELECTRICAL PANEL
5	CONTROL PANEL



4.6. WORK CICLE

The machine is made up of various components that allow the operation on the parts to be processed.
Below are the phases of the work cycle:

PHASE	DESCRIPTION
1	The parts are manually inserted into the machine through the front opening.
2	The operator places the parts on the work surface below the electric cylinder, then activates the electric cylinder using the control panel.
3	After the necessary processing is completed, the operator removes the processed parts.
4	Once the pressing is completed, the operator removes the processed parts.

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CHAPTER 5

Chapter 5
TRANSPORT AND INSTALLATION

CHAPTER 5

5. TRANSPORT AND INSTALLATION

5.1. INTRODUCTION

WARNING!
Lifting and handling operations must be carried out exclusively by qualified and trained personnel who are authorized to perform such activities.
For the movement of the machine, refer to the instructions and pictograms provided, using appropriate tools and equipment.

During the installation, ALFAMATIC s.r.l. technicians must be assisted by operators who are designated for the future maintenance and operation of the machine.
The machine has been designed in such a way that during the packaging, transport, and assembly phases, the use of a forklift is required.

ALFAMATIC s.r.l. provides the machine with appropriate lifting points on the structure in case of forklift use.

5.2. PACKAGING

Depending on the transport distance, specific customer requirements, and the duration of the load's stay in the packaging, the shipment of the machine occurs in the following ways:
- Protective packaging with the machine secured on a wooden base (with optional protective crate).
The shipment must be carried out using covered or tarpaulin-covered 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 s.r.l.

Upon receipt of the machine, the customer must verify that there are no damages caused by transportation methods or by the personnel assigned to specific operations.
If any damage is detected, leave the packaging in the condition found and immediately request an assessment of the damage by the competent shipping company, then report the damage with a damage certificate to the transport insurance and to the sales point.
After verifying the integrity of the machine, the fastening screws on the wooden base can be removed, and then proceed with the handling as outlined in the next section.
All packaging material must be kept for possible future transport.
In particular, if a wooden base and/or crate are present, care must be taken to store not only the base but also the machine's fastening brackets to the packaging.
The material must be stored in an appropriate location so that it does not suffer deterioration, which could reduce the load-bearing 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., based on the transportation methods and the type of machines to be shipped, uses packaging and securing methods suitable to ensure the integrity and preservation of the machine during transport.
The handling activities described in this paragraph must be carried out by qualified personnel: staff specially trained to safely perform the loading, unloading, and handling of packages using lifting equipment, forklifts, and who are familiar with accident prevention rules.

WARNING!
For the handling of EP2M 300 model machines, please refer to Appendix A.

WARNING!
Delicate components and equipment must be packaged in such a way as to prevent damage during transport.

WARNING!
ALFAMATIC s.r.l. is not responsible for damages to property or persons caused by accidents resulting from non-compliance with the instructions provided in this and the following chapters.

WARNING!
The installation of the machine must be carried out according to the layout agreed with the Manufacturer.

5.3.1. PRELIMINARY INFORMATION ON THE HANDLING AND TRANSPORT PHASE

WARNING!
Considering that installation operations (including assembly and commissioning) require specific knowledge of the machine and may present risks for unqualified personnel, the manufacturer prescribes that the machine must be moved and installed at the user's site exclusively by specialized personnel.

Before installing the machine, and thus before any handling, verify that:

- The stability of the load does not pose a risk of hazards and/or accidents.
- The means and logistical structures used are suitable for the task (e.g., they are appropriate in relation to the maximum load capacity) and in perfect operational condition.
- Every operator maintains a safe distance from suspended loads (transit under suspended loads is prohibited).
- Operators are equipped with the appropriate personal protective equipment.
- The installation area is adequate, considering the additional space required for assembly.
- Utility connection points are set up according to the attached diagrams (and agreed upon with the client).
- The designated installation area and access routes are clear of obstructions.

- The height and width for passage are sufficient (ensure a distance of at least 1000 mm from walls, pillars, and anything that may obstruct maintenance or emergency exit routes).
- The floor's load capacity is sufficient to support the machine's weight.

Follow the precautions and warnings listed below to ensure stability and avoid risks associated with handling the machine:
- Never improvise any maneuver that is not authorized by qualified personnel.
- Use a forklift for lifting and positioning.

Assign these operations solely to trained personnel (e.g., riggers, crane operators). If the load's size obstructs visibility, a designated signal person must be present to guide the operator and oversee all handling stages.

5.3.2. UPLOADING AND HANDLING

Always ensure, before any handling, that the lifting equipment and its accessories are suitable for lifting the load to be moved and that the load's stability is confirmed before lifting.

WARNING!
The handling activities described in this section must be performed by qualified personnel: personnel specially trained to carry out the loading, unloading, and movement of packages using lifting equipment such as cranes or forklifts, and who are knowledgeable about injury prevention regulations.

The machine is marked with a series of indications specifying the lifting points for loading/unloading and those for subsequent ground transportation

WARNING!
ALFAMATIC s.r.l. is not responsible for damages to property or persons caused by accidents resulting from non-compliance with the instructions provided in this and the following sections.

WARNING!
If obstructions and/or operational situations do not allow the operator to have a clear view, personnel must be positioned outside the lifting equipment's range to perform signaling tasks.

WARNING!
Never pass under suspended loads. Never move loads above personnel working at the site/factory.

WARNING!
Unloading, handling, lifting, etc., of the machine and its units should not be carried out if adverse weather conditions exist, such as wind speeds exceeding 0.3 m/minute.

5.3.3. TABLES OF GROUPS AND WEIGHTS

The following table provides the weight information for handling the individual groups that make up the machine.

GROUP	WEIGHT
ELECTRICAL PRESS [kg]	Read chapter 4.3
PACKAGING [kg]	145 kg

The following pages describe the procedures for transporting the machine.

IMPORTANT!
Verify the total mass: if the machine is packaged with other units, refer to the transport documents, and if they are unavailable, contact the Manufacturer.

5.4. TYPES OF TRANSPORT

The machine can be transported:
- in wooden crates;
- on the truck bed.

Regardless of the transport method used, the Manufacturer adopts adequate protection against atmospheric agents.

WARNING!
During the handling of the machine, utmost attention should be given to protruding parts such as mechanical parts, pipes, and cables to ensure they are not damaged by incorrect mechanical stresses.

IMPORTANT!
In case of difficulties with handling, ALFAMATIC s.r.l. is available for any necessary clarifications.

WARNING!
It is strictly forbidden to use other systems to move the machine, whether it is packed or not. ALFAMATIC s.r.l. is not responsible for injuries or damages caused by improper movement of the machine.

5.4.1. TRANSPORT WITH FORK-LIFT

For transporting the machine, ensure you have the required PPE listed in the table below:

NEEDED PPE			

Before proceeding with the transport operations, verify the following:

- Ensure the area is clear;
- Ensure there are no moving parts or tools on the items to be moved;
- Check the condition of the devices intended for lifting;
- Check the lifting capacity of the forklift to be used (verify the weights in the appropriate section of this manual);
- Ensure the forks extend sufficiently at the front of the load to prevent tipping;
- Ensure the forks can be adequately spaced to avoid tipping of the machine.

Then, follow this procedure:

STEP	ACTION
1	Adjust and insert the forklift forks laterally to the machine to be transported (as indicated by the arrows).
2	Lift the forks until they contact the load.
3	Slowly lift the load a few centimeters and check its stability.
4	Slightly tilt the mast backward (towards the operator's seat) to benefit from the counteracting moment and ensure greater stability of the load during transport.
5	Adjust the transport speed according to the flooring and type of load.

IMPORTANT!
Follow the safety regulations in force in the end-user's country regarding the use of lifting equipment and/or components.

WARNING!
During handling operations, extreme care must be taken to avoid tipping.

5.5. CUSTOMER RESPONSIBILITIES

With the necessary exceptions made in the contractual agreement, the machine's end-user (the customer) must provide:

- Premises (including any construction works such as foundations or required ducts, etc.);
- Electrical systems up to the machine's power supply points, in compliance with the regulations in force in the installation country and/or as required by the machine's manufacturer. All the technical specifications required by the manufacturer are included in the sales contract. The manufacturer disclaims any responsibility if the customer fails to meet the technical requirements of the electrical system specified in the sales contract;
- The electrical supply for the machine, including the grounding conductor, according to the specifications and tolerances requested and detailed in this manual;
- Any auxiliary services needed for the plant (such as compressed air network, etc.). The required characteristics are included in the sales contract;
- Any safety devices upstream and downstream of the power supply lines (such as differential switches, grounding systems, safety valves, etc.) required by the legislation in force in the installation country;
- Commercial tools and consumable materials needed for the assembly and installation;
- Lubricants necessary to start up the machine;
- The supply of products for production purposes;

Appropriate lifting equipment for the parts that make up the machine, in accordance with the weights to be handled.

The data mentioned above are described in their respective sections.

WARNING!
ALFAMATIC s.r.l. is not responsible for any operational anomalies if the power supply does not meet the specifications required for the installation of the machine.

5.6. INSTALLATION SITE

This section describes the physical characteristics and procedures for preparing the premises where the machine will be placed.
The area designated for installation and the access routes must be cleared of material or machine obstructions within the time frame required for assembly.
For installation, an area suitable for the size of the machine and the lifting equipment used must be prepared, taking care to avoid any obstacles (other machines, walls, or similar) along the path the moving equipment must take.

The installation site must:

- Be equipped with emergency exit routes;
- Have a floor that can support the weight of the machine and is properly leveled;
- Be easy to clean to ensure adequate hygienic conditions;
- Have passageways and access routes.

ALFAMATIC s.r.l. does not authorize any type of installation other than the layout specified.

The area for the installation and use of the machine must be sufficiently large to accommodate:
- Operational spaces,
- Passageways,
- Escape routes,
- Maintenance spaces.

It is, however, the customer's responsibility to verify the final installation complies with the applicable regulations.

The floor of the chosen site for installation and use must be regular, level, and comply with the application specifications, and it must be capable of bearing the specific weight requirements of the machine as per the provided static and dynamic load specifications.

WARNING!
The unloading, movement, lifting, etc., of the structure and machine must not be carried out if weather conditions are adverse (e.g., wind speed above 0.5 m/min).

WARNING!
As the machine is to be used inside a production facility, it is not equipped with its own fire protection system. The user must assess the need for an appropriate fire protection system for the machine and the site where the machine will be installed and used.

5.6.1. FLOOR MARKING

Among the responsibilities of the employer–end user is the comprehensive risk assessment of the workplace environment where the machine will be installed, particularly concerning passageways and escape routes (in accordance with national regulations for such environments).
Based on this analysis, the employer will implement any necessary technical or procedural solutions to establish an internal circulation plan to restrict access to prohibited areas for unauthorized personnel.

For ALFAMATIC s.r.l. supplied machines, the employer–user must mark the ground (with yellow stripes) to clearly identify areas restricted from pedestrian traffic and where non-authorized personnel are prohibited from entering or stopping.

ATTENZIONE!
The area marked with yellow stripes is restricted to pedestrian traffic and personnel stoppage. It must also be kept clear of any material.

5.6.2. ALLOWED ENVOIROMENT CONDITIONS

The environment where the machine is installed and used must be an indoor area protected from weather conditions such as rain, hail, snow, fog, airborne dust, and combustible dust, and should not be a classified environment or exposed to aggressive agents such as corrosive vapors or excessive heat sources.

ALLOWED ENVOIROMENT CONDITIONS	
ENVOIROMENT TEMPERATURE	Between 5°C and 40°C (4°F and 104°F)
RELATIVE HUMIDITY	Up to 90%
LIGHTING	200 Lux (by the costumer)

Using the machine, its associated control systems, and its drive equipment in conditions other than those listed above is not permitted.

WARNING!
This machine cannot operate in areas classified as explosive atmosphere environments or fire hazard zones.

WARNING!
The working area of the machine and the work zones:

- Must never be obstructed by objects that may create interference;
- Must be kept clean to avoid slippery floors that could pose a risk of slipping and falling;
- Must have adequate lighting;
- Must be reserved for authorized maintenance personnel.
- It will be the responsibility of the user to clearly mark these restrictions with appropriate signage near the machine.

If these provisions are not followed, the Manufacturer disclaims any responsibility.
If these conditions are not met, the machine cannot be operated.

WARNING!

Environmental conditions different from those specified can cause severe damage to the machine, particularly to the electrical and electronic equipment.
Placing the machine in environments that do not meet the specified conditions will void the warranty for the components that need to be replaced.

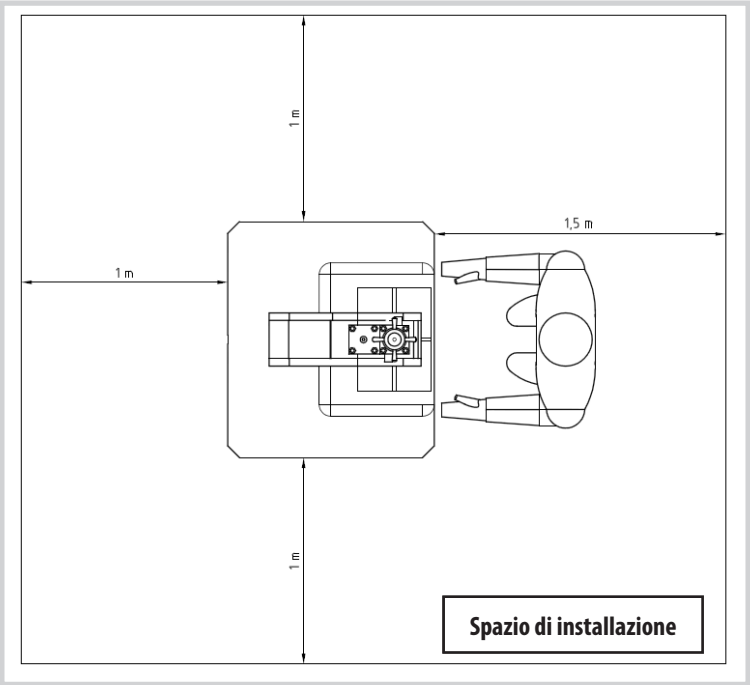
Unauthorized replacement of one or more parts of the machine, as well as the use of accessories, tools, or consumables different from those prescribed by the manufacturer, can pose a risk of injury and relieve the manufacturer of civil and criminal liabilities.

5.7. INSTALLATION

5.7.1. PLACEMENT

The press is supplied to the customer/user ready for use.
However, it is the customer's responsibility to position, equip, and connect the machine.
Correct placement of the machine is an important operation for its proper functioning within the production line in which it is installed.

The machine placement must follow certain general rules:
- Identify the correct position within the production line;
- Position the machine (the floor on which the machine will be placed must be completely level to avoid any tilting);
- Check the full stability and alignment of the machine;
- Ensure the machine is fully accessible to the operator.



EP 1 EP2 EP 5 EP 10 EP 15 EP 25 A = 1m B = 1m C = 0,1 m D = 1,5 m
EP50 EP70 EP100

5.7.2. TOOLING

WARNING!
The maximum tool clearance towards the operator relative to the press axis is:EP1-EP25: 65 mm
EP50-EP100: 75 mm

WARNING!
The maximum weight of the tool is:
EP1-EP15: 7 kg
EP25-EP100: 9 kg

WARNING!
The tools, molds, or equipment connected to the pressing unit must be sized to withstand the stresses and forces that the press is capable of exerting.

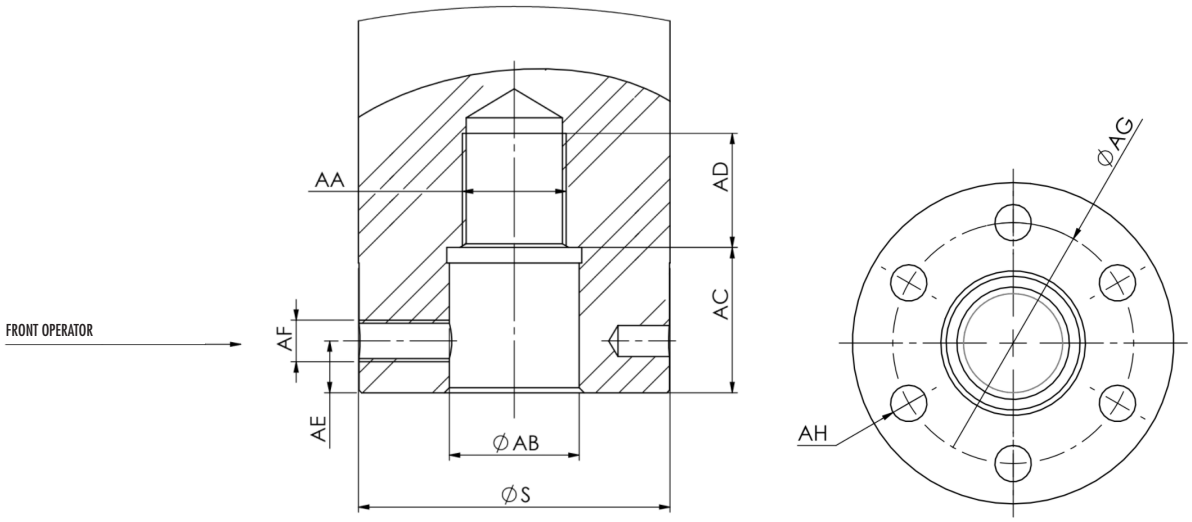
5.7.3 TOOL MOUNT

IMPORTANT!
The dimensions of the attachment for the EP1, EP2, and EP5 press models are different from those listed here. Please contact Alfamatic s.r.l. for more information.

IMPORTANT!
The dimensions of the attachment with an external load cell are different. Please contact Alfamatic s.r.l. for more information.

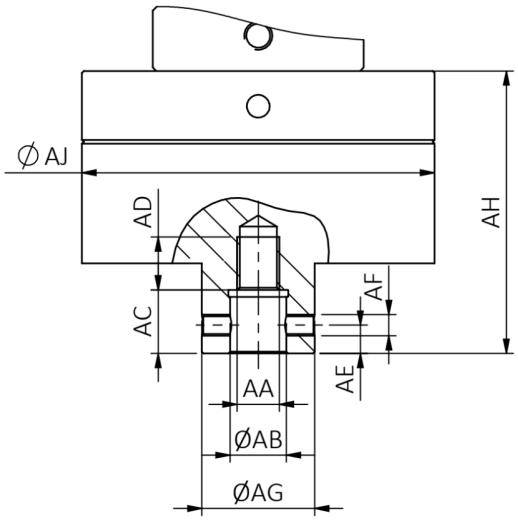
IMPORTANT !
The dimensions of the attachment for operation in traction are different. Please contact Alfamatic s.r.l. for more information.

The dimensions of the standard stem attachment:



CHARACTERISTIC	EP10, EP15, EP25	EP50, EP70, EP100	EP200, EP300
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		12
AF	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 DEPTH [mm]	12		15
S [mm]	Ø 60		Ø 100

Dimensions of the stem attachment with external force transducer EP-EP4M.:



EXTERNAL LOAD CELL	EP10,15,25/ EP4M10,15,25	EP50,70,100/ EP4M50,70,100
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	
AG [mm]	Ø 32	Ø 60
AH [mm]	80	120
AJ [mm]	Ø 100	Ø 127

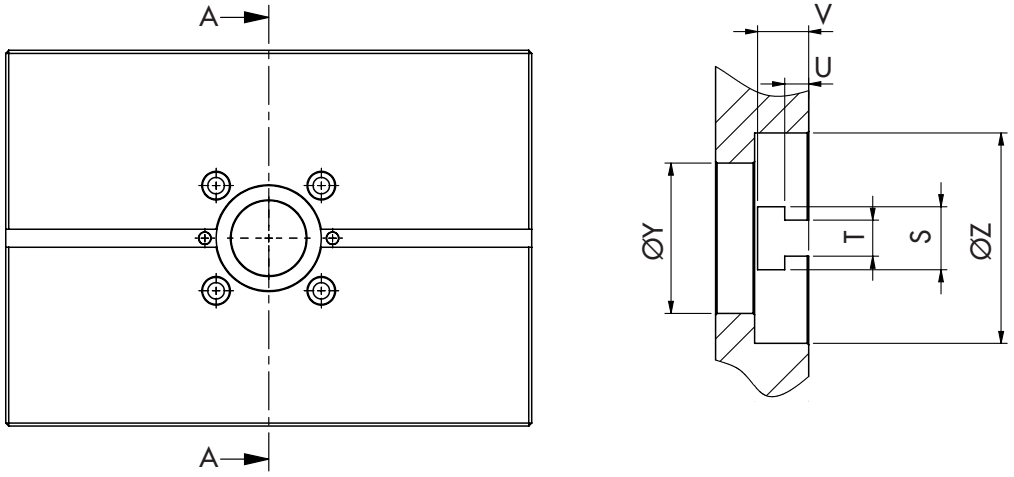
HIGH PRECISION TRANSDUCER	HPT1 HPT2 HPT4 HPT10	HPT20
AA	M12 x 1.5	M20 x 1.5
AB [mm]	Ø 16 H8	Ø 25 H8
AC [mm]	18	28
AD [mm]	15	22
AE [mm]	8	15
AF	2 x M6 not oriented	2 x M10 not oriented
AG [mm]	Ø 32	Ø 60
AH [mm]	80	120
AJ [mm]	Ø 100	Ø 127

5.7.4 RADIAL LOADS AND MOMENTS

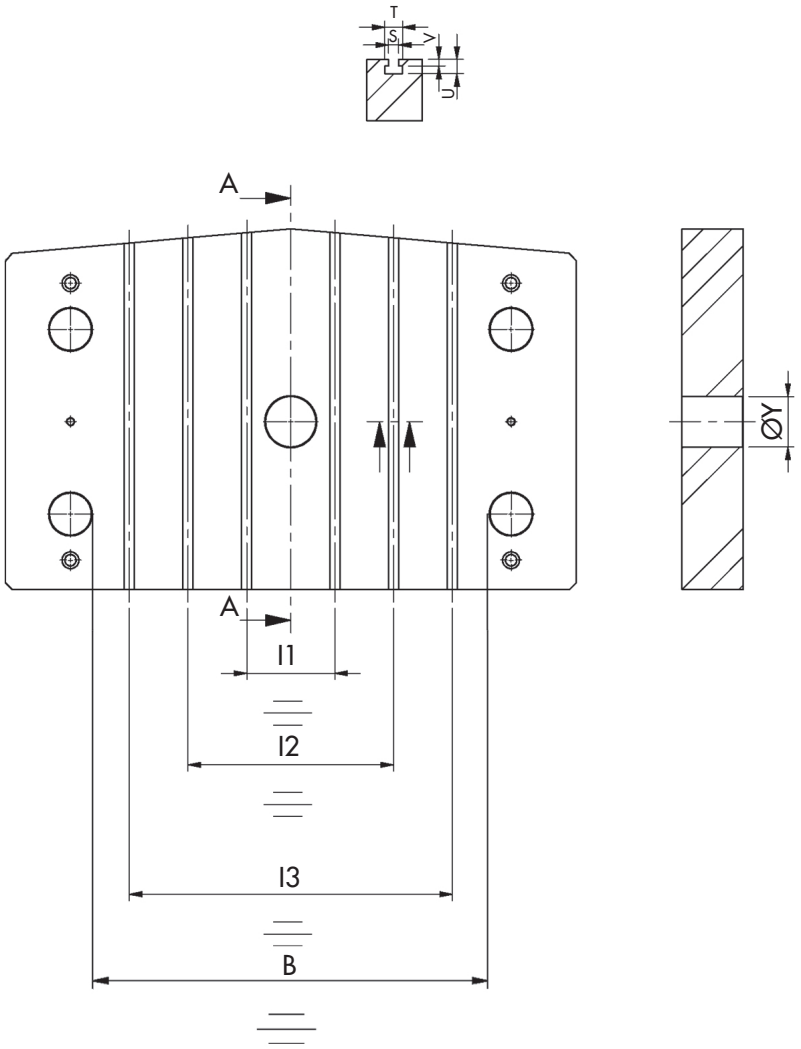
Radial loads and moments must be absorbed by an external guide system to the cylinder. It is crucial to address these issues at the initial stage. These abnormal loads are highly damaging to the machine's life and performance in terms of efficiency, stiffness, noise, etc. Any radial load or moment on the press's stem will overload some of the contact surfaces, significantly reducing its lifespan.
If it is not possible to align the pressing point, guided die holders may be used.

5.7.5 WORK SURFACE

For EP presses with C-frame:



For EP4M presses with four pillars frame:



CARATTERISTICA	EP10, EP15, EP25	EP50, EP70, EP100
Y [mm]	Ø 50 H7	Ø 60 H7
Z [mm]	Ø 70 H7	Ø 90 H7
S [mm]	21	
T [mm]	12	
U [mm]	8	
V [mm]	17	
I1 [mm]	92	105
I2 [mm]	242	245
I3 [mm]	392	385
B [mm]	475	465

5.8. CONNECTIONS

For the machine to be operational, the necessary connections and hookups to local networks must be ensured:
- Electrical connection (including grounding), in compliance with the regulations of the country of installation.
It is the user's responsibility to guarantee the required connection characteristics.

PRESS	EP1,2,5	EP10,15,25	EP50,70,100
POLES	2P+E	3P+N+E	3P+N+E
DIMENTIONS	16 A	16 A	16 A

5.8.1. ELECTRICAL CONNECTIONS

WARNING!
Before performing any electrical connection operation, it is important to ensure that the machine is turned off. Therefore, place the main power switch on the electrical panel in the "0 - OFF" position.

WARNING!
Make sure that the client's power supply line has been pre-turned off.

WARNING!
The electrical connections to the plant's network must be made by the client's specialized personnel (Electrician).

The compliance of the connection between the machine and the grounding system is the responsibility of the purchaser. Before proceeding with the electrical connection, check that:
- The maintenance personnel are aware of the regulations in force in the country of installation.
- The frequency and voltage values for powering the machine match the power supply values.
- The section of the electrical cables used is suitable for the machine's power consumption.
- The electrical supply line is capable of handling the machine's maximum power consumption.
- The grounding of the circuit complies with the EN 60204-1 standards.
- The materials used in the grounding system are sufficiently solid or mechanically protected.

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

Power can be supplied to the machine by connecting the power cables directly to the electrical panel. The machine is equipped with terminals for electrical connection. Wiring is the user's responsibility.

For the characteristics of the electrical supply, it is necessary to refer to the data provided on the CE plate located on the machine.

WARNING!
It is the customer's responsibility to protect the power supply line to the machine's electrical panel.

5.9. DISMANTLING AND DISPOSAL

WARNING!
The operations of decommissioning and dismantling must be entrusted to specialized personnel in such activities. In particular, only the person assigned to the dismantling phase and end-of-life disposal can perform:
- Mechanical and electrical disconnection of parts according to dismantling instructions and design schematics.
- Transportation of parts from the plant location to the disposal center for part separation.

In particular, for decommissioning, the following operations should be considered, along with the guidelines provided in the manuals of the equipment, machines, quasi-machines, and components used, supplied by ALFAMATIC s.r.l. as an integral part of its instruction manual and warnings.

- The materials the machine is made of are essentially:
- Painted, plasticized, or galvanized ferrous steel;
- Stainless steel series 300/400;
- Polyethylene plastic material;
- Elastomers, PTFE, graphite;
- Gear oil;
- Lubrication grease;
- Electric motors;
- Electric cables with their respective sheaths;
- Electronic control and actuating devices;
- etc.

IMPORTANT!
The machine does not contain hazardous components or substances that require special removal procedures.

The operator in charge of decommissioning and disposal at the end of life works on the entire machine solely and exclusively during the phase of removal and disposal of machinery at the end of its operational life.

Follow the procedure outlined below to carry out the decommissioning, dismantling, and removal of the machine at the end of its operational life. Both the operations described below and the guidelines in the manuals of the equipment, machines, quasi-machines, and components used, provided by ALFAMATIC s.r.l. as part of the instruction manual and warnings, must be taken into account for decommissioning.

STEP	ACTION
1	Create enough space around the machine to carry out all movements without risks to personnel, providing the necessary equipment and operational means such as forklifts, cranes, etc.
2	Disconnect all power sources by using the energy disconnection devices for the machine's power supply 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 disconnection device (disconnect the power conductors first, followed by the ground conductor).

STEP	ACTION
4	Dismantle the machine starting from the top down, paying special attention to machine groups that may fall due to gravity, as well as any parts that may still contain residual product.
5	Separate, as much as possible, the various components by material type, which should be disposed of through recycling or waste segregation. Delegate the disposal of materials from the demolition to the authorized disposal companies.
6	Remove the various parts of the machine from the work area.

IMPORTANT!
For the disassembly of commercial parts (machines and/or units) or sub-supplied materials that are part of the machine provided by ALFAMATIC s.r.l., please refer to the relevant supplier's manual.

IMPORTANT!
After disassembling the machine according to the previous disassembly procedure, the various materials must be segregated in accordance with the regulations of the country where the machine is to be disposed of.

According to the "WEEE" directive 2012/19/EU, if the component/equipment purchased 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!
It is reminded to comply with the applicable laws regarding the disposal of mineral oils and processing residues.

Chapter 6
OPERATING PROCEDURES

CHAPTER 6

6. OPERATING PROCEDURES

During the machine's operation, the responsible operator must always operate the machine while respecting the safety devices provided, checking:

- The correct placement of the safety devices;
- The proper functioning of the safety devices;
- Compliance with personal safety standards.

Ensure that the work cycle is performed with full efficiency, guaranteeing maximum productivity by checking:

- The integrity and functionality of the main parts of the machine;
- The wear condition of the work tools to prevent interruptions in the work cycle;
- That the operating parameters are optimal for the type of material and process to be carried out;
- The uniformity of all the material prepared for processing.

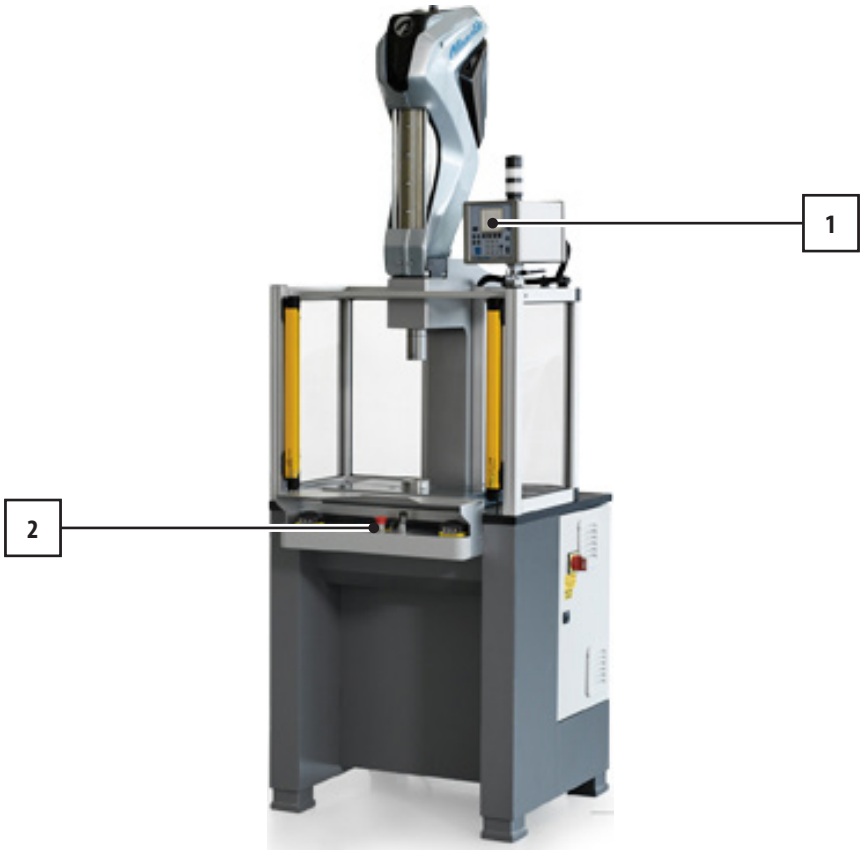
6.1. COMMANDS

The command area is the area where operators can perform command, control, and adjustment operations for the machine functions by using the designated control panels.
Before using the machine, it is important to thoroughly understand:
- The operator's workstation;
- All its controls and their main functions.

The control devices are located on the control panel.

For the placement of the button panels, refer to the figure below:

POS.	PART
1	CONTROL SYSTEM
2	CONTROL PANEL



WARNING!
In the electrical cabinet, there are the electrical devices and automatic control systems for the work cycle. For safety reasons, all electrical cabinets must remain permanently closed.
The electrical cabinet can only be opened by authorized personnel.
The main switch, located on the door of the electrical cabinet where there is dangerous voltage, enables and disables the voltage to the system, electromechanical devices, and electronics.

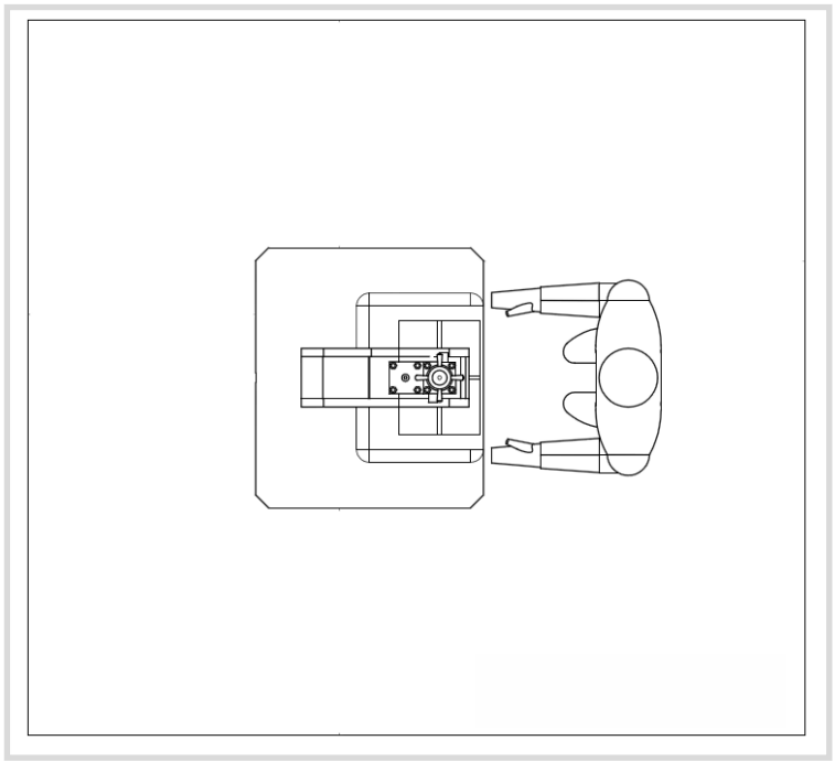
6.1.1. OPERATOR LOCATION

The operator responsible for production must monitor the machine from the front, keeping all emergency controls within easy reach.

The machine has only one work station, so only one operator must be in charge of any production operations.

If the intervention of multiple operators is required, it is mandatory to turn off the machine by using the main switch.

WARNING!
It is mandatory the presence of one single operator.

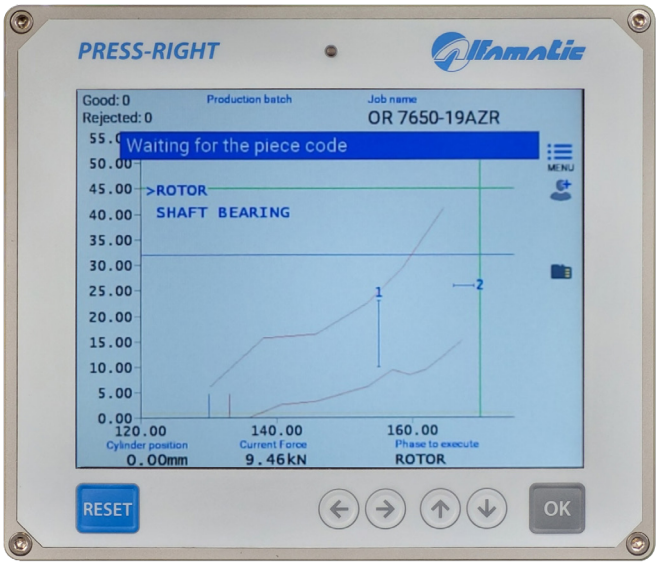


6.1.2. CONTROL PANEL

The control panel is composed by the following elements:

POS.	PART
1	RESET SCRAP
2	EMERGENCY STOP PUSHBUTTON
3	ENABLE SWITCH
4	TWO-HAND CONTROL

6.1.3. CONTROL SYSTEM: PRESS-RIGHT



In order to understand the control system, read the dedicated manual.

6.2. USING PROCEDURES

6.2.1. PRELIMINARY CHECKS ON STARTING THE MACHINE

Before proceeding with the machine's start-up, the following preliminary checks should be performed to avoid malfunctions or damage to the machine:

- Ensure the correct connection of all electrical conductors;
- Verify that the applied electrical characteristics match the data on the CE plate;
- Check that the cylinder movement is free from any obstacles.
- Set the main power switch on the electrical panel to "1 - ON".
- Turn on the control instrument using the switch on the back.

6.2.2. WORK PREPARATION

Before starting the production cycle for the day (8 working hours) or upon starting the machine, the following checks must be performed:

- Verify the efficiency of the safety systems;
- Ensure that the equipment is the correct one for the work to be done;
- Check that the selected job on the instrument is the correct one;
- Make sure the emergency stop pushbutton is released. If not, rotate it in the direction indicated by the arrows to release it.
- Verify that the switch is in position "1".

6.2.3. MACHINE START-UP

The machine cycle starts by activating the two-hand control device, which allows the machine to perform a working cycle. It is not possible to interrupt the photoelectric barriers until the cylinder has returned to the resting position.

6.2.4. MACHINE DEACTIVATION PROCEDURE

If the operator needs to temporarily leave the machine, the switch should be rotated to position "0". When not in use, the machine should be protected from both voluntary and accidental activation. Set the main power switch on the electrical panel to "0 - OFF".

6.2.5. RESTORATION PROCEDURE FOLLOWING A FAULT

To restore the machine after a fault/emergency, rotate the emergency button in the direction indicated by the arrows.

6.3. ANOMALIES AND POSSIBLE SOLUTIONS

As described in the previous sections, the instruments on the electrical panel allow the identification of certain machine anomalies during its normal operation.

WARNING!
If it becomes necessary to mechanically free the cylinder rod, unscrew the relevant screws to release it.

WARNING!
If more complex damage is detected on the machine, contact ALFAMATIC s.r.l. for assistance.

CHAPTER 7

Chapter 7
MAINTENANCE

CHAPTER 7

7. MAINTENANCE

7.1. INTRODUCTION

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

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

For good maintenance:

- Use only original spare parts, tools suitable for the purpose, and in good condition.
- Follow the intervention frequencies indicated in the manual for scheduled (preventive and periodic) maintenance.
- The distance (given in time or work cycles) between interventions is to be understood as the maximum acceptable; it should not be exceeded, but it can be shortened.

Good preventive maintenance requires constant attention and continuous monitoring of the machine. Promptly identify the cause of any anomalies such as excessive noise, overheating, etc., and address them.
A timely removal of any causes of anomalies or malfunction prevents further damage to equipment and ensures operator safety.

In case of doubts, do not operate. Contact the Manufacturer for necessary clarifications.
The personnel responsible for machine maintenance must be well-trained and have a deep knowledge of safety regulations; unauthorized personnel should stay outside the work area during operations.
Cleaning and adjustment activities on the machine are only carried out during maintenance, with the machine stopped and de-energized, with the electrical panel disconnected, as stated in the operating and maintenance manual.

Machine maintenance operations are divided operationally into two main categories:

USUAL MAINTENANCE	All the operations that the operator must carry out, proactively, to ensure the proper functioning of the machine over time; routine maintenance includes inspection, control, adjustment, cleaning, and lubrication tasks.
NOT USUAL MAINTENANCE	All the operations the operator must carry out when the machine requires them. Extraordinary maintenance includes activities such as overhaul, repair, restoration of nominal operating conditions, or the replacement of a faulty, defective, or worn-out component.

7.2. SAFETY WARNINGS

WARNING!
For maintenance activities, ensure the machine is de-energized (both electrically and pneumatically).

WARNING!
When the machine is being serviced, to prevent accidental startup, press the emergency mushroom button and place signs stating:
"WARNING! MACHINE UNDER MAINTENANCE."

- Maintenance personnel must wear all necessary personal protective equipment (PPE) required for the task being performed.
- During maintenance operations, unauthorized personnel must stay out of the work area.
- If the task involves removing protective covers, fence off the work area and clearly mark the prohibition of access for non-maintenance personnel.

If the machine needs to be in operational conditions and/or have protections disabled, it requires appropriate expertise and knowledge, along with great attention from the maintainer, who must be properly trained on potential risks.

The safety precautions provided in this section must always be strictly followed during machine maintenance to prevent injuries to personnel and damage to equipment:

- Before starting any maintenance work, verify the disconnection of all energy sources (electricity, compressed air, hydraulic energy, etc.).
- Perform interventions only with the machine off and de-energized.
- Lock the electrical panels and pneumatic supply valve.
- Place specific warning signs, such as:

"EQUIPMENT UNDER MAINTENANCE – DO NOT TURN ON POWER, WORK IN PROGRESS – DO NOT OPERATE" or "DO NOT START" near the main switch and access areas of the machine.
- After de-energizing the electrical panel, fence off the area if work is needed on open panels.
- Perform only the interventions for which you are authorized (Mechanical, Electrical, Fluidic).
- Be able to use the most suitable and appropriate tools for fault detection and be knowledgeable about the best equipment for maintenance tasks.

Certain maintenance tasks may require disabling protections and safety devices or opening barriers. In these cases, personnel will be in a hazardous condition, so the following rules must be strictly adhered to:

WARNING!
Personnel assigned to perform maintenance tasks must be authorized and specifically trained on safety and operational procedures, potential hazards, and correct methods to prevent them.

IMPORTANT!
During such operations, personnel must work with the utmost attention and exercise extreme caution.

7.3. USUAL MAINTENANCE

The machine, when delivered to the user, is already adjusted to work correctly. However, to ensure its proper functioning over time, regular checks and preventive maintenance must be performed.

Routine maintenance includes inspections, checks, and interventions that help prevent failures by monitoring:

- the mechanical condition of the machine,
- the lubrication of the machine,
- the cleanliness of the machine.

The following tables outline a series of checks and interventions to be performed according to the recommended timing. The frequency of the routine maintenance operations indicated applies to normal operating conditions, i.e., conditions corresponding to the expected usage requirements.

OPERATIONS	FREQUENCY			
	Daily	1 month	2 months	6 months
Visually check the integrity of all the machine's protective devices.	♦			
Verify the safety systems.	♦			
Visually inspect the condition of wear and cleanliness.	♦			
Check the wear condition of the insulation (connection cables, connectors).		♦		
Check the fastening of the protective devices.		♦		
Check the functioning of the adjustments.			♦	
Ensure proper tightening and the absence of oxidation of the control panel terminals.				♦

7.3.1. SAFETY SYSTEM CHECK

To verify the correct functioning of the safety systems, follow the procedure below with the machine ready for normal operation:

PHASE	FREQUENCY
1	Check the proper operation of the emergency stop mushroom button: 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	Check the correct functioning of the photoelectric protection: Introduce a test object into the controlled area and move it slowly from top to bottom (or vice versa), first in the center, and then near both the Emitter and the Receiver. The lights on the barrier should turn on with a red light. In this condition, the moving part MUST NOT move.

7.3.2. CLEANING OF THE MACHINE

WARNING!

Before starting any cleaning operation on the machine, disconnect and lock out all energy sources, and ensure that all movable parts are safely blocked. Place the sign "Machine under maintenance – Do not energize" near the main switch.

IT IS FORBIDDEN for cleaning personnel to remove any guards or protective devices present on the machine.

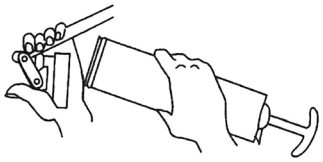
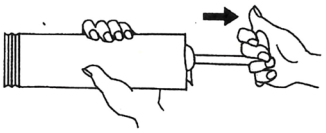
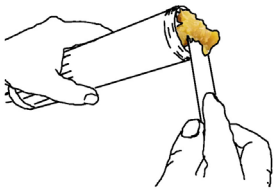
Perform the cleaning cycle according to the following intervals:

FREQUENCY	DESCRIPTION
2 months	Clean the plexiglass panels.
6 months	Clean the lens of the photoelectric panel.

7.3.3. MATERIALS FOR LUBRIFICATIONS

The grease to be used is as follows: THERMOPLEX 2 TML

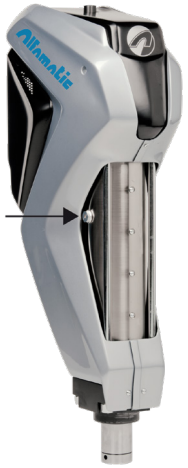
Greasing pump

FREQUENCY	DESCRIPTIONS	
1	Unscrew the head cover from the cylinder	
2	Pull the piston handle	
3	Introduce the grease with the spatula	
4	Close the cylinder by screwing on the cover.	
5	Release the rear handle lock and discharge the residual air through the bleed valve on the cover.	

7.3.4. GREASE LUBRIFICATION OF THE SCREW

FREQUENCY	TYPE OF INTERVATION
Every 5000 hours (once a year)	This consists of: Filling the roller cage with grease. There is a passage hole that allows access to the internal cage of the cylinder.

Procedures:

STEP	ACTION	PICTURE
1	Select the lubrication function from the control system.	
2	Turn off the main power to the press.	
3	Remove the cap indicated in the picture.	
4	Screw on the grease pump.	
5	Operate the pump to advance the piston by about 1 cm (equivalent to about 20 cm3).	
6	Disconnect the grease pump.	
7	Close the cap.	

7.3.4.1. GREASE LUBRICATION OF BEARINGS

FREQUENCY	TYPE OF INTERVATION
Every 5000 hours (once a year)	Perform lubrication of the bearings. This consists of: • Injecting grease into the two upper grease holes. Insufficient lubrication leads to overheating and failure of the bearings.
Every 10.000 hours (once in a 2 year)	Perform lubrication of the bearings. This consists of: • Injecting grease into the two upper grease holes. Insufficient lubrication leads to overheating and failure of the bearings.

Procedures:

STEP	ACTION	PICTURE
1	Turn off the main power to the press.	
2	Lock the main switch.	
3	Remove the protection cover.	
4	Remove the caps indicated in the picture.	
5	Screw the grease pump into the first hole.	
6	Operate the pump about 4 times.	
7	Disconnect the grease pump and repeat for the second hole.	
8	Close the caps.	

7.4. EXTRAORDINARY MAINTENANCE

WARNING!

Extraordinary maintenance and machine repairs are reserved for qualified, trained, and authorized technicians, employed by the Manufacturer or authorized service center.
These interventions require in-depth and specialized knowledge of the machines, necessary operations, associated risks, and correct safety procedures for performing maintenance.

Interventions not included in the "ordinary maintenance" section are considered "extraordinary maintenance."
In the event of exceptional occurrences that require extraordinary maintenance interventions, the ordinary maintenance personnel of the user must follow these procedures:

- Check the condition of the damaged or misaligned units.
- Perform the operations described in the "Extraordinary Maintenance" section.
- If the operations are not listed in this manual, send a report to the Manufacturer, including the incident details, inspection results, and any observations.

The Manufacturer or the authorized service center will evaluate the situation on a case-by-case basis.
They will then agree with the ordinary maintenance personnel on the type of intervention to be performed, choosing the most appropriate solution from the following options:

- The Manufacturer sends a qualified, trained technician to perform the necessary interventions.
- Or the Manufacturer authorizes the ordinary maintenance personnel of the user to carry out the interventions, sending any additional instructions.

WARNING!

Spare parts that need to be replaced must be ordered from ALFAMATIC s.r.l.
If the customer does not use original or authorized spare parts (in writing) from the Manufacturer, the Manufacturer is exempt from any responsibility for the operation of the machine and the safety of the operators. The authorization and/or instructions must always be provided in writing. Without written authorization, it is prohibited to operate, and the Manufacturer disclaims all responsibility.

7.4.1. CYLINDER REPLACEMENT

For cylinder replacement, please contact the technical support of ALFAMATIC s.r.l.

7.4.2. PROCEDURE FOR BELT INSTALLATION

The Alfamatic cylinder uses an absolute encoder; therefore, if the motor or belt is disassembled, the following belt installation procedure must be followed.

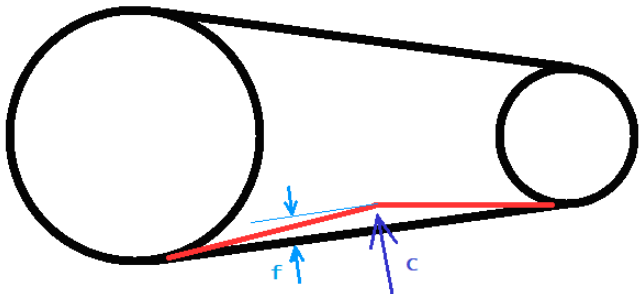
WARNING!
It is essential to follow all the steps below.
Errors in belt installation may result in cylinder damage.

WARNING!
Damages caused by incorrect belt installation are not covered by the warranty.

The belt must be installed in such a way that the motor's zero position coincides with the cylinder's zero position.

STEP	ACTION
1	Place the main switch on the electrical panel to "0 – OFF."
2	Remove the belt.
3	Dismantle any equipment from the cylinder rod.
4	Secure the motor properly to the cylinder.
5	Secure the pulley onto the motor shaft properly.
6	Place the main switch on the electrical panel to "1 – ON."
7	Move to manual mode and set to the 0.00 mm position.
8	Place the main switch on the electrical panel to "0 – OFF."
9	Manually rotate the pulley mounted on the cylinder shaft to bring it to the resting position, ensuring the correct rod extension as specified in this manual.
10	Install the belt without rotating the pulleys. The motor pulley must not rotate as it is locked by the brake. The cylinder pulley should be manually held still.

For the belt retirement, consult 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

CHAPTER 8

Chapter 8
OPTIONAL COMPONENTS

CHAPTER 8

8. OPTIONAL COMPONENTS

8.1. PROBE WIRING SETUP

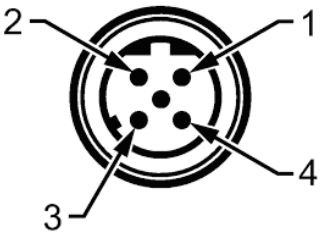
The press can be provided with the following options:

- Machine stop light for free access to the work area.
- Work area illumination.
- External precision force transducer HPT.
- Provision for operation in tension.
- Additional probe wiring.

If requested, there is a cable with a connector for connecting an additional analog transducer. The normally used signal type is 0-10 V, but 0-20 mA or 4-20 mA can also be requested. The choice of signal type is made via jumper on the internal board of the instrument.
The cable is shielded with an M12 five-pin connector.

NAME	FUNCTION	PIN
+24VDC	Supply	1 (red)
S+	Signal +	2 (white)
0VDC	Power ground	3 (black)
S-	Signal -	4 (yellow)
SHIELD	Schielding	5

M12 Male Connector Pinout for the Transducer:



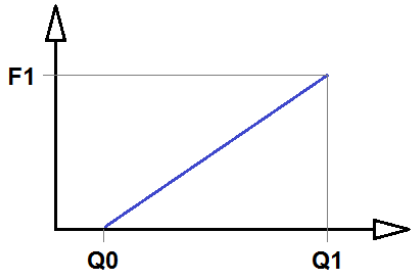
CHAPTER 9

Chapter 9
DURATION

CHAPTER 9

9. DURATION

The lifespan of the screw largely depends on the required thrust force and proper maintenance. It is therefore very important to keep the screw well lubricated. Insufficient lubrication results in an increase in the temperature of the screw (and its lifespan).
The wear of the screw depends on the force exerted on it. Wear is negligible during idle movements.



Force-displacement curve graph used for calculations:

L10 = lifetime in millions of revolutions
Ca = dynamic load
Creq = minimum required dynamic load
Fm = equivalent mean load (N)

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

C_a per SA200 - SA300 = 395KN
C_a per SA50 - SA100 = 129 kN
C_a per SA10 - SA25 = 92 kN
F_m = (Fmin + 2 x Fmax) / 3

This table shows the stroke the cylinder can travel in the work section Q1-Q0 in a typical interference fit arrangement.

TYPE	LOAD F1 [kN]	LIFE Q1-Q0 [m]
SA200 SA300	100	41×10^8
SA200 SA300	200	52×10^7
SA300	300	15×10^7

TYPE	LOAD F1 [kN]	LIFE Q1-Q0 [m]
SA50 SA70 SA100	10	37×10^6
SA50 SA70 SA100	30	13×10^5
SA50 SA70 SA100	50	30×10^4
SA70 SA100	70	11×10^4
SA100	100	37×10^3

TYPE	LOAD F1 [kN]	LIFE Q1-Q0 [m]
SA10 SA15 SA25	5	10×10^7
SA10 SA15 SA25	10	13×10^6
SA25	20	16×10^5
SA25	25	79×10^4

TYPE	LOAD F1 [kN]	LIFE Q1-Q0 [m]
SA1	1	17×10^6

TYPE	LOAD F1 [kN]	LIFE Q1-Q0 [m]
SA2	1	18×10^6

TYPE	LOAD F1 [kN]	LIFE Q1-Q0 [m]
SA5	3	10×10^6
SA5	5	2×10^6

Examples:

- The SA100 cylinder, which presses a bearing with a height of 20mm and requires a maximum force of 70kN, has a minimum calculated life of 5.5 million cycles.
- The SA50 cylinder, which presses a bearing with a height of 5mm and requires a maximum force of 30kN, has a minimum calculated life of 260 million cycles.

Chapter 10
CALIBRATION

CHAPTER 10

10. CALIBRATION

The cylinder is supplied already calibrated. In the event of replacing the load cell or altering the measured force values, for example, due to changes in the weight of the tool, a new calibration is required.
In general, the new offset and gain values must be entered.
Great attention should be paid to the position transducer, as the motor is equipped with an absolute encoder.
Replacing the belt or disassembling the motor requires assistance from the manufacturer to avoid irreversible damage to the press's mechanics.

10.1 CALIBRATION OF FORCE TRANSDUCER

For the calibration of the force transducer, a reference load cell connected to the relevant display should be used. Obviously, the reference 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 load 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 for resetting the force reading on the Press-Right. Gain, on the other hand, is the multiplicative factor of the electrical signal provided by the load cell and allows the correct force value to be displayed.

Caution: Incorrect calibration of the force transducer can compromise the integrity of the cylinder itself. The system is provided pre-calibrated. These values should NOT be improperly altered, as this could jeopardize the integrity of the cylinder.

10.1.1 CALIBRATION PROCEDURE

Note: Calibration requires knowledge of the calibration password.

To reset the offset, follow this procedure:

Put the press in idle mode.
Access the menu: | Accessories | Diagnosis | Force Calibration.
Temporarily set zero as the offset value.
Read the value displayed by the force transducer and set it as the offset.
Verify that the force reading is approximately zero.
To adjust the gain, follow this procedure:

Place the reference load cell under the cylinder.
Manually lower the cylinder until it touches and compresses the reference cell to approximately ¾ of the cylinder's maximum force.
Record the two force values displayed by the Press-Right and the reference instrument at the same time.
Calculate the correction coefficient using the following formula:
COEFF = (value displayed by the reference instrument) / (value displayed by the Press-Right)
Access the menu: | Accessories | Diagnosis | Force Calibration.
Multiply the GAIN value by the coefficient calculated earlier.
Verify that the value displayed by the Press-Right matches that of the reference instrument.

10.2 ANALOG INPUT

The Press-Right has an analog input of 0-10V with a 12-bit analog-to-digital converter.
The offset is the digital value that is subtracted from the output value of the analog-to-digital converter.
The gain is the multiplication factor that adjusts the displayed measurement value.
The theoretical gain value to obtain measurements in hundredths of a millimeter is derived using the following formula:
Gain = (Nominal stroke in millimeters) / 40.96
This input is used with an external probe for more precise measurement of the measurement value.

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