NIDEC FIR INTERNATIONAL S.r.l.

HOISTS

LIST OF ATTACHMENTS
Appendix A - Spare Parts
Appendix B - Wiring Diagrams

Single-reeved hoist (BETA)

Double-reeved hoist

Models: HE200 - HE300 - HE500 - HE800 - HE1000 - BETA

USER AND MAINTENANCE MANUAL

Rev. 0 **Date** 04/12/2023 **Code** MUM-Paranchi-EUROPEA+BETA

Original instructions

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GENERAL SECTION OF THE MANUAL

OVERVIEW

This section is intended for:

- operators in charge of operation;
- cleaning operators;
- electrical maintenance operators;
- mechanical maintenance operators.

In the following text the term "**hoist**" may be replaced by the term "**machine**".

MANUFACTURER

MANUFACTURER	NIDEC FIR International S.r.l.
ADDRESS	Via Vanoni, 112 – 26041 CASALMAGGIORE (CR) - ITALY
PRODUCT	HOISTS
MODELS	HE200 – HE300 – HE500 – HE800 – HE1000 – BETA

PURPOSE OF THE MANUAL

This manual is written for the purpose of:

- providing a general description of the machine, models and variants, including safety devices, list of accessories and spare parts
- providing all useful and necessary information for the safe use of the machine during the operational phases of installation, use, cleaning, and maintenance, uninstallation, dismantling, scrapping, decommissioning and disposal
- documenting all operations carried out by the personnel in order to carry them out in complete safety
- producing a document identifying the risks related to use and maintenance and their mitigation actions.

The manual is an integral part of the machine equipment and is intended to provide all the information needed to:

- instruct and make the operator aware of the proper use of the machine and its functions, describing risks and hazards that result from inappropriate use, safeguarding the operator, personnel adjacent to the machine, and the machine itself;
- instruct and make the operator aware of the proper cleaning and inspection procedures, describing risks and hazards that result from inappropriate use of the cleaning equipment, safeguarding the operator, personnel adjacent to the machine, and the machine itself;
- carry out adequate mechanical maintenance to keep the machine safe and in excellent working condition;
- carry out adequate electrical maintenance to keep the machine safe and in excellent working condition.

This document assumes that, in the places where the machine is to be operated, the current health and safety at work regulations are complied with.

STORAGE OF THE MANUAL

The manual must be kept with care and must accompany the machine in all changes of ownership that it may undergo during its life cycle. Storage should be aided by handling it carefully, with clean hands and not by placing it on dirty surfaces.
No parts must be removed, torn off or arbitrarily altered. The Manual should be stored in an environment protected from humidity and heat and in the vicinity of the machine to which it refers.

RECIPIENTS OF THE MANUAL

This manual is intended for:

- operators in charge of operation;
- cleaning operators;
- electrical maintenance operators;
- mechanical maintenance operators.

REGULATORY REFERENCES

This manual fulfils the requirements of the "DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC", transposed as the "New Machinery Directive", and is written taking into account the standard UNI EN ISO 20607:2019.

STRUCTURE OF THE MANUAL

The manual consists of eight sections:

- General section valid for all operators and containing the description of the machine, warnings and general instructions including checking the safety devices
- Storage, packaging, transport and shipping section describing operations relating to the storage and transport of the machine
- Installation section describing installation of the machine on the support structure and connection to the mains power supply
- Operational section on the use of the machine by the operator
- Cleaning section containing instructions for cleaning operations carried out by the operator
- Uninstallation section describing the steps for removing the machine from the support structure and disconnecting it from the mains power supply
- Electrical maintenance section containing electrical maintenance instructions
- Mechanical maintenance section containing mechanical maintenance instructions
- Section on dismantling, scrapping, decommissioning and disposal operations

There are also two Appendices:

- Appendix A listing spare parts
- Appendix B listing the wiring diagrams of the machine and components

GENERAL SAFETY INFORMATION

Read and understand this manual before performing any work on the machine.

Read every single instruction completely before proceeding to perform each operation.

This chapter contains important safety information and is divided into the following sections:

- General safety warnings
- Symbols and descriptions
- Residual risks on electrical equipment

GENERAL WARNINGS

	**IMPORTANT** The general warnings described below must be scrupulously followed by the user

	**DANGER** Failure to observe the general warnings may lead to dangers and risks for all operators.

	**PROHIBITION** It is absolutely forbidden to carry out actions failing to comply with or in complete disregard of the general safety warnings

WARNINGS:

- These general warnings concern the safe use of the machine. Strict adherence to this manual is required.
- Keep this manual with the machine,
- For all maintenance activities, the power supply must be disconnected by unplugging the plug from the switchboard unless otherwise specified. All operators must be trained in this aspect.
- Observe all instructions in this manual,
- Use the machine in accordance with this manual and its intended use
- The machine can be installed outdoors in conditions sheltered from rain and water
- Do not install the machine in conditions subject to corrosive environmental agents or in seaside areas.
- Do not install the machine in areas subject to explosion hazards. The machine is not designed to work in an ATEX environment,
- Do not handle the machine if it is not equipped with the means prescribed by the manufacturer.
- Correct positioning of the machine, lighting and cleanliness of the environment are priority conditions for personal safety.

- The connection to the electrical system may only be carried out by specialised technical personnel.
- The connection to the electrical system must be carried out taking into account the electrical characteristics of the machine and it is forbidden to connect the machine to unsuitable electrical sockets, to cables that are undersized in relation to the machine power consumption and without the presence of a 300 mA type B residual current device.
- The electrical system to which the machine is connected must comply with the standards and be provided with a declaration of conformity.
- The electrical system to which the machine is connected must be inspected and verified in accordance with Italian Presidential Decree no. 462/01 as amended and supplemented.
- Ensure that the electrical system is connected by means of an appropriate cable to an efficient earthing system.
- Before carrying out any maintenance and/or repairs on the machine electrical equipment, the plug must be disconnected from the switchboard, unless otherwise specified. For M500 and MD800 models, wait 5 minutes before performing operations to allow the capacitors to discharge.
- Do not remove, cover or otherwise make safety warnings invisible.
- Replace safety warnings and/or safety pictograms on the machine in the event of damage within 1 hour of discovery
- Install electrical equipment in environments that only have the characteristics described in this manual
- Do not use and install electrical equipment in environments and areas with a risk of explosion
- Keep electrical equipment clean
- Do not modify the electrical equipment of the machine in any way
- The power cable must not be subjected to twisting forces or be in contact with hot parts
- If the power cable or any cable in general is damaged, it must be replaced immediately with an equivalent cable
- Do not use the electrical equipment and machine if there is visible degradation
- Carry out maintenance and periodic checks as indicated in this manual
- Do not tamper with safety devices
- Do not remove fixed guards or other systems that prevent access to hazardous and/or moving parts.
- Use of the machine or maintenance by untrained and inadequately trained personnel in accordance with this manual is prohibited
- Do not use the machine without the appropriate PPE.
- The operator must wear the PPE as specified in this manual
- Do not use the machine on a surface that is not flat and not completely level
- Failure to comply with the safety instructions in this manual, poor maintenance, non-use of Personal Protective Equipment and unauthorised modifications to the machine or electrical equipment can result in dangerous events for persons that cannot be foreseen beforehand.
- Any operation on the machine must be performed with all drives stopped and the power supply disconnected unless otherwise specified.
- Contact with moving or live parts can lead to serious injury or even death.

SYMBOLS

SYMBOL	DESCRIPTION
	**IMPORTANT** This symbol is used to indicate the recommendations, rules, warnings and notices that any person involved in the use of the machine must bear in mind during all phases of its life (installation, use, maintenance, dismantling, moving).
	**DANGER** This symbol is used in the manual for safety messages to indicate conduct that must absolutely be avoided when using the machine, during maintenance or when there is a potential danger and likelihood of serious injury or death.
	**CAUTION** This symbol is used in the manual for safety messages to warn of dangers which, if overlooked, could cause minor or moderate injury or damage. The message can also only be used to signal conditions that may cause damage to the machine.
	**ELECTRIC SHOCK HAZARD** This symbol is used in the manual for safety messages to indicate conduct that must absolutely be avoided when using the machine, during maintenance or when there is a potential danger and likelihood of serious injury or death from contact with live parts
	**PROHIBITION** This symbol is used in the manual for safety messages to indicate prohibited conduct when using the machine, during maintenance or when there is a potential danger and likelihood of serious injury or death
	**OBLIGATION TO READ THE MANUAL** This symbol is used in the manual for safety messages to indicate the obligation to read and understand this manual
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear a protective helmet
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear category I protective goggles
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear ear muffs or anti-noise devices
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear category I textile protective overalls
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear safety shoes

SYMBOL	DESCRIPTION
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear category I protective gloves
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear protective gloves for electrical work in compliance with EN 60903
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear protective gloves for mechanical work in compliance with EN 388
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear gloves and protective sleeves for high temperatures according to EN 407

CHOICE OF SPECIFIC PPE

The choice of PPE for specific risks for electrical work and mechanical work must take into account the instructions given in this manual.
Where required and specifically described in this manual, personal protective equipment selected in relation to the following criteria must be provided to all operators for whom the use of the specific PPE mentioned above is envisaged.

PPE for mechanical risks

SYMBOL ON PPE	DETAILS OF THE MARKING ON THE PPE
	PPE that provides protection against mechanical risks is marked with the symbol shown opposite. Choose PPE with appropriate characteristics according to the operations to be performed

PPE for electrical risks

SYMBOL ON PPE	DETAILS OF THE MARKING ON THE PPE
	PPE that provides protection against electrical risks is marked with the symbol shown opposite. Choose PPE with appropriate characteristics according to the operations to be performed

Safety information for the use of PPE

	**PROHIBITION** Do not use PPE that shows signs of degradation
	**DANGER** The use of PPE that shows signs of degradation can lead to serious injuries.
	**CAUTION** The use of PPE is a key aspect of ensuring safety.

GUARDS

The machine is equipped with guards that can be fixed and/or movable. These guards must not, under any circumstances, be dismantled or tampered with, as the use of the machine without such guards can lead to serious injuries to personnel in charge of operation, inspection and maintenance.

	**PROHIBITION** Do not operate the machine without guards

Guards must be removed by qualified and trained personnel on the basis of a specific procedure to be drafted by the User as this is an extraordinary operation that is not permitted.

RESIDUAL RISKS

The machine features residual risks

a) related to contact with moving parts
b) related to potential contact with handled loads
c) related to improper maintenance
d) related to non-compliance with the safe methods set out in this manual

In order to eliminate residual risks, it is necessary to:

- Strictly adhere to this manual
- Replace damaged parts immediately

The electrical equipment of the machine features residual risks

e) related to electric shock in the case of maintenance or other operation with live parts if the power plug is not disconnected.
f) related to failed insulation in the event of cable damage

In order to eliminate residual risks, it is necessary to:

- Strictly adhere to this manual
- Replace damaged parts immediately

GENERAL INFORMATION

This manual is written to provide information on all operations required for the correct installation, use, cleaning, maintenance, decommissioning and disposal of the machine.

STAFF DESCRIPTION

The personnel who may carry out activities on the machine and electrical equipment are defined below:

User
Person or organisation in control of the whole machine and electrical equipment. This can be a natural or legal person who owns the machine and its electrical equipment.

Operator
The person designated by the user who is responsible for the operation of the machine and its electrical equipment in the context of operation and normal operations, and for certain routine maintenance operations such as cleaning, in accordance with the specifications laid out in the user and maintenance manual, such as cleaning

Electrical maintenance technician
The personnel responsible for the maintenance of the machine and its electrical equipment must be qualified, i.e., trained by the manufacturer or user and with specialist electrical skills.
The performance of maintenance activities is reserved exclusively for specialised workers, i.e. electrical maintenance technicians: specialised, trained and authorised operators for the maintenance of electrical/electronic parts and systems.

Mechanical maintenance technician
The personnel responsible for the maintenance of the machine from a mechanical, hydraulic and pneumatic point of view must be qualified, i.e., trained by the manufacturer or user and with specialist mechanical maintenance skills.
The performance of maintenance activities is reserved exclusively for specialised workers, i.e. mechanical maintenance technicians: specialised, trained and authorised operators for the maintenance of mechanical parts and hydraulic and pneumatic systems.

BASIC CONCEPTS

This machine is intended to be used and/or maintained by personnel with the appropriate skills and knowledge as described below.

Operator
- must have been trained in the use of the machine;
- must have a high level of understanding of written English;
- must have read and understood this manual;
- must have knowledge of the general safety regulations and have attended all the courses provided for by the legislation in force (e.g. Italian Legislative Decree 81/08) for the relevant task as defined by the User's Risk Assessment Document.

Electrical maintenance technician
- must be qualified and specialised in electrical maintenance and have completed training in relation to this manual;
- must have knowledge of general machine safety regulations;
- must have 3 years' experience in electrical machine maintenance;
- must have a high level of understanding of written English;
- must have read this manual and be able to consult it;
- must have knowledge of the general safety regulations and have attended all the courses provided for by the legislation in force (e.g. Italian Legislative Decree 81/08) for the relevant task as defined by the User's Risk Assessment Document.

Mechanical maintenance technician

- must be qualified and specialised in mechanical maintenance and have completed training in relation to this manual;
- must have knowledge of general machine safety regulations;
- must have 3 years' experience in mechanical maintenance;
- must have a high level of understanding of written English;
- must have read this manual and be able to consult it;
- must have knowledge of the general safety regulations and have attended all the courses provided for by the legislation in force (e.g. Italian Legislative Decree 81/08) for the relevant task as defined by the User's Risk Assessment Document.

	**IMPORTANT** The User is responsible for - carrying out, through the appropriate bodies, the risk assessment associated with the type of activity, appoint medical and safety personnel, as required by Italian Legislative Decree 81/08; - organising staff training, in compliance with Italian Legislative Decree 81/08; - setting up fire-fighting and first aid teams and providing the necessary emergency equipment; - providing workers with personal protective equipment; - taking all possible measures so that there are no risks or dangers associated with the system where the machine is placed; - entrusting operation, cleaning and maintenance to trained personnel
	**DANGER** The use of poorly trained personnel or non-compliance with applicable health and safety regulations can lead to injury or death
	**CAUTION** The use of poorly trained personnel or non-compliance with applicable health and safety regulations can lead to injury or death

STAFF TRAINING

All personnel must be at least 18 years of age and must have been trained according to current regulations in terms of occupational safety and must demonstrate adequate sensory skills in terms of manual dexterity, alertness, common sense, self-control, calmness, precision, coordination of movements and reflexes.

All personnel must be trained before using the machine for the first time in accordance with this manual. The training must be repeated at least annually.
The user must check and record that all personnel are able to understand and read this manual and understand the warning and hazard symbols.
The duration and content of the training must be sufficiently comprehensive to achieve the objectives. The training must consist mainly of practical experience (50% of the training period).

Practical training must be provided by personnel experienced in the activity defined by the user.

Training must alternate with practical and theoretical tests organised in such a way that it is possible to verify whether the objectives have been achieved.

The content of the training programme is essential for achieving the objectives. The training plan must be defined by the user in accordance with this manual. The user must ensure that all operating personnel (operator) and maintenance personnel receive the necessary training in accordance with this manual and keep records of the training carried out.

STAFF COMPETENCE

Only persons defined as "experts" in accordance with the following can operate and maintain the machine and its electrical equipment.

For the purposes of defining competence, the terms given in the technical standard EN 61439-1 are used, which provides various definitions of the people who may work on the machine and its electrical equipment in various capacities.

EXPERT PERSON: A person having appropriate education, training and experience that enables him/her to prevent risks and avoid hazards that may arise.
A person who possesses the basic knowledge and experience and has been trained in line with this manual is defined as an expert person.

WARNED PERSON: A non-expert person who, despite having the basic knowledge indicated in this manual, only works under the supervision of an expert person to prevent risks and avoid hazards that may arise.

COMMON PERSON: A person who is neither expert nor warned.

AUTHORISED PERSON: An expert person who has been authorised to perform a specific job by an official document, i.e. by an appointment to the task.

	**IMPORTANT** It is up to the user to define and identify from among its personnel the ones who have a role of **EXPERT PERSON, WARNED PERSON, COMMON PERSON and AUTHORISED PERSON**.

	**CAUTION** Incorrect or failed qualification of personnel by the user leads to dangerous situations.
	**PROHIBITION** The use, installation and maintenance of electrical equipment and machinery is not permitted without a clear definition by the user of each figure and the relevant training completed

	**PROHIBITION** Operation, cleaning and/or maintenance operations are prohibited unless carried out under the direct supervision of an expert person.

	**PROHIBITION** It is forbidden for a non-expert person to work on the machine or its equipment except during training.

	**PROHIBITION** It is forbidden for a common person to work on the machine or its equipment in any capacity whatsoever.

MACHINE DESCRIPTION

GENERAL DESCRIPTION

The machines covered by this manual are hoists according to definition 3.1.9 of standard EN 14492-2:2019 "Machine for lifting and lowering loads, freely suspended or guided or supported on inclined planes, over predetermined distances, with or without trolleys".
The machine was designed and built for general indoor and outdoor use. The use of the lift requires it to be installed on a stand provided by the Manufacturer or on a similar stand suitably designed for the expected stresses. The stand or similar support is not an integral part of the product, and it remains the responsibility of the user to certify the assembly.
The machine can be connected to the power source via an industrial-type plug, which can be used as a disconnecting switch.
The rope, at the end of which is a hook, unwinds and winds on a rope winding drum that is part of the machine body of the lift.
The operator, after placing the lift in the correct location on the paths of the stand, hooks the load and operates the hold-to-run control device to raise and lower the load. The control device can be a hand control, a remote control with cable.
or an inverter.

INTENDED USE

The machine is intended for the lifting and lowering of freely suspended loads on the vertical axis of the rope winding drum.

	**PROHIBITION** It is absolutely forbidden to use the machine for lifting and transporting people and/or animals, or structures on which people and/or animals are standing.

DEFINITION OF MODELS

The machine is made in five different models for power and lifting capacity and type of lift, single-reeved and double-reeved.
The hoists covered by this manual are called HE200 – HE300 – HE500 – HE800 – HE1000 – BETA available in the variants and maximum capacity indicated in the following table:

Famiglia	Versione	Motore	Codice prodotto	maximum capacity
HE200	HE 200	2344D2350	HE200S25J0	200 kg
	HE 200	2394.4010	HE200E25P1	
	HE 200	2394.1412	HE200S25P0	
	HE 200	2394.4300	HE200A25P0	
	HE 200 veloce	2394M1150	HE200F40PA	
	HE 200 veloce	2394M2350	HE200S40P0	
HE300	HE 300 MF	2356.1420	HE300S35P0	300 kg
	HE 300 MF	2356.4000	HE300S25P0	
HE500	HE 500 MF T.D.	2356.1420	HE500S25P1	500 kg
	HE 500 MF T.D.	2356.4000	HE500F25P0	
	HE 500 MF T.S.	2356.4310	HE50DA40C0	
	HE 500 TF	2357.4050	HE500T40C0	
	HE 500 TF	2357.4150	HE500U25C2	
	HE 500 TF	2357.5500	HE501C40I0	
HE800	HE 800 MF T.D.	2356.4310	HE801A40C1	800 kg
	HE 800 TF T.D.	2357.4050	HE801T40I0	
HE1000	HE 1000 MF T.D.	2356.1412	HE101S35P0	950 kg
	HE 1000 TF T.D.	2357.5500	HE101C40I0	
BETA	EM 200	2394.1412	804000005	200 kg

where:
- MF means single-phase power supply
- TF means three-phase power supply
- T.D. means double-reeved

TECHNICAL CHARACTERISTICS

Below are the technical characteristics of each model. First code model, second code motor.

Hoists / Item	HE 200				HE 200 veloce	
	HE200S25J0 2344D2350	**HE200E25P1 2394.4010**	**HE200S25P0 2394.1412**	**HE200A25P0 2394.4300**	**HE200F40PA 2394M1150**	**HE200S40P0 2394M2350**
Dimensions (mm)	690x210x350	690x210x350	690x210x350	690x210x350	690x210x350	690x210x350
Weight (kg)	37	37	37	37	37	39
Capacity (kg)	200	200	200	200	200	200
Rope diameter (mm)	5	5	5	5	4	4
Rope resistance class (N/mm2)	1960	1960	1960	1960	1960	1960
Minimum rope breaking load (kN)	15	15	15	15	10	10
Average lifting speed (m/min)	23	23	23	23	39	39
Tiro utile (m)	25	25	25	25	40	40
Tiro utile max (m)	35	35	35	35	40	40
Electric motor power (kw)	0.750	0.750	0.75	0.750	1.000	1.300
Voltage (V)	230	110	230	220	110	230
Frequency (Hz)	50	60	50	60	50	50
Capacitor (µF)	60/450V	220/250V	55/450V	55/450V	320/250V	80/45V
Sound pressure level LpA (dB)	74	74	74	74	74	74
Operating temperature (°C)	-15°C +60°C	-15°C +60°C	-15°C +60°C	-15°C +60°C	-15°C +60°C	-15°C +60°C
Stand mass (kg)	115	115	115	115	115	115
Mass of ballast container (kg)	33	33	33	33	33	33
Ballast mass (kg)	300	300	300	300	300	300

Below are the technical characteristics of each model. First code model, second code motor.

Hoists / Item	HE 300 MF		HE 500 MF T.D.		HE 500 MF T.S.
	HE300S35P0 2356.1420	**HE300S25P0 2356.4000**	**HE500S25P1 2356.1420**	**HE500F25P0 2356.4000**	**HE50DA40C0 2356.4310**
Dimensions (mm)	860x320x530	860x320x530	860x320x550	860x320x550	860x320x550
Weight (kg)	48	48	55	55	48
Capacity (kg)	300	300	500	500	500
Rope diameter (mm)	6	6	5	5	7
Rope resistance class (N/mm2)	2062	2062	1960	1960	1960
Minimum rope breaking load (kN)	24	24	15	15	33
Average lifting speed (m/min)	23	23	11.5	11.5	23
Tiro utile (m)	25	25	25	25	25
Tiro utile max (m)	40	40	40	40	40
Electric motor power (kw)	1.100	1.100	1.100	1.100	1.500
Voltage (V)	220	110	220	110	220
Frequency (Hz)	50	50	50	50	60
Capacitor (µF)	70/450V	280/250V	70/450V	280/250V	80/450V
Sound pressure level LpA (dB)	74	74	74	74	74
Operating temperature (°C)	-15°C +60°C	-15°C +60°C	-15°C +60°C	-15°C +60°C	-15°C +60°C
Stand mass (kg)	115	115	160	160	160
Mass of ballast container (kg)	33	33	54	54	54
Ballast mass (kg)	300	300	600	600	600

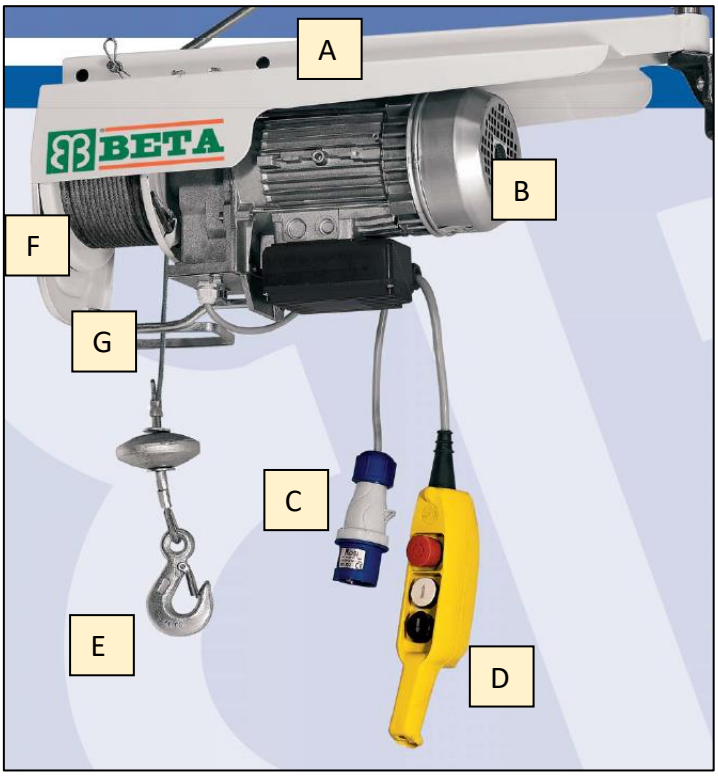
Below are the technical characteristics of each model. First code model, second code motor.

Hoists / Item	HE 500 TF			HE 800 MF T.D.	HE 800 TF T.D.
	HE500T40C0 2357.4050	**HE500U25C2 2357.4150**	**HE501C40I0 2357.5500**	**HE801A40C1 2356.4310**	**HE801T40I0 2357.4050**
Dimensions (mm)	860x320x530	860x320x530	860x320x530	860x320x570	860x320x570
Weight (kg)	50	50	50	60	60
Capacity (kg)	500	500	500	800	800
Rope diameter (mm)	7	7	7	6	6
Rope resistance class (N/mm2)	1960	1960	1960	2062	2062
Minimum rope breaking load (kN)	33	33	33	24	24
Average lifting speed (m/min)	24	24	24	11.5	12
Tiro utile (m)	25	25	25	25	25
Tiro utile max (m)	40	40	40	40	40
Electric motor power (kw)	2.500	1.85	1.85	1.500	2.500
Voltage (V)	220/380	240/415	220	220	220/380
Frequency (Hz)	50	50	60	60	50
Capacitor (µF)	n.a.	n.a.	n.a.	80/450V	n.a.
Sound pressure level LpA (dB)	74	74	74	74	74
Operating temperature (°C)	-15°C +60°C	-15°C +60°C	-15°C +60°C	-15°C +60°C	-15°C +60°C
Stand mass (kg)	160	160	160	160	160
Mass of ballast container (kg)	54	54	54	54	54
Ballast mass (kg)	600	600	600	800	800

Below are the technical characteristics of each model. First code model, second code motor.

Hoists / Item	HE 1000 MF T.D.	HE 1000 TF T.D.	BETA EM 200
	HE101S35P0 2356.1412	**HE101C40I0 2357.5500**	**804000005 2394.1412**
Dimensions (mm)	860x320x570	860x320x570	690x210x350
Weight (kg)	62	62	37
Capacity (kg)	950	950	200
Rope diameter (mm)	7	7	5
Rope resistance class (N/mm2)	1960	1960	1960
Minimum rope breaking load (kN)	33	33	15
Average lifting speed (m/min)	12	12	23
Tiro utile (m)	40	40	25
Tiro utile max (m)	40	40	n.a.
Electric motor power (kw)	1.500	1.850	0.75
Voltage (V)	230	220	230
Frequency (Hz)	50	60	50
Capacitor (µF)	80/450V	n.a.	55/450V
Sound pressure level LpA (dB)	74	74	74
Operating temperature (°C)	-15°C +60°C	-15°C +60°C	-15°C +60°C
Stand mass (kg)	160	160	160
Mass of ballast container (kg)	54	54	33
Ballast mass (kg)	1000	1000	300

DESCRIPTION OF THE SINGLE-REEVED MACHINE PARTS

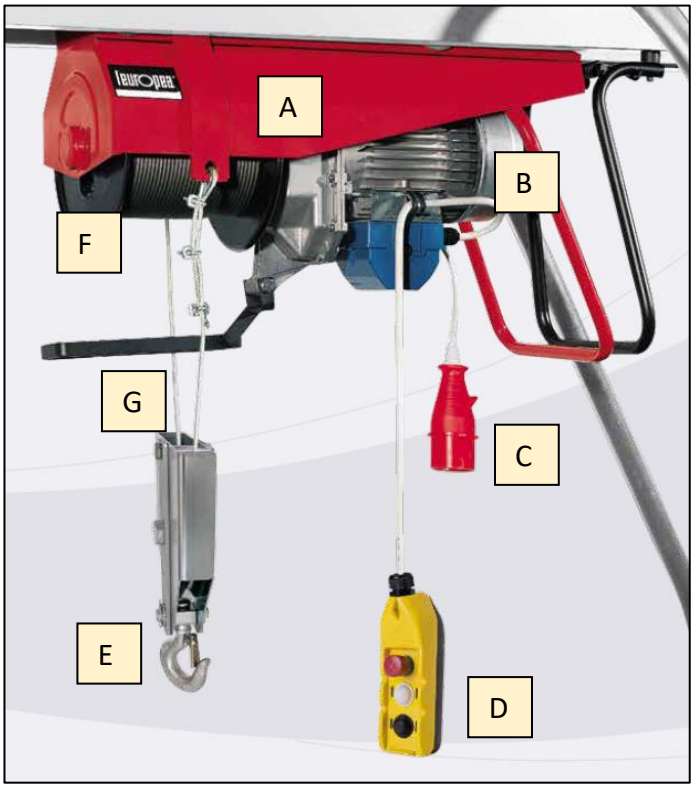


A Trolley
B Lifting motor
C Plug for power supply
D Control unit
E Hook
F Drum
G Rope

The single-reeved models are:

- HE 200
- HE 200 Veloce
- HE 300 MF
- HE 500MF
- HE 500 TF
- BETA

DESCRIPTION OF THE DOUBLE-REEVED MACHINE PARTS



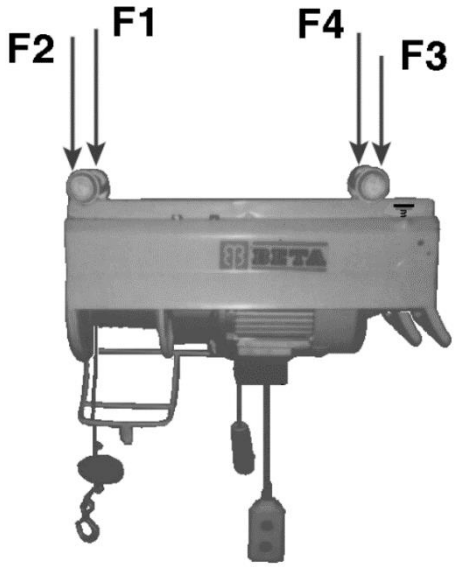
A Trolley
B Lifting motor
C Plug for power supply
D Control unit
E Hook
F Drum
G Rope

The double-reeved models are:

- HE 500 MF TD
- HE 800 MF TD
- HE 800 TF TD
- HE 1000 TF TD

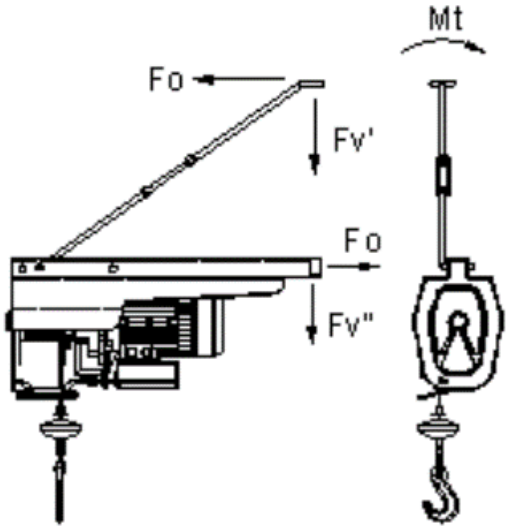
ACTIONS EXERTED BY THE WHEELS ON THE RUNNING PATH

Diagram of forces HE 200 – HE 300 – HE 500 – HE 800 – HE 1000 – BETA models on wheels:



Force	HE 200	HE 300	HE 500	HE800	HE1000	BETA
F1 (N)	1561		9845	8835	9845	1561
F2 (N)	370		1185	1005	1185	370
F3 (N)	1292		4005	3050	4005	1292
F4 (N)	-494		-3934	-3040	-3934	-494

Diagram of forces HE 200 - BETA models for pole:



Force	HE 200	BETA
Fv^{I} (N)	2825	2825
Fv^{II} (N)	108	108
Fo (N)	4238	4238
Mt (N/m)	118	118

VARIANTS

All hoists can be sold with different types of control:

- electromechanical control (three-phase and single-phase versions)
- lever control (three-phase version)

Electromechanical control
"Push-button panel"

Lever control
"Three-phase Inverter" and "Single-phase Inverter"

ACCESSORIES SUPPLIED

Models HE 200, HE 200 Veloce, HE 300 MF, HE 500 MF TD, HE 500 MF TS, HE 800 MF and BETA are equipped with a female plug as described in the table in addition to the plug for mains connection:

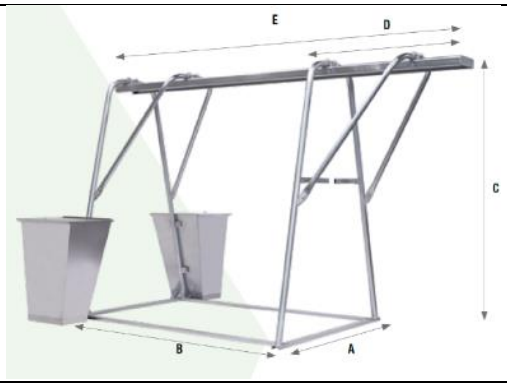
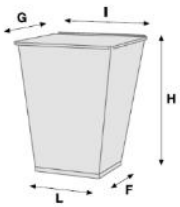
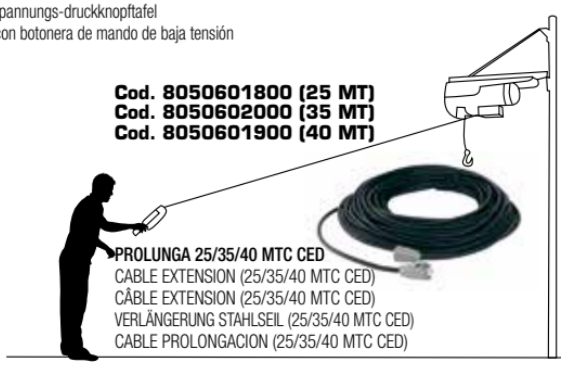
IEC 60309 approved plug 2Ph+ GND 220V 16A	

Models HE 500 TF, HE 800 TF TD and HE 1000 TF TD are equipped with a female plug as described in the table in addition to the plug for mains connection:

IEC 60309 approved plug 3Ph+GND 400V 3N 16A	

All hoists are placed on the market with a CE-certified hook as part of the initial delivery

ACCESSORIES AVAILABLE SEPARATELY

Hoist stand with small wheels (SW): Code: AHECVA0015 (115 kg) Hoist stand with large wheels (LW) Code: AHECVA0035 (160 kg)	
Ballast containers for stand	300 kg code 9200826000 (33 kg) F mm 275 | G mm 505 | H mm 835 | I mm 635 | L mm 400 950kg code 9200827000 (54 kg) F mm 390 | G mm 640 | H mm 950 | I mm 770 | L mm 520  
Loading basket	**Cod. 0002800000 (lt 80)** **Cod. 0002150000 (lt 150)**  **SECCHIONI lt. 80/150** 80/150 LITRE BUCKET BENNE DE 80/150 LITRES EIMER 80/150 LITER CUBO GRANDE DE 80/150 LITROS
Single-phase remote control (CED)	**Cod. S145819007** **CED MONOFASE Comando Elettrico a Distanza a bassa tensione** SINGLE-PHASE remote-control with low voltage CED MONOPHASÉ Commande électrique à distance à basse tension Elektrische EINPHASEN-fernsteuerung mit Niederspannungs-druckknopftafel CED MONOFÁSICO - Mando eléctrico a distancia con botonera de mando de baja tensión  **Cod. 8050601800 (25 MT)** **Cod. 8050602000 (35 MT)** **Cod. 8050601900 (40 MT)**  **PROLUNGA 25/35/40 MTC CED** CABLE EXTENSION (25/35/40 MTC CED) CÂBLE EXTENSION (25/35/40 MTC CED) VERLÄNGERUNG STAHLSEIL (25/35/40 MTC CED) CABLE PROLONGACION (25/35/40 MTC CED)

Three-phase remote control (CED)	**Cod. S145817507** **CED TRIFASE Comando Elettrico a Distanza a bassa tensione** THREE-PHASE remote-control with low voltage CED TRIPHASÉ Commande électrique à distance à basse tension Elektrische DREIPHASEN-fernsteuerung mit Niederspannungs-druckknopftafel CED TRIFÁSICO - Mando eléctrico a distancia con botonera de mando de baja tensión  **Cod. 8050601800 (25 MT)** **Cod. 8050602000 (35 MT)** **Cod. 8050601900 (40 MT)** **PROLUNGA 25/35/40 MTC CED** CABLE EXTENSION (25/35/40 MTC CED) CÂBLE EXTENSION (25/35/40 MTC CED) VERLÄNGERUNG STAHLSEIL (25/35/40 MTC CED) CABLE PROLONGACION (25/35/40 MTC CED)

		HOIST MODELS				
Accessory	**Code**	**HE 200**	**HE 200 Veloce**	**HE 300 MF**	**HE 500 MF TD**	**HE 500 MF TS**
Stand up to 500kg galvanised (SW)	AHECVA0015	X	X	X	X	X
Stand up to 950kg galvanised (LW)	AHECVA0035	X	X	X	X	X
Pair of 300kg ballast containers	9200826000	X	X	X		
Pair of 950kg ballast containers	9200827000	X	X	X	X	X
Loading basket (l 80)	0002800000	X	X	X	X	X
Loading basket (l 150)	0002150000	X	X	X	X	X
Single-phase remote control (LV)	S145819007	X	X	X	X	X
Three-phase remote control (LV)	S145817507					

Accessory	**Code**	**HE 500 TF**	**HE 800 MF**	**HE 800 TF TD**	**HE 1000 TF TD**	**BETA**
Stand up to 500kg galvanised (SW)	AHECVA0015	X				X
Stand up to 950kg galvanised (LW)	AHECVA0035	X	X	X	X	X
Pair of 300kg ballast containers	9200826000					X
Pair of 950kg ballast containers	9200827000	X	X	X	X	X
Loading basket (l 80)	0002800000	X	X	X	X	X
Loading basket (l 150)	0002150000	X	X	X	X	X
Single-phase remote control (LV)	S145819007		X			X
Three-phase remote control (LV)	S145817507	X		X	X	

CLASSIFICATION

Hoists are classified according to the following table whose parameters are identified and calculated based on the following standards:

- ISO 4301-1: Cranes and lifting appliances - Classification
- ISO 12482-1: Cranes - Condition monitoring - General
- FEM 1.001: Fatigue calculations for lifting equipment
- FEM 9.755: Safe working period for lifting equipment

Parameter	HE 200 and BETA	HE 200 Veloce	HE 300 MF	HE 500 MF T.D.	HE 500 MF TS
Design data					
No. cycles/h	4 cycles/h	4 cycles/h	4 cycles/h	4 cycles/h	4 cycles/h
Lifting speed	23 m/min	39 m/min	23 m/min	11.5 m/min	23 m/min
Hook stroke (max.)	35 m	40 m	40 m	40 m	40 m
Hook stroke (average)	25 m	40 m	25 m	25 m	25 m
Daily operating time	8 h	8 h	8 h	8 h	8 h
Average daily operating time	1.62 h	1.09 h	1.86 h	3.71 h	1.86 h
Operating time/year (200 working days)	325 h	219 h	371 h	742 h	371 h
Expected average life	5 years	5 years	5 years	5 years	5 years
Duty cycle					
Ct	32 cycles/day	32 cycles/day	32 cycles/day	32 cycles/day	32 cycles/day
C_1	6 cycles at maximum load (P_1=200 kg)	6 cycles at maximum load (P_1=200 kg)	6 cycles at maximum load (P_1=300 kg)	6 cycles at maximum load (P_1=500 kg)	6 cycles at maximum load (P_1=500 kg)
C_2	9 cycles at 70% of max. load (P2=140 kg)	9 cycles at 70% of max. load (P2=140 kg)	9 cycles at 70% of max. load (P2=210 kg)	9 cycles at 70% of max. load (P2=350 kg)	9 cycles at 70% of max. load (P2=350 kg)
C_3	12 cycles at 50% of max. load (P3=100 kg)	12 cycles at 50% of max. load (P3=100 kg)	12 cycles at 50% of max. load (P3=150 kg)	12 cycles at 50% of max. load (P3=250 kg)	12 cycles at 50% of max. load (P3=250 kg)
C_4	5 cycles at 30% of max. load (P4=60 kg)	5 cycles at 30% of max. load (P4=60 kg)	5 cycles at 30% of max. load (P4=90 kg)	5 cycles at 30% of max. load (P4=150 kg)	5 cycles at 30% of max. load (P4=150 kg)
Load spectrum factor K_p	0335	0330	0335	0335	0335
Conditions of use					
Max. number of operating cycles foreseen	32,000 cycles	32,000 cycles	32,000 cycles	32,000 cycles	32,000 cycles
Mechanisms					
Max. operating hours	1623 h	1094 h	1855 h	3710 h	1855 h
Frequency of use	Irregular	Irregular	Irregular	Irregular	Irregular
Structure					
Class	A1	A1	A1	A1	A1
Duty cycle	Q3	Q3	Q3	Q3	Q3
Class of use	U1	U1	U1	U1	U1
Lifting mechanism					
Class	M2	M2	M2	M2	M2
Duty cycle	L3	L3	L3	L3	L3
Class of use	T3	T3	T3	T3	T3

Parameter	HE 500 TF	HE 800 MF T.D.	HE 800 TF T.D.	HE 1000 MF T.D.	HE 1000 TF T.D.
Design data					
No. cycles/h	4 cycles/h	4 cycles/h	4 cycles/h	4 cycles/h	4 cycles/h
Lifting speed	24 m/min	11.5 m/min	12 m/min	11.5 m/min	12 m/min
Hook stroke (max.)	40 m	40 m	40 m	40 m	40 m
Hook stroke (average)	25 m	25 m	25 m	40 m	40 m
Daily operating time	8 h	8 h	8 h	8 h	8 h
Average daily operating time	1.78 h	3.71 h	3.56 h	3.71 h	3.56 h
Operating time/year (200 working days)	356 h	742 h	711 h	742 h	711 h
Expected average life	5 years	5 years	5 years	5 years	5 years
Duty cycle					
Ct	32 cycles/day	32 cycles/day	32 cycles/day	32 cycles/day	32 cycles/day
C_1	6 cycles at maximum load (P_1=500 kg)	6 cycles at maximum load (P_1=800 kg)	6 cycles at maximum load (P_1=800 kg)	6 cycles at maximum load (P_1=950 kg)	6 cycles at maximum load (P_1=950 kg)
C_2	9 cycles at 70% of max. load (P2=350 kg)	9 cycles at 70% of max. load (P2=560 kg)	9 cycles at 70% of max. load (P2=560 kg)	9 cycles at 70% of max. load (P2=665 kg)	9 cycles at 70% of max. load (P2=665 kg)
C_3	12 cycles at 50% of max. load (P3=250 kg)	12 cycles at 50% of max. load (P3=400 kg)	12 cycles at 50% of max. load (P3=400 kg)	12 cycles at 50% of max. load (P3=475 kg)	12 cycles at 50% of max. load (P3=475 kg)
C_4	5 cycles at 30% of max. load (P4=150 kg)	5 cycles at 30% of max. load (P4=240 kg)	5 cycles at 30% of max. load (P4=240 kg)	5 cycles at 30% of max. load (P4=285 kg)	5 cycles at 30% of max. load (P4=285 kg)
Load spectrum factor K_p	0335	0335	0335	0335	0335
Conditions of use					
Max. number of operating cycles foreseen	32,000 cycles	32,000 cycles	32,000 cycles	32,000 cycles	32,000 cycles
Mechanisms					
Max. operating hours	1778 h	3710 h	3556 h	3556 h	3556 h
Frequency of use	Irregular	Irregular	Irregular	Irregular	Irregular
Structure					
Class	A1	A1	A1	A1	A1
Duty cycle	Q3	Q3	Q3	Q3	Q3
Class of use	U1	U1	U1	U1	U1
Lifting mechanism					
Class	M2	M2	M2	M2	M2
Duty cycle	L3	L3	L3	L3	L3
Class of use	T3	T3	T3	T3	T3

EXPECTED LIFE

Based on the verifications carried out and the findings of the calculation report, the expected life of the hoist and its components is 5 years.

IP PROTECTION OF ELECTRICAL EQUIPMENT

The electrical equipment has an IP54 degree of protection in accordance with EN 60204-1 latest revision

1st NUMBER **Protection against the ingress of solids**	**2nd NUMBER** **Protection against the ingress of liquids**
5 - "Protected against dust"	4 - "Protected against splashing water"

ENVIRONMENTAL CONDITIONS

The machine and its electrical equipment require no special environmental conditions. It can be installed outdoors, in conditions not subject to corrosive environmental agents or in seaside areas. The room must be properly lit, ventilated and have a solid and level floor. Temperatures of 0 °C to 40 °C are permissible, with humidity not exceeding 50% at 40 °C or not exceeding 90% at 20 °C.
The electrical equipment is suitable for operation in environments featuring:

- altitude not exceeding 1000 m above sea level
- temperature between - 15 °C and + 60 °C
- humidity not exceeding 50% at a maximum temperature of + 40 °C. Higher relative humidity values are permissible at lower temperatures (e.g. 90% at 20 °C).

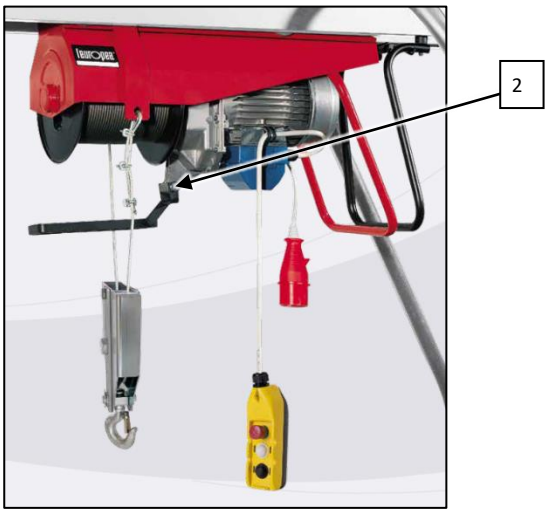
	**PROHIBITION** Electrical equipment must not be installed in environments - with explosive atmosphere; - that are corrosive; - with fire risk - exposed to rain

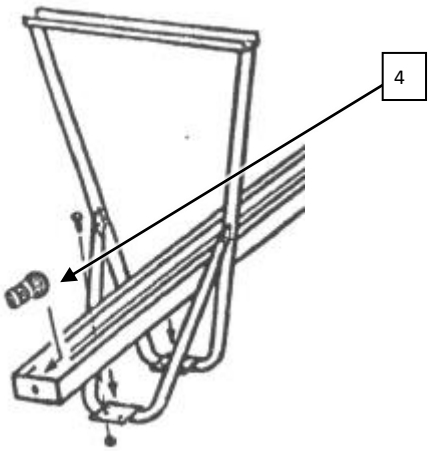
DESCRIPTION OF SAFETY COMPONENTS

The machine has the following safety devices:

Identification No.	Component Description
1	Emergency stop for hand control versions
2	Upstroke stop microswitch
3	Load lifting limit switch safety lever.
4	End-mounted dampers for the "Stand" structure

The structure on which the machine is installed, if it differs from the stands that can be purchased as accessories, must be equipped with end-mounted dampers on the sliding rails inside which the machine can move. There are no travel stop safety systems as travel is not motorised but free.





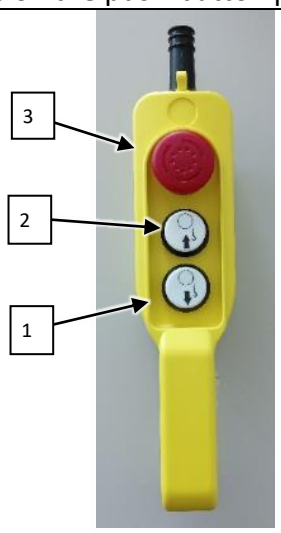
6

	**CAUTION** The correct operation of all safety components must be checked at the beginning of the machine work cycle (e.g. at the beginning of the work shift)
	**PROHIBITION** It is forbidden to remove or tamper with safety devices
	**PROHIBITION** It is forbidden to modify safety components and their architectures
	**PROHIBITION** It is forbidden to replace safety components with other components of a different make and model

All safety devices comply with the respective standards in force at the time of commissioning/based on the year of manufacture of the machine

DESCRIPTION OF MACHINE CONTROLS - PUSH-BUTTON PANEL CODE G762170000

The meaning of the various controls on the push-button panel is shown in the table below

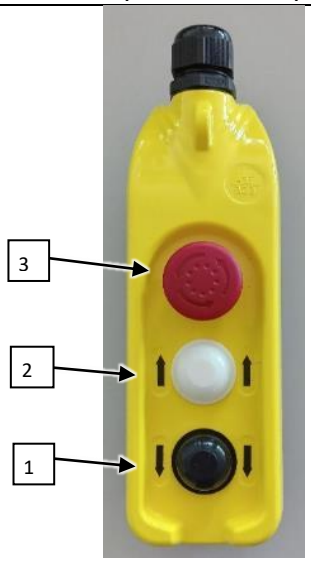


Push-button panel code G762170000

Command/warning light ID	Command/warning light description
1	Load down button
2	Load up button
3	Emergency stop button

DESCRIPTION OF MACHINE CONTROLS - PUSH-BUTTON PANEL CODE G762460001

The meaning of the various controls on the push-button panel is shown in the table below

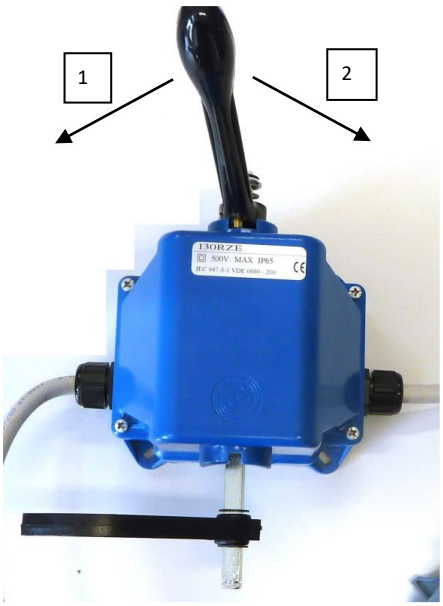


Push-button panel code G762460001

Command/warning light ID	Command/warning light description
1	Load down button
2	Load up button
3	Emergency stop button

DESCRIPTION OF MACHINE CONTROLS - THREE-PHASE INVERTER LEVER CONTROL

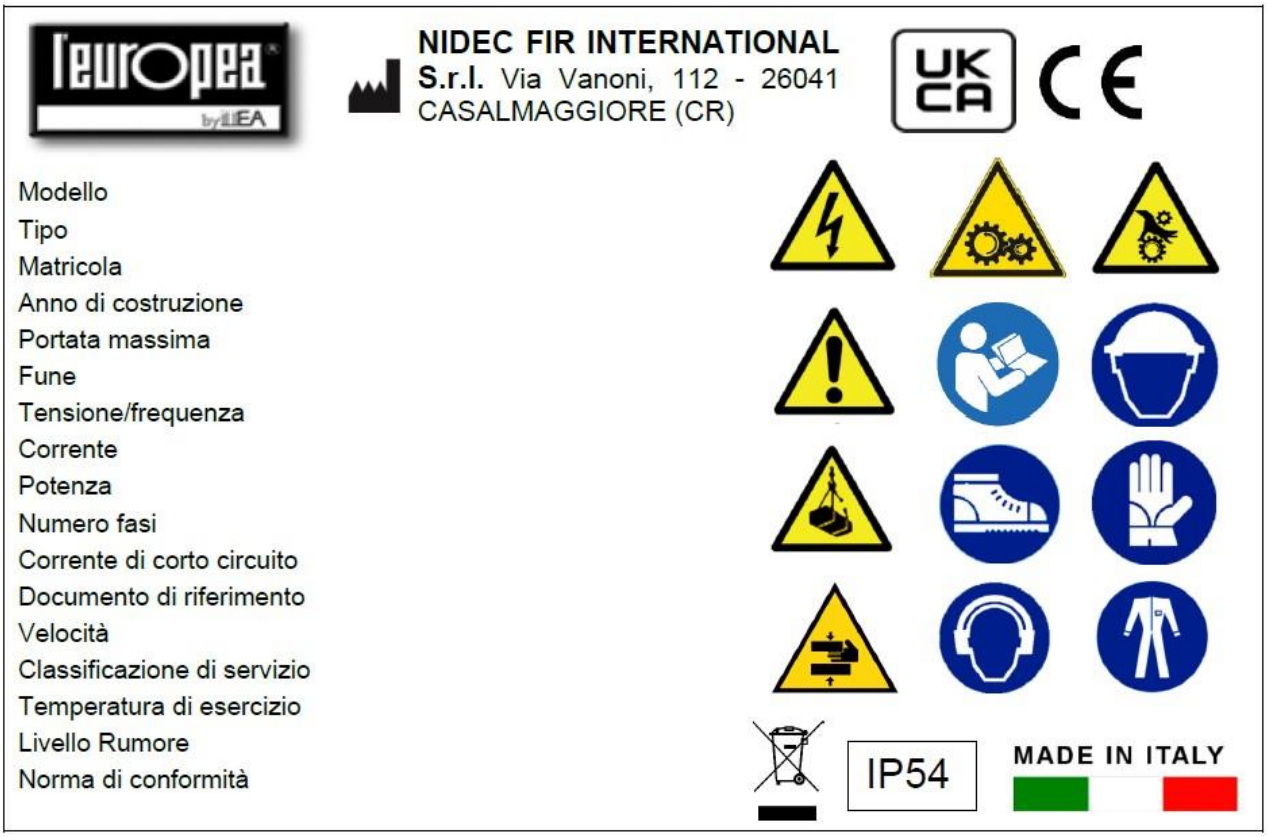
The meaning of the various controls on the three-phase inverter lever control is shown in the table below

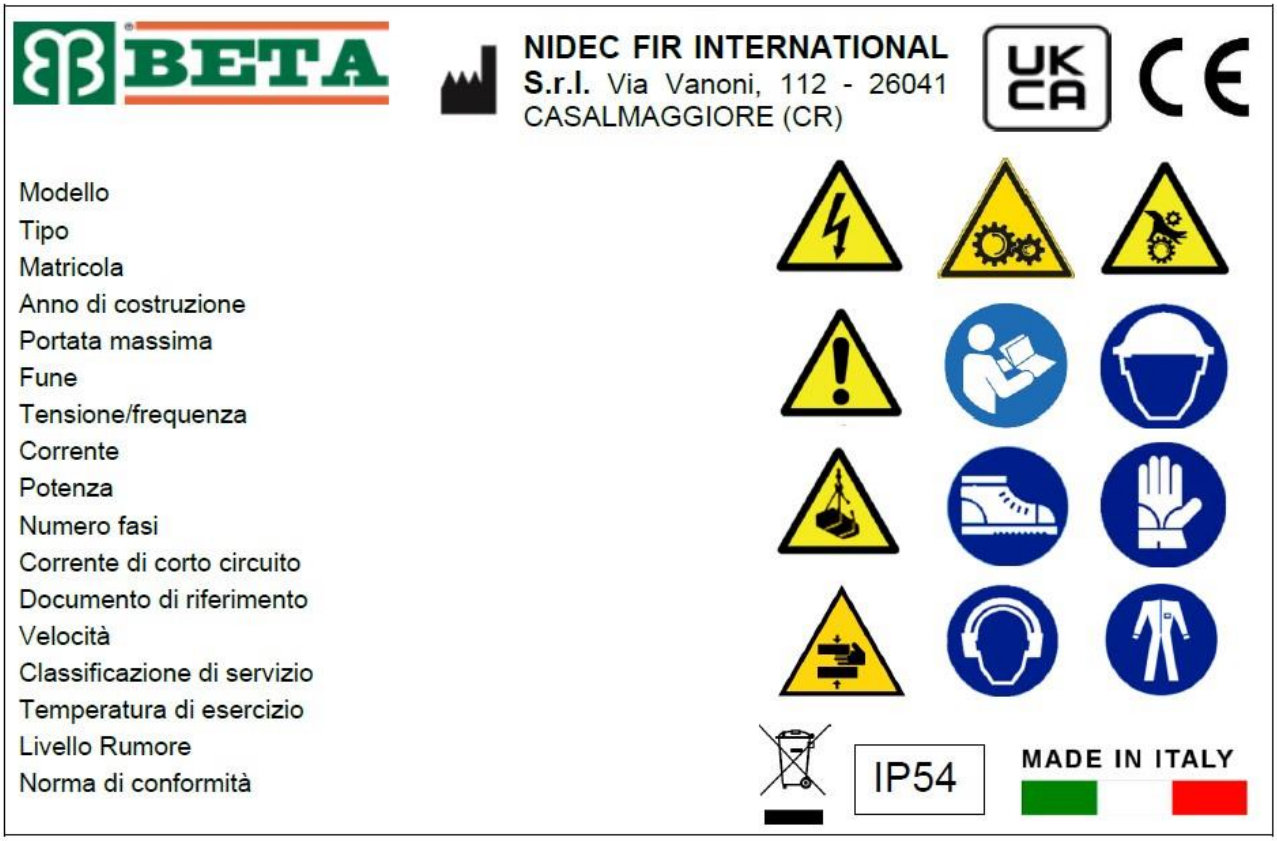


Three-phase inverter lever control

Command/warning light ID	Command/warning light description
1	Lever position for load lifting
2	Lever position for load lowering

SAFETY LABELLING PLAN





MEANING OF SYMBOLS

The symbols on the machine have the following meaning:

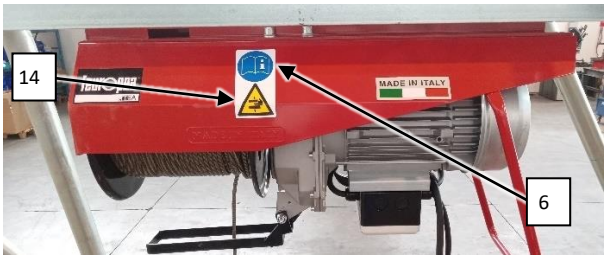
1		Trademark owned by the manufacturer (EUROPEA)
		Trademark owned by the manufacturer (BETA)
2		Manufacturer's identification and references
3		CE marking
4		The product must not be disposed of as unsorted waste but must be sent to separate collection facilities for recovery and recycling.
5	**IP54**	The product conforms to IP54 for outdoor use
6		Read the operator's manual
7		OBLIGATION TO USE A PROTECTIVE HELMET
8		OBLIGATION TO USE PROTECTIVE GLOVES
9		OBLIGATION TO USE HEARING PROTECTORS

10		OBLIGATION TO USE WORK CLOTHES AND OVERALLS
11		OBLIGATION TO WEAR PROTECTIVE SAFETY SHOES
12		CAUTION DANGER OF SUSPENDED LOADS
13		CAUTION DANGER OF CRUSHING BETWEEN ROTATING PARTS
14		CAUTION DANGER OF CRUSHING
15		CAUTION MOVING ORGANS
16		CAUTION: SYMBOL FOR GENERAL WARNING
17		CAUTION ELECTRIC SHOCK HAZARD

LOCATION OF PICTOGRAMS

The machine is equipped with the following pictograms and safety warnings.

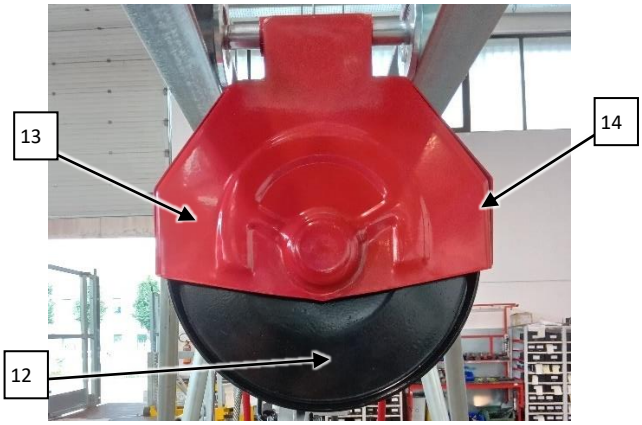

1

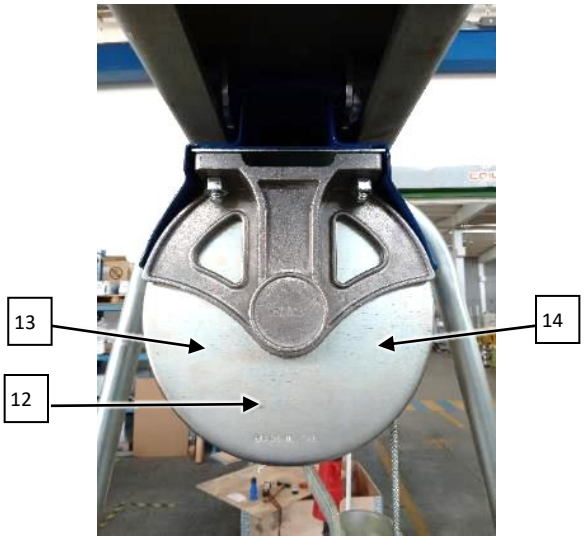

14
6

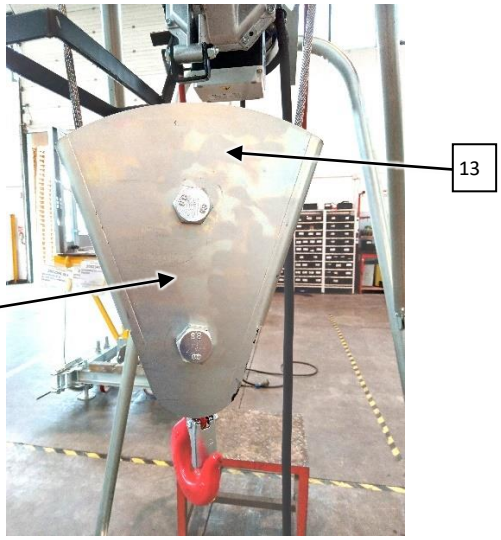

14


14


14


13
14
12


13
14
12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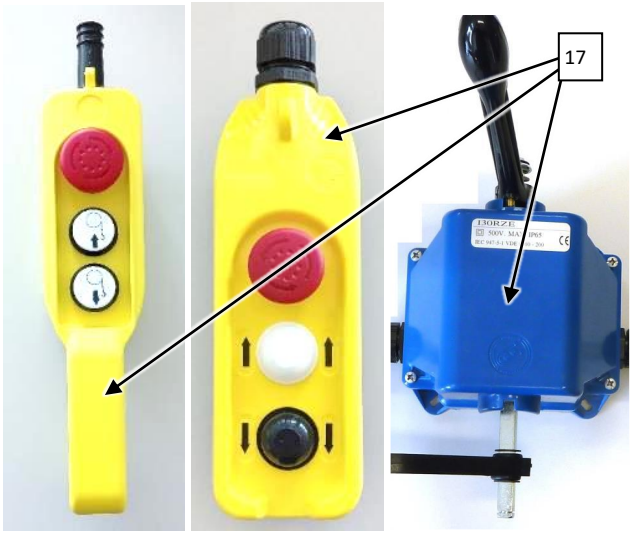
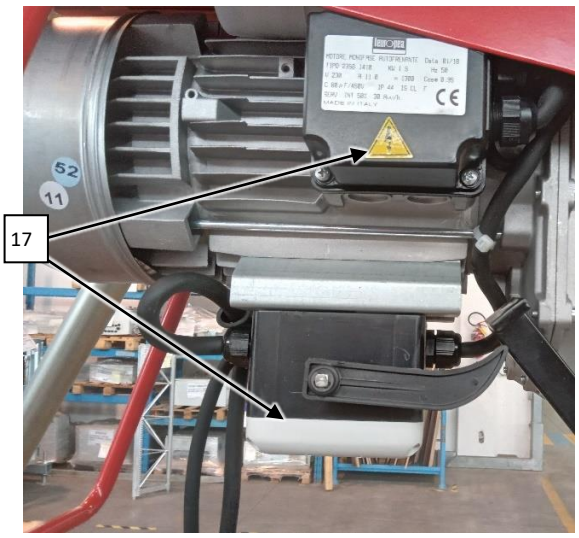
12





TROUBLESHOOTING

OVERVIEW

This chapter lists possible faults and/or anomalies that may have an impact on safety and that may occur during normal operation of the machine, the relevant checks to be carried out and the solutions to be adopted.

	**IMPORTANT** For all faults and anomalies not listed in this chapter, the user must draw up a specific procedure and addendum to this manual in order to integrate its contents

	**DANGER** The use of improperly trained personnel or non-compliance with applicable health and safety regulations can lead to injury or death
	**CAUTION** Should any of the anomaly and/or fault conditions occur, please note that the operator is only allowed to shut down the machine, leaving the removal of the cause of this faulty behaviour to the electrical and/or mechanical maintenance technician, with the exception of load removal activities
	**CAUTION** All repair work requiring a maintenance technician must be carried out by the electrical and/or mechanical maintenance technician
	**CAUTION** The malfunctions described may require the use of special personal protective equipment as more specific work on the machine may be required. Strictly adhere to the use of PPE as described in the manual.

DESCRIPTION OF ANOMALIES

Anomaly	Cause	Effect
The machine does not move	No power supply	- Check the correct insertion of the power plug - Check the main power supply - Check the main disconnecting switch of the switchboard
The machine does not respond to any commands	Protection fuse blown	Replace protective fuse
The rope winding drum does not rotate when the control buttons are pressed	Emergency button pressed	- Release the emergency button by returning it to its rest position (turning it)
The drum does not wind the rope in the lifting direction	Safety microswitch tripped	- Use the load lowering control button and then use the load lifting control button again - Stop pressing the control buttons and manually move the limit stop safety lever.
The drum does not wind the rope in the lifting direction	Limit stop safety lever stuck in safety position.	- Disconnect the machine power supply plug from the main control panel. Manually move the limit stop safety lever back to the rest position. Connect the machine power supply plug from the main control panel
On the machine with three-phase motor, the rope winding drum rotates in the opposite direction to the load lifting or lowering control	Incorrect connection of the three-phase power plug cables	- Disconnect the machine power supply plug from the main control panel. Reverse two of the three three-phase power supply wires inside the machine power supply plug or inside the motor terminal block. Connect the machine power supply plug from the main control panel

CHECKS BEFORE COMMISSIONING

The following table shows the checks of the safety requirements and/or safety measures of the machine according to Table 5, paragraph 6 of the harmonised standard EN 14492-2 that must be carried out by the user before commissioning.

Point	Requirement	Check method
5.1	General	Dynamic test with 1.1 times the rated load of the hoist and static test with 1.25 times the rated load of the hoist to check mechanical strength
5.2.3	Emergency stop	Functional check, visual examination

Point	Requirement	Check method
	function	
5.2.4	Lifting and lowering limit switch	Functional check, verify the tripping of the safety limit microswitch for load lifting
5.4	Brakes for lifting and lowering movements	Dynamic test with 1.1 times the rated load capacity of the hoist. Visual examination
5.6	Loading hook	Functional check, e.g. safety lock.
5.7.1	Rope drives - General	Visual examination
5.7.2	Rope drum	Visual examination
5.7.3	Ropes	Visual examination.
5.7.6	Fixing of the ropes to the drum	Visual examination
5.7.7	Anchoring of the rope	Visual examination
5.7.9	Rope ends	Visual examination
5.7.10	Drive winches	Visual examination
5.13.3.1	Environment and operating conditions - electromagnetic compatibility	Visual examination EMC declaration of compliance
5.13.4	Interruption (isolation) of power supply and switching devices	Visual inspection of the wiring diagrams and equipment of the hoist mechanism
5.13.6	Control circuits and functions	Functional check
5.13.7	Emergency stop function	Functional test; also see check at point 5.2.3 Visual examination
5.13.9	Electric motion limiters	Functional test
5.16.1	Warning devices - general	Visual examination
5.16.2	Warning markings	Visual examination

The other inspections foreseen in the relevant points of Table 5, paragraph 6 of the harmonised standard EN 14492-2 are carried out by the manufacturer on each machine produced, individually verified during manufacture and assembly.

CHECKS BEFORE EACH SHIFT

General warnings

	**DANGER** Failure to carry out preliminary checks before starting up the machine can result in injury or death
	**CAUTION** If, following the preliminary checks, any of the anomalous conditions and/or faults occur, the machine must not be put into operation and the operator must contact an electrical and/or mechanical maintenance technician to remove the possible causes of this anomalous behaviour.
	**PROHIBITION** It is forbidden to start the machine without having carried out the preliminary checks

Preliminary checklist

Before starting the machine, the operator must:

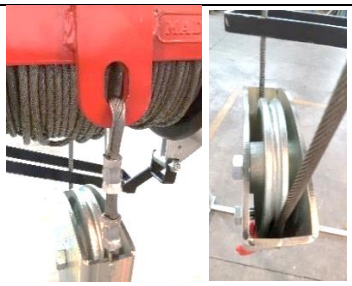
1) Visually check the mechanical parts of the machine and the electrical junction box for damage.
2) Visually check the control system and its cable for damage
3) Visually check for damage to the power cable, the connection plug to the switchboard, and the motor power cable.
4) Visually check for damage and/or removal of fixed and movable guards
5) Visually check that all warning pictograms are in good condition
6) Check that the machine can slide properly in the rails of the stand (accessory) or of any other support system.
7) Visually check that the limit stops for the rails of the stand (accessory) or of any other support system are present and that they are correctly fixed in position, in good condition and working order.
8) Check that the lifting hook is correctly attached to the end of the rope (single-reeved model)
9) Check that the rope is correctly secured to the anchor point, and that the rope runs normally in the hook support pulleys (double-reeved model)
10) Check that the safety latch on the lifting hook is in good condition and the spring is working properly
11) Check the rope for bends or deformations and for broken wires.

	**DANGER** Dangerous situations could result if preliminary checks are not carried out correctly, a malfunction of the safety systems could expose the operator to specific risks
	**CAUTION** Carry out the preliminary checks with the utmost care and make sure you are in a safe position outside hazardous areas or behind guards.

Ref. 7

Ref. 7

Ref. 8



Ref. 9

Ref. 10

Ref. 11

Functional check of safety devices

Before starting the machine, the operator must check that the safety devices are working properly:

1) Check that the rope is correctly wound on the drum
2) Press the emergency stop button and check that the machine does not start by pressing the load down button and then the load up button.
3) Turn the emergency stop button and check that it goes back to its rest position. Then check that the controls are active again by pressing the load down button and then the load up button and make sure that the hoist performs the corresponding movements.
4) Operate the load-lifting control button until the safety limit microswitch is triggered, ensuring that it interrupts the rotation of the rope-winding drum.

1 - Correct rope winding

2 and 3 - Red emergency stop button

4 - Up stop lever, single-reeved model

4 - Up stop lever, double-reeved model

	**DANGER** Failure to check safety devices or failure to do so correctly could lead to dangerous situations, because a malfunction of the safety systems could expose the operator to specific risks
	**CAUTION** Carry out the checks of the safety devices with the utmost care and make sure you are in a safe position outside hazardous areas or behind guards.
	**PROHIBITION** It is forbidden to use the machine if any safety devices are found to be malfunctioning after the performed checks

CHECK AFTER EACH REPAIR

General warnings

	**DANGER** Failure to carry out checks after each machine repair can result in injury or death
	**CAUTION** If, following the checks, any of the anomalous conditions and/or faults occur, the machine must not be put into operation and the electrical and/or mechanical maintenance technician must remove the possible causes of this anomalous behaviour.
	**CAUTION** When carrying out functional checks, make sure that at least three turns of rope remain wound on the rope winding drum, they must never be unwound.
	**DANGER** The complete unwinding of the rope from the rope winding drum would lead to abnormal stress at the rope connection to the drum and the possibility of rope winding in the opposite direction, with a switch of operation between the load up and down buttons and the placing out of service of the lifting limit stop that could lead to the operator and the machine being exposed to specific risks
	**PROHIBITION** It is forbidden to start the machine without having carried out the necessary checks after repair

Checklist after repair

Before finalising the repair, the electrical and/or mechanical maintenance technician must:

1) Visually check the mechanical parts of the machine and the electrical junction box for damage.
2) Visually check the control system and its cable for damage

3) Visually check for damage to the power cable, the connection plug to the switchboard, and the motor power cable.
4) Visually check for damage and/or removal of fixed and movable guards
5) Visually check that all warning pictograms are in good condition,
6) Check that the machine is correctly installed in the relevant rails of the stand (accessory) or of any other support system.
7) Visually check that the limit stops for the rails of the stand (accessory) or of any other support system are present and that they are correctly fixed in position, in good condition and working order.
8) Check that the lifting hook is correctly attached to the end of the rope (single-reeved model)
9) Check that the rope is correctly secured to the anchor point, that the clamps are tight and that the hook runs normally on the rope (double-reeved model)
10) Check that the safety latch on the lifting hook is in good condition and the spring is working properly,
11) Check the rope for bends or deformations and for broken wires.

	**DANGER** Dangerous situations could result if checks after repair are not carried out correctly, a malfunction of the safety systems could expose the operator to specific risks
	**CAUTION** Carry out the checks after repair with the utmost care and make sure you are in a safe position outside hazardous areas or behind guards.

Functional check of safety devices

Before starting the machine, the operator must check that the safety devices are working properly:

1) Press the emergency stop button and check that the machine does not start by pressing the load down button and then the load up button.
2) Turn the emergency stop button and check that it goes back to its rest position. Then check that the controls are active again by pressing the load down button and then the load up button and make sure that the hoist performs the corresponding movements.
3) Operate the load-lifting control button until the safety limit microswitch is triggered, ensuring that it interrupts the rotation of the rope-winding drum.

	**DANGER** Failure to check safety devices or failure to do so correctly could lead to dangerous situations, because a malfunction of the safety systems could expose the operator to specific risks
	**CAUTION** Carry out the checks of the safety devices with the utmost care and make sure you are in a safe position outside hazardous areas or behind guards.
	**CAUTION** When carrying out functional checks, make sure that at least three turns of rope remain wound on the rope winding drum, they must never be unwound.
	**DANGER** The complete unwinding of the rope from the rope winding drum would lead to abnormal stress at the rope connection to the drum and the possibility of rope winding in the opposite direction, with a switch of operation between the load up and down buttons and the placing out of service of the lifting limit stop that could lead to the operator and the machine being exposed to specific risks
	**PROHIBITION** It is forbidden to use the machine if any safety devices are found to be malfunctioning after the performed checks

STOPPING MODES

GENERAL STOP

The voluntary stopping of the machine must take place:

- releasing the load up/down buttons on the push-button panel
- releasing the lever on the "three-phase inverter" lever control

	**PROHIBITION** It is forbidden to stop the machine by pressing the mushroom-head emergency button, as the latter is not designed for the continuous and functional stopping of the machine

EMERGENCY STOP

The emergency button must be used when a danger or risk to the operator arises in one of the following situations:

- breakage of mechanical parts
- Smoke or incipient fire
- Abnormal machine noises
- Any other situation that the operator judges as a potential risk and danger

The emergency stop is achieved by pressing the red mushroom-head button on the push-button panel

RESETTING AFTER AN EMERGENCY STOP

To reset the machine after an emergency, make sure the EMERGENCY stop button is in its rest position. If this is not the case, return it to its rest position by turning the knob clockwise as far as it will go to release the button and return it to its rest position.

	**CAUTION** All reset operations following operation of the emergency button must be carried out without pressing the load up/down buttons (no active control).

PROHIBITED USES

The machine must not be used and/or maintained:

- in any way contrary to the provisions of this manual
- for lifting fixed, stuck or obstructed loads
- for lifting and transporting people and/or animals, or structures on which people and/or animals are standing.
- for uses other than lifting and lowering loads in a vertical direction relative to the rope winding drum.
- for lifting or lowering itself
- for lifting or lowering loads requiring the rope to be pulled in an inclined direction
- with beams or pulleys to vary the load lifting/lowering axis
- for lifting or lowering along inclined planes
- in pulses by repeatedly activating the load lifting control or the load lowering control
- in conditions subject to corrosive environmental agents or in seaside areas, outdoors
- in "ATEX" hazardous areas
- under springs of water
- in an environment with a significant presence of dust
- in the rain
- outside the specified environmental limits
- by an inexperienced and/or untrained person
- without the use of Personal Protective Equipment for operations for which it is to be used
- if it has damaged parts

REASONABLY FORESEEABLE MISUSE

Reasonably foreseeable misuses are to be regarded as prohibited uses and, therefore, all personnel are prohibited from performing them.

- Using the machine without first reading this manual
- Use by improperly trained personnel
- Using the machine without the use of Personal Protective Equipment where required

- Using the machine for lifting and transporting people and/or animals, or structures on which people and/or animals are standing.
- Using the machine to lift fixed, jammed or obstructed loads
- Using the machine in pulses by repeatedly activating the load lift control or the load lower control
- Performance of activities by personnel whose competence does not conform to that prescribed in this manual
- Voluntary deactivation of security systems
- Tampering with security systems
- Unauthorised modifications to the machine and its components and/or equipment
- Use of unsuitable accessories
- Periodic checks not carried out
- Replacing components with others of a different make and model
- Replacing ropes with unsuitable ones
- Use in unsuitable environments
- Presence of personnel in hazardous areas during installation, operation and maintenance
- Falling load due to incorrect handling
- Cleaning activities using methods other than those indicated in this manual (e.g. with water jets)
- Carrying out maintenance operations without first disconnecting and cutting all power supplies, except where not provided for.

	**CAUTION** Reasonably foreseeable incorrect operations lead to dangerous situations.
	**PROHIBITION** Any reasonably foreseeable misuse is prohibited

HAZARDOUS AREAS

HAZARDOUS AREAS DURING INSTALLATION

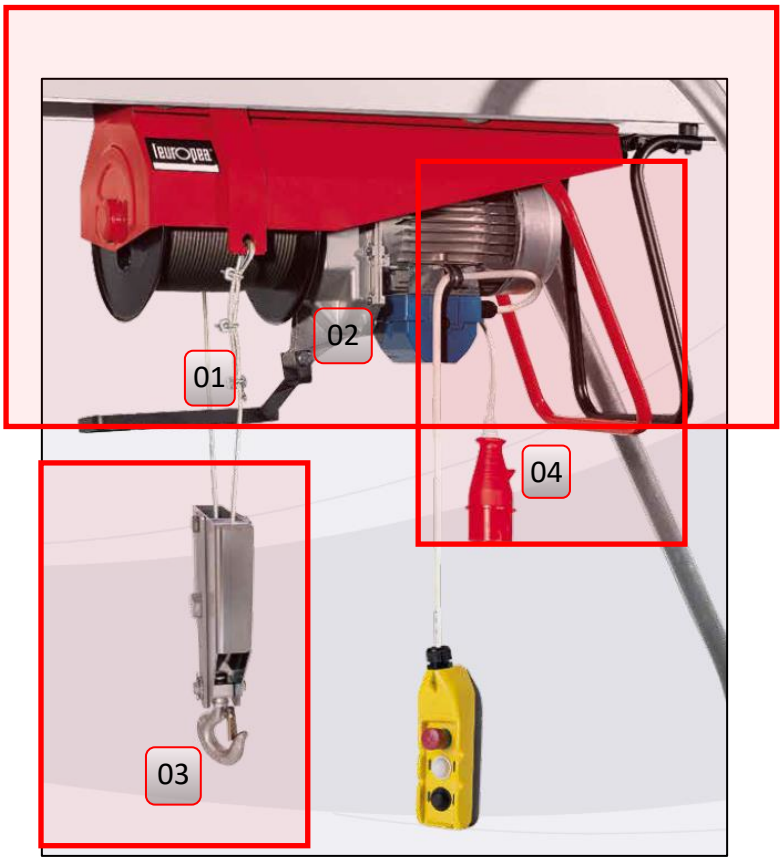
Ref.	*Zone*	*Life cycle phase*
01	Hazardous area under the machine during positioning	Installation on support
02	Hazardous area above the machine during positioning	Installation on support

HAZARDOUS AREAS IN USE

Ref.	*Zone*	*Life cycle phase*
01	Hazardous area under the machine due to material handling and lifting	material handling and lifting

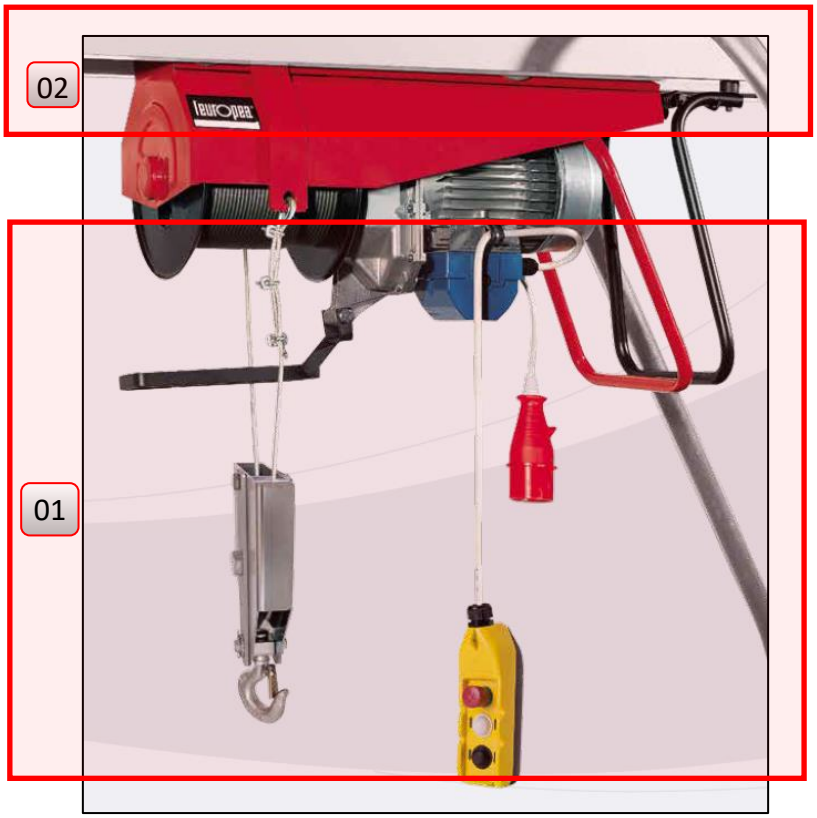
HAZARDOUS AREAS DURING MAINTENANCE

Ref.	*Zone*	*Life cycle phase*
01	Hazardous area for rope replacement	Extraordinary maintenance
02	Hazardous area for greasing	Routine maintenance
03	Hazardous area for hook replacement	Extraordinary maintenance
04	Hazardous area for the repair of electrical components	Extraordinary maintenance



HAZARDOUS AREAS DURING DECOMMISSIONING

Ref.	*Zone*	*Life cycle phase*
01	Hazardous area under the machine during removal	Removal on support
02	Hazardous area above the machine during removal	Removal on support



STORAGE, TRANSPORT AND SHIPPING SECTION OF THE MANUAL

OVERVIEW

This section is intended for:

- operators in charge of operation;
- maintenance operators

PURPOSE OF THE SECTION

This section of the manual is written for the purpose of:

- providing all useful and necessary information on the environmental conditions required for proper storage of the machine.
- providing all useful and necessary information for the correct storage, packaging, transport and shipment of the machine.

STORAGE

The machine must be stored in the original box. The box containing the machine must be placed on a pallet, see PACKAGING section. The machine can be stored in an environment which guarantees minimum temperatures of not less than -25 °C and not more than +55 °C. For periods of time not exceeding 24 hours, it is acceptable to store the machine in an environment where the highest temperature reaches a maximum of +70 °C.
The relative humidity must not exceed 50% at temperatures of + 40 °C or higher. Higher relative humidities are permissible at lower temperatures (e.g. 90% at 20 °C).
Boxes containing machines must not be stacked

	**DANGER** Failure to comply with environmental storage conditions can result in damage to electrical and mechanical parts of the machine including safety devices and can cause injury or death
	**PROHIBITION** It is absolutely forbidden to stack the boxes containing the machines. Such an operation could damage the machine or cause the boxes to become unstable, resulting in injury or death

PACKAGING

The original packaging consisting of a cardboard box must be used for packaging the machine. The box must be placed on a pallet and secured to it at the end of packaging operations as described in the TRANSPORT section.
Remove the machine from the stand as described in the UNINSTALLATION SECTION of the manual. For uninstalling the machine from supports other than the stand, follow the instructions supplied with them.
The machine must be inserted into the original box using lifting devices, slinging it at the rear axle above the motor. The machine must be placed in the box with the metal wheels on the bottom of the box and the motor/drum unit upwards. During insertion, take care not to damage the cables and electrical connections of the control devices and not to excessively bend the rope to which the hook is connected, as this could damage it. Electrical equipment and control devices must not be removed from the machine. The box must be closed with packing tape.

	**DANGER** Failure to comply with the requirements for handling the machine can result in damage to electrical and mechanical parts of the machine including safety devices and can cause injury or death
	**IMPORTANT** The instructions for packaging the machine must be scrupulously followed by the user
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear a protective helmet
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear protective gloves for mechanical work in compliance with EN 388
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear safety shoes
	**PROHIBITION** It is absolutely forbidden to handle the machine manually without the use of suitable lifting equipment and appropriate PPE.

TRANSPORT

The machine must be transported in its original packaging. The package must be secured on a pallet by means of straps or ropes to ensure it is held in position. The machine must be placed in its original packaging as described in the PACKAGING section. Several boxes containing machines may be placed side by side on the same pallet, but it is not permitted to stack one or more boxes on top of the first box attached to the pallet.

	**DANGER** Failure to comply with the requirements for transporting and handling the machine can result in damage to electrical and mechanical parts of the machine including safety devices and can cause injury or death
	**PROHIBITION** It is absolutely forbidden to handle the machine box manually by lifting it in any other way than indicated or by tilting it.
	**PROHIBITION** It is absolutely forbidden to handle the machine manually without the use of suitable lifting equipment and appropriate PPE.

SHIPPING

Shipment of the machine requires the operations described in the PACKAGING section to be carried out and the packaging to be prepared for transport. During shipment, the conditions defined in the PACKAGING section must be ensured.

INSTALLATION SECTION OF THE MANUAL

OVERVIEW

This section is intended for:

- operators in charge of operation;
- maintenance operators

PURPOSE OF THE SECTION

This section of the manual is written for the purpose of:

- providing all useful and necessary information for the correct installation of the machine on the support structure that enables its use (e.g. stand)
- providing all useful and necessary information for the correct connection to the power mains

INSTALLATION MODES

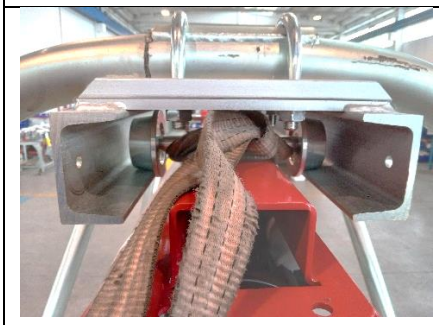
The machine is to be installed on a stand support structure, supplied by the Manufacturer (accessory), or on a similar support structure, suitably designed for the expected stresses.
The stand or similar support structure is not an integral part of the product and it remains the responsibility of the user to certify the assembly.
The stand or similar support structure must be installed and fastened to the floor as indicated in the instructions for the stand or support structure. All installation operations must be carried out with the machine disconnected from the mains. Unplug the machine to cut off the power supply.

	**DANGER** Failure to comply with the requirements for installing the machine can result in damage to electrical and mechanical parts of the machine including safety devices and can cause injury or death
	**IMPORTANT** The machine must be disconnected from the mains during all installation stages.
	**PROHIBITION** It is absolutely forbidden to connect the machine to the mains before all installation work on the support structure has been completed.

INSTALLATION ON STAND WITH RAILS

the installation of the machine on a stand support structure supplied by the Manufacturer (accessory) must be carried out as follows:

1. Remove the rear limit stop pads of the stand rail.
2. Place the box containing the machine near the rear area of the stand.
3. Sling the machine at the rear axle (above the motor).
4. Remove the machine from the original box using suitable lifting devices suitable for its weight.
5. Raise the machine by placing it close to the stand rail with the axle of the front wheels facing the rail.
6. While raising the machine, engage the wheels into the stand rail by levering on the rear handle of the rail if necessary
7. Slide the machine into the stand rail
8. Insert the wheels of the rear axle into the rail
9. Remove the sling by pulling it off and sliding it between the hood and the rail.
10. Secure the limit stop pads in their place using an adjustable spanner.

 Ref. 1	 Ref. 2 and 3	 Ref. 4, 5 and 6
 Ref. 7 and 8	 Ref. 9	 Ref. 10

	**DANGER** Failure to comply with the requirements for handling the machine can result in damage to electrical and mechanical parts of the machine including safety devices and can cause injury or death
	**IMPORTANT** The instructions for slinging, lifting and inserting the machine into the rail must be scrupulously followed by the operator
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear a protective helmet
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear protective gloves for mechanical work in compliance with EN 388
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear safety shoes
	**PROHIBITION** It is absolutely forbidden to handle the machine manually without the use of suitable lifting equipment and appropriate PPE.

	**PROHIBITION** It is absolutely forbidden to use levers or other equipment to force the machine into the stand rails.

INSTALLATION ON ANOTHER SUPPORT STRUCTURE

The machine must be installed in the mounting and fixing locations provided by the support structure other than the stand in accordance with the instructions provided with said support structure. The instructions are not part of this manual.

CONNECTION TO THE POWER MAINS

	**WARNING** It is mandatory to install on main power supply a automatic circuit breaker with the following characteristics to guarantee safety for overload or motor block

Characteristic	Description
Number of poles	3Phase
Grid Type	AC
Utilization category	Category A conforming to IEC 60947-2 AC-3 compliant with IEC 60947-4-1
Mains frequency	50/60 Hz conforming to IEC 60947-4-1
Motor power	in kW 5.5 kW at 400/415 V AC 50/60 Hz 7.5kW at 500VAC 50/60Hz 9kW at 690VAC 50/60Hz 11kW at 690VAC 50/60Hz
Breaking capacity	100 kA Icu conforming to IEC 60947-2 at 230/240 V AC 50/60 Hz 15 kA Icu conforming to IEC 60947-2 at 400/415 V AC 50/60 Hz 8 kA Icu conforming to IEC 60947-2 at 440 V AC 50/60 Hz 6 kA Icu conforming to IEC 60947-2 at 500 V AC 50/60 Hz 3 kA Icu conforming to IEC 60947-2 at 690 V AC 50/60 Hz
Rated current [In]	14A
Conventional thermal current in the air [Ith]	14A conforming to IEC 60947-4-1
Rated operational voltage [EU]	690V AC 50/60Hz conforming to IEC 60947-2
Rated voltage of isolation [Ui]	690V AC 50/60Hz conforming to IEC 60947-2
Rated withstand voltage to pulses [Uimp]	6 kV conforming to IEC 60947-2
Mechanical life	100000 cycles

Characteristic	Description
Electrical durability	100000 cycles for AC-3 at 415V In
Duty rating	Continuous conforming to IEC 60947-4-1
Reference standards	EN/IEC 60947-2 EN/IEC 60947-4-1
IP degree	IP20 (if installed inside an IP54 box) or IP 54
Storage temperature	40…80 °C
Fire resistance	960 °C conforming to IEC 60695-2-11
Ambient temperature	20…60 °C

NOTE: For example use the model GV2ME manufactured by Schneider Electric or equivalent

Information on electrical equipment for connection to the switchboard. The machine is supplied with a plug featuring the characteristics shown in the table, connected to a multi-core cable with 1.5 mm cross-section.

Model	Plug
M500	IEC 60309 approved plug 2Ph+ GND 220V 16A
T500/E	IEC 60309 approved plug 3Ph+GND 400V 3N 16A
MD800	IEC 60309 approved plug 2Ph+ GND 220V 16A
TD950/E	IEC 60309 approved plug 3Ph+GND 400V 3N 16A

The connection to the switchboard must be made by the user.
The industrial plug of the power cable must be connected to a switchboard equipped with an interlocked power supply socket with an omnipolar connector having a grounding pole properly connected to the PE protective conductor, which in turn is connected to an efficient grounding system.
It is mandatory to install a 300 mA RCD on the main power supply line as the machine is not equipped with an automatic disconnection system.
Depending on the version, the machine is equipped with a fuse or overload cutout on the motor supply line or with a motor featuring an internal thermal protection to avoid the risk of overcurrent due to overloading or blocking of the machine motor.

The connection to the switchboard must be carried out by an electrical maintenance technician. Connection operations to the switchboard must be carried out after installing the machine on the stand or on a support structure other than the stand.

	**DANGER** Failure to install a 300 mA RCD on the main power line can lead to injury or death
	**DANGER** Failure to have an earth connector connected to an efficient earthing system can result in injury or death
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear protective gloves for electrical work in compliance with EN 60903
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear safety shoes
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear a protective helmet
	**PROHIBITION** Connection operations to the switchboard must not be carried out by anyone other than an ELECTRICAL MAINTENANCE TECHNICIAN
	**PROHIBITION** Connection operations to the switchboard must not be carried out before the machine is installed on the stand or on a support structure other than the stand
	**PROHIBITION** For fuse-equipped motors, replacement with fuses of a different rating is prohibited
	**PROHIBITION** For motors equipped with overload cutout, it is forbidden to change the overload cutout setting
	**PROHIBITION** Any modification of the electrical system is prohibited

The switchboard socket must be easily accessible and located between 0.6 m and 1.9 m above the service level. An upper limit of 1.7 m is recommended in order to allow for the correct connection to and disconnection from the mains by disconnecting the industrial plug from the switchboard socket.

	**DANGER** Placing the switchboard socket too high can compromise the correct connection and disconnection of the machine from the power line and can result in injury or death.

CONNECTION TO THE SWITCHBOARD - SINGLE-PHASE MACHINE

Connect the industrial plug of the power cable to the socket in the switchboard. The industrial plug of the power cable can be used as a power disconnect.

	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear protective gloves for electrical work in compliance with EN 60903
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear safety shoes
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear a protective helmet
	**DANGER** Incorrect connection of the machine to the mains can result in injury or death
	**ELECTRIC SHOCK HAZARD** Any work on the electrical connections of the industrial power plug or the motor terminal block must be carried out after disconnecting the machine from the power supply.
	**PROHIBITION** Operators are not permitted to carry out any maintenance, repair or modification of the connections of the machine electrical components and connection elements to the mains. In case of need, request the intervention of an ELECTRICAL MAINTENANCE TECHNICIAN
	**PROHIBITION** Connection operations to the switchboard must not be carried out by anyone other than an ELECTRICAL MAINTENANCE TECHNICIAN
	**PROHIBITION** Connection operations to the switchboard must not be carried out before the machine is installed on the stand or on a support structure other than the stand

CONNECTION TO THE SWITCHBOARD - THREE-PHASE MACHINE

Connect the industrial plug of the power cable to the socket in the switchboard. The industrial plug of the power cable can be used as a power disconnect.

	**DANGER** Incorrect connection of the machine to the mains can result in injury or death

If, following the connection of the power cable industrial plug to the switchboard socket, the rope winding drum rotates in the opposite direction to the load lifting or lowering control, it will be

necessary to reverse the order of connection of two of the three wires of the three-phase power supply inside the industrial plug or inside the motor terminal block.

	**PERSONAL PROTECTIVE EQUIPMENT** Wear protective gloves for electrical work complying with EN 60903 before any maintenance, repair or modification of the connections of the machine electrical components and connection elements to the mains
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear safety shoes
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear a protective helmet
	**ELECTRIC SHOCK HAZARD** Any work on the electrical connections of the industrial power plug or the motor terminal block must be carried out after disconnecting the machine from the power supply.
	**PROHIBITION** Operators are not permitted to carry out any maintenance, repair or modification of the connections of the machine electrical components and connection elements to the mains. In case of need, request the intervention of an ELECTRICAL MAINTENANCE TECHNICIAN
	**PROHIBITION** Connection operations to the switchboard must not be carried out by anyone other than an ELECTRICAL MAINTENANCE TECHNICIAN
	**PROHIBITION** Connection operations to the switchboard must not be carried out before the machine is installed on the stand or on a support structure other than the stand

CONNECTION WITH 220V SUPPLY VOLTAGE - THREE-PHASE MACHINE

Machines with a three-phase motor are supplied with the connection set up for a three-phase supply voltage at 380V. Should it be necessary to use the three-phase supply voltage at 220V, the connection inside the motor terminal block must be modified,

	**PERSONAL PROTECTIVE EQUIPMENT** Wear protective gloves for electrical work complying with EN 60903 before any maintenance, repair or modification of the connections of the machine electrical components and connection elements to the mains
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear safety shoes

	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear a protective helmet
	**ELECTRIC SHOCK HAZARD** Any work on the electrical connections of the industrial power plug or the motor terminal block must be carried out after disconnecting the machine from the power supply.
	**PROHIBITION** Operators are not permitted to carry out any maintenance, repair or modification of the connections of the machine electrical components and connection elements to the mains. In case of need, request the intervention of an ELECTRICAL MAINTENANCE TECHNICIAN
	**PROHIBITION** Connection operations to the switchboard must not be carried out by anyone other than an ELECTRICAL MAINTENANCE TECHNICIAN
	**PROHIBITION** Connection operations to the switchboard must not be carried out before the machine is installed on the stand or on a support structure other than the stand

CHECKS FOLLOWING INSTALLATION AND CONNECTION

Following installation and connection operations, all the checks listed in the "CHECKS BEFORE EACH SHIFT" section of the "GENERAL SECTION" of this manual must be carried out.

	**DANGER** Failure to carry out preliminary checks before starting up the machine can result in injury or death
	**CAUTION** If, following the preliminary checks, any of the anomalous conditions and/or faults occur, the machine must not be put into operation and the operator must contact an electrical and/or mechanical maintenance technician to remove the possible causes of this anomalous behaviour.
	**PROHIBITION** It is forbidden to start the machine without having carried out the preliminary checks

OPERATIONAL SECTION OF THE MANUAL

OVERVIEW

This section is intended for:

- operators in charge of operation;

PURPOSE OF THE OPERATIONAL SECTION

This section of the manual is written for the purpose of:

- providing all useful and necessary information for the safe use of the machine during operation

OPERATIONAL MODES

Using the machine involves a series of operations that must be carried out in a sequence in order to achieve correct operation. The sequence of operations is defined in the following section. All operators and maintenance personnel must operate in accordance with the machine instructions as described in this manual.

LIST OF PRELIMINARY OPERATIONS

Before using the machine, personnel must:

1. perform the checks described in the CHECKS BEFORE EACH SHIFT section of the GENERAL SECTION of the Manual.
2. connect the plug of the machine to the switchboard socket.

	**DANGER** Failure to carry out preliminary checks before starting up the machine can result in injury or death
	**CAUTION** If, following the preliminary checks, any of the anomalous conditions and/or faults occur, the machine must not be put into operation and the operator must contact an electrical and/or mechanical maintenance technician to remove the possible causes of this anomalous behaviour.
	**PROHIBITION** It is forbidden to start the machine without having carried out the preliminary checks

MACHINE USE

The machine allows lifting and lowering of freely suspended loads on the vertical axis of the rope winding drum. To use the machine correctly, the operator must:

- Check that no operators or other personnel are in the HAZARD AREAS described in the same paragraph of the GENERAL SECTION of the Manual
- Position the machine at the front of the stand rail using the tubular metal handle integral with the frame.
- Use the load down control to uncoil the rope from the drum and lower the hook to the load hooking height

- Hook the load onto the hook, checking that the spring-loaded metal latch returns to the safety closed position. Loads should only be hitched with positive locking devices.
- If load-handling equipment or slings are used to hook the load, these must have a nominal capacity equal to at least 2 times the total mass of the load to be lifted (load + support + load-handling equipment + etc.).
- Use the load up control to coil the rope on the drum and lower the hook to the unloading height
- Position the machine at the rear of the stand using the tubular metal handle integral with the frame
- Use the load down control to uncoil the rope from the drum and lower the hook until the load rests on the ground, then release the hook.
- Remove the load from the unloading area using appropriate load handling equipment.
- Repeat the operation from the first indent to lift the next load

	**CAUTION** The use of PPE is a key aspect of ensuring safety.
	**CAUTION** Handling the load from the unloading area without the use of appropriate load handling equipment can result in injury or death.
	**DANGER** Failure to comply with the machine operating instructions can result in injury or death
	**DANGER** The lack of specific training for each operation leads to dangerous situations for the operator as he is exposed to specific unmitigated risks
	**PROHIBITION** It is forbidden to use the machine without wearing the specific PPE
	**PROHIBITION** It is forbidden to carry out operations other than those indicated in this manual
	**PROHIBITION** It is forbidden to lift people or animals
	**PROHIBITION** It is forbidden to lift fixed loads or loads of mass exceeding the capacity of the machine

	**PROHIBITION** It is forbidden to lift loads in directions other than vertical. Do not use the machine to move loads sideways.
	**PROHIBITION** Avoid excessive jogging by repeatedly operating the load lift control or load lower control.

PPE LIST

The following PPE must be worn when using the machine:

	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear a protective helmet
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear category I textile protective overalls
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear category I protective gloves
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear safety shoes

END-OF-SHIFT OPERATIONS

At the end of the shift, the operator must perform the following operations:

- Raise the loading hook to the end of its stroke.
- Position the machine at the rear of the stand using the tubular metal handle integral with the frame
- Disconnect the power supply by unplugging the plug of the machine from the switchboard socket
- Carry out the machine cleaning operations described in the CLEANING SECTION of the Manual

	**DANGER** Failure to comply with the machine operating instructions can result in injury or death
	**DANGER** The lack of specific training for each operation leads to dangerous situations for the operator as he is exposed to specific unmitigated risks

	**PROHIBITION** It is forbidden to keep the machine power supply connected after the end of the shift.
	**PROHIBITION** It is forbidden to carry out operations other than those indicated in this manual

CLEANING SECTION OF THE MANUAL

OVERVIEW

This section is intended for:

- operators in charge of operation;
- maintenance operators
- cleaning operators

PURPOSE OF THE SECTION

This section of the manual is written for the purpose of:

- providing all useful and necessary information for the correct cleaning of the machine and its components

OPERATIONAL MODES

The machine is intended to work in an environment where dust may be present. Cleaning the machine involves removing excess dust from the cover elements and other exposed parts.
All cleaning operations must be carried out after disconnecting the machine from the mains.

CLEANING FREQUENCY

All the operations described below are to be performed:

- on a daily basis at the beginning of the shift
- on a daily basis at the end of the shift.
- Before any electrical maintenance work
- Before any mechanical maintenance work

NECESSARY EQUIPMENT

- Soft dry cloth
- Dry brush

CLEANING THE MACHINE

- Remove dust deposited on the upper guard covering the motor and the drum using a soft cloth and a brush to reach areas that cannot be reached with the cloth.
- Remove dust deposited on the machine structure using a soft cloth and a brush to reach areas that cannot be reached with the cloth.
- Remove dust deposited on the control device (push-button panel or inverter) using a soft cloth and brush to reach areas that cannot be reached with the cloth.

	**DANGER** The lack of specific training for each operation leads to dangerous situations for the operator as he is exposed to specific unmitigated risks
	**DANGER** Failure to clean the machine could cause malfunctions and lead to dangerous situations for the operator as he is exposed to specific unmitigated risks
	**PROHIBITION** It is forbidden to carry out cleaning operations with the machine connected to the mains

UNINSTALLATION SECTION OF THE MANUAL

OVERVIEW

This section is intended for:

- operators in charge of operation;
- maintenance operators

PURPOSE OF THE SECTION

This section of the manual is written for the purpose of:

- provide all useful and necessary information for the correct disconnection from the power mains
- providing all useful and necessary information for the correct installation of the machine on the support structure that enables its use (e.g. stand)

UNINSTALLATION MODES

To remove the machine from the stand support structure, supplied by the Manufacturer (accessory), or on a similar support structure, suitably designed for the expected stresses, the machine must be disconnected from the mains. All uninstallation operations must be carried out with the machine disconnected from the mains. Unplug the machine to cut off the power supply.

UNINSTALLATION FROM THE STAND WITH RAILS

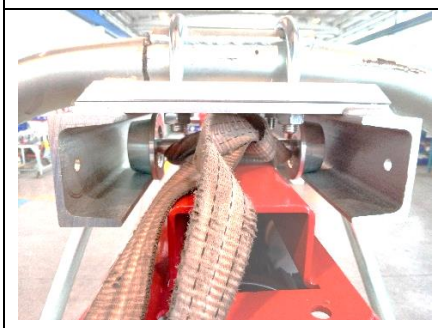
Uninstalling the machine from the stand support structure supplied by the Manufacturer (accessory) must be carried out as follows:

1. Unplug the machine to cut off the power supply
2. Insert a sling (suitable to lift the mass of the machine) between the stand rail and the machine hood in the area between the two wheel axles of the machine
3. Slide the ends of the sling around the rear axle of the machine, remove a limit stop pad to facilitate the sliding of the sling sections and fasten them in a choke around the rear axle
4. Remove the rear limit stop pads of the stand rail.
5. Slide out the rear axle of the machine by pulling it out of the stand guides
6. Take care when pulling the front wheels out of the stand rails and grasp the rear metal arm of the machine to prevent the machine from swinging in relation to the lifting device.
7. Pull the machine completely out of the guides and place it in the original box on a pallet for transport.
8. Place the machine inside the original box, with the metal wheels on the bottom of the box and the motor/drum unit facing upwards, taking care not to damage the cables and electrical connections of the control devices and not to excessively bend the rope to which the hook is connected, as this could damage it.
9. Remove the slings from the wheel axle.
10. Secure the limit stop pads in their place using an adjustable spanner.
11. Close the box with adhesive tape for parcels and follow the instructions in the PACKAGING section and the TRANSPORT section for handling the machine

Ref. 1

Ref. 2

Ref. 3



Ref. 4

Ref. 5

Ref. 6

Ref. 7

Ref. 8

Ref. 10

	**DANGER** Failure to comply with the requirements for handling the machine can result in damage to electrical and mechanical parts of the machine including safety devices and can cause injury or death
	**IMPORTANT** The instructions for slinging and removing the machine from the rail must be scrupulously followed by the operator
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear a protective helmet

	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear protective gloves for mechanical work in compliance with EN 388
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear safety shoes
	**PROHIBITION** It is absolutely forbidden to handle the machine manually without the use of suitable lifting equipment and appropriate PPE.
	**PROHIBITION** It is absolutely forbidden to use levers or other equipment to force the machine out of the stand rails.

UNINSTALLATION FROM ANOTHER SUPPORT STRUCTURE

The machine must be uninstalled from the mounting and fixing locations provided by the support structure other than the stand in accordance with the instructions provided with said support structure. The instructions are not part of this manual.

ELECTRICAL MAINTENANCE SECTION OF THE MANUAL

OVERVIEW

This section is intended for:

- Electrical maintenance operators

WARNINGS

	**CAUTION** The use of PPE is a key aspect of ensuring safety.
	**CAUTION** Before carrying out any maintenance work, ensure that the plug is disconnected from the switchboard.
	**ELECTRIC SHOCK HAZARD** Work on the cables or inside the switchboard must be carried out by trained and qualified electricians using the appropriate wiring diagrams and personal protective equipment.
	**ELECTRIC SHOCK HAZARD** A damaged cable can generate a short circuit; please replace cables if torn. It is forbidden to carry out repairs using unsuitable means (e.g. adhesive tape). All components must be secured to the switchboard.
	**CAUTION** Every disassembly operation requires that after the intervention all removed parts are restored as they were originally, e.g. the covers of the electrical system boxes must be reassembled by correctly tightening all screws. Replacement components must be of the same or equivalent type as the replaced ones.
	**DANGER** At the end of each intervention, check the correct operation of the safety devices by testing the emergency stop button and the safety microswitch.
	**DANGER** Failure to observe the sequence of operations leads to dangerous situations for the operator as he is exposed to specific unmitigated risks
	**PROHIBITION** It is forbidden to carry out maintenance work without first disconnecting all power sources
	**PROHIBITION** It is forbidden to carry out maintenance work without first uninstalling the machine from its support

PURPOSE OF THE SECTION

This section of the manual is written for the purpose of:

- providing all useful and necessary information for the maintenance of the electrical equipment of the machine to be carried out by the electrical maintenance operators.

LIST OF ELECTRICAL MAINTENANCE OPERATIONS

The electrical maintenance operations that can be carried out by the user's personnel are as follows:

- Replacing the fuse in the electrical system.
- Replacing the power supply plug
- Replacing the push-button panel
- Replacing the inverter
- Replacing the complete electrical system of the machine
- Reversal of three-phase motor phase cables for reverse start or connection to 220 V power supply

Any other electrical maintenance work must be carried out by an authorised service centre.
All maintenance work should only be carried out after disconnecting all power sources and removing the machine from its support.
At the end of each electrical maintenance operation, carry out the checks provided for in the CHECK AFTER EACH REPAIR section of the GENERAL SECTION of the Manual after installing the machine on its support

	**DANGER** Failure to carry out the checks may result in injury or death

PPE LIST

The following PPE must be worn during electrical maintenance operations:

	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear category I textile protective overalls
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear safety shoes
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear category I protective gloves
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear protective gloves for electrical work in compliance with EN 60903

Replacing the fuse in the electrical system.

Fuse replacement operations must be carried out in the following order:

- ensure that the plug is disconnected from the switchboard.
- open the electrical system junction box located under the motor
- remove the blown fuse
- replace the fuse with one having the same characteristics
- close the electrical system junction box located under the motor
- carry out the checks provided for in the CHECK AFTER EACH REPAIR section of the GENERAL SECTION of the Manual after installing the machine on its support

Replacing the power supply plug

Replace the power supply plug as follows:

- ensure that the plug is disconnected from the switchboard.
- open the power plug
- disconnect the electrical cables of the machine power cable, marking the order of connection; the wiring diagram can be found in the appendix to this manual
- open the new power plug
- connect the cables in the same order as they were connected in the replaced plug
- close the plug
- carry out the checks provided for in the CHECK AFTER EACH REPAIR section of the GENERAL SECTION of the Manual after installing the machine on its support

Replacing the push-button panel

Replace the push-button panel as follows:

- ensure that the plug is disconnected from the switchboard.
- open the push-button panel and disconnect the cables of the electrical control cable, marking the order of connection; the wiring diagram can be found in the appendix to this manual
- open the new push-button panel
- connect the cables of the electrical control cable in the same order as they were connected in the replaced push-button panel
- close the push-button panel
- carry out the checks provided for in the CHECK AFTER EACH REPAIR section of the GENERAL SECTION of the Manual after installing the machine on its support

Replacing the inverter

Replace the push-button panel as follows:

- ensure that the plug is disconnected from the switchboard.
- open the inverter and disconnect the cables of the electrical control cable, marking the order of connection; the wiring diagram can be found in the appendix to this manual
- open the new inverter
- connect the cables of the electrical control cable in the same order as they were connected in the replaced inverter
- close the inverter
- carry out the checks provided for in the CHECK AFTER EACH REPAIR section of the GENERAL SECTION of the Manual after installing the machine on its support

Replacing the complete electrical system of the machine

Replace the push-button panel as follows:

- ensure that the plug is disconnected from the switchboard.

- Remove the complete electrical system starting from the motor terminal block, disconnecting the power cable from the motor.
- Replace the electrical system with a new one
- Restore the connections on the motor terminal block
- Close the motor terminal block
- carry out the checks provided for in the CHECK AFTER EACH REPAIR section of the GENERAL SECTION of the Manual after installing the machine on its support

The electrical system codes and diagrams can be found in the appendix of the Manual concerning wiring diagrams.

Connection of the three-phase motor phase cables for 220 V power supply

The three-phase motor cable connections must be reversed on the motor terminal block:

- ensure that the plug is disconnected from the switchboard.
- open the motor terminal block
- disconnect the cables and connect them in the correct order for the 220 V power supply
- close the motor terminal block
- carry out the checks provided for in the CHECK AFTER EACH REPAIR section of the GENERAL SECTION of the Manual after installing the machine on its support

Reversing the three-phase motor phase cables for reverse starting

The cable connections of the three-phase motor for reverse starting must be reversed on the power plug:

- ensure that the plug is disconnected from the switchboard.
- open the power plug
- disconnect the phase cables and reverse their order to restore the correct direction of rotation, consistent with the command output by the device
- close the power plug
- check that the correct direction of rotation has been restored
- carry out the checks provided for in the CHECK AFTER EACH REPAIR section of the GENERAL SECTION of the Manual after installing the machine on its support

MECHANICAL MAINTENANCE SECTION OF THE MANUAL

OVERVIEW

This section is intended for:

- Mechanical maintenance operators

WARNINGS

	**CAUTION** The use of PPE is a key aspect of ensuring safety.
	**CAUTION** Before carrying out any maintenance work, ensure that the industrial plug is disconnected from the switchboard.
	**DANGER** At the end of each intervention, check the correct operation of the safety devices by testing the emergency stop button and the safety microswitch.
	**DANGER** Failure to observe the sequence of operations leads to dangerous situations for the operator as he is exposed to specific unmitigated risks
	**PROHIBITION** It is forbidden to carry out maintenance work without first disconnecting all power sources

PURPOSE OF THE SECTION

This section of the manual is written for the purpose

- of providing all useful and necessary information for the maintenance of the components and mechanical parts of the machine to be carried out by the mechanical maintenance operators.

LIST OF MECHANICAL MAINTENANCE OPERATIONS

The mechanical maintenance operations that can be carried out by the user's personnel are as follows:

- cleaning and greasing the rope
- adjusting motor braking

Operations must be carried out with the machine installed on the support structure.
Any other mechanical maintenance work must be carried out by an authorised service centre.
At the end of each electrical maintenance operation, carry out the checks provided for in the CHECK AFTER EACH REPAIR section of the GENERAL SECTION of the Manual after installing the machine on its support

	**DANGER** Failure to carry out the checks may result in injury or death

PPE LIST

The following PPE must be worn during mechanical maintenance operations:

Symbol	Description
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear a protective helmet
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear category I protective goggles
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear category I textile protective overalls
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear safety shoes
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear category I protective gloves
	**PERSONAL PROTECTIVE EQUIPMENT** This symbol identifies the obligation to wear protective gloves for mechanical work in compliance with EN 388

Cleaning and greasing the rope

Rope cleaning and greasing must be carried out in the following order:

- with the machine powered, completely unwind the rope from the drum
- ensure that the plug is disconnected from the switchboard.
- clean the rope from dust with a non-corrosive product
- Grease the rope with a specific product for pulling ropes, removing any excess product
- connect the machine plug to the switchboard.
- rewind the rope completely onto the drum
- carry out the checks provided for in the CHECK AFTER EACH REPAIR section of the GENERAL SECTION of the Manual after installing the machine on its support

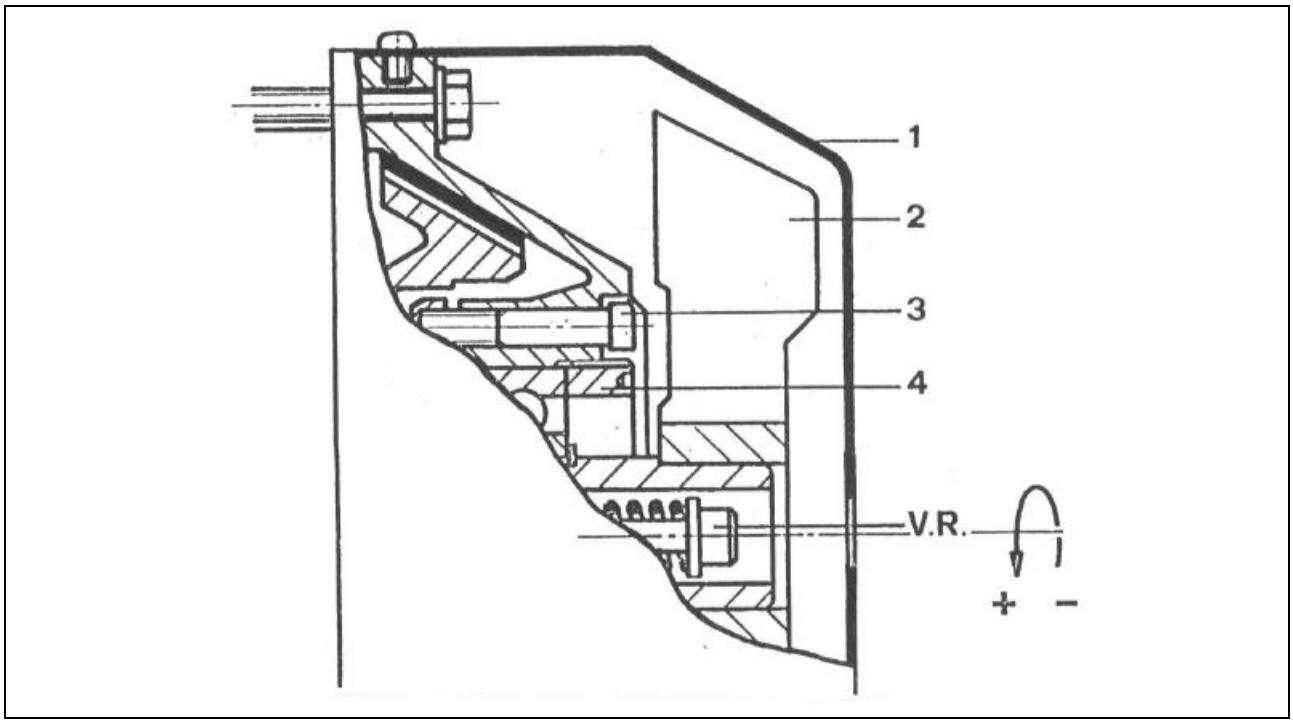
Adjusting motor braking

The extent of braking is adjusted, with the motor not powered, by turning the adjusting screw (VR) with the machine installed on the support structure:

- turn the screw anti-clockwise (a maximum of one turn) to increase the braking action;
- turn it clockwise (a maximum of one turn) to decrease the braking action or to release the motor.

The rear ring nut (4) must be adjusted as follows:

- ensure that the plug is disconnected from the switchboard.
- remove the fan cover (1) by removing the perimeter screws
- remove the fan (2);
- loosen the three hexagon socket head screws (3);
- turn the ring nut (4) anti-clockwise by 1/4 turn; in the case of brake lock, turn it clockwise by 1/4 turn;
- tighten the three hexagon socket head screws (3);
- refit the fan (2)
- refit the fan cover (1) back in place and tighten the perimeter screws.
- carry out the checks provided for in the CHECK AFTER EACH REPAIR section of the GENERAL SECTION of the Manual after installing the machine on its support



CAUTION
If the brake lining wears out, this will cause the brake to function erratically.

LIST OF MAINTENANCE OPERATIONS TO BE CARRIED OUT AT AN AUTHORISED SERVICE CENTRE

The mechanical maintenance operations that must be carried out at an authorised service centre are as follows:

- hook replacement
- rope replacement
- motor replacement

- any other mechanical maintenance or repair operations on the machine except those listed in the LIST OF MECHANICAL MAINTENANCE OPERATIONS.

DISMANTLING, SCRAPPING, DECOMMISSIONING AND DISPOSAL SECTION.

OVERVIEW

This section is intended for:

- User

WARNINGS

	**DANGER** Failure to comply with the Manual may cause danger to the operator as he is exposed to specific unmitigated risks

PURPOSE OF THE SECTION

This section of the manual is written for the purpose

- of providing all useful and necessary information for the dismantling, scrapping, decommissioning and disposal.

DISMANTLING, SCRAPPING, DECOMMISSIONING AND DISPOSAL

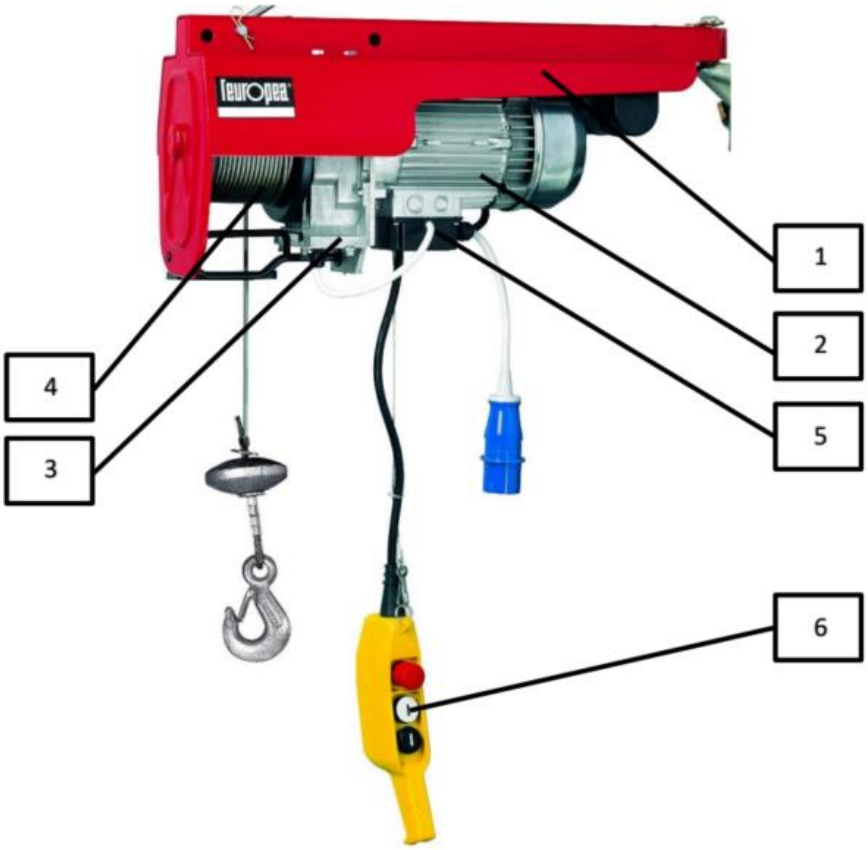
The machine must be disposed of by means of landfill in accordance with prevailing regulations.

APPENDIX A - SPARE PARTS

SPARE PARTS

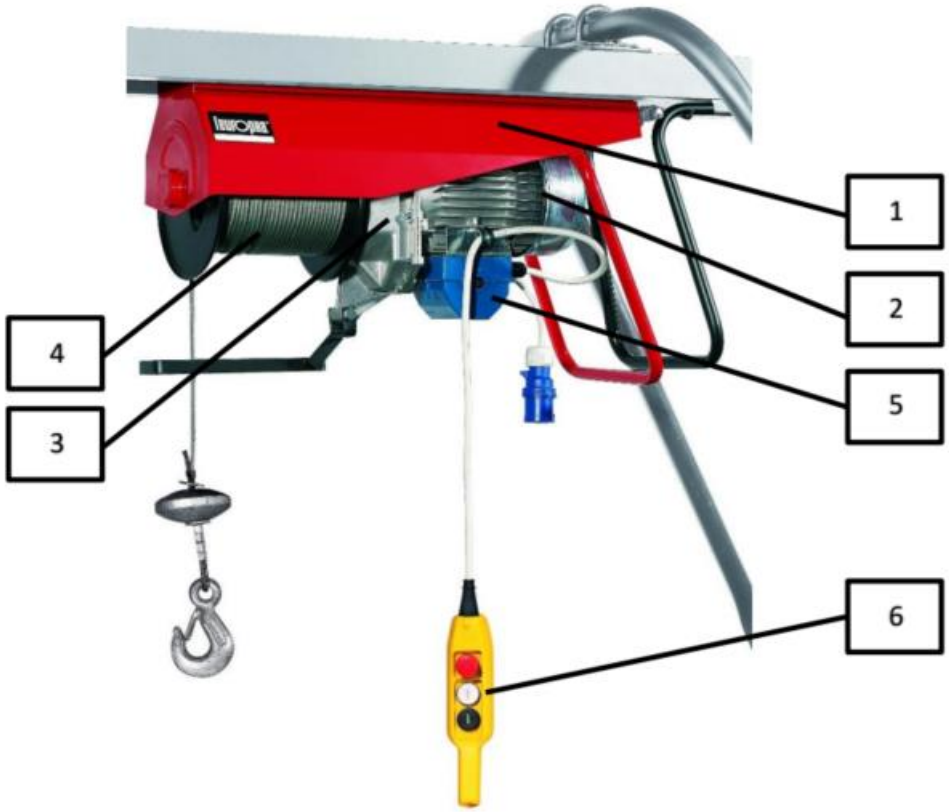
All repair work or replacement of mechanical components that may be damaged or worn out must be carried out at an authorised service centre, communicating the codes of the individual machine parts as listed in the following paragraphs.

SPARE PARTS - Model HE 200



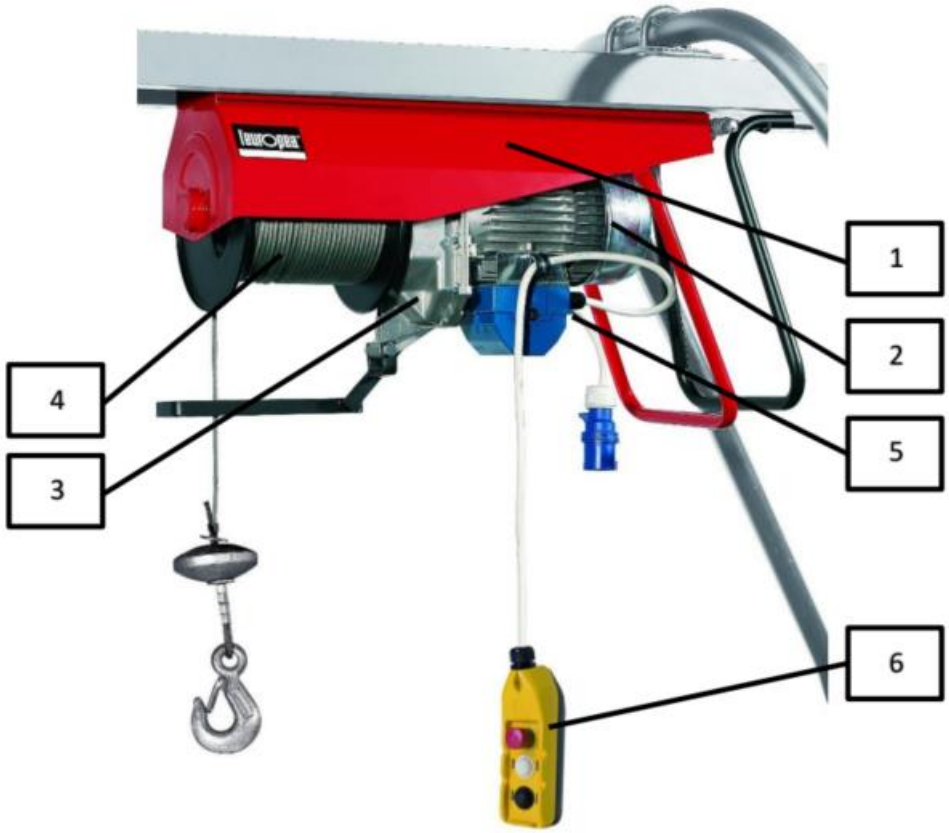
MODELLO	1	2	3	4	5	6
HE200S25P8	V126801936	2394.1412	S680405004	A121202030	S106004009	G762170000
HE200S25P9	V126801936	2394.1412	S680405004	A121202030	S106004009	G762170000
HE200S25P7	V126801936	2394.1412	S680405004	A121202030	S106004009	G762170000
HE200S00P2	V126801936	2394.1412	S680405004	V121204660	S106004003	G762170000
HE200S40PA	V126801936	2394M2350	S680405005	A121202040	S106004009	G762170000
HE200S00P11	V126801936	2394.1412	S680405004	V121204660	S106004019	G762170000
HE200S00P7	V126801936	2394.1412	S680405004	V121204660	S106004012	G762170000
HE200S25C9	V126801936	2394.1412	S680405004	A121202030	S145911500	9000600100
HE200S40P9	V126801936	2394M2350	S680405005	A121202040	S106004009	G762170000
HE200S35P8	V126801936	2394.1412	S680405004	A121202035	S106004009	G762170000
HE200S00P8	V126801936	2394.1412	S680405004	V121204660	S106004013	G762170000

SPARE PARTS - Model HE 300



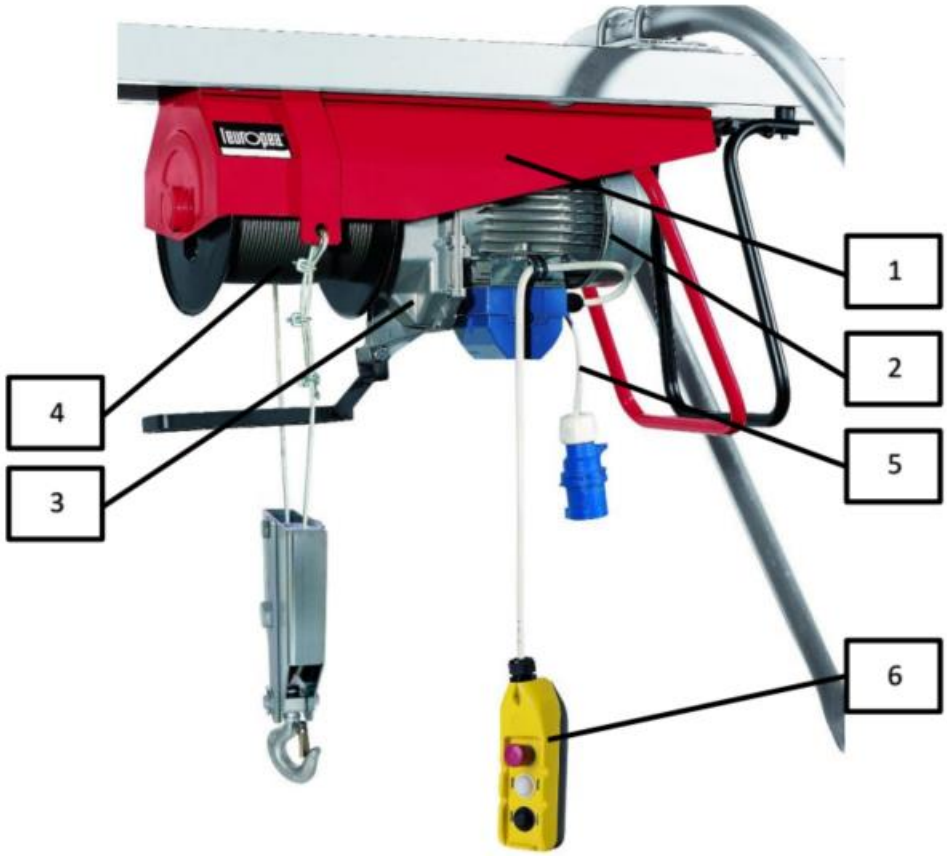
MODELLO	1	2	3	4	5	6
HE300S25I0	S122100000	2356.1400	S670400000	0001150_100	S141103870	-
HE300S25P1	S122100000	2356.1400	S670400000	0001150_100	S151003871	G762170000
HE300S35P1	S122100000	2356.1400	S670400000	0001150_104	S151003871	G762170000
HE301S40I0	S122100000	2356.1400	S670400000	0001150_108	S141103870	-
HE301S30V0	S122100000	2356.1400	S670400000	0001150_102	S141003831	G762460001

SPARE PARTS - Model HE 500



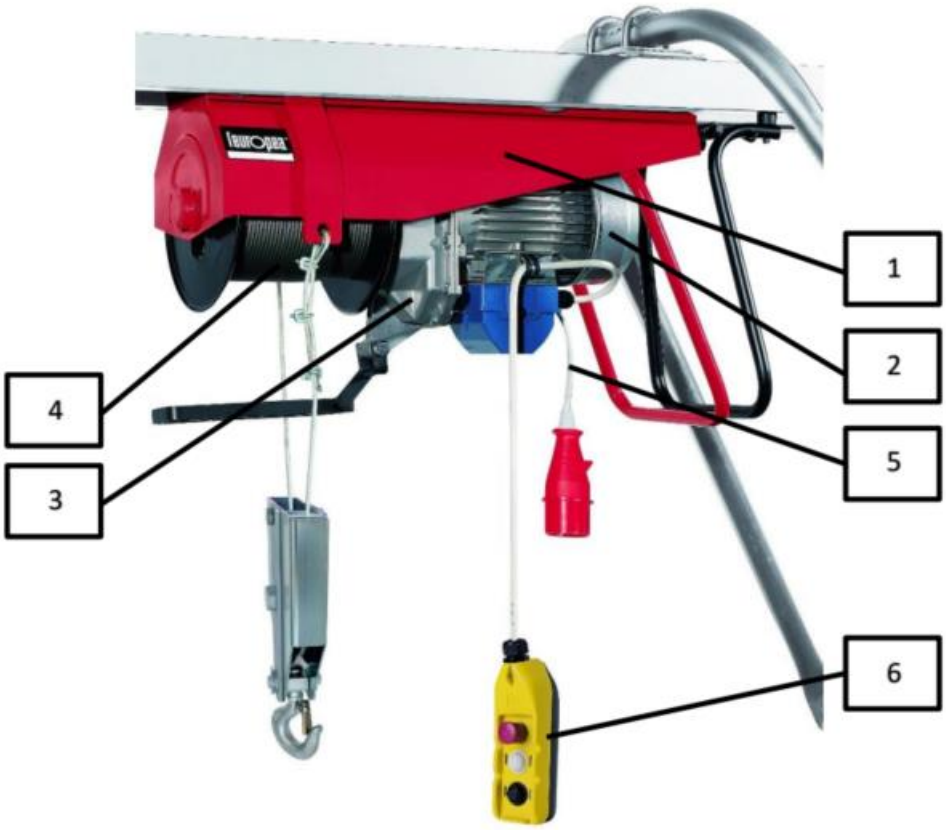
MODELLO	1	2	3	4	5	6
HE501S30V0	S122500000	2356.1400	S670400000	0001150_002	S141003831	G762460001
HE501T40I0	S122900001	2357.4050	S671100002	0001150_216	S141201120	-
HE50DS30P0	S122900001	2356.1410	S671117000	0001150_204	S141003875	G762460001
HE50DS40I0	S122900001	2356.1410	S671117000	0001150_212	S141103871	-
HE50DS40P0	S122900001	2356.1410	S671117000	0001150_212	S141003875	G762460001
HE501T40P0	S122900001	2357.4050	S671100002	0001150_216	S141003873	G762460001

SPARE PARTS - Model HE 800



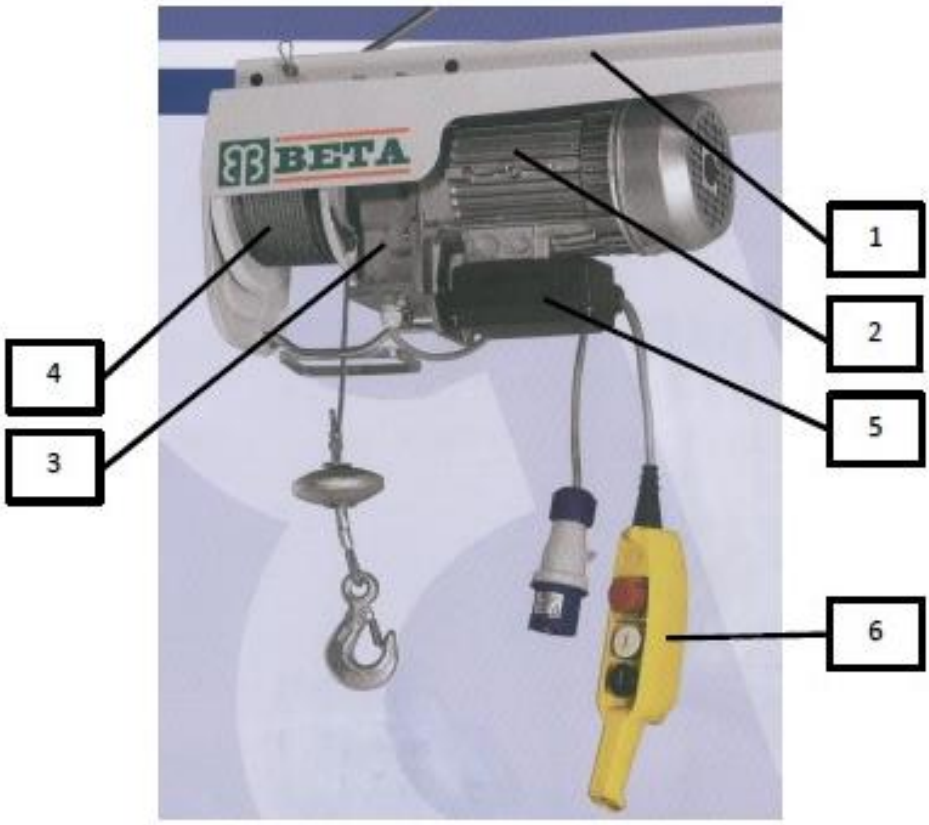
MODELLO	1	2	3	4	5	6
HE801S40P0	S122500000	2356.1410	S671117000	0001150_228	S141003875	G762460001
HE801A40C1	S122500000	2356.4310	S671118000	0001185_004	S145919008	9000600100
HE801T40P0	S122500000	2357.4050	S671100002	0001150_130	S141003873	G762460001

SPARE PARTS - Model HE 1000



MODELLO	1	2	3	4	5	6
HE101C40C1	S122500000	2357.5500	S671116000	0001190_106	S145917601	9000600100
HE101T30P0	S122500000	2357.4050	S671100002	0001150_224	S141003873	G762460001
HE101T40P0	S122500000	2357.4050	S671100002	0001150_230	S141003873	G762460001

SPARE PARTS - Model BETA

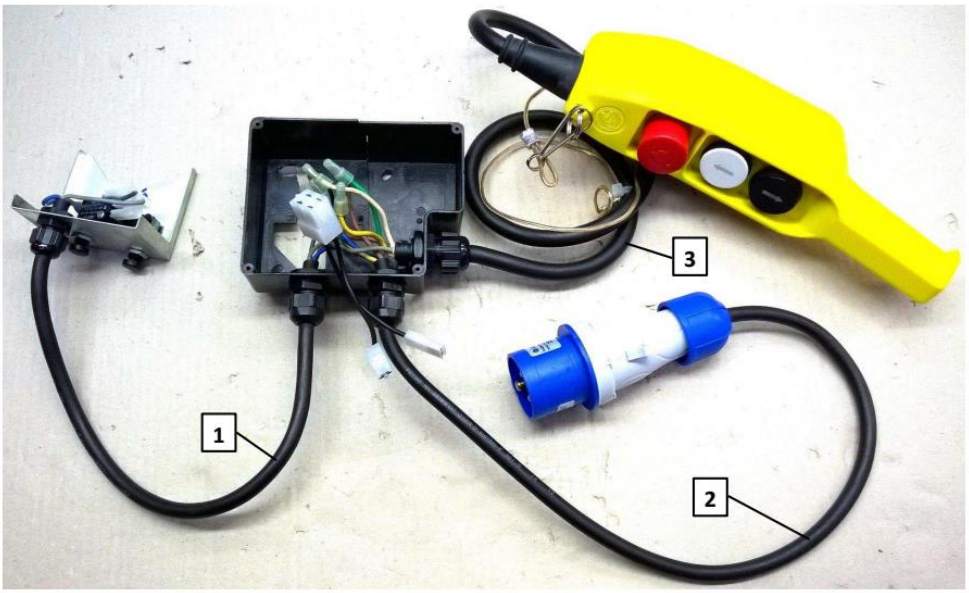


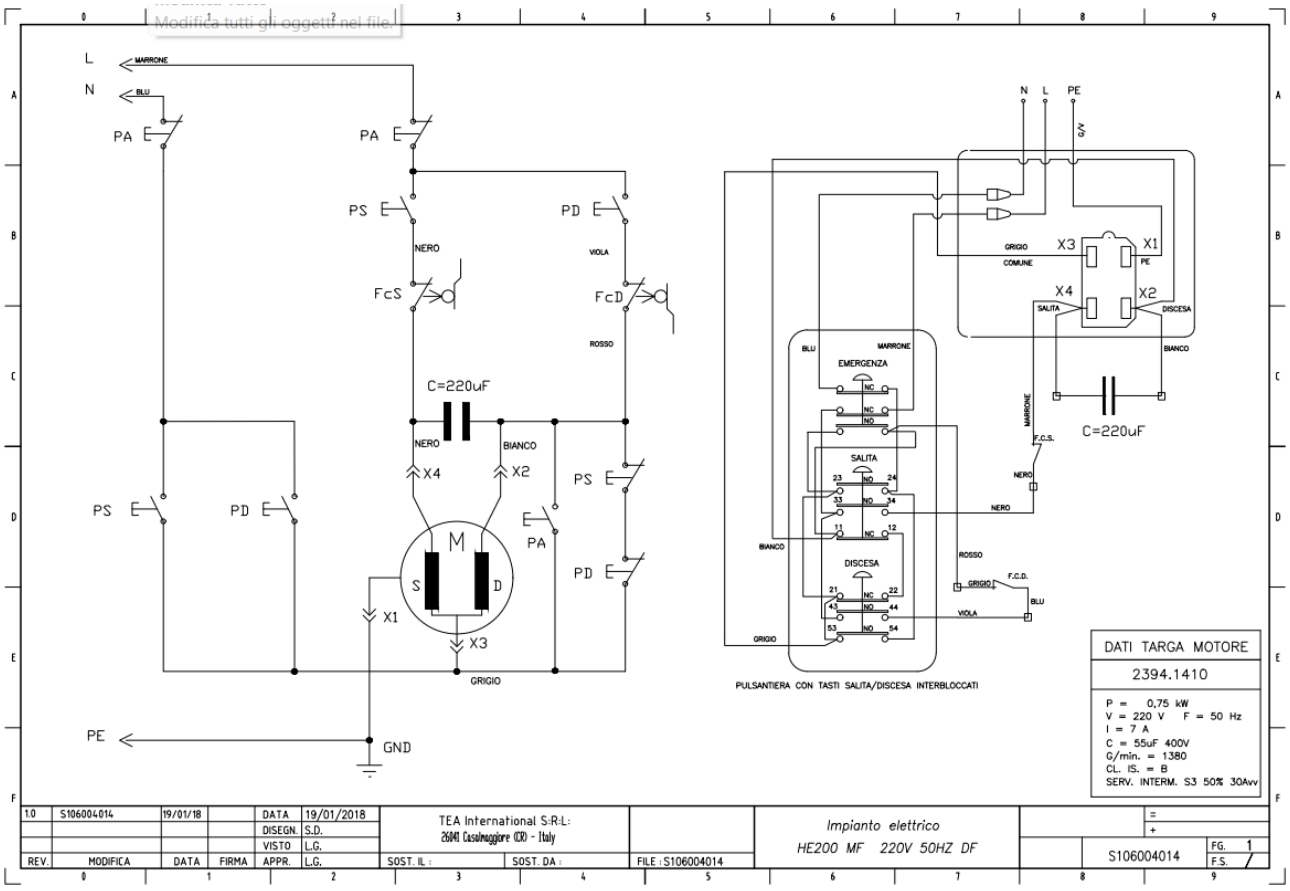
MODELLO	1	2	3	4	5	6
8045000005	V126801935	2394.1412	S680405004	A121202030	S106004014	G762170000
8045000015	V126801937	2394.4000	S680430000	A121202030	S106004016	G762460001

APPENDIX B - WIRING DIAGRAMS

S106004014 - Push-button panel control for BETA

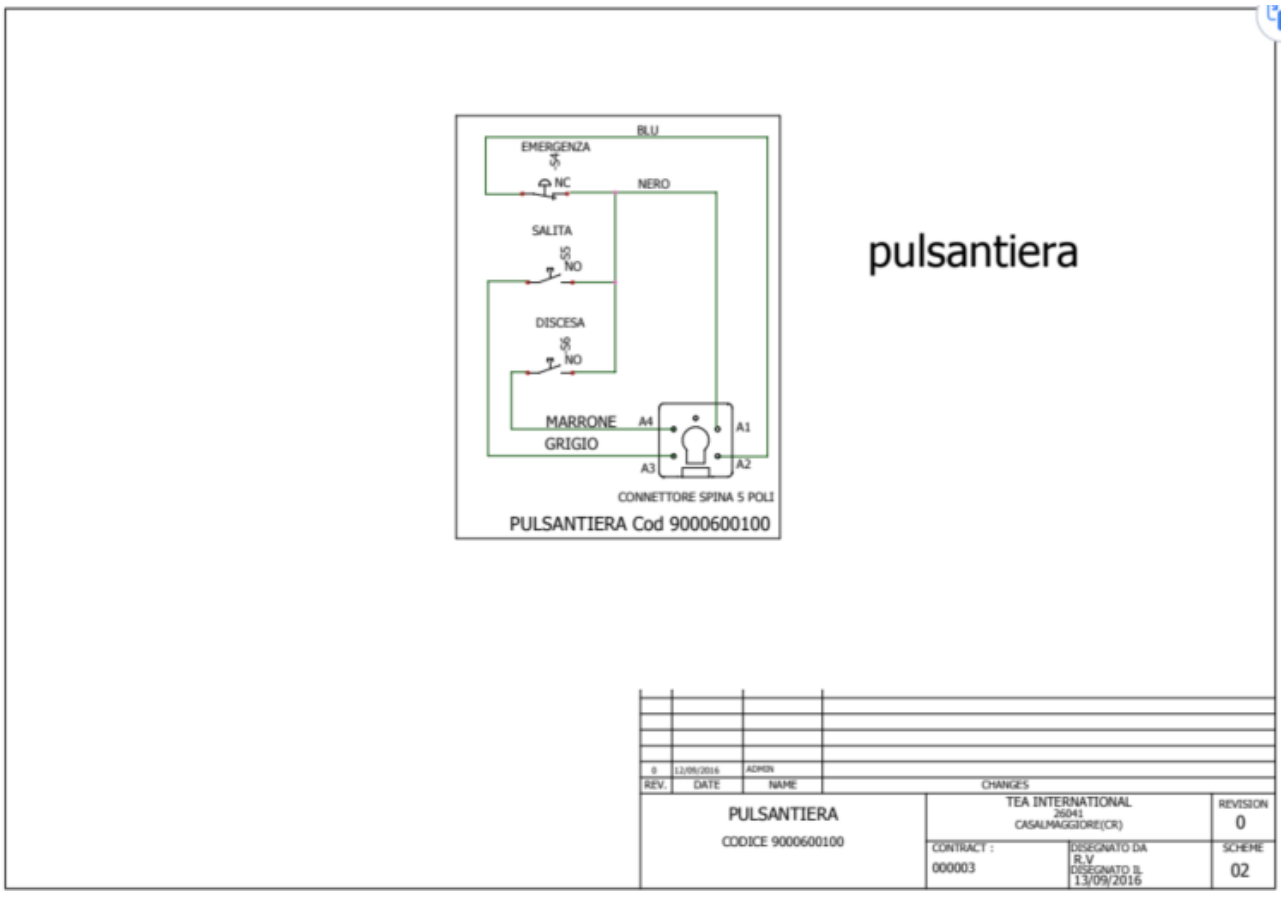
POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	37	9490439400	H07RN-F 4X1 s. GV	
2	53	9490559400	H07RN-F 3X1.5 con GV	
3	90	9967910650	H07RN-F 5x1,5 colorati	Usare cavetto 0001385_001





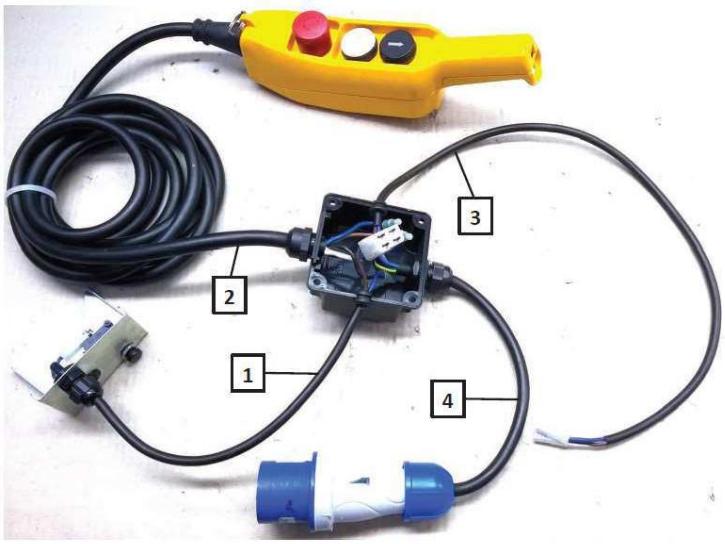
9000600100 - Push-button panel control for models HE 200, HE 800, HE 1000

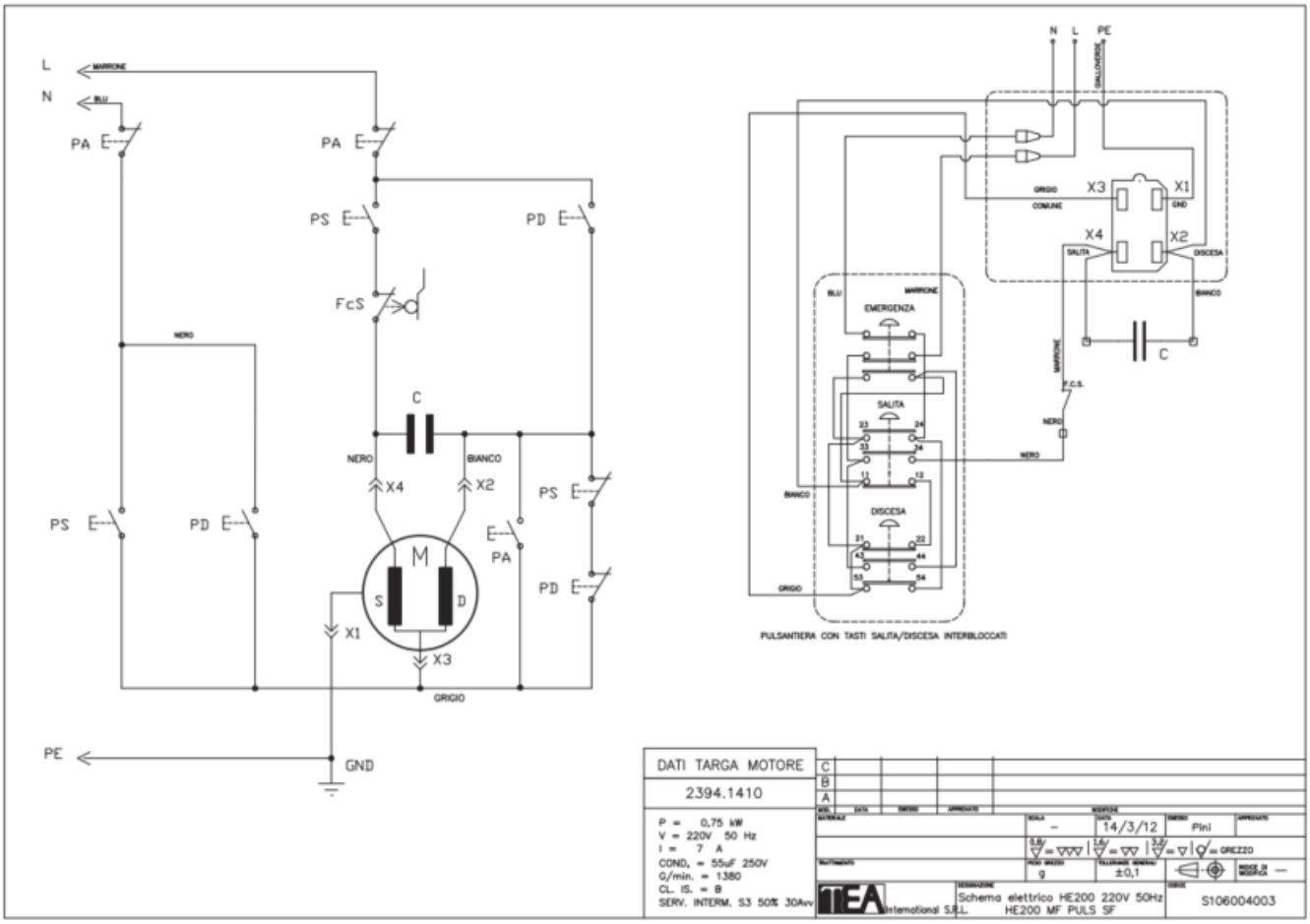
1) Length of cable: 150 cm



S106004003 - Push-button panel control for models HE 200

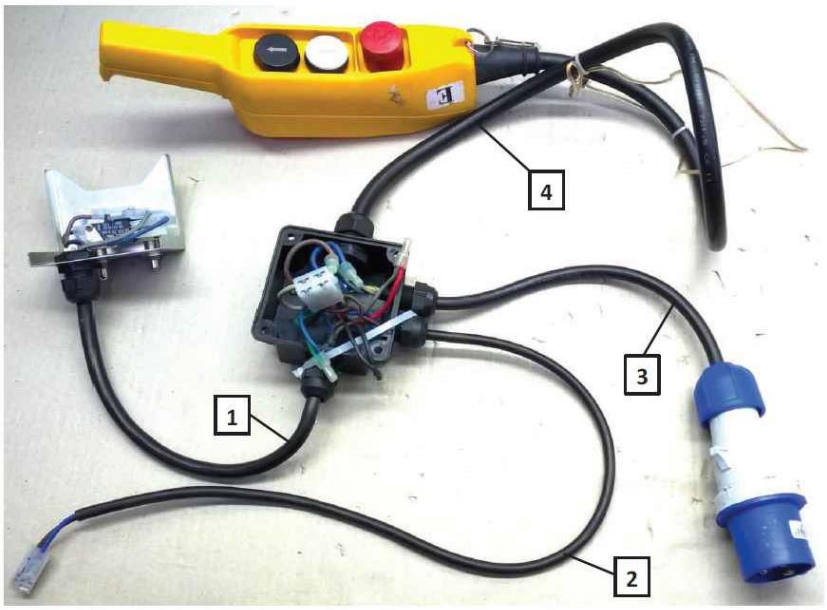
POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	26,5	9967913300	H05VVF 2x1.5 s. GV	
2	340	9967910650	H07RN-F 5x1,5 colorati	
3	57	9967913300	H05VVF 2x1.5 s. GV	
4	21	9490559400	H07RN-F 3X1.5 con GV	LA SPINA E' STATA SOSTITUITA CON LA IP67

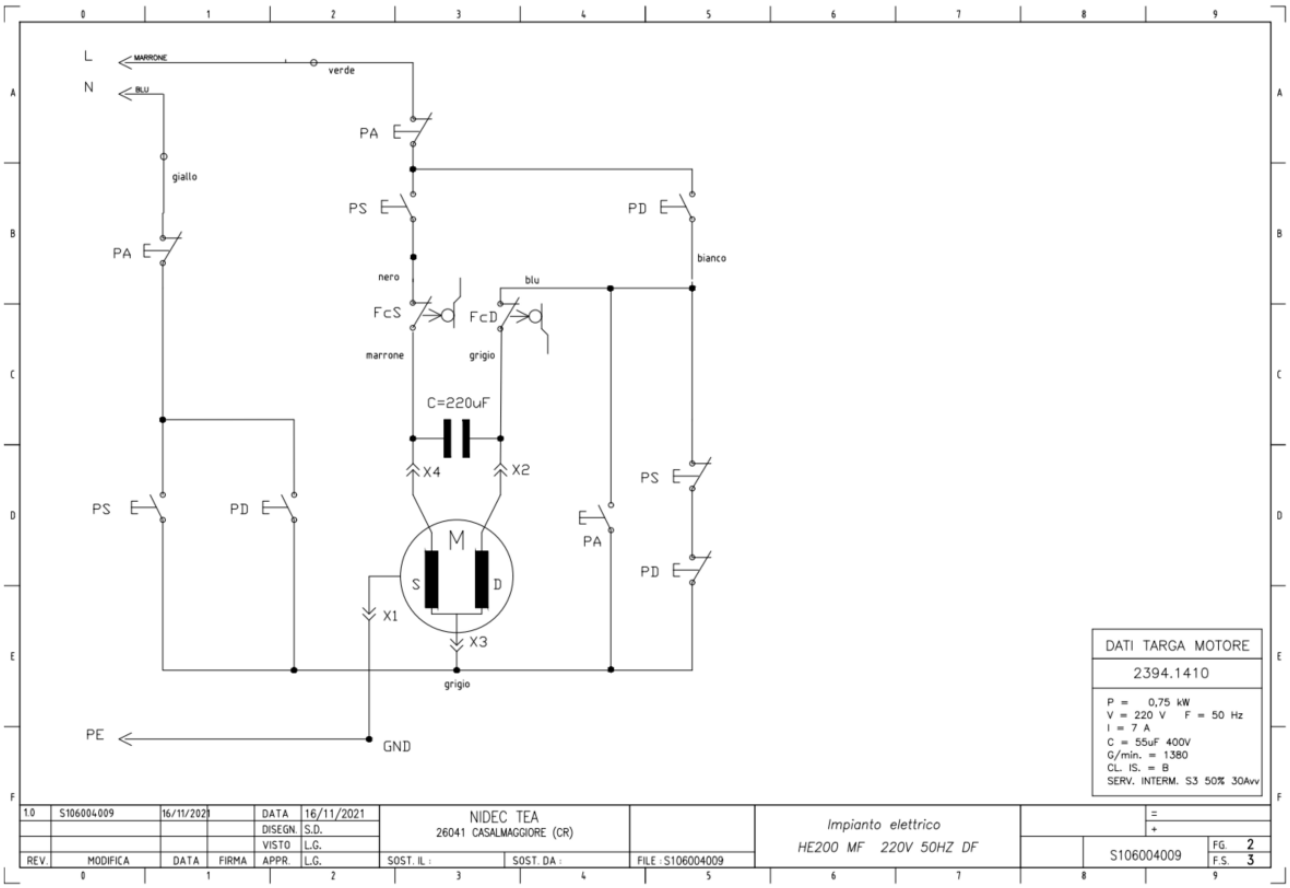


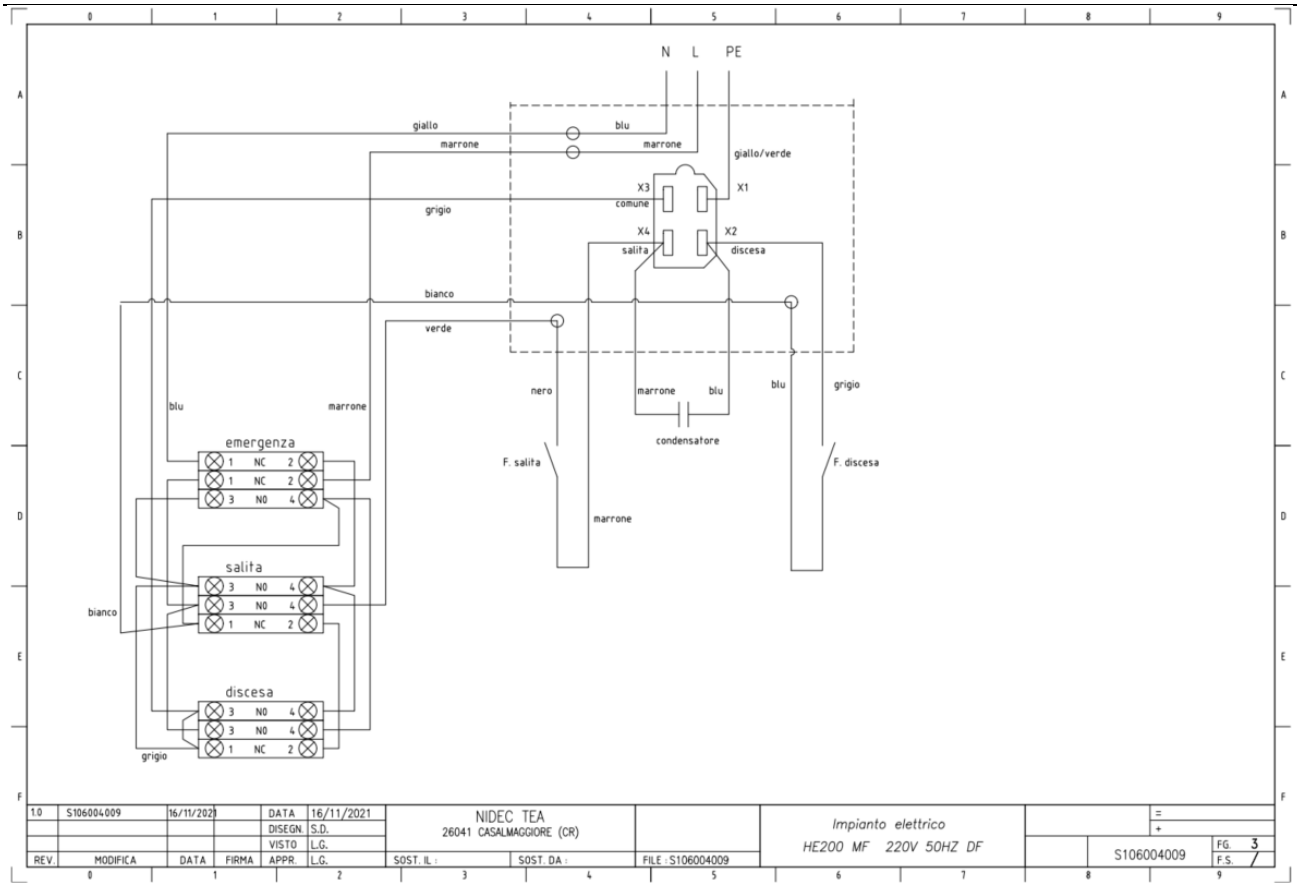


S106004009 - Push-button panel control for models HE 200

POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	25	9490439400	H07RN-F 4X1 s. GV	
2	58	9967913300	H05VVF 2x1.5 s. GV	
3	24	9490559400	H07RN-F 3X1.5 con GV	
4	78	**9967910650**	H07RN-F **5**X1.5 colorati s. GV	

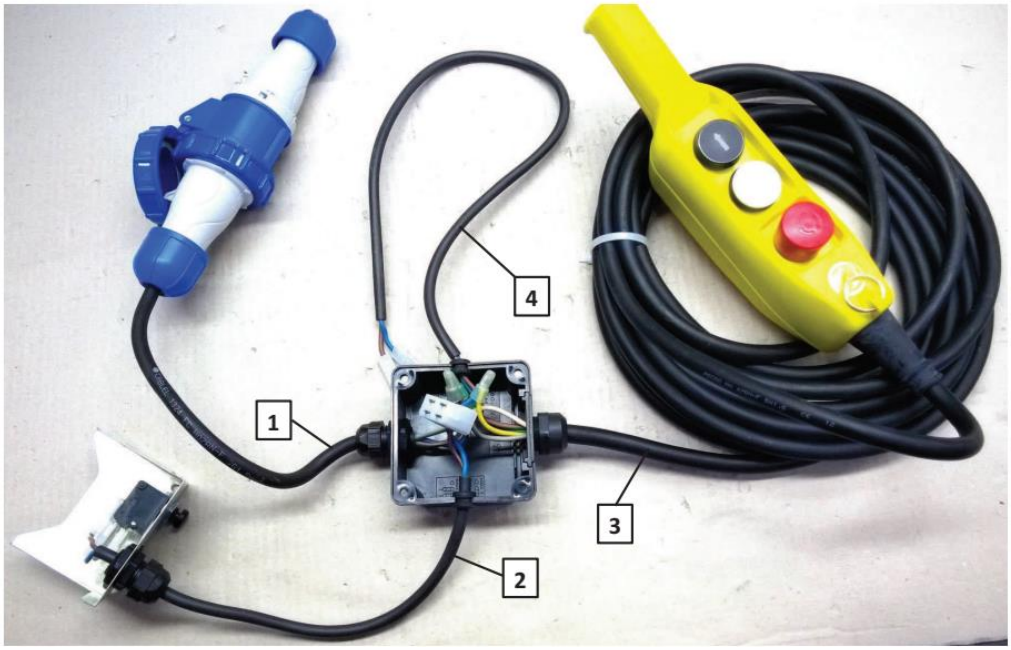


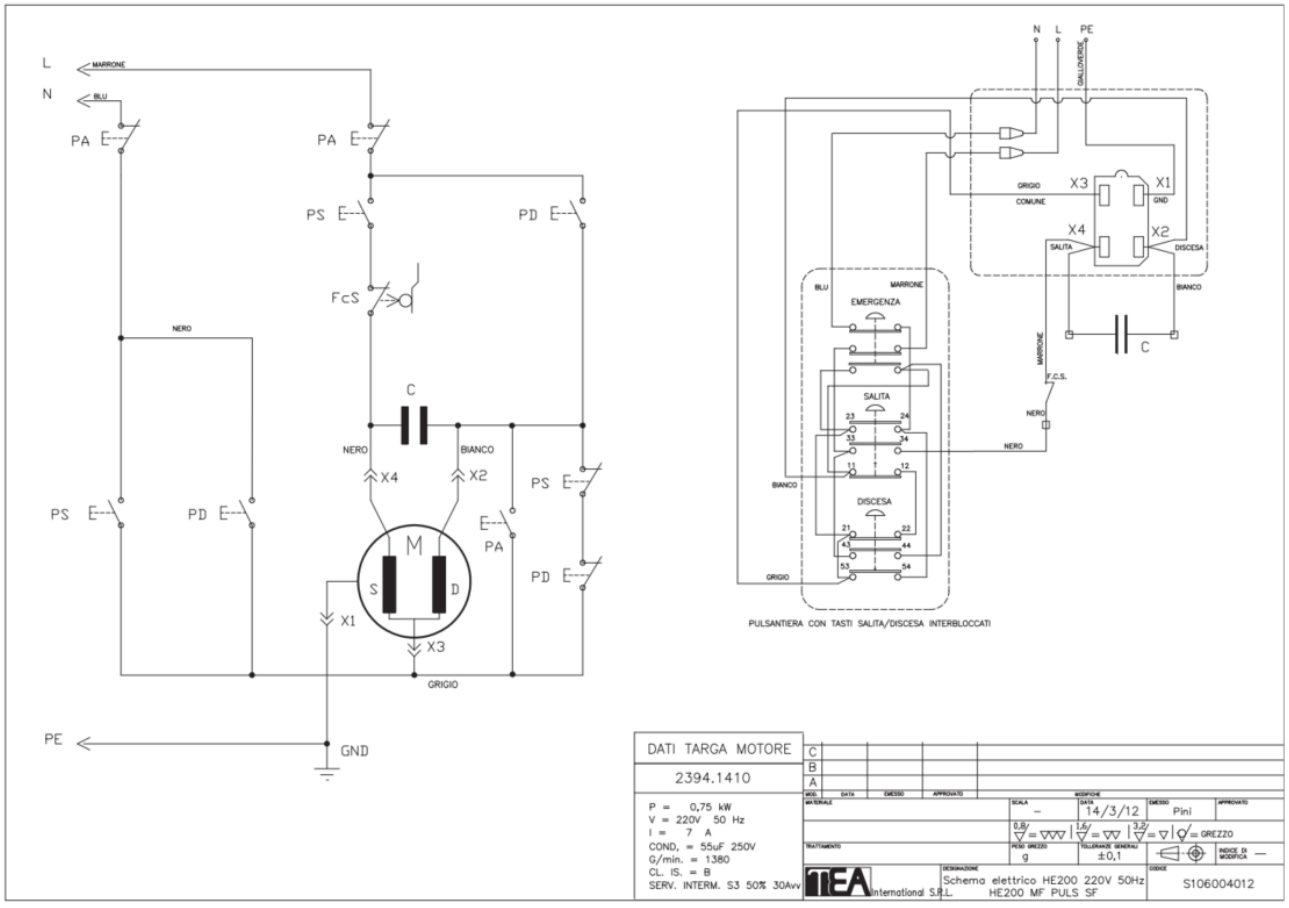



N L PE
giallo
marrone
blu
marrone
giallo/verde
X3
comune
X1
grigio
X4
salita
X2
discesa
bianco
verde
blu
marrone
nero
marrone
blu
blu
grigio
condensatore
emergenza
F. salita
F. discesa
marrone
salita
bianco
discesa
grigio
1.0
S106004009
16/11/2021
DATA
16/11/2021
DISEGN.
S.D.
VISTO
L.G.
REV.
MODIFICA
DATA
FIRMA
APPR.
L.G.
NIDEC TEA
26041 CASALMAGGIORE (CR)
SOST. IL :
SOST. DA :
FILE : S106004009
Impianto elettrico
HE200 MF 220V 50HZ DF
S106004009
FG. 3
F.S.

S106004012 - Push-button panel control for models HE 200

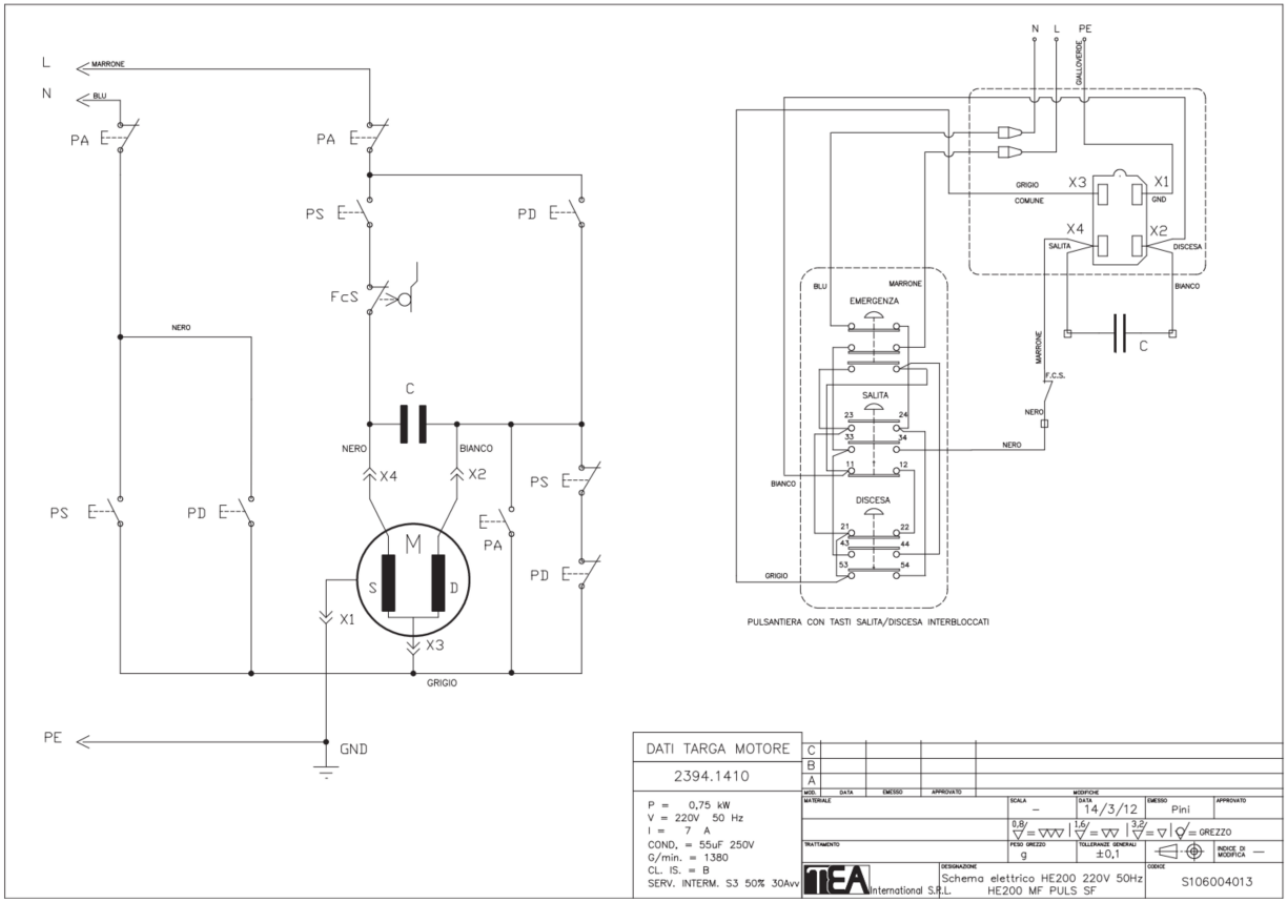
POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	23,5	9490559400	H07RN-F 3X1.5 con GV	
2	23,5	9967913300	H05VVF 2x1.5 s. GV	
3	600	9967910650	H07RN-F 5x1,5 colorati	
4	57,5	9967913300	H05VVF 2x1.5 s. GV	





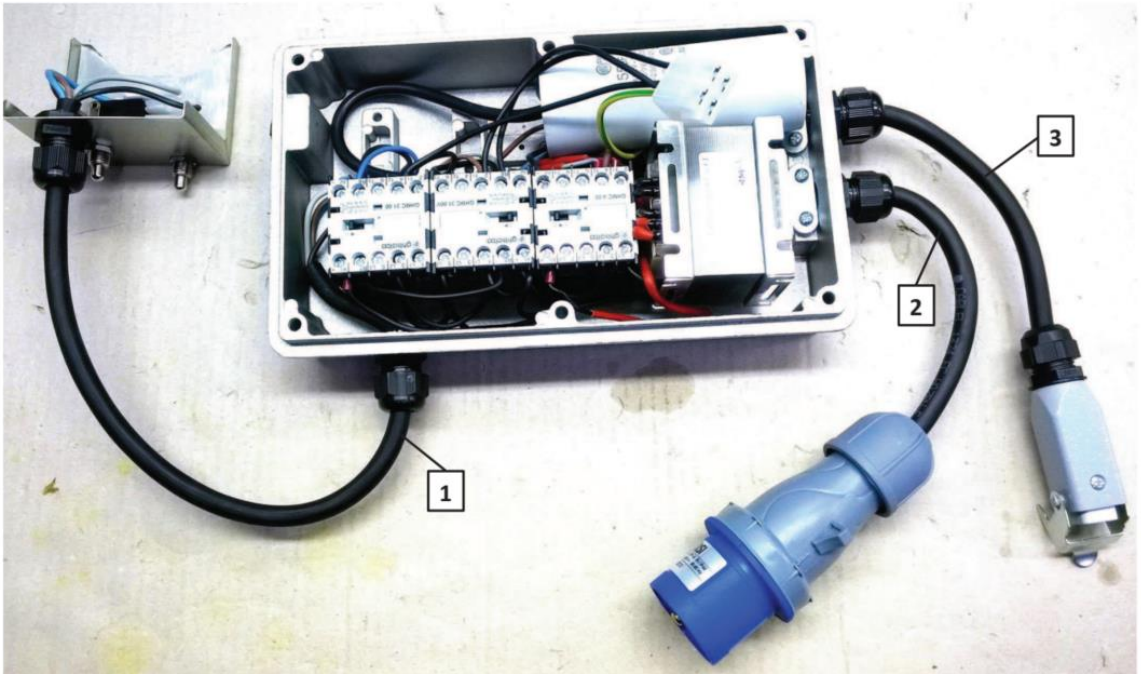
S106004013 - Push-button panel control for models HE 200

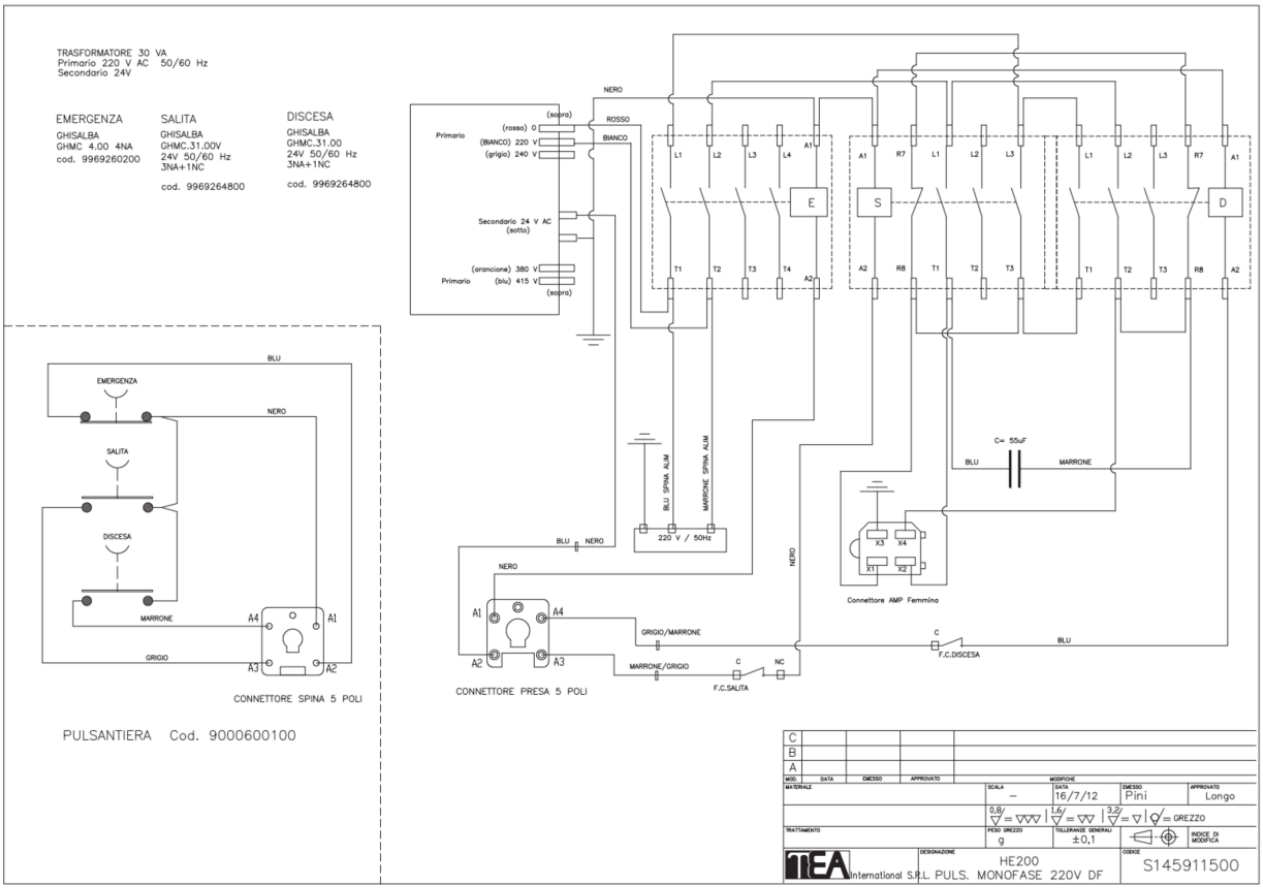
POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	330	9967910650	H07RN-F 5x1,5 colorati	
2	58	9967913300	H05VVF 2x1.5 s. GV	
3	410	9490559400	H07RN-F 3X1.5 con GV	
4	23	9967913300	H05VVF 2x1.5 s. GV	



S145911500 - Push-button panel control for models HE 200

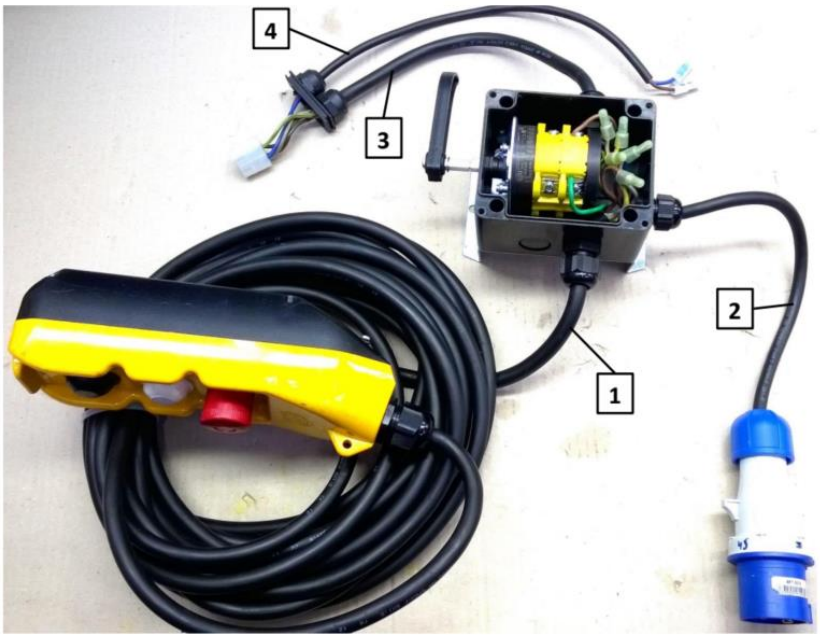
POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	28	9490439400	H07RN-F 4X1 s. GV	
2	13,5	9490559400	H07RN-F 3X1.5 con GV	
3	13,5	9490439400	H07RN-F 4X1 s. GV	

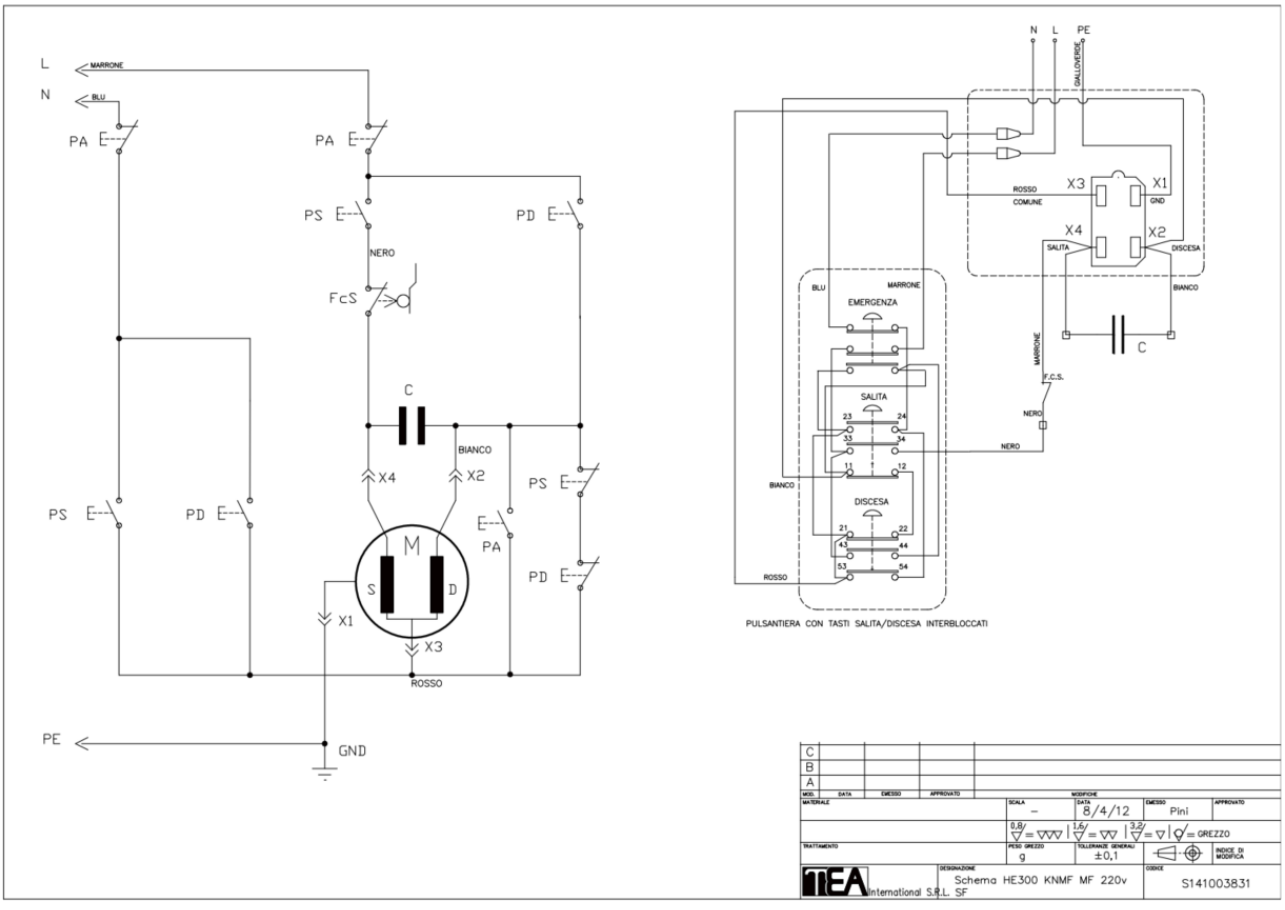




S141003831 - Push-button panel control for models HE 300

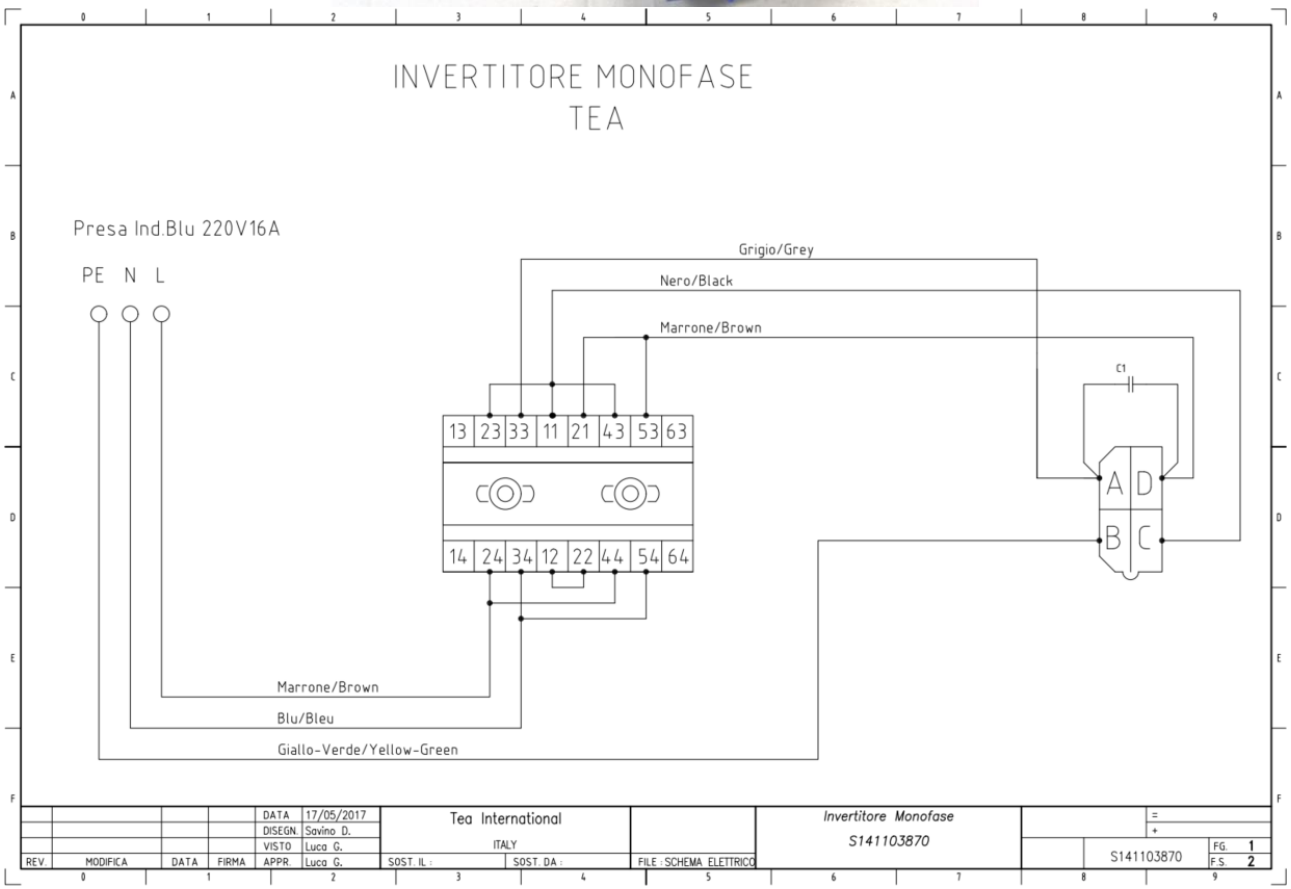
POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	1000	9967910650	H07RN-F 5x1,5 colorati	
2	26,5	9490559400	H07RN-F 3X1.5 con GV	
3	27,5	9490449400	H07RN-F 4G1,5	
4	34	9967913300	H05VVF 2x1.5 s. GV	





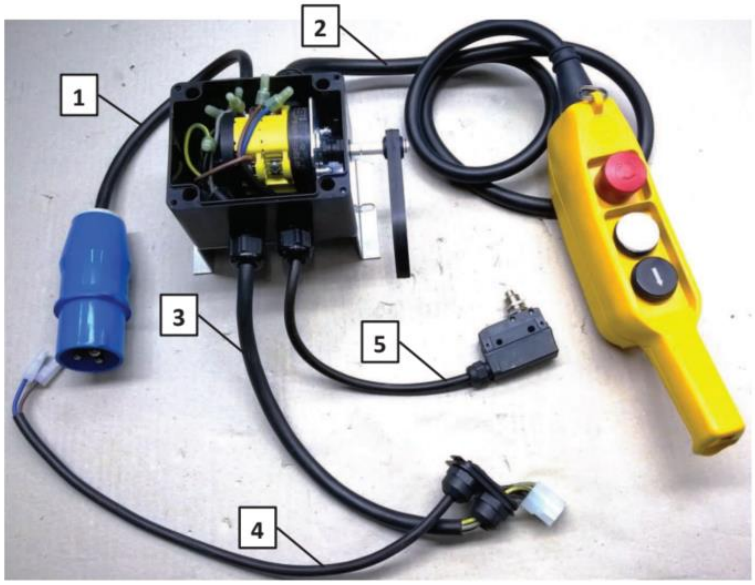
S141103870 - Push-button panel control for models HE 300

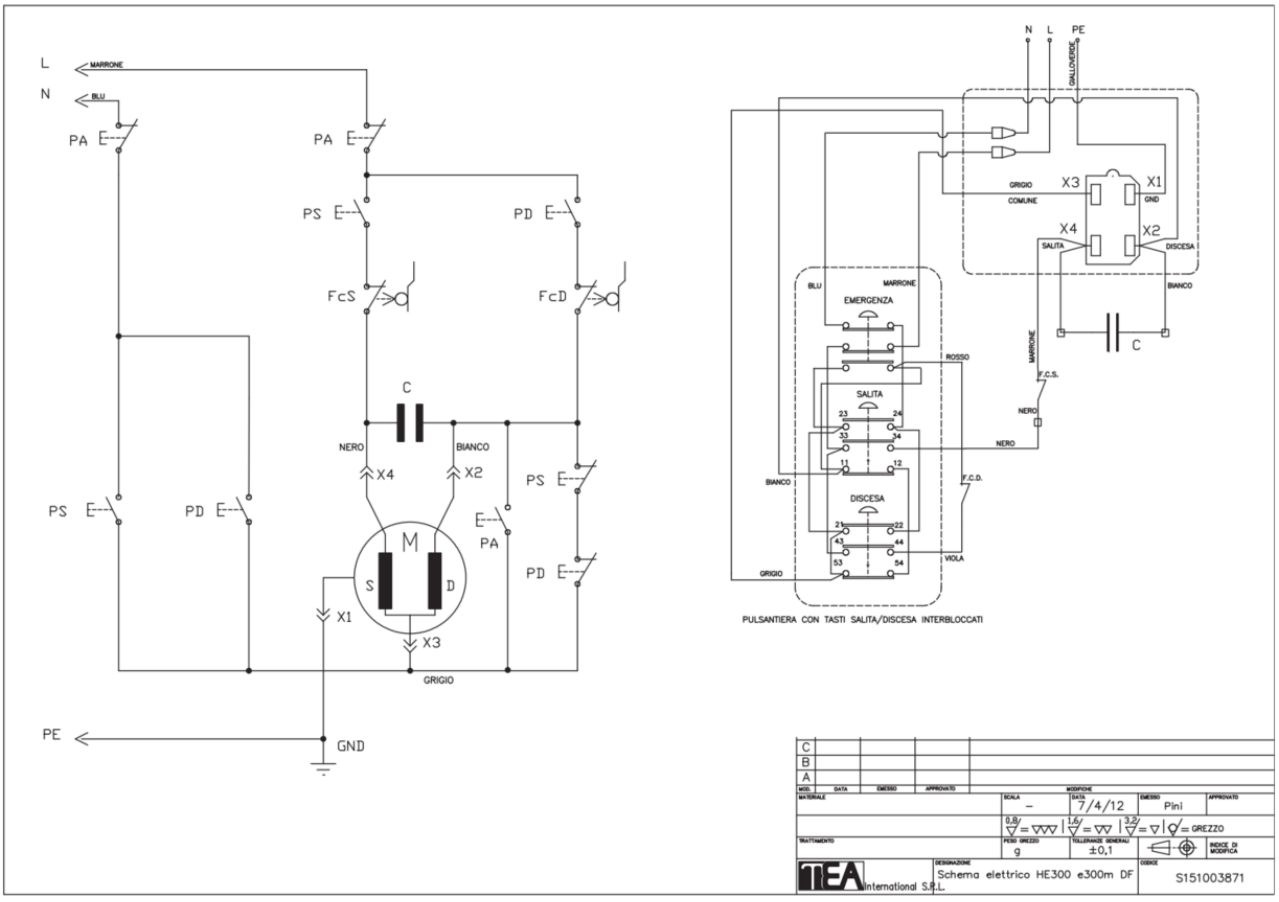
POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1			FROR 4G1,5	
2			FROR 2x1,5	
3			FROR 3G1,5	



S151003871 - Push-button panel control for models HE 300

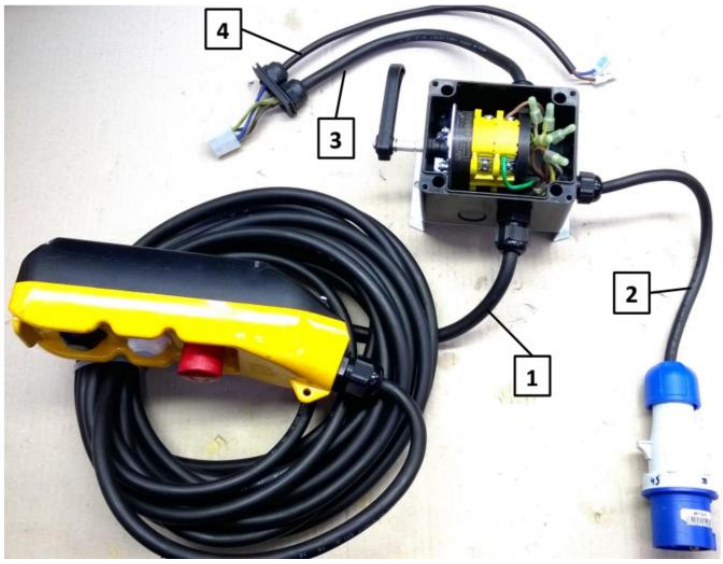
POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	26	9490559400	H07RN-F 3X1.5 con GV	il tipo di spina sul campione è da cambiare
2	110	9490499410	H07RN-F 7X1.5 colorati s. GV	
3	26	9490449400	H07RN-F 4G1.5	
4	37	9967913300	H05VVF 2x1,5	
5	19,5	9967913300	H05VVF 2x1,5	

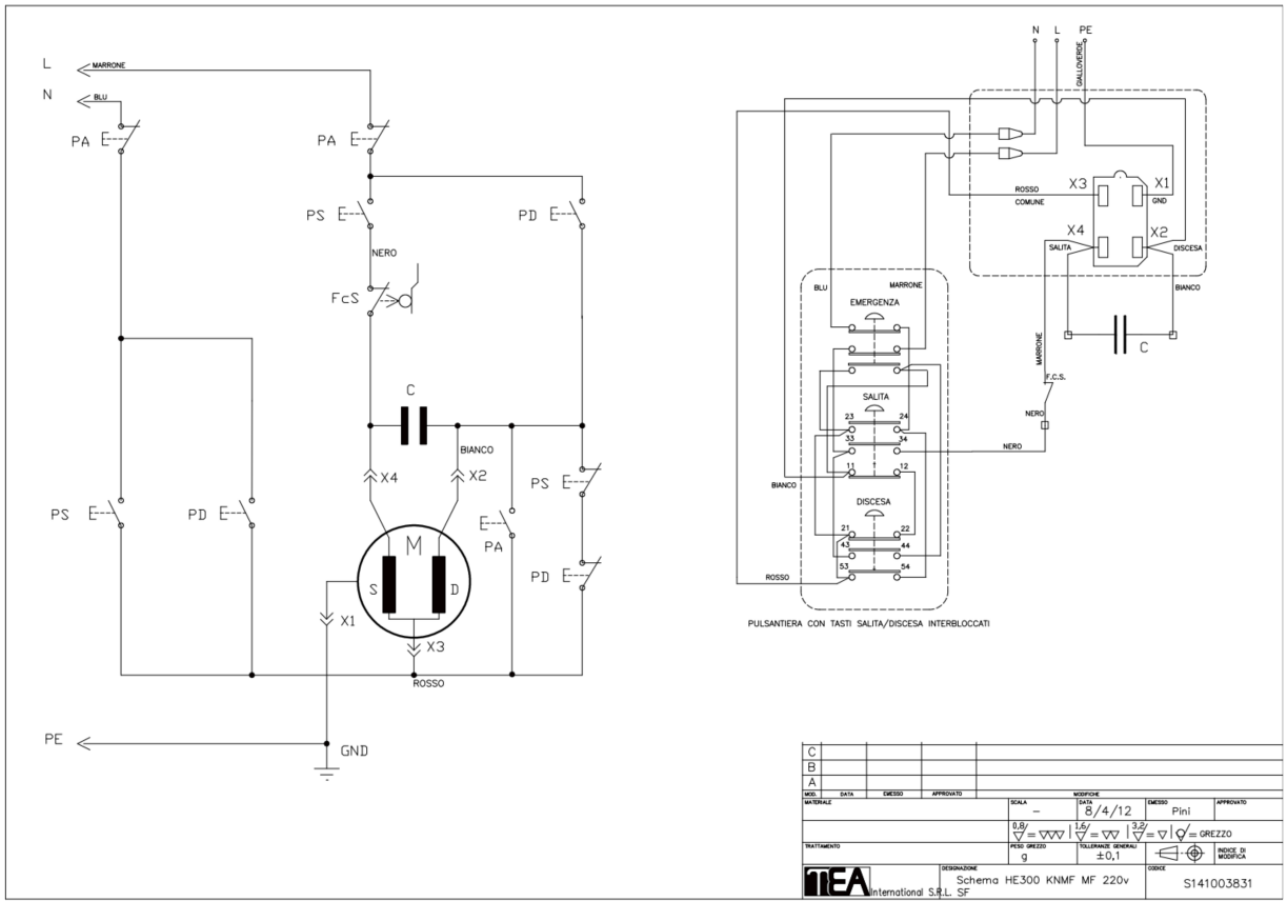




S141003831_001 - Push-button panel control for models HE 500

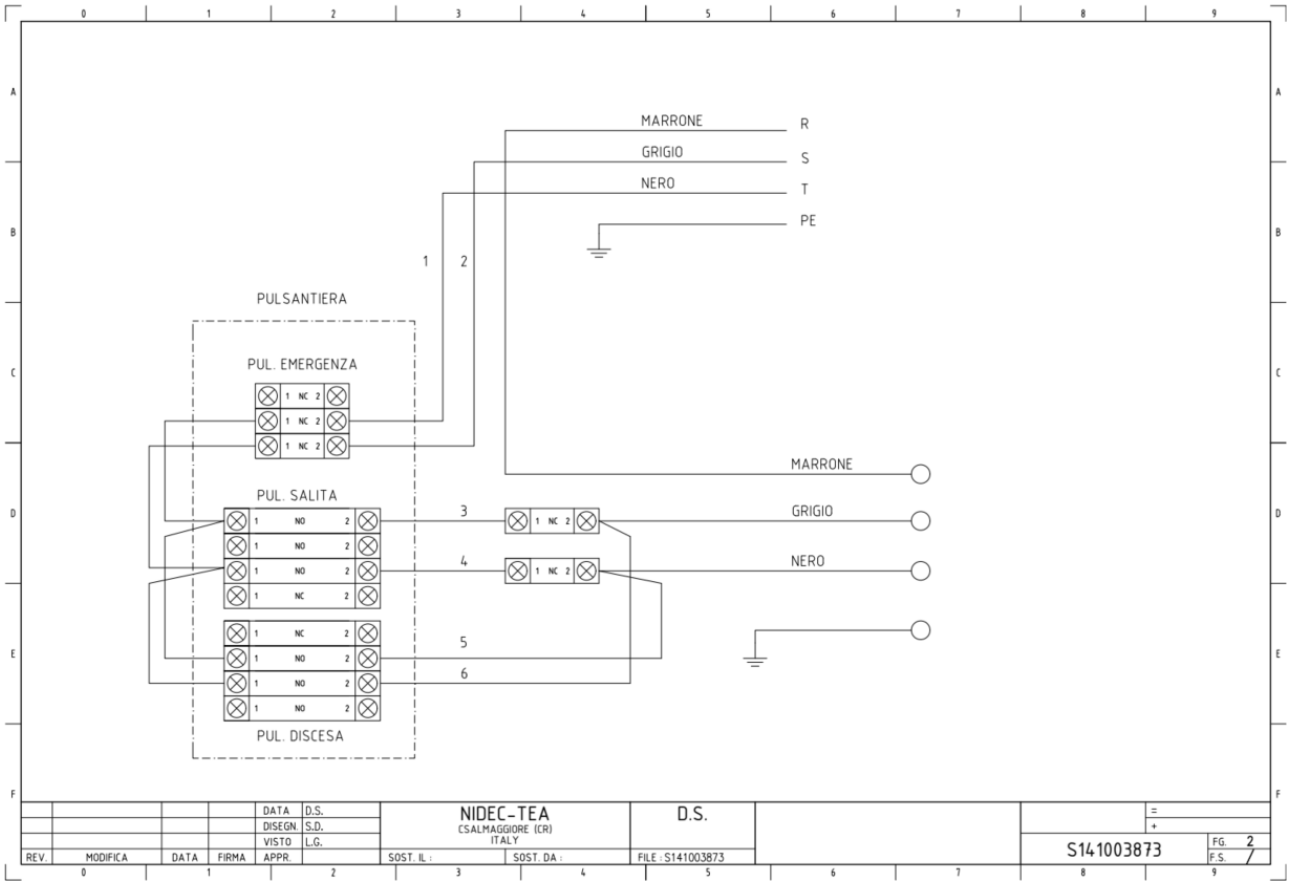
POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	150	9967910650	H07RN-F 5x1,5 colorati	
2	26,5	9490559400	H07RN-F 3X1.5 con GV	
3	27,5	9490449400	H07RN-F 4G1,5	
4	34	9967913300	H05VVF 2x1.5 s. GV	





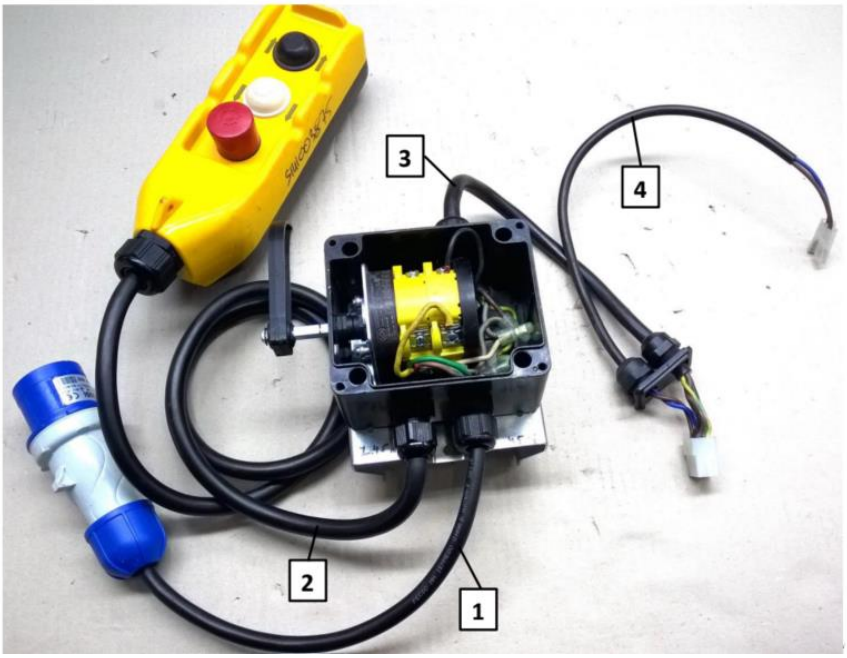
S141003873 - Push-button panel control for models HE 500 e HE 800

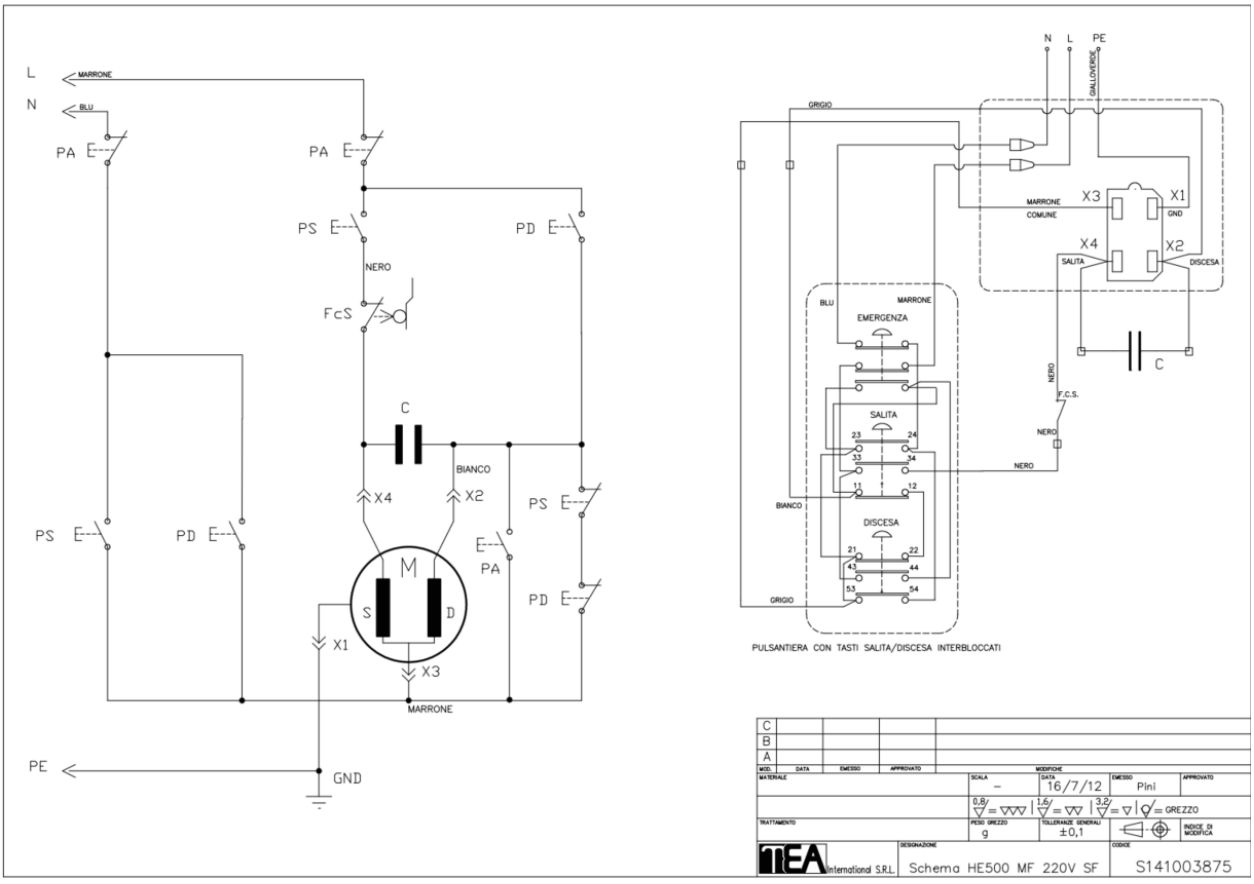
POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	14	9490449400	H07RN-F 4G1.5	Il tipo di spina sul campione è da cambiare
2	140	9490499410	H07RN-F 7X1,5 COL./NUM.	
3	34	9490449400	H07RN-F 4G1.5	



S141003875 - Push-button panel control for models HE 500 e HE 800

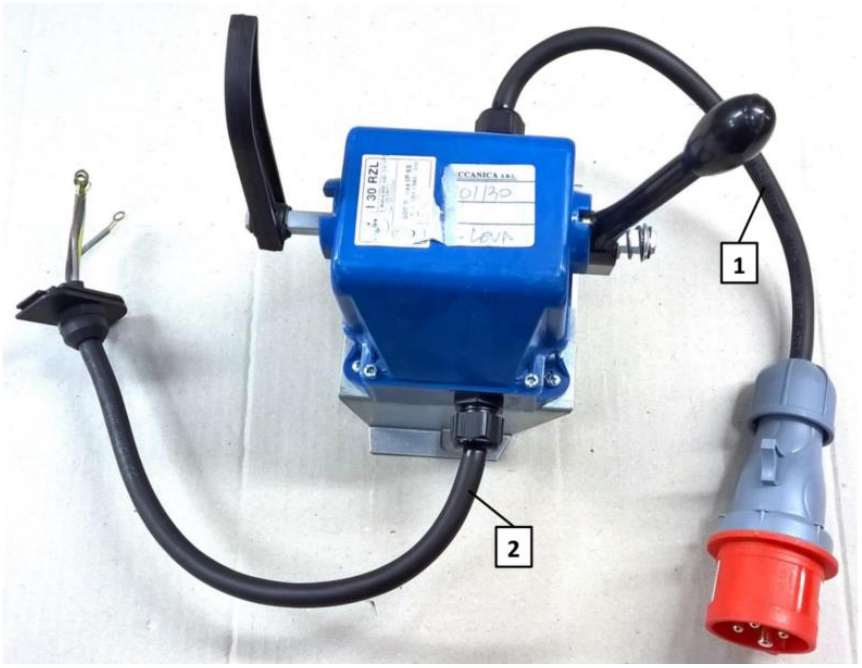
POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	27,5	9490559400	H07RN-F 3X1.5 con GV	
2	110	9967910650	H07RN-F 5x1.5 colorati	
3	24,5	9490449400	H07RN-F 4G1.5	
4	38	9967913300	H05VVF 2x1,5	

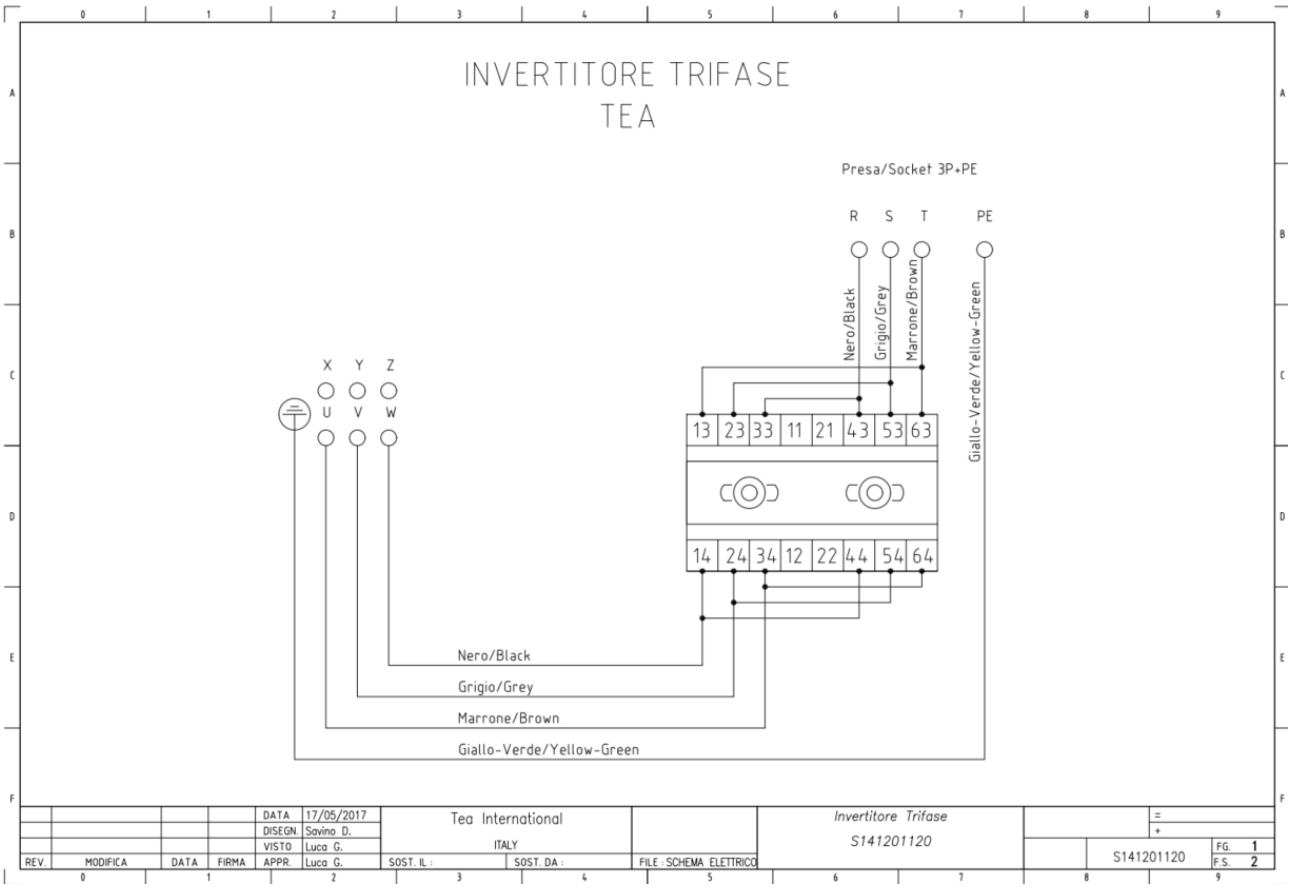




S141201120 - Inverter for model HE 500

POS.	L utile (cm)	CODICE	DESCRIZIONE	NOTE
1	17		FROR 4g1,5	
2	21,5		FROR 4g1,5	





S145917601 - Push-button panel control for models HE 1000