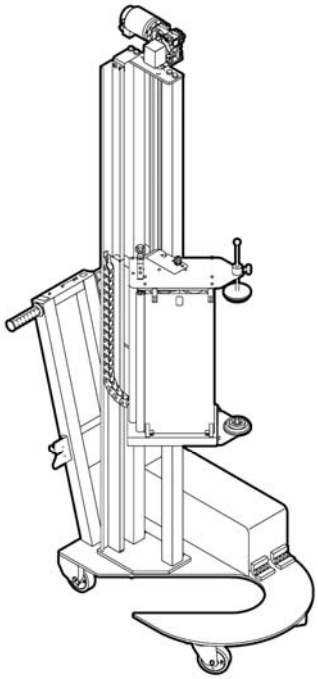
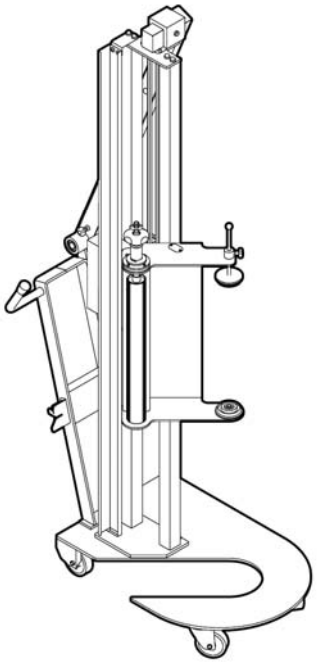
ROBOPAC
AETNAGROUP

ENG

USE AND MAINTENANCE MANUAL

CE





Semiautomatic robot (Wrapman) and manual robot (Xtenser) for wrapping with expandable plastic films

WRAPMAN - XTENSER

Translation of the original instructions

Code: **3709301624.0**
Edition: **0716**

Serial number |_|_|_|_|_|_|_|_|_|_|

ATTENTION
Read and understand these instructions before using the machine.
Keep this handbook for further consultation.

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Summary

1. GENERAL INFORMATION

1.1. PURPOSE OF THE MANUAL

- The manual is an integral part of the machine and is aimed to provide the operator the instructions for use in order to prevent and reduce the risks that arise from man-machine interface.
  The information have been written by the manufacturer into Italian (the original language) in full compliance with the professional writing principles and the regulations in force.
  The communication principles were chosen according to the target readers in order to ease the reading and understanding of the information.
  The information may be translated into other languages to satisfy the legal and/or market requirements.
  The manuals must be translated directly from the ORIGINAL INSTRUCTIONS, without modification.
  Each translation (including that provided by the purchasing agent or by the company that introduces the machine into the country in question) must specify the message "Translation of the original instruction".
- Keep this manual for the entire duration of its useful life in a well known and easy to access place, available for reference any time the need should arise.
- In order to easily consult the specific topics of interest, check the table of contents.
- Some information may not correspond completely to the actual configuration of the machine delivered.
- Any additional information does not affect the readability of the text and the safety level.
- The manufacturer reserves the right to modify the contents of the manual without prior notice provided that the safety level is not altered.
- All information supplied by the recipients represents an important contributionto the improvement of the after-sales service that the manufacturerwill offer to his/her customers.
- The symbols described below are used to highlight the most important information or specifications.

Danger - Warning
The symbol indicates extremely hazardous situations which, if ignored, could seriously jeopardise personal health and safety.

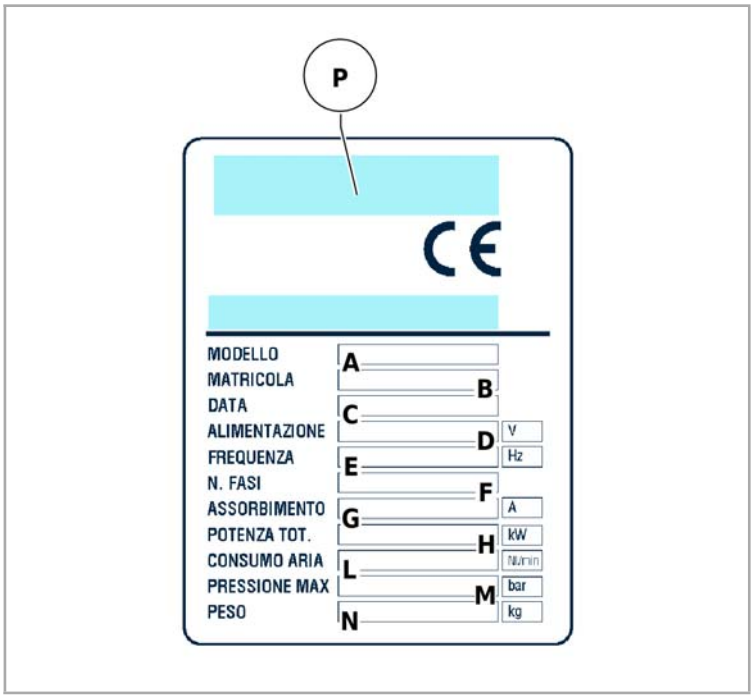
Caution - Warning
The symbol indicates that suitable actions must be adopted to preventpersonal health and safety risks and avoid economic damages.

Important
This symbol indicates critical technical and operating informationthat shall be observed.

1.2. MANUFACTURER AND MACHINE IDENTIFICATION

The illustrated identification plate is applied directly on the machine. It contains references and indispensable operating safety indications.

A) Machine model.
B) Machine's serial number.
C) Year of manufacture.
D) Power supply voltage.
E) Power supply frequency.
F) Power supply phases.
G) Electrical power consumption.
H) Total installed power.
L) Air consumption.
M) Max. air supply pressure.
N) Machine weight.
P) Manufacturer's name.



1.3. TERMS AND DEFINITIONS

Some recurring terms found within the manual are described in order to provide a more complete image of their meanings.

– **Routine maintenance.**
Group of functions necessary to maintain suitable machine operations and efficiency. Normally the manufacturer, who defines the necessary skills and intervention procedures, plans these operations.

– **Non-routine maintenance.**
The whole of the operations necessary to keep the operating and efficiency capacity of the machinery. These operations are not scheduled by the manufacturer and must be carried out by the maintenance technician.

– **Operator.**
A person authorised and chosen from those who have the requirements, skills and information necessary for installation, use and ordinary maintenance of the machine.

– **Maintenance technician.**
A person authorised and chosen among those who have the requirements, skills and information necessary to perform ordinary and extraordinary machine maintenance. He is expected, therefore, to possess precise information and skills with particular expertise in the field of intervention.

– **Training.**
training process aimed to transfer to the operator the knowledge, skills and behaviour required to operate the machine autonomously, properly and safely.

– **Installer.**
technician chosen, among those that meet the requisites, and authorised by the manufacturer or by its representative, to install and test the machine or the system in question.

– **Production manager.**
A qualified and skilled technician with experience in the operation and use of machinery in the relevant manufacturing field.
According to the production needs, the Supervisors may use the machine themselves or give the task to another Operator.

1.4. MODES OF REQUESTING FOR ASSISTANCE

The distribution network **ROBOPAC** is at your service for any problem that requires technical support, to order spare parts, and for whatever new type of need that can help develop your business.
Report the data displayed on the ID plate, the estimated hours you have used the machine, and the type of flaw you have uncovered when requesting technical support.
Contact one of our authorized dealers at the listed address for all your needs.

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1.5. ATTACHED DOCUMENTATION

The machine is provided with the documentation listed below, in the absence of a different trade agreement.

- CE statement of conformity.
- Warranty conditions (included in this booklet).
- Battery charger user manual (In Italian and English).
- Battery documentation (In Italian and English).
- Manuals of installed commercial devices (if necessary for machine use).
- Instructions for unpacking and installation.
- Quick start guide.
- Wiring diagram.
- USB flash drive that contains the information listed.
  - Use and maintenance manual translated into various languages.
  - Spare parts catalogue.
  - Wiring diagram.

2. SAFETY INFORMATION

2.1. GENERAL SAFETY PRECAUTIONS

— Carefully read the “Directions for use”, paying particular attention to the “Residual risks”.
— Pay attention to the safety warnings.
— Use the machine only for the use for which it is designed.
— Sometimes, accidents can be caused by a "careless" use of the machine by the operator.
— Pay maximum attention.
— Preserve the readability of the information signs and observe the indications given.
— Do not tamper with the safety devices and protections.
— The personnel authorised to carry out any operation on the machine has to be adequately trained.

2.2. SAFETY WARNINGS FOR HANDLING AND INSTALLATION

– The personnel authorised to handle the machine (loading and unloading) must possess particular expertise in the field of intervention.
– Carry out handling (loading and discharge) according to the information delivered together with the product.
– During handling use one or two assistants, if required. This operation may generate unpredictable risks.
– In order to minimise the risks related to assistants' involvement, you must inform them priorily on the type of work and the behaviour to be used.
– The machine must be handled with the aid of specific means (crane, forklift etc.) by qualified personnel capable of observing the safety requirements.
– When using the lifting means, insert and/or fasten the devices (hooks, forks etc.) ONLY into the points provided on the package and/or the machine.
– Transport the machine suitable means of adequate capacity.
– The minimum and maximum temperature (during transport and/or storage) must fall within the range allowed in order to prevent damaging the electrical components.
– Install the machine in environments (artisan and industrial) with a flat surface that has no bumps so as to move easily round the pallet.
– Dismantle all the packaging components in compliance with the standards in force in the country of installation.

2.3. SAFETY WARNINGS FOR USE AND OPERATION

— The operator must be trained and possess the proper knowledge required to carry out the specific tasks and must meet the conditions required for the safe use of the machine.
— When using the machine for the first time, the operator must read the manual and identify the controls and simulate some operations, especially the start-up and shutdown.
— The machine has been designed and built to satisfy all the operating conditions of the Manufacturer, and those alone.
— Use the machine ONLY with the original safety devices installed by the manufacturer.
— DO NOT tamper with, remove or bypass the safety devices installed on the machine.
— DO NOT modify the constructive and functional characteristics of the machine.
— ALWAYS wear the individual safety devices indicated in the "Instructions for use" and provided by the standards in force regarding the safety at workplace.
— ALWAYS keep the surrounding areas in suitable conditions and free of obstacles in order to minimise the risks, especially near the control station.
— The machine must be used by one operator ONLY, that must be assigned and authorised by the employer.
— The involvement of one or more assistants when performing some operations or maintenance interventions may present unpredictable risks.
— In order to minimise the risks related to assistants' involvement, you must inform them priorily on the type of work and the behaviour to be used.

- Make sure that no foreign persons are present within the machine operating area during its production activity and maintenance.
- Do not use the machine if the scheduled maintenance work has not been regularly carried out.
- DO NOT continue to use the machine if malfunctions have been detected.
- Stop the machine immediately and restart it only after the normal conditions of use have been restored.
- DO NOT carry out interventions different from those indicated in the user manual without the written consent of the manufacturer.
- Do not carry out interventions with the machine on, but only carry them out after having stopped the machine and put it in safety conditions.
- DO NOT clean or wash the machine with aggressive products to avoid damaging the components.
- Replace the components ONLY with ORIGINAL PARE PARTS or with SIMILAR design and functional features.
- Do not abandon the work post or leave the machine unguarded at the end of the work activity without having first stopped it and put it in safety conditions.

2.4. SAFETY WARNINGS RELATED TO INCORRECT USE

Read the next warnings carefully.

2.4.1. INCORRECT USE THAT CAN BE REASONABLY EXPECTED

- The predictable incorrect use consists of: “the use of the machine different from the indications given in the manual, that may stem from the easily predictable human behaviour”.
- Do not use the machine in spaces exposed to atmospheric agents, corrosive substances or at explosion/ fire risk.
- Do not use the machine as a transportation means for goods or persons.
- Do not use the machine to wrap and stabilise living beings (animals and humans).
- DO NOT wrap products that are loose, that have an irregular shape or that are not suitably collected, to prevent inadequate palletisation.
- DO NOT use the machine with wrapping material different from that provided by the manufacturer.
- Do not over stretch or pre-stretch the film and do not wrap with an excessive number of bindings in order to prevent damaging the packages and products contained inside.
- DO NOT use or let the machine be used for purposes or in ways not provided by the manufacturer.
- DO NOT allow the machine to be used by operators that are not properly trained, informed and unauthorised.
- Do not use the machine as a lifting device or as a rest surface for work activities (for example, a workbench).

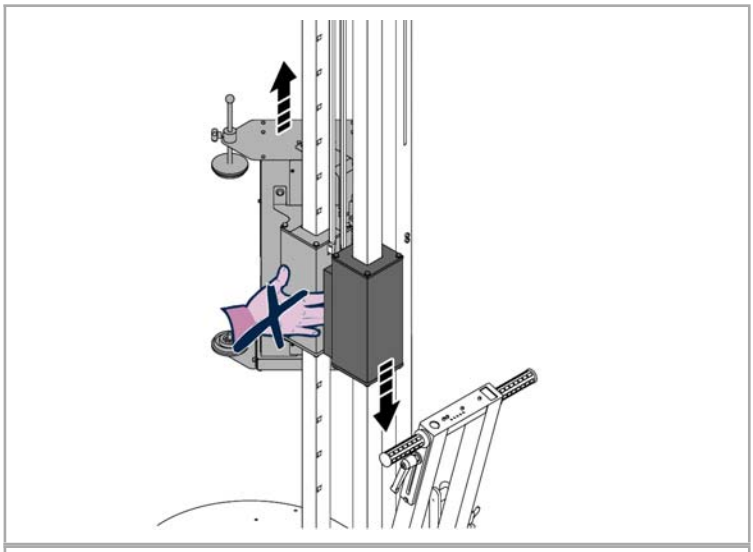
2.4.2.EMPLOYER OBLIGATIONS

- The operator must possess the required training and meet the suitable conditions for carrying out the activities in safety conditions.
- The employer must inform the operator on the INCORRECT USES predictable and on the persistent Residual risks.
- The operator must be capable of reading and understanding the user manual and must easily identify the safety signs.
- The employer must adequately document the training obtained by the operators.

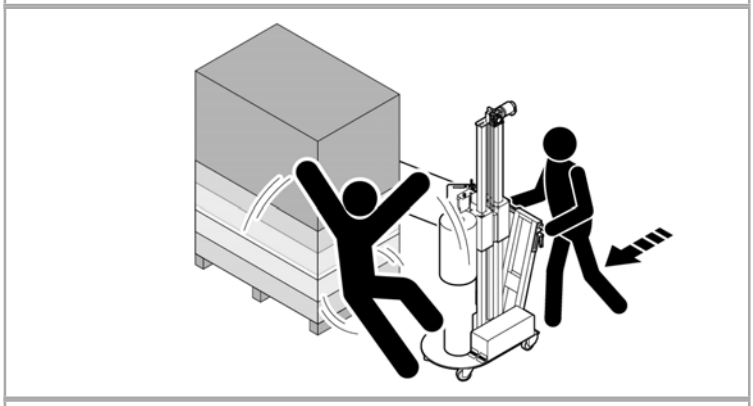
2.5. SAFETY WARNINGS ON RESIDUAL RISKS

When designing and building the machine, the manufacturer has paid particular attention to the RESIDUAL RISKS that may affect the safety and health of the operators.
The residual risks are: “all the risks that persists although all safety solutions have been applied and integrated during machine design”.
The list specifies the residual risks specific for this type of machine.

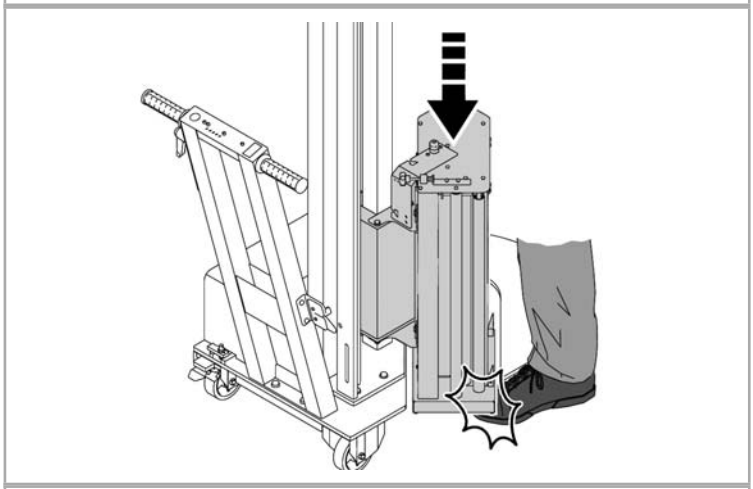
– **Upper limb cutting hazard**
Do not place hands inside components in motion.



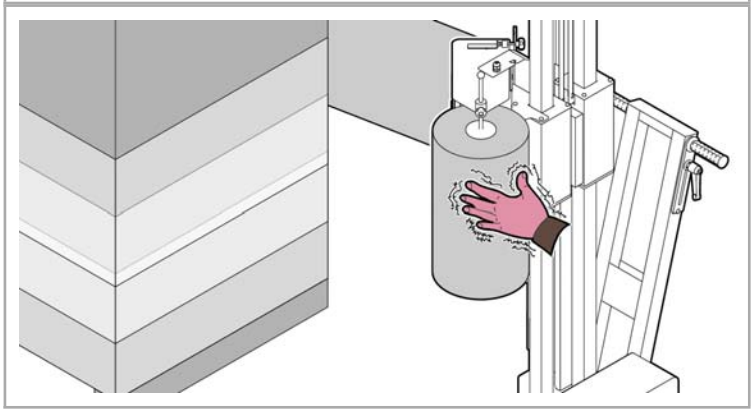
– **Danger of tripping**
Do not enter within the wrapping perimeter of the machine during its operation.



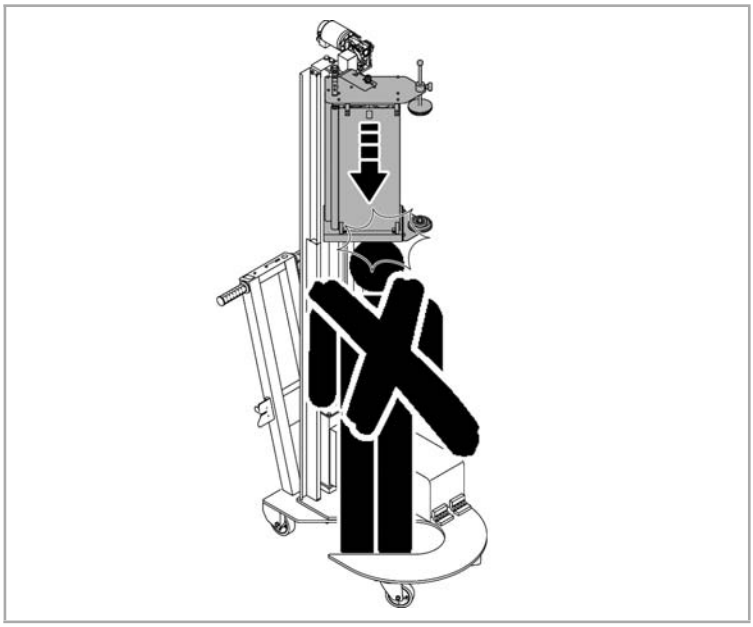
– **Danger of crushing of lower limbs**
Do not linger in the machine operating area.



– **Danger of electrocution from electrostatic charge**
During operation the machine can accumulate static electricity generated by the wrapping and consequent rubbing of the film in contact with the non-conductive parts.



– **Body crushing hazard**
Do not linger in the machine operating area.



2.6. SAFETY WARNINGS FOR REGULATIONS AND MAINTENANCE

– Keep the machinery in maximum efficiency condition and perform all the scheduled maintenance operations provided for by the manufacturer.
Proper maintenance will provide the best performance, a longer life span and constant compliance with safety requirements.

Important

Maintenance work and adjustments shall be carried out by qualified, authorised personnel.

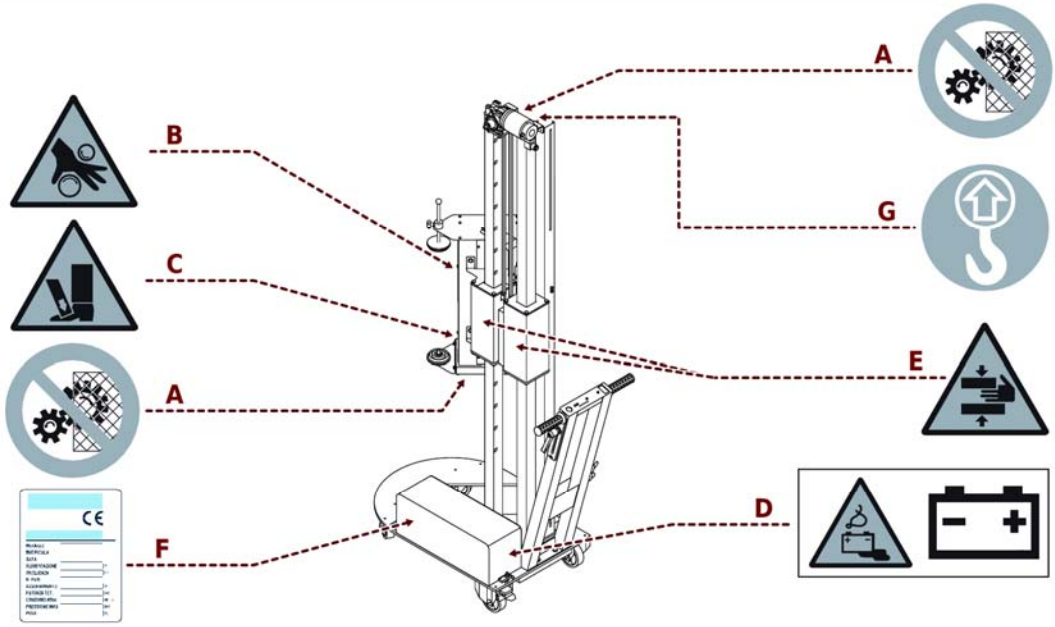
– Take all necessary precautions (suitably mark the working area and the exits, ensure proper visibility, provide all necessary supporting equipment, etc.) to ensure safe operation.
– Delimitate the work area to minimise the risks, as per the workplace safety and health regulations.
– Enable all machine safety devices before performing any maintenance and regulation operations.
– Maintenance work in hard to access areas shall be carried out only after having removed any existing risks.
– DO NOT use products that contain corrosive, toxic and inflammable substances.
– Wear the Individual Protection Devices provided by the laws on workplace safety and indicated in the "Instructions for use" and/or affixed to the machine.
– Replace the components only with original spare parts or with parts with similar design and functional characteristics so as to keep the intended safety level unchanged.
– Use lubricants (oils or grease) recommended by the manufacturer or with similar chemical-physical features.
– Do not dump into the environment polluting liquids, worn parts and maintenance waste.
– Dispose of the same in compliance with current regulations on the matter.
– Select the components according to the chemical and physical features of the material and carry out the differentiated waste disposal as per the standards in force.
– Follow the procedures in this chapter.
– Non compliance with the instructions given may cause risks for safety and health of the persons and economic damages.

2.7. INFORMATION AND SAFETY SIGNALS

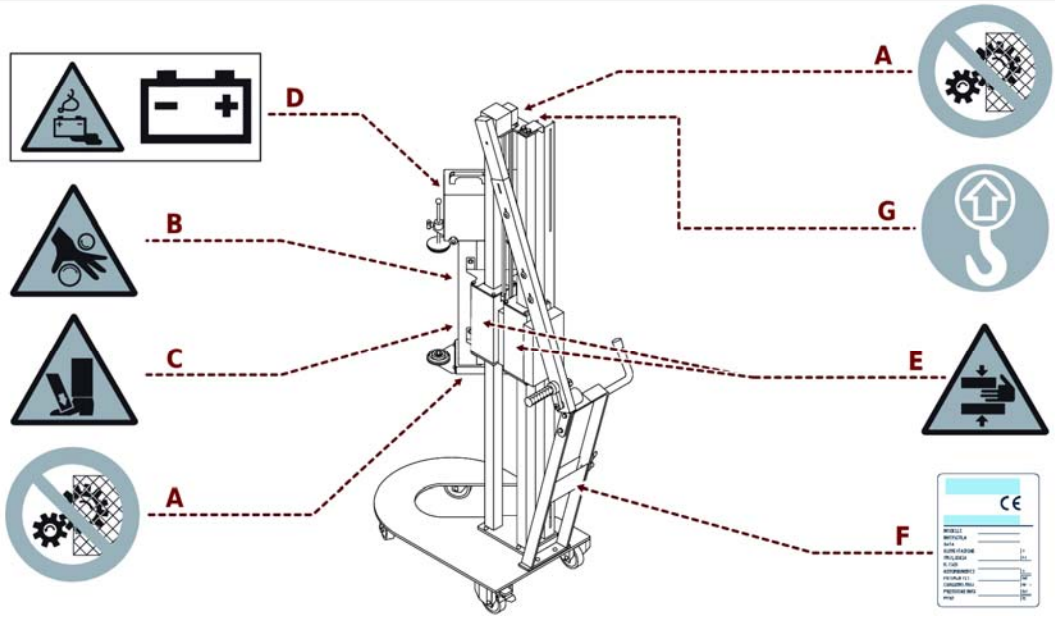
The figure indicates the position of the safety and information signs affixed to the machine.

For each sign is specified the relative description.

WRAPMAN



XTENSER



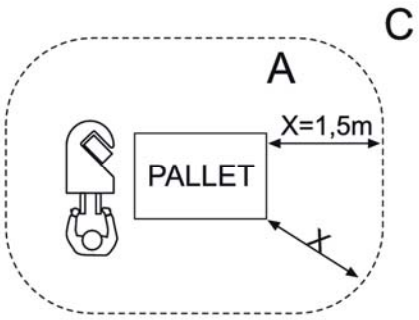
A) Prohibition signal: It is prohibited to remove the guards.
B) Hazard sign: Danger of arms crushing.
C) Danger signal: danger of crushing of lower limbs.
D) Information signal: identify the battery compartment.
E) Danger signal: danger of crushing hands.
F) Information signal: identify the manufacturer's plate.
G) Information signal: it shows the hooking point for lifting.

Important

Check that the plates are clearly readable, and, if necessary, replace them with new ones that shall be positioned in the same places as previously.

2.8. SURROUNDING AREAS

The illustration depicts the perimeter work areas of the machine.



A) **Danger area of the machine**
The work area inside which the operator runs the machine during the wrapping of the products must remain free from any kind of obstacle.
During the packaging phases, access to this area is forbidden to unauthorised personnel.

C) **Area of free circulation**
The whole space outside of the danger area **(A)**.
In the free circulation area, unauthorised personnel is allowed to stop and transit, even when the machine work cycle is in progress.

Danger - Warning

For safety reasons, during handling operations, nobody is allowed to stand inside the danger area **(A)**.
The operator shall be responsible for the supervision of the danger area **(A)** so that the latter is not occupied by anyone.

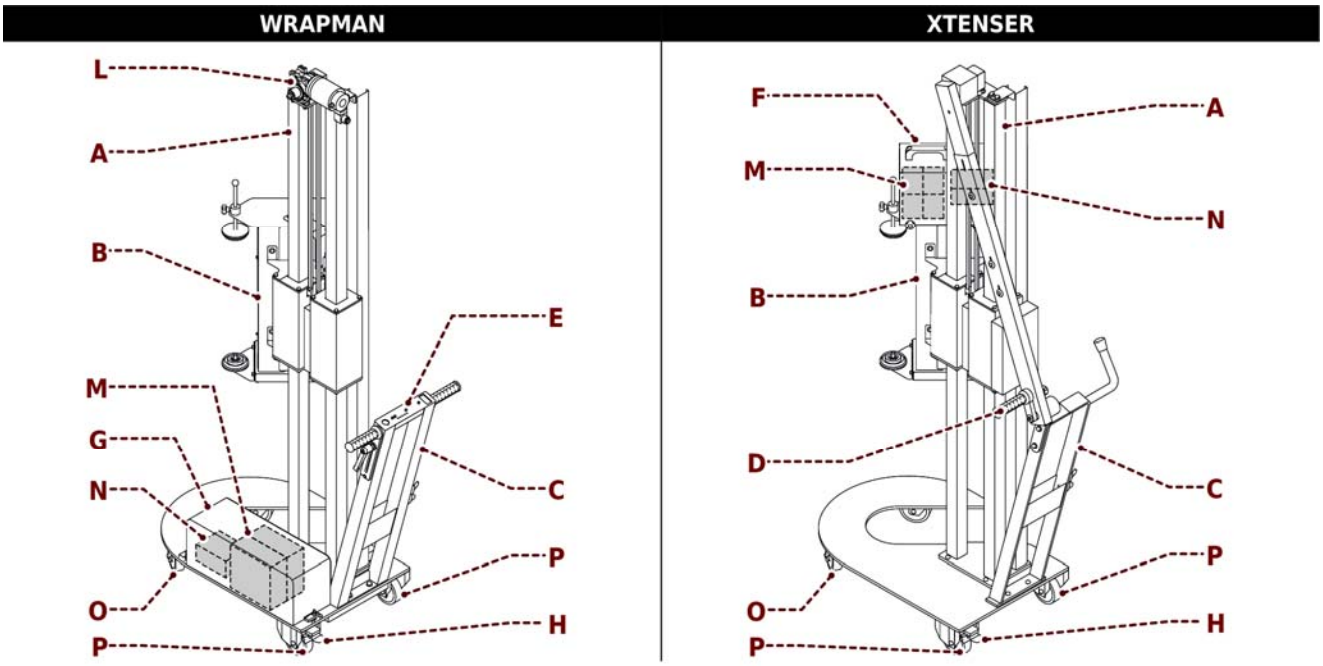
3. TECHNICAL INFORMATION

3.1. MACHINE GENERAL DESCRIPTION

- The robot, **WRAPMAN**, is a semiautomatic machine, to wrap and stabilise palletised loads with stretch wrap.
- The robot, **XTENSER**, is a manual machine, to wrap and stabilise palletised loads with stretch wrap.
- The machines shall be used in environments (either craft or industrial, safe from atmospheric agents) with a flat and even surface in order to easily move around the pallet.
  Only one operator is required to move the machine around the pallet to wrap, to tie the coating, to cut at the end of the wrapping and for the supply of the coil.
- **The cut of the coating is carried out manually by means of a standard device on Wrapman and optional on Xtenser.**
- The loads are wrapped using reels of stretchable film which can be readily found on sale.
- The machine must be EXCLUSIVELY used in order to wrap and stabilise products contained in packs (boxes, containers for liquids, etc.), having a regular shape or a shape that allows for stable palletising.
- The packs that contain liquids or insubstantial materials must be suitable for the product and must be perfectly closed and tight in order to prevent any leaks of the content.
- The machine is equipped with a series of safety devices designed to avoid any harm befalling the operator or other persons who come into contact with the machine in any way.
- Use of this machine in explosive environments or when exposed to the elements is strictly forbidden.
- The machine is manufactured in various models to satisfy the different market requirements.

3.1.1. MAIN PARTS

The following list provides a description of the main components and their functions.



A) Slide column: for the vertical handling of the reel carriage.

B) Reel carriage: The vertical handling is enabled manually by means of the crank **(D)** (only for the model **XTENSER**) and by means of a geared motor **(L)**, which is started by an electric motor, powered by batteries **(M)** (only for the model **WRAPMAN**).

C) Rudder: it is used to handle the machine.

D) Crank (only for **XTENSER**): it is used for lifting and lowering the carriage.

E) Control panel (only for **WRAPMAN**): it is equipped with electromechanical commands to move the carriage.
F) Power supply unit (only for the **XTENSER** model with motorized drawing).
G) Battery compartment (only for **WRAPMAN**): a space designed for the housing of the batteries.
H) Parking brake: the brake to use when the machine is not used.
L) Geared motor (only for **WRAPMAN**): it allows to move the reel carriage.
M) Batteries: They provide power supply to the electric motors and the circuit **(∗)**.
N) Battery charger: This electronic device is used to recharge the batteries **(∗)**.
O) Casters.
P) Fixed wheels.

(∗) *In the machine **XTENSER**, present only for models with motorized drawing.*

According to the different operating requirements, this machine can be supplied in different models and configurations.

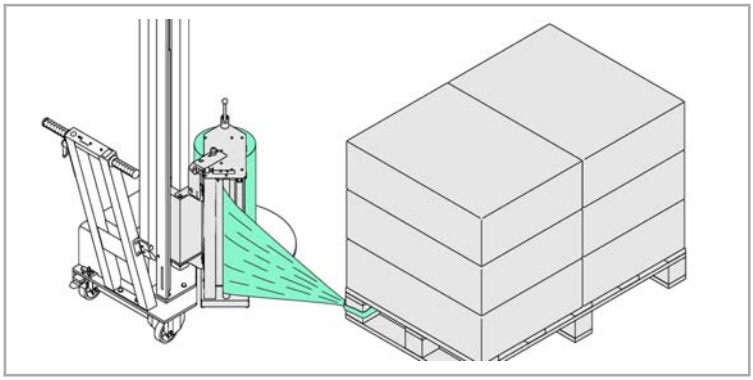
WRAPMAN 2.0	For wrapping pallets with maximum height of **2000 mm**.
WRAPMAN 2.4	For wrapping pallets with maximum height of **2400 mm**.
WRAPMAN 2.8	For wrapping pallets with maximum height of **2800 mm** (Only for versions with motorized drawing).
XTENSER 2.0	For wrapping pallets with maximum height of **2000 mm**.
XTENSER 2.4	For wrapping pallets with maximum height of **2400 mm**.

3.1.2. ROLL-HOLDER CARRIAGE SPECIFICATIONS

Type of reel holdingcarriage	*General Requirements*
Reel carriage with motorised drawing.	Reel carriage with motorised drawing **(100 - 200%)**.
Reel carriage with frictioned roller.	Reel carriage with frictioned roller.

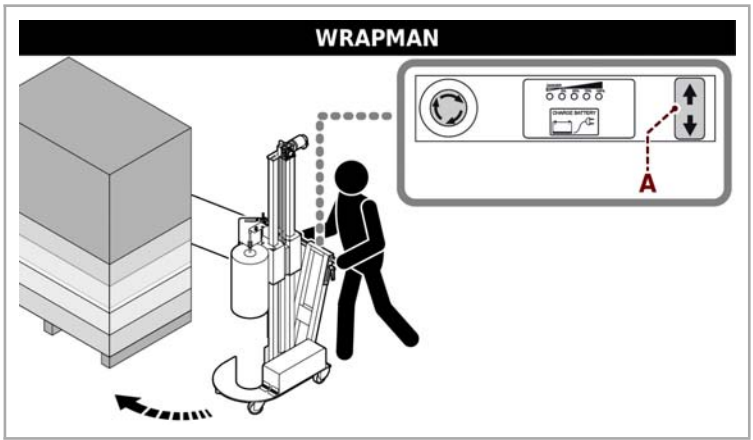
3.2. RUNNING CYCLE

– **Phase 1**
The operator approaches the machine to the pallet and ties the end of the coating to any point of the pallet to wrap.

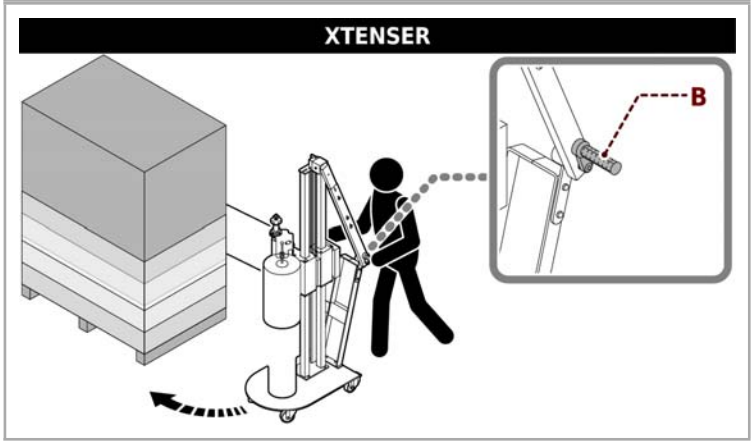


– **Phase 2**

WRAPMAN
The operator pushes the machine around the pallet and, in the meanwhile, controls the lifting and the lowering of the carriage by means of the push-buttons **(A)**.

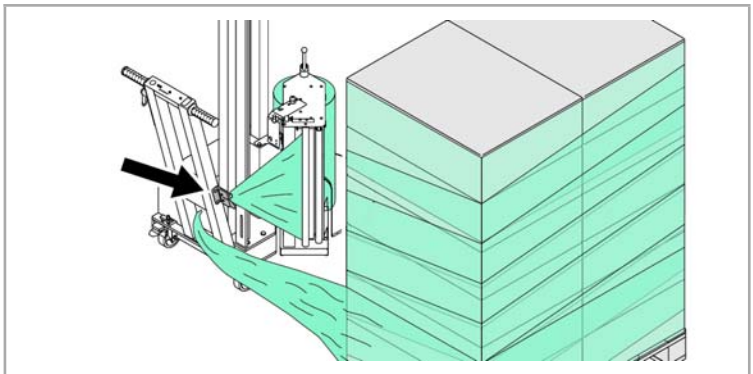


XTENSER
The operator pushes the machine around the pallet and, in the meanwhile, controls the lifting and the lowering of the carriage by means of the crank **(B)**.

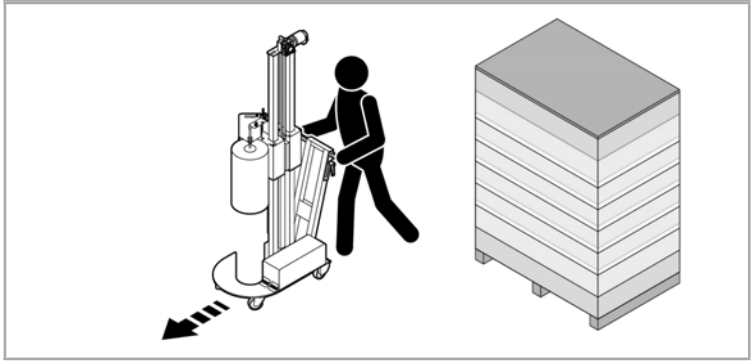


Attention
The wrapping speed depends on the operator.
It is forbidden to exceed the speed of **1** m/sec.

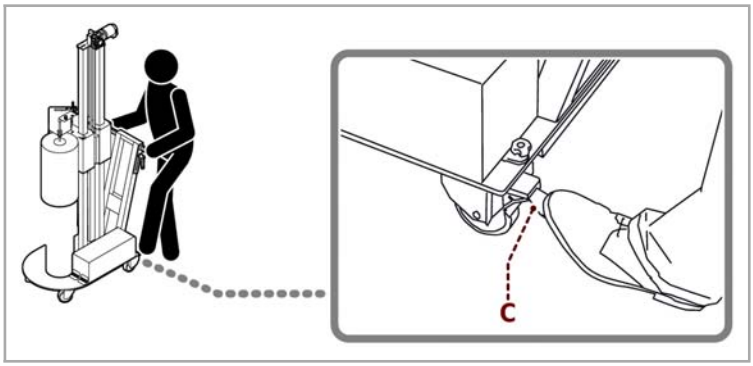
– **Phase 3**
Cut the film at the end of wrapping.
Device for manual cutting optional for **Xtenser**.



– **Phase 4**
Move the machine away from the wrapped pallet.



– **Phase 5**
Run the parking brake by means of the pedal **(C)**.



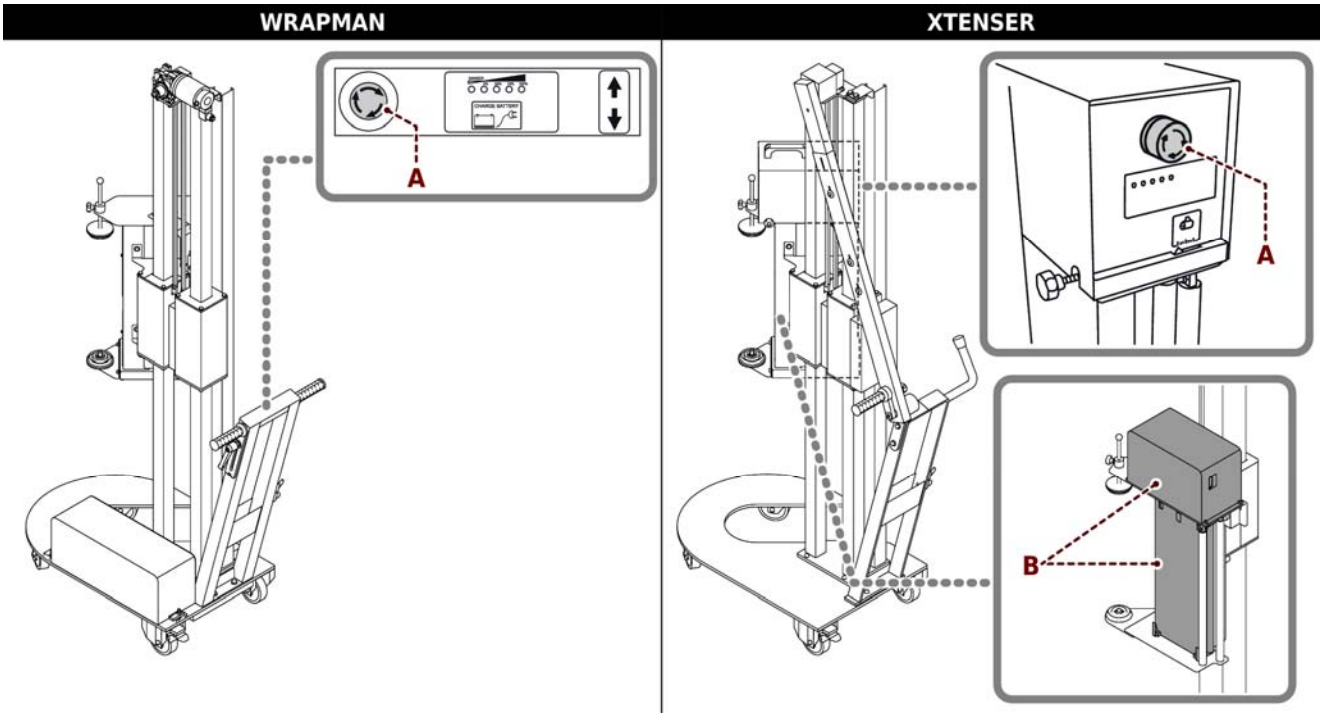
Attention

Only for the model with motorised drawing.
If the machine is not to be used within short time, shut it off, by means of the emergency stop push button in order to protect the battery charge.

Now, it is possible to move the wrapped pallet.

3.3. SAFETY DEVICE DESCRIPTIONS

The figure shows the position of the safety devices, whose description and function is provided in the following list.



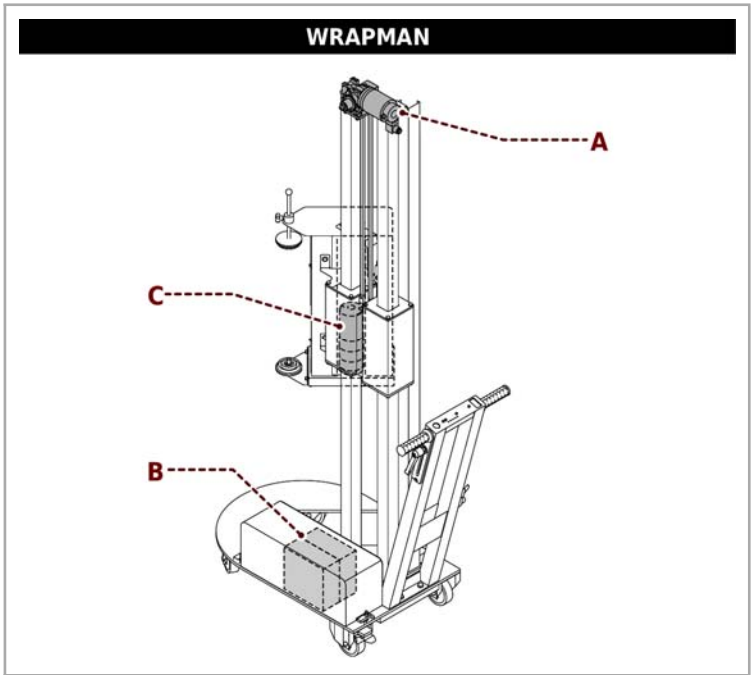
A) Emergency stop push-button: it is used to stop with a voluntary action, in case of imminent risk, the organs of the machine that may pose a rick.
The control must stay "locked" until all the normal operating conditions have been restored.
Restore the normal operation conditions, cut the film, release the push-button.
On the machine **XTENSER**, the emergency stop push button is present only for the models with motorized drawing.

B) Interlocked mobile casing (only for models with motorised drawing): by means of a safety switch it impedes the operation of the drawing motor, whenever the casing has not been closed tightly .

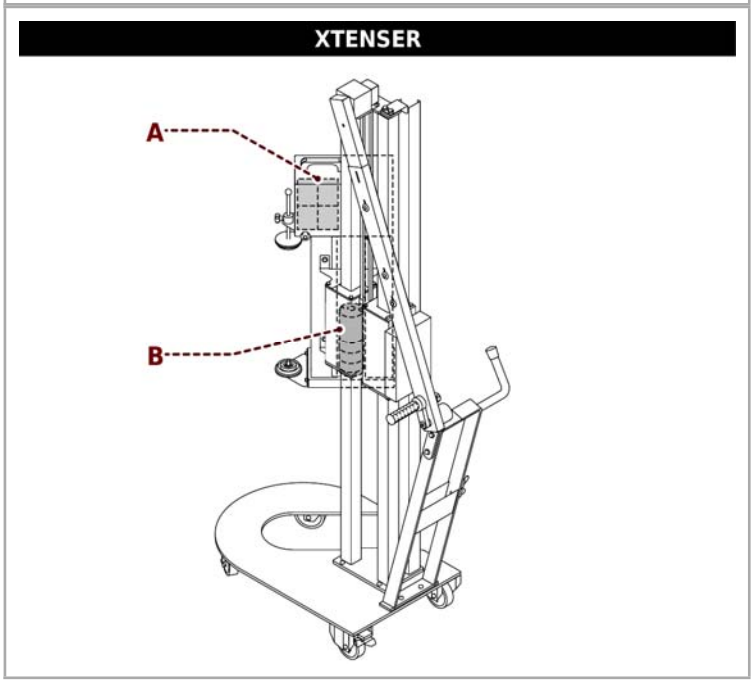
3.4. DESCRIPTION OF THE ELECTRICAL DEVICES

The figure shows the positioning of the devices on board of the machine.

A) Motor: it enables the handling of the reel carriage.
B) Rechargeable batteries: they power the electrical circuit.
C) Electric motor: it drives the pre-stretch rollers.



A) Rechargeable batteries: they power the electric motor and the electric circuit.
B) Electric motor: it drives the pre-stretch rollers.



Important
For further details see the electrical diagram.

3.5. DESCRIPTION OF ACCESSORIES ON REQUEST

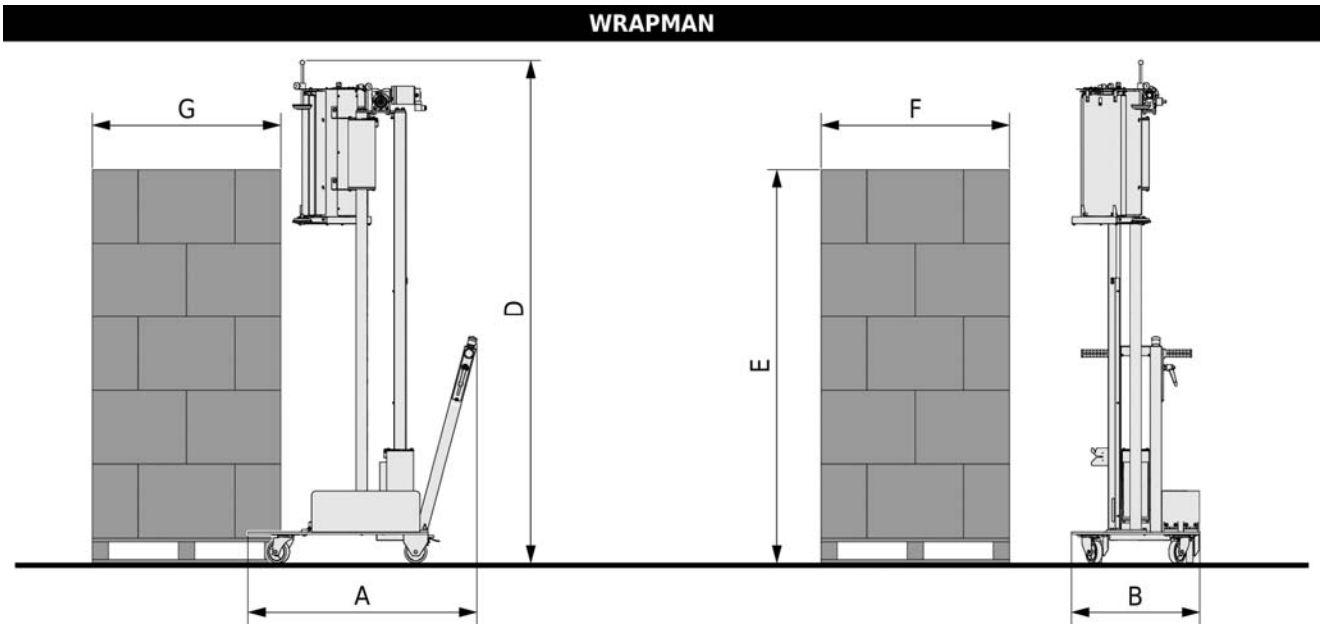
To enhance the performance and to increase the versatility of the machine, the manufacturer furnishes the accessories listed below.

WRAPMAN	**STH** Version of the reel carriage with frictioned roller .	Version of the reel carriage with motorised drawing.
Additional batteries kit.	**X**	**X**
Additional battery recharger kit.	**X**	**X**
Sliding column - effective height **H = 2400 mm**.	**X**	**X**
Sliding column - effective height **H = 2800 mm**.	**-**	**X**
Drawing gear **200%** option.	**-**	**X**
Lower folding kit.	**X**	**X**
Manual band wrapping kit.	**X**	**X**
carriage for winding the pallet with a net film.	**X**	**-**

XTENSER	**STH** Version of the reel carriage with frictioned roller .	Version of the reel carriage with motorised drawing.
Additional power supply unit.	**-**	**X**
Sliding column - effective height **H = 2400 mm**.	**X**	**X**
Drawing gear **200%** option.	**-**	**X**
Manual cutting kit.	**X**	**X**
Manual band wrapping kit.	**X**	**X**
Lower folding kit.	**X**	**X**
carriage for winding the pallet with a net film.	**X**	**-**

3.6. TECHNICAL SPECIFICATIONS WRAPMAN

The figure and table specify the dimensional characteristics and technicaldata of the machine.

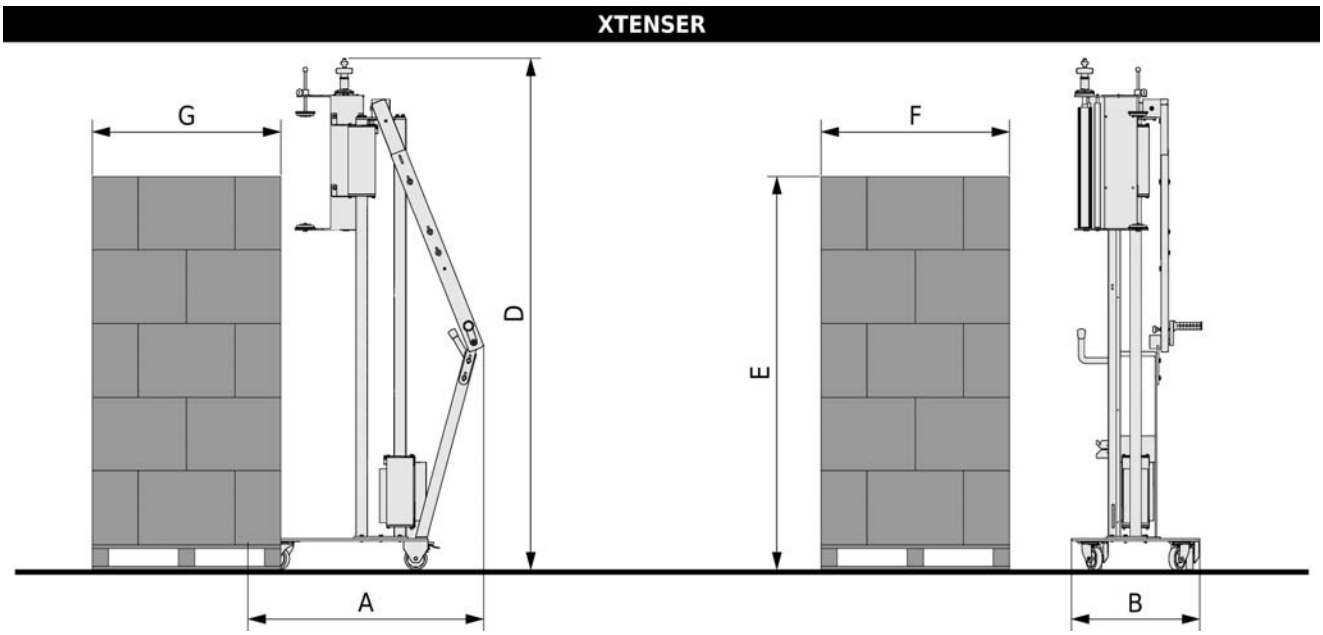


3.6.1.MACHINE AND PALLET DIMENSIONS

		WRAPMAN STH Version of the reel carriage with frictioned roller .		**WRAPMAN** Version of the reel carriage with motorised drawing.		
Model		**2.0**	**2.4**	**2.0**	**2.4**	**2.8**
Total machine length **(A)**	**mm**	**1025**				
Machine width **(B)**	**mm**	**570**				
Max. machine height **(D)**	**mm**	**2277**	**2640**	**2240**	**2600**	**3020**
Pallet dimensions **(FxG)**	**mm**	**≥ 400**				
Pallet height **(E)**	**mm**	**2000**	**2400**	**2000**	**2400**	**2800**

3.7. TECHNICAL SPECIFICATIONS XTENSER

The figure and table specify the dimensional characteristics and technicaldata of the machine.



3.7.1.MACHINE AND PALLET DIMENSIONS

		XTENSER STH Version of the reel carriage with frictioned roller .		**XTENSER** Version of the reel carriage with motorised drawing.	
Model		**2.0**	**2.4**	**2.0**	**2.4**
Total machine length **(A)**	**mm**	**1047**			
Machine width **(B)**	**mm**	**570**			
Max. machine height **(D)**	**mm**	**2277**	**2640**	**2360**	**2720**
Pallet dimensions **(FxG)**	**mm**	**≥ 400**			
Pallet height **(E)**	**mm**	**2000**	**2400**	**2000**	**2400**

3.7.2.TECHNICAL FEATURES (WRAPMAN)

		WRAPMAN STH Version of the reel carriage with frictioned roller .		**WRAPMAN** Version of the reel carriage with motorised drawing.		
Model		**2.0**	**2.4**	**2.0**	**2.4**	**2.8**
Lead-acid batteries	No. **2**	**AGM - 12 V - 18Ah** (capacity referred to a **5 h** consumption)				
Maximum speed advancement	m/sec	**1**				
Carriage up/down speed	m/min	**4.1**				
Total weight	**kg**	**114**	**116**	**121**	**123**	**137**
Pallet min. weight	**kg**	**150**				
Ambient operating temperature	**°C**	**0-40**				

3.7.3.TECHNICAL FEATURES (XTENSER)

		XTENSER STH Version of the reel carriage with frictioned roller .		**XTENSER** Version of the reel carriage with motorised drawing.	
Model		**2.0**	**2.4**	**2.0**	**2.4**
Lead-acid batteries	No. **2**	**-**		**AGM -12V -7,6Ah** (capacity referred to a **5 h** consumption)	
Maximum speed advancement	m/sec	**1**			
Total weight	**kg**	**105**	**107**	**135**	**137**
Pallet min. weight	**kg**	**150**			
Ambient operating temperature	**°C**	**0-40**			

3.7.4.BATTERY CHARGER (WRAPMAN)

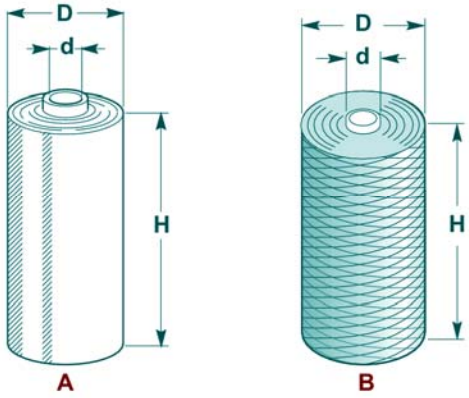
		WRAPMAN STH Version of the reel carriage with frictioned roller .		**WRAPMAN** Version of the reel carriage with motorised drawing.		
Model		**2.0**	**2.4**	**2.0**	**2.4**	**2.8**
Supply voltage	**Vac**	**100-240**				

Electrical supply frequency	**Hz**	**50/60**
Installed power	**kW**	**0.07**
Absorption	**A**	**0.4**

3.7.5.BATTERY CHARGER

		XTENSER STH Version of the reel carriage with frictioned roller .		**XTENSER** Version of the reel carriage with motorised drawing.	
Model		**2.0**	**2.4**	**2.0**	**2.4**
Supply voltage	**Vac**	/		**100-240**	
Electrical supply frequency	**Hz**	/		**50/60**	
Installed power	**kW**	/		**0.07**	
Absorption	**A**	/		**0.4**	

3.8. COIL TECHNICAL SPECIFICATIONS



3.8.1.REEL FEATURES

Description	*Units of measurement*	*Value*
Film spool dimensions (A)		
Maximum external diameter **(D)**	**mm**	**180** (only for **STH**) **145** (Only for motorized carriage)
Reel height **(H)**	**mm**	**430÷540**
Film thickness	**µm**	**17÷35**
Internal diameter **(d)**	**mm**	**50 - 76**
Max weight.	**kg**	**20**
Net spool dimensions (B)		

Maximum external diameter **(D)**	**mm**	**180**
Reel height **(H)**	**mm**	**430÷540**
Internal diameter **(d)**	**mm**	**50 - 76**
Max weight.	**kg**	**20**

3.9. NOISE LEVEL

The noise levels were measured in compliance with the standards:
- **ISO 4871**
- **ISO 11201**

Description	*Measured level of **A** weighted emission sound pressure, in the operator position **(LpA)***
Functioning in working conditions.	**62,6 dB (A)**

Caution - Warning

Prolonged exposure over **80 dB (A)** may cause health problems. The use of appropriate protection systems is recommended (headphones, ear plugs, etc.).

3.10. INSTALLATION ENVIRONMENT CHARACTERISTICS

Careful consideration must be given to the place where the machine is to be installed, in order to ensure that it may be easily operated, without creating any unnecessary risks for personnel.
Therefore we suggest the following prerequisites:
- suitable room temperature (See "technical specifications").
- Suitable air exchange to ensure adequate comfort for the operator.
- Lighting of the work environment that guarantees adequate comfort to the operator who is using the machine.
- Space around the machine as indicated in the figure.
- Floor surface with adequate payload for the weight to support.
- The area must be equipped with adequate sockets for the supply of electrical energy (Only for **Wrapman** and **Xtenser** with motorized drawing).

Danger - Warning

Use of this machine in explosive environments or when exposed to the elements is strictly forbidden.

4. INFORMATION ON HANDLING AND INSTALLATION OPERATIONS

4.1. RECOMMENDATIONS FOR HANDLING AND LOADING

- **Before performing any operation, the authorised operator must make sure that he/she understood the "Instructions for use".**
- **Carefully read the "Instructions for use" specified in the manual and those applied directly to the machine and/or the package.**
- **Provide suitable safety conditions in compliance with the regulations on workplace safety to prevent and minimise the risks.**
- **Pay attention to the SAFETY WARNINGS, do not use the machine for UNSPECIFIED PURPOSES and assess the possible RESIDUAL RISKS.**

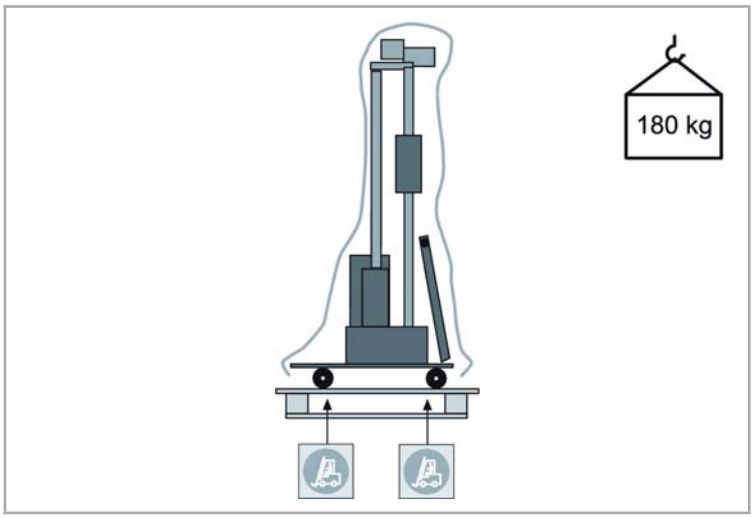
4.2. PACKAGING AND UNPACKING

The packing is realised, keeping the overall dimensions low, also in consideration of the transport chosen.
To facilitate transport, shipping can be performed with some components disassembled and appropriately protected and packaged.
Some parts, especially electric equipment, are protected with anti-moisture nylon covers.
The cases are marked with all necessary information for loading and unloading.
During unpacking, check the integrity and exact quantity of components.
Packaging material should be appropriately disposed according to the laws in force.
The figures show the most commontypes of packages.

Packaging on pallet with protective nylon

WRAPMAN
Model with sliding column
H = 2000 mm

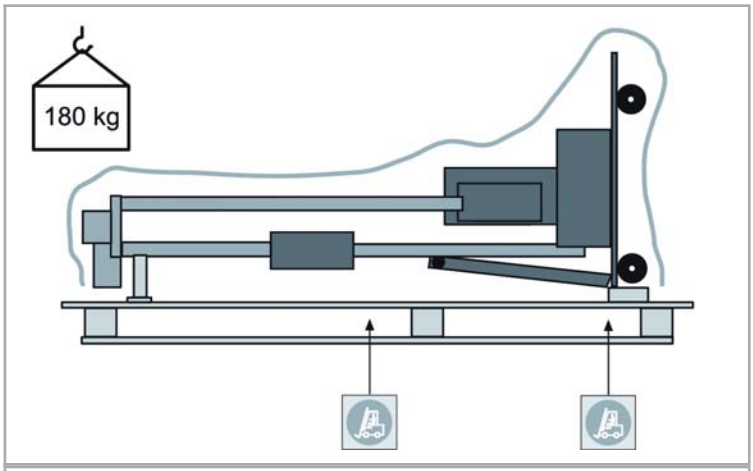
XTENSER
Model with sliding column.
H = 2000 mm



Packaging on pallet with protective nylon

WRAPMAN
Model with sliding column.
H = 2400 mm
H = 2800 mm

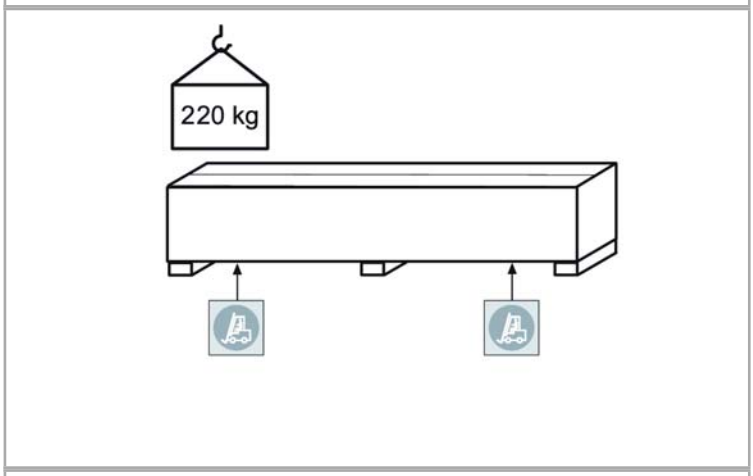
XTENSER
Model with sliding column.
H = 2400 mm



Cardboard box packaging

WRAPMAN
Model with sliding column
H = 2000 mm
H = 2400 mm
H = 2800 mm

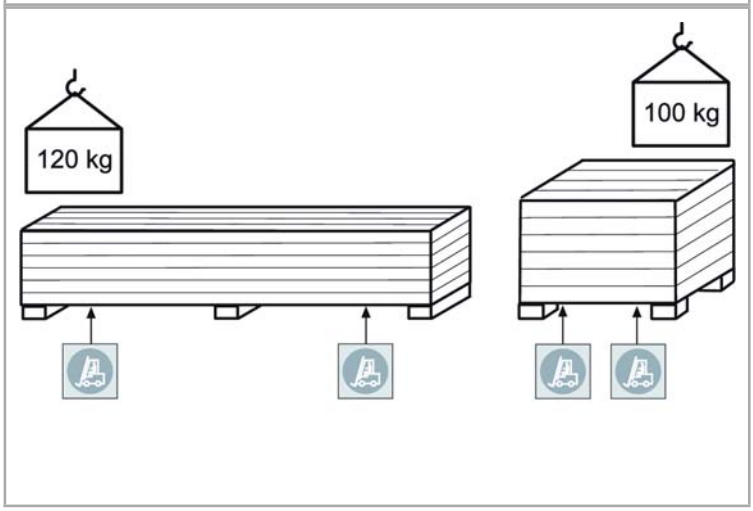
XTENSER
Model with sliding column
H = 2000 mm
H = 2400 mm



Package in crate (2 packages)

WRAPMAN
Model with sliding column
H = 2000 mm
H = 2400 mm
H = 2800 mm

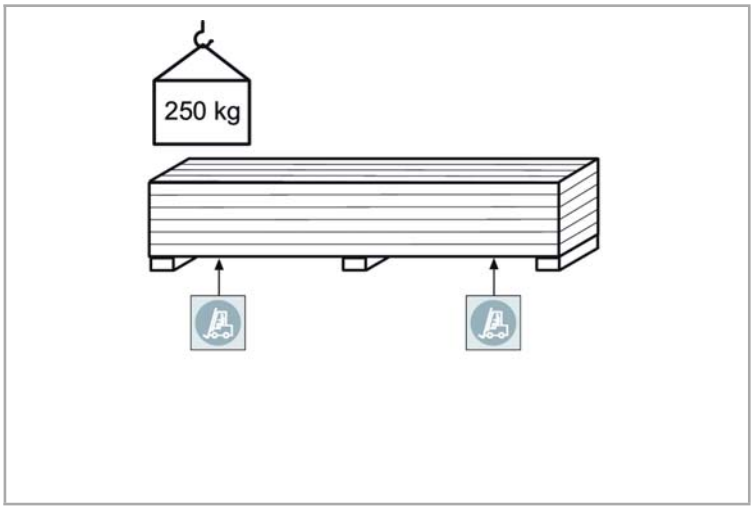
XTENSER
Model with sliding column
H = 2000 mm
H = 2400 mm



Package in crate (One unique package)

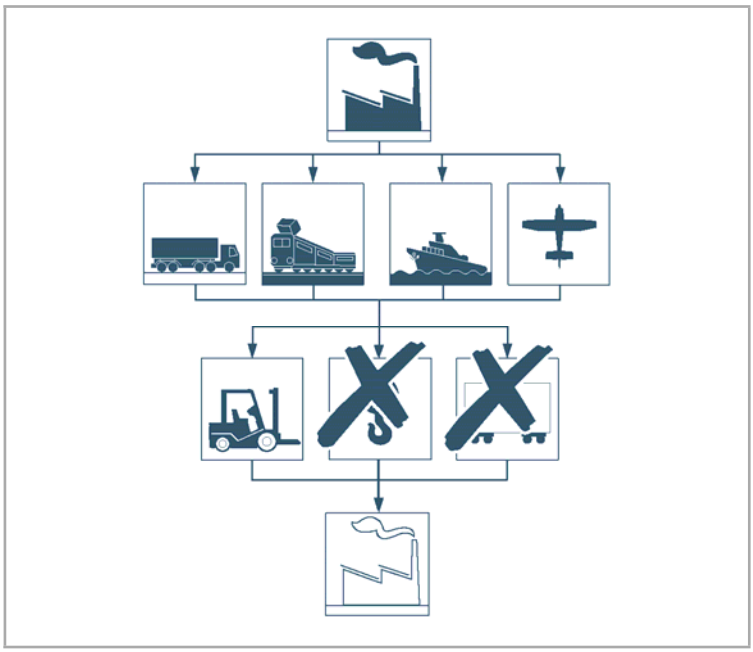
WRAPMAN
Model with sliding column.
H = 2000 mm
H = 2400 mm
H = 2800 mm

RUOTATOR
Model with sliding column.
H = 2000 mm
H = 2400 mm



4.3. LOADING AND TRANSPORTATION

Transport, also according to the destination, can be performed by different vehicles.
The diagram represents the most popular solutions.



Important

Transport the machine suitable means of adequate capacity.
Make sure the machine and its components are properly fastened to the transport mean.

4.4. INSTALLATION OF DISMOUNTED PARTS

Some operations are differentiated according to the version of the machine and type of packing.
For installation it is necessary to follow the sequence of the operations indicated below.

Packing on the pallet
- Installation **WRAPMAN 2.0**
- Installation **XTENSER 2.0**
- Installation **WRAPMAN 2.4 / 2.8**
- Installation **XTENSER 2.4**

Cardboard box packaging
- Machine Installation.

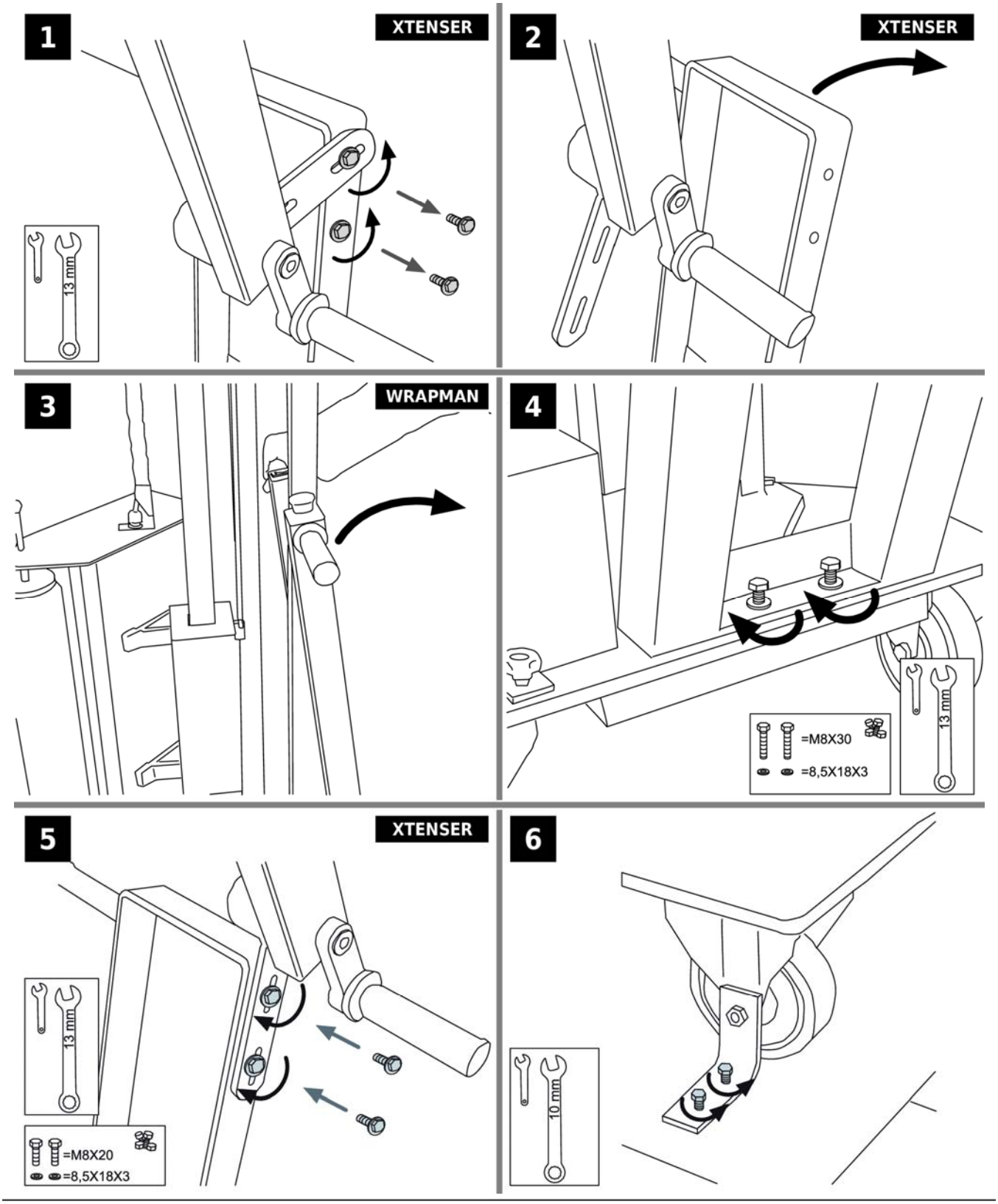
Package in crate (2 packages)
- Machine Installation.

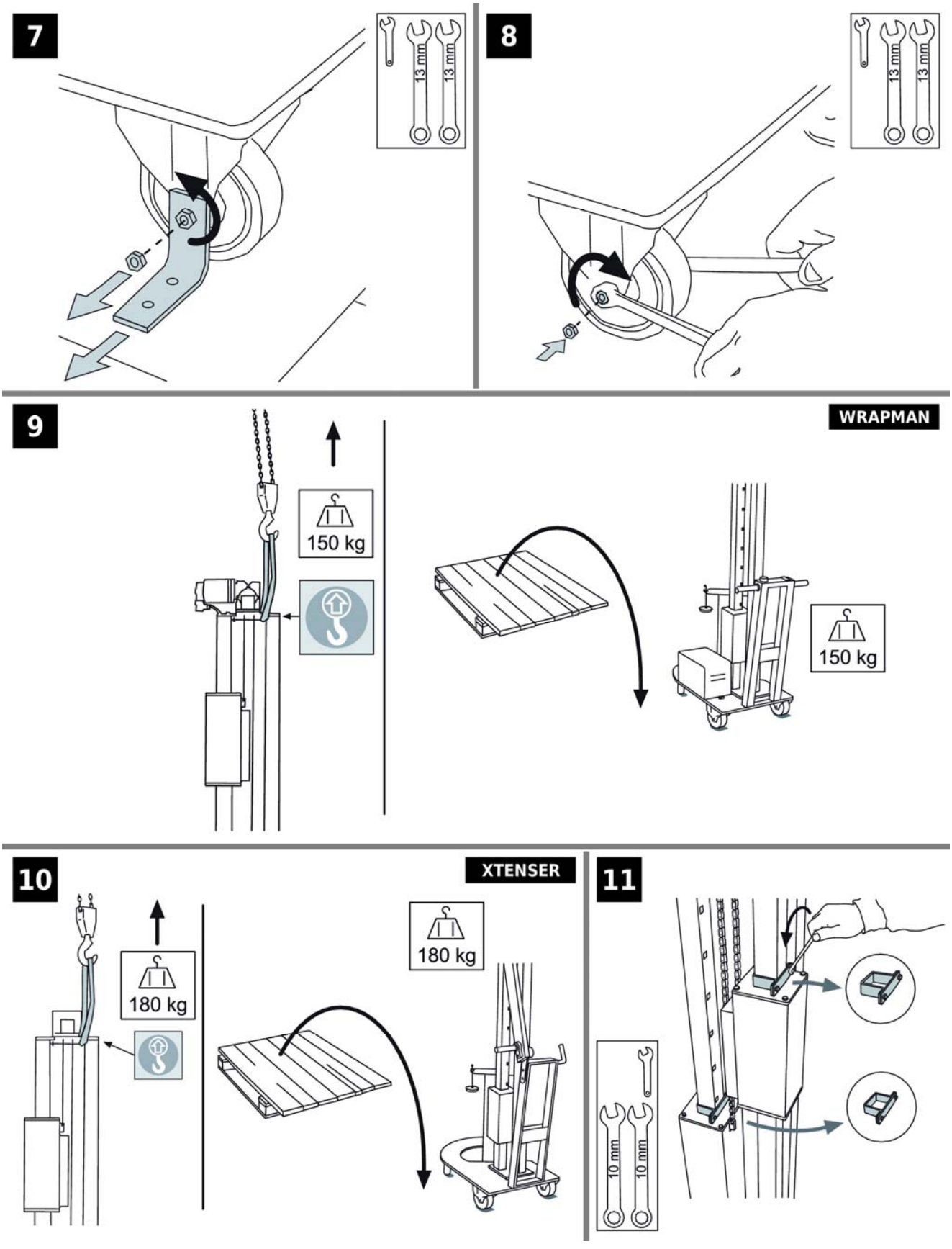
Package in crate (One unique package)
- Machine Installation.

4.4.1.MACHINE INSTALLATION (PACKAGE ON PALLET)

WRAPMAN 2.0
To install the machine, follow the phases, represented in the figures **3,4,6,7,8,9,11**.

XTENSER 2.0
To install the machine, follow the phases, represented in the figures **1,2,4,5,6,7,8,10,11**.

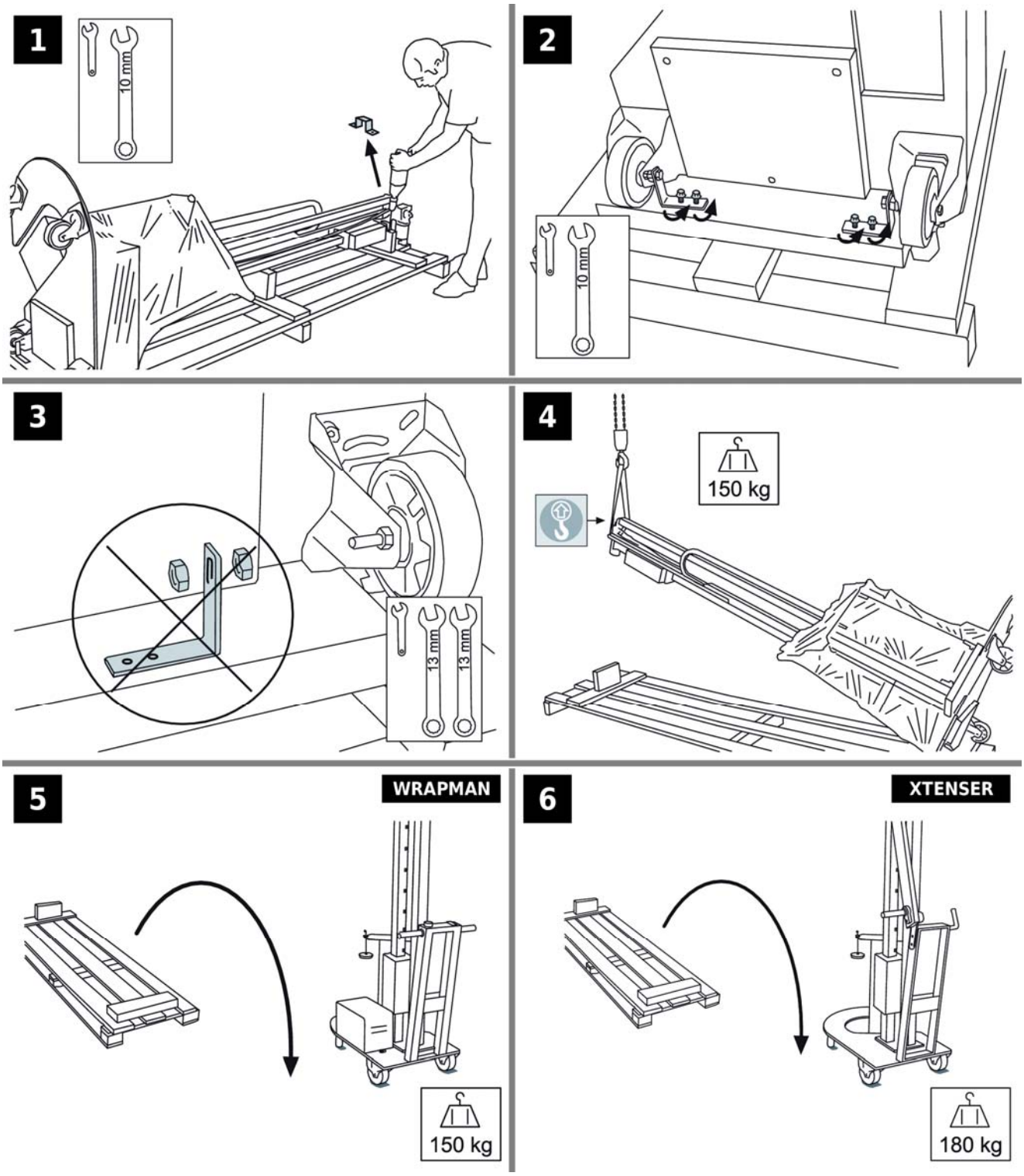


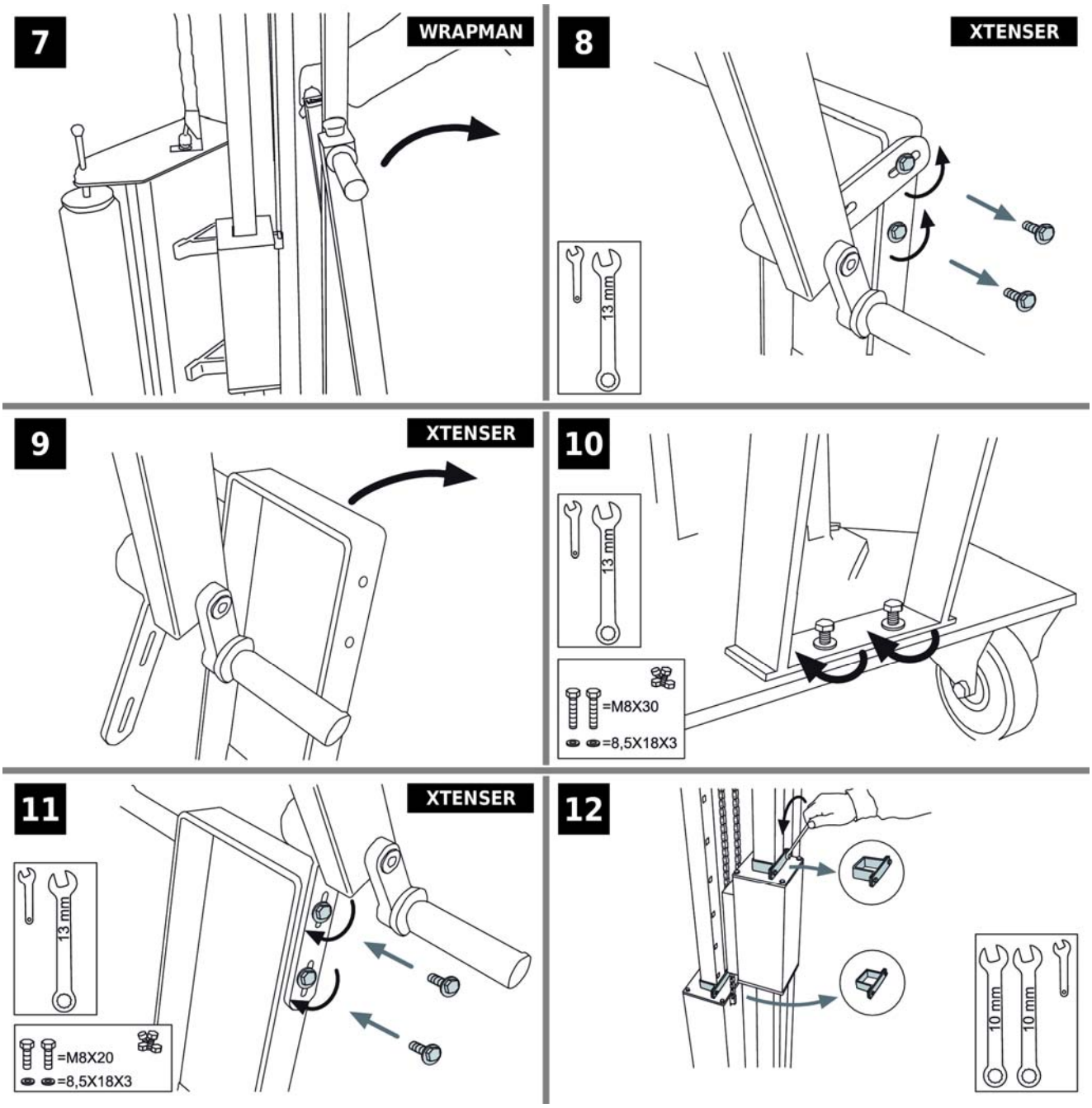

7
13 mm
13 mm
8
13 mm
13 mm
9
150 kg
WRAPMAN
150 kg
10
180 kg
XTENSER
180 kg
11
10 mm
10 mm

4.4.2.MACHINE INSTALLATION (PACKAGE ON PALLET)

WRAPMAN 2.4 / 2.8
To install the machine, follow the phases, represented in the figures **1,2,3,4,5,7,10,12**.

XTENSER 2.4
To install the machine, follow the phases, represented in the figures **1,2,3,4,6,8,9,10,11,12**.

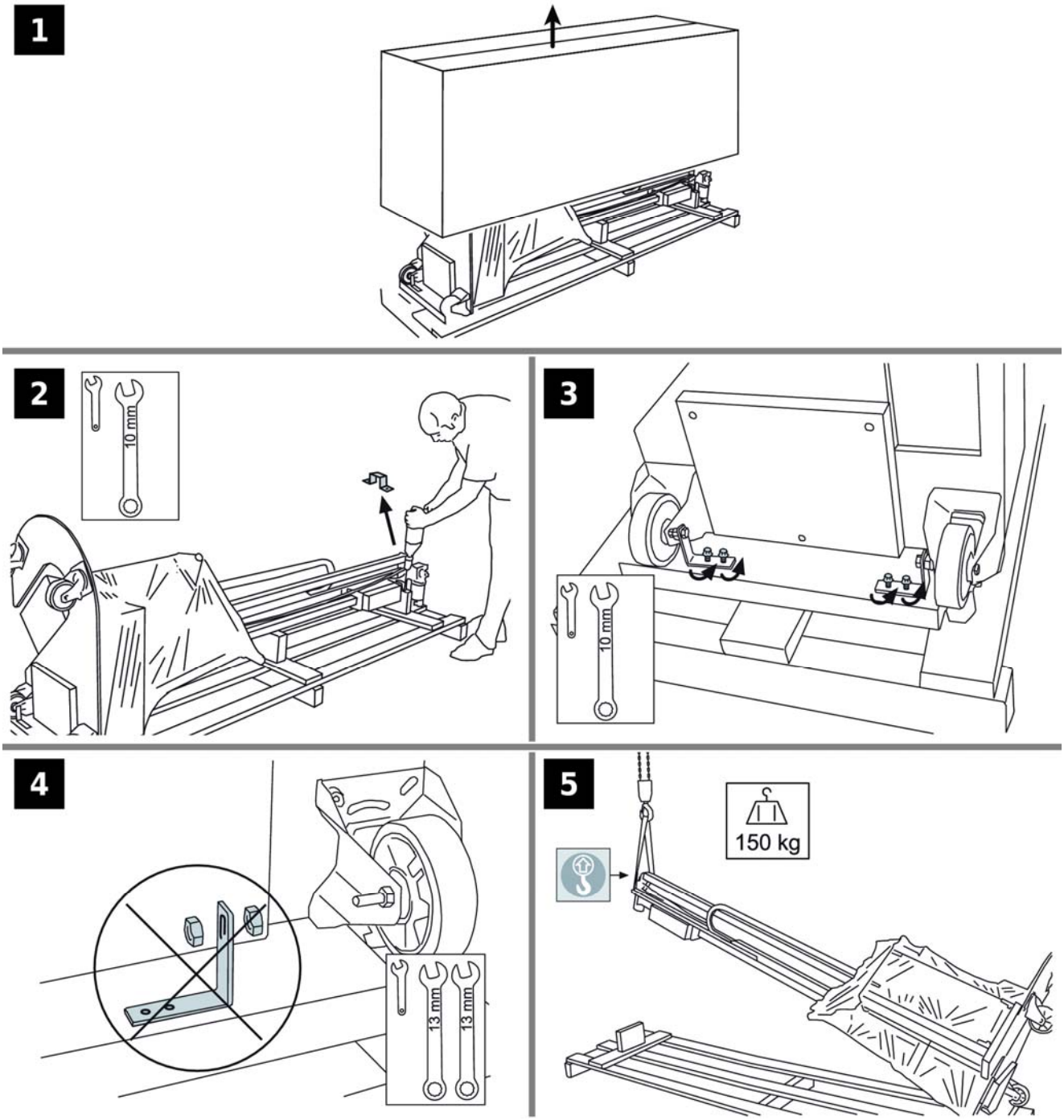


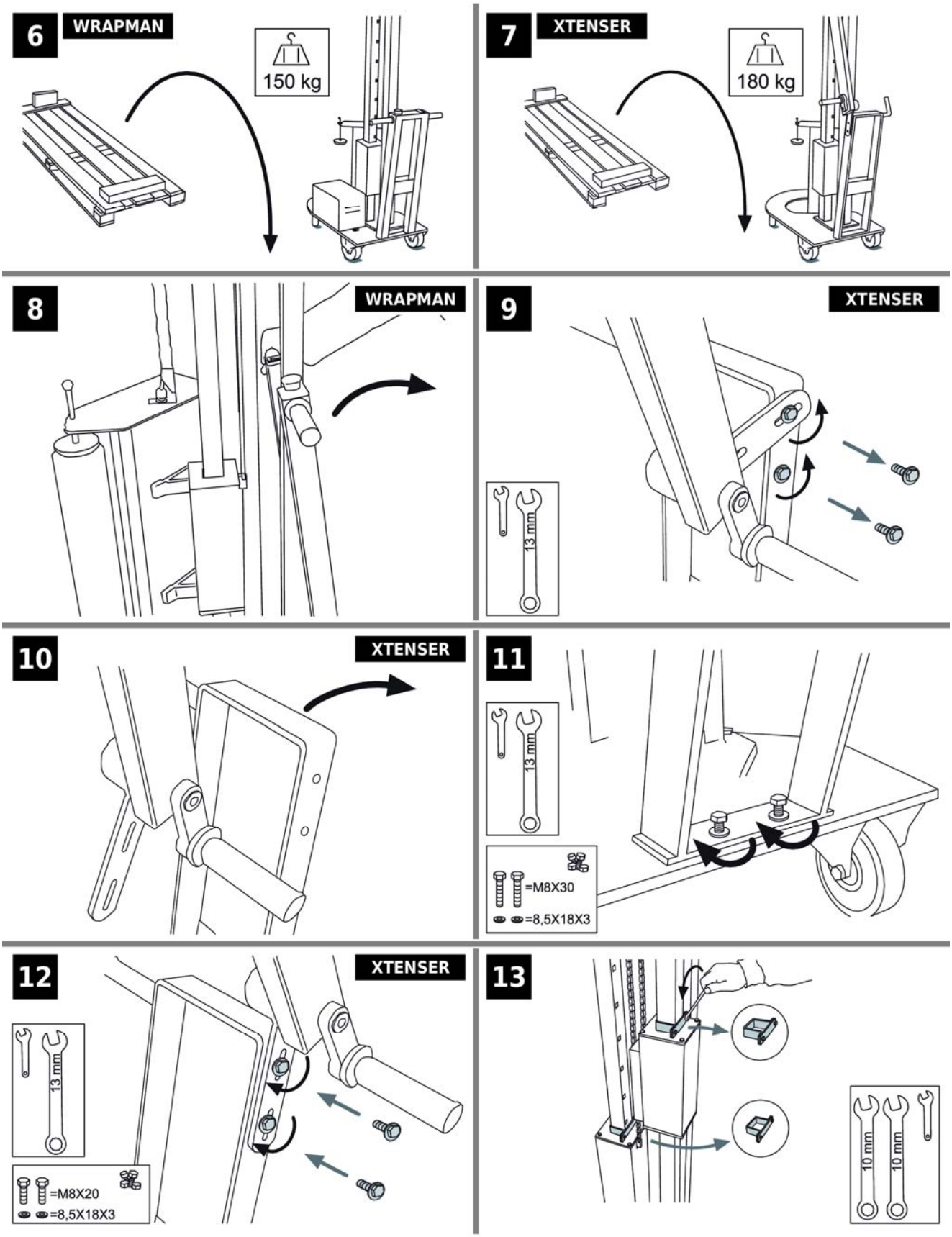

7
WRAPMAN
8
XTENSER
13 mm
9
XTENSER
10
13 mm
=M8X30
=8,5X18X3
11
XTENSER
13 mm
=M8X20
=8,5X18X3
12
10 mm
10 mm

4.4.3.MACHINE INSTALLATION (CARDBOARD BOX PACKAGING)

WRAPMAN 2.0 / 2.4 / 2.8.
To install the machine, follow the phases, represented in the figures **1,2,3,4,5,6,8,11,3**.

XTENSER 2.0 / 2.4
To install the machine, follow the phases, represented in the figures **1,2,3,4,5,7,9,10,11,12,13**.




6
WRAPMAN
150 kg
7
XTENSER
180 kg
8
WRAPMAN
9
XTENSER
13 mm
10
XTENSER
11
13 mm
=M8X30
=8,5X18X3
12
XTENSER
13 mm
=M8X20
=8,5X18X3
13
10 mm
10 mm

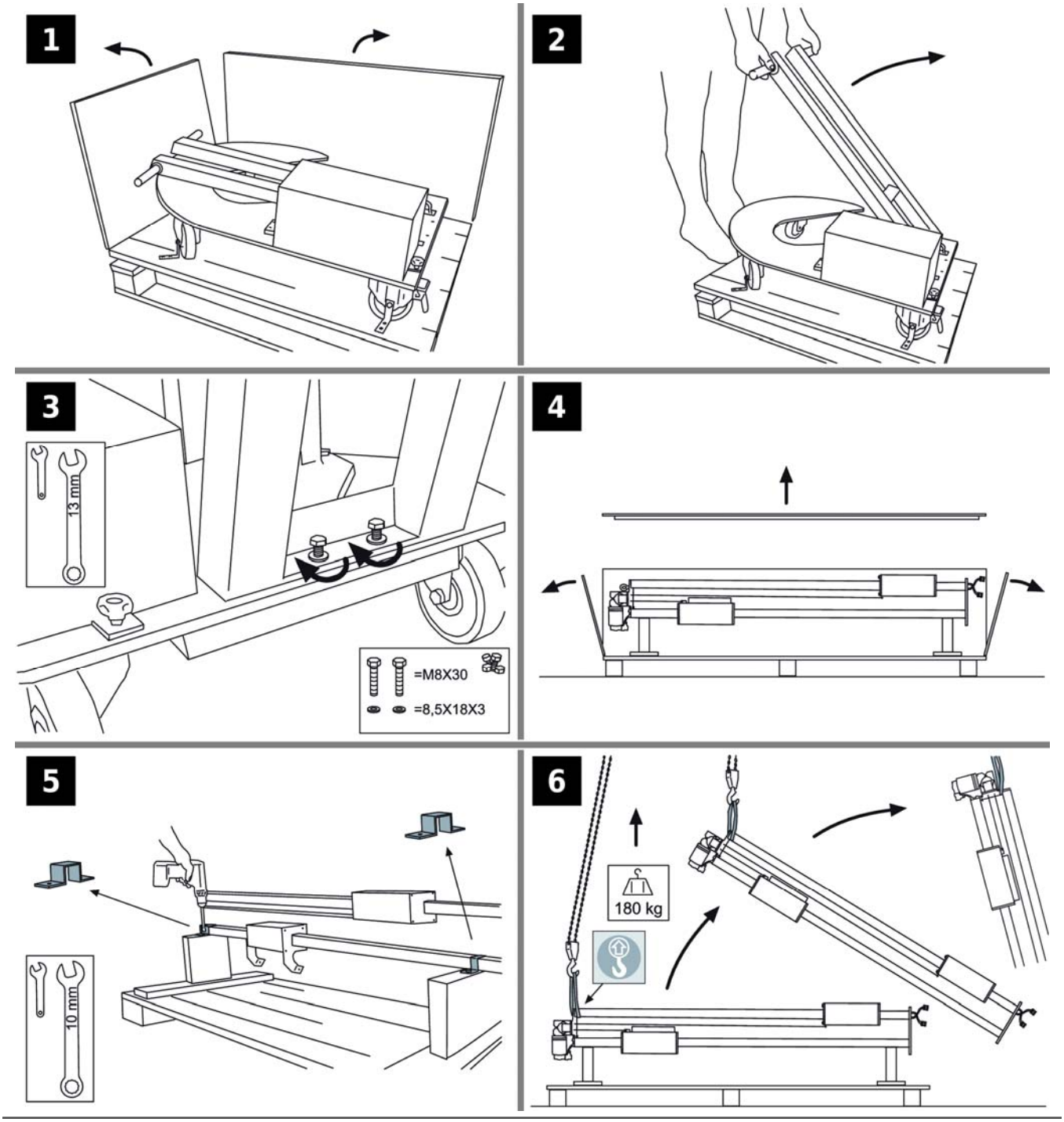
4.4.4.MACHINE INSTALLATION (PACKAGE IN CRATE)

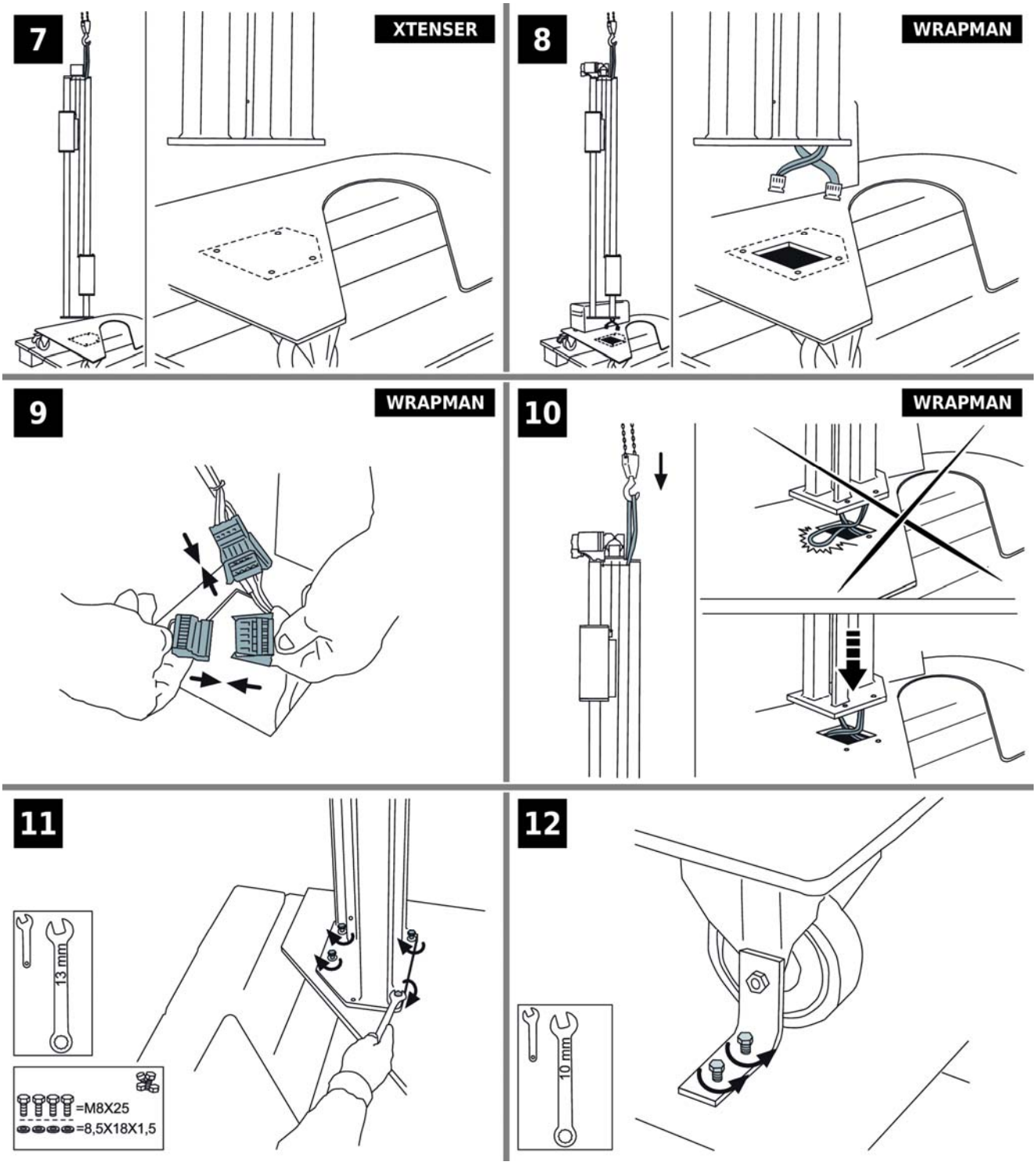
WRAPMAN 2.0 / 2.4 / 2.8
To install the machine, follow the phases, represented in the figures
1,2,3,4,5,6,8,9,10,11,12,13,14,16,17,21,22,23,24,29,30 .

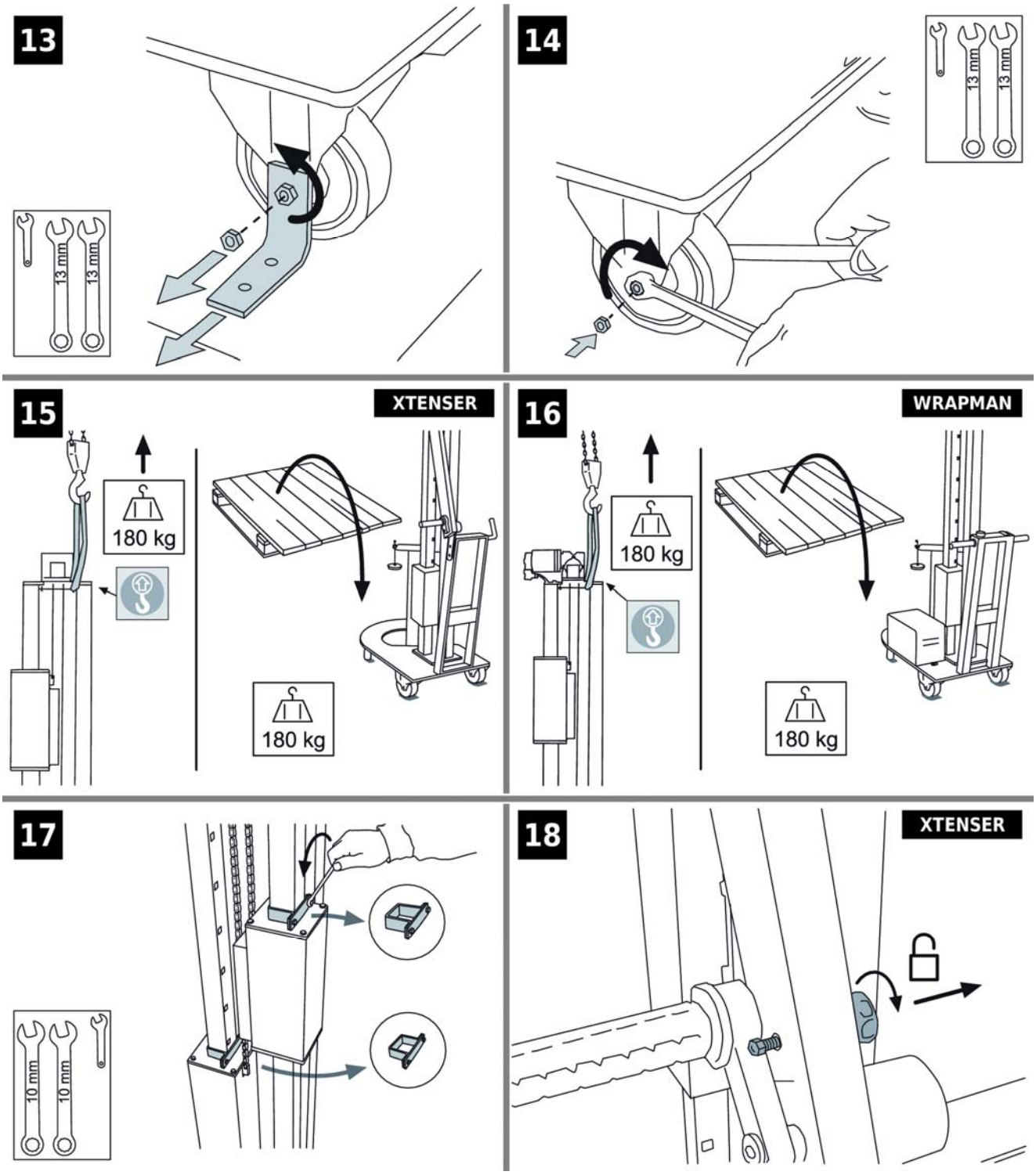
The operations described in the figures **29,30** are valid only for the versions with the motorized drawing.

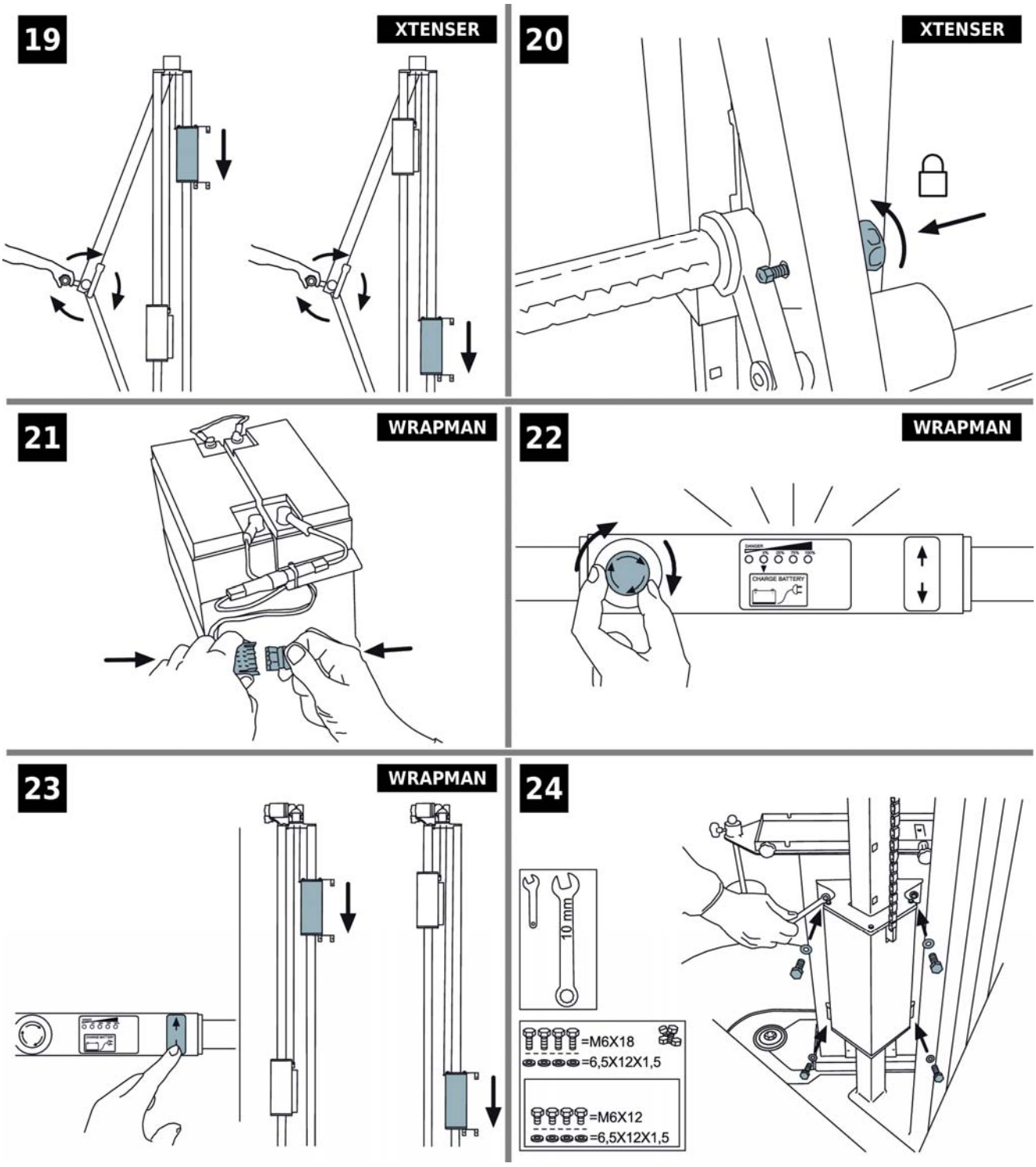
XTENSER 2.0 / 2.4
To install the machine, follow the phases, represented in the figures
1,2,3,4,5,6,7,11,12,13,14,15,17,18,19,20,24,25,26,27,28 .

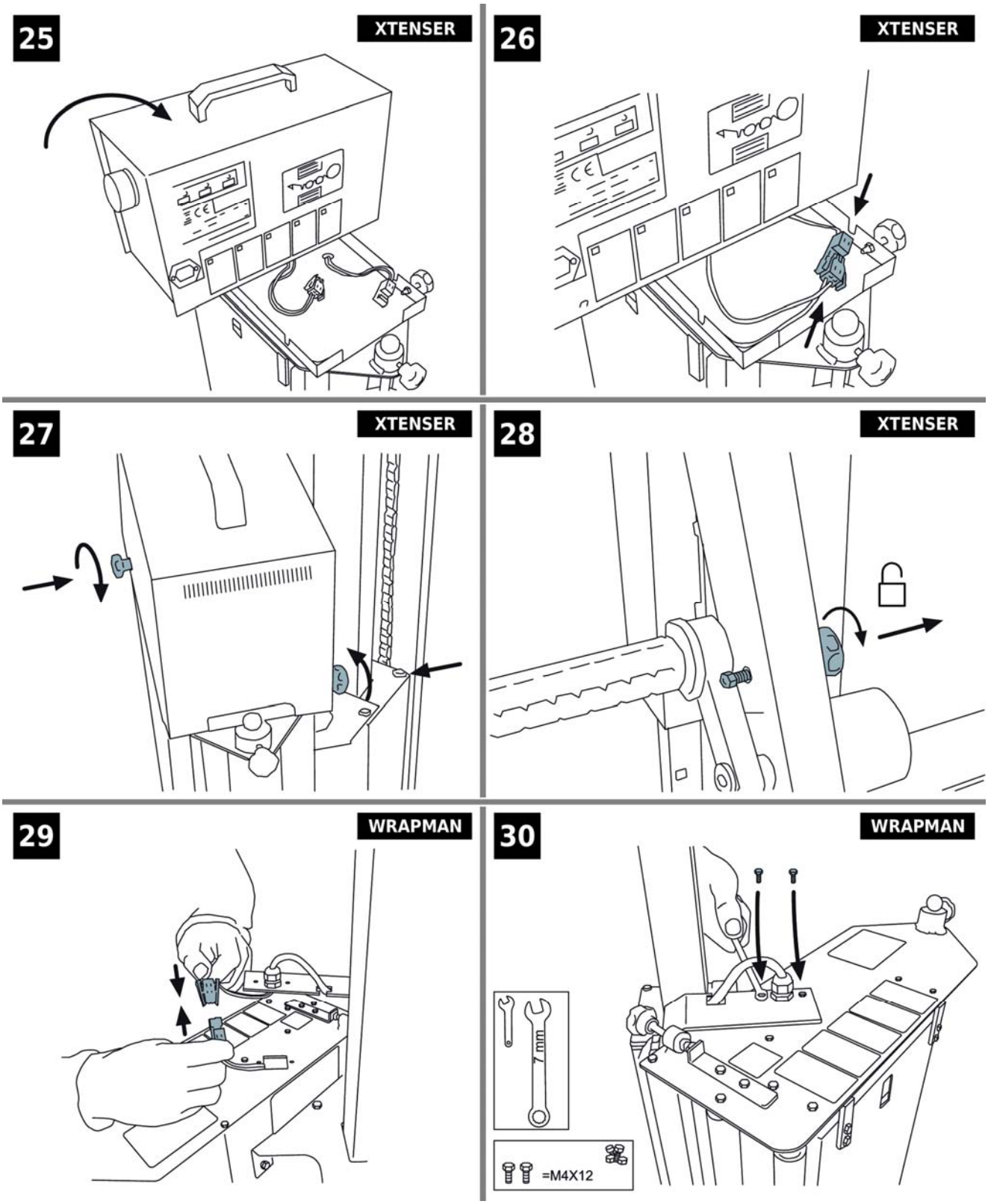
The operations described in the figures **25,26,27** are valid only for the versions with the motorized drawing.




7
XTENSER
8
WRAPMAN
9
WRAPMAN
10
WRAPMAN
11
13 mm
=M8X25
=8,5X18X1,5
12
10 mm


13
13 mm
13 mm
14
13 mm
13 mm
15
XTENSER
180 kg
180 kg
16
WRAPMAN
180 kg
180 kg
17
10 mm
10 mm
18
XTENSER

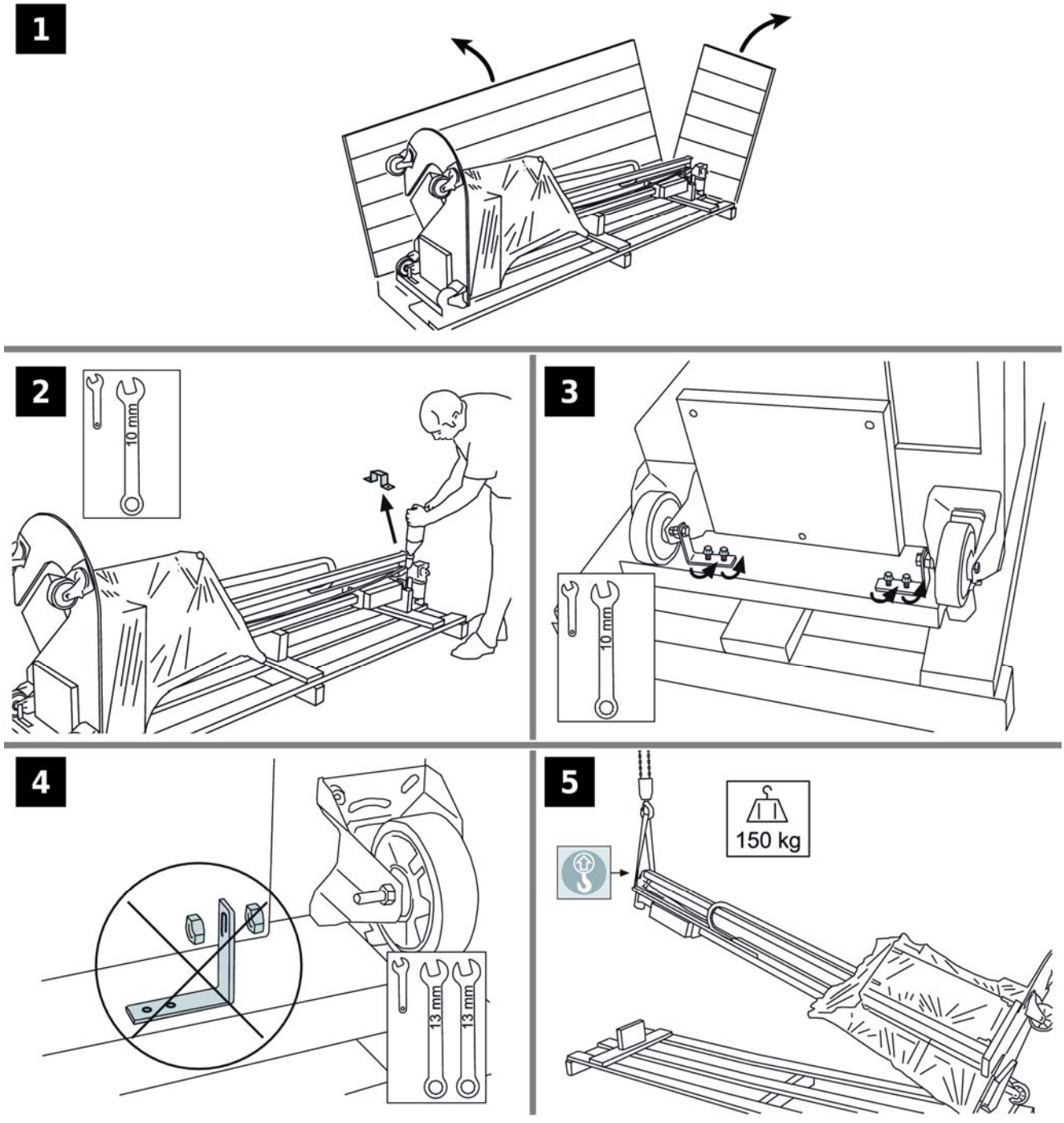

19
XTENSER
20
XTENSER
21
WRAPMAN
22
WRAPMAN
CHARGE BATTERY
23
WRAPMAN
24
10 mm
=M6X18
=6,5X12X1,5
=M6X12
=6,5X12X1,5

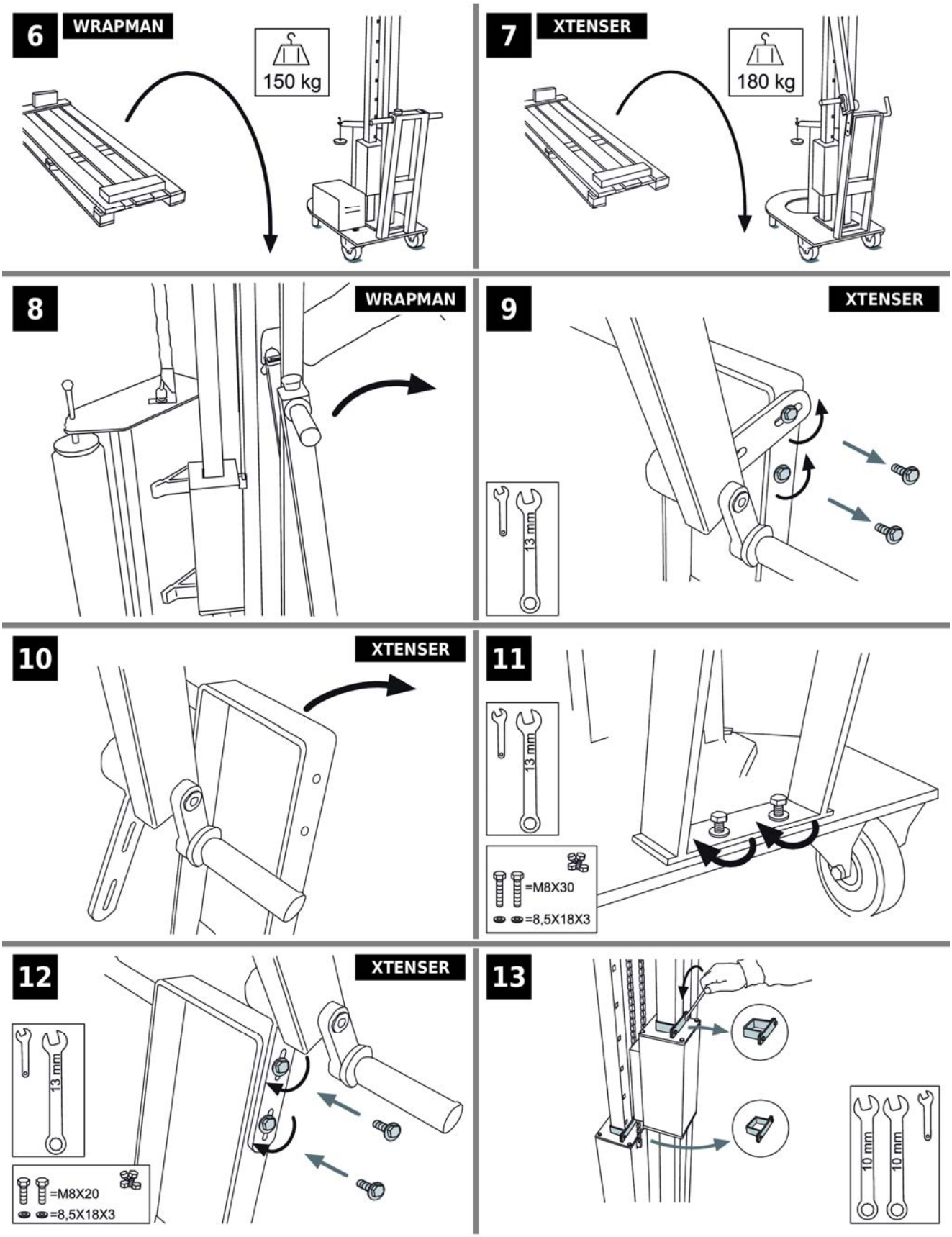

25
XTENSER
26
XTENSER
27
XTENSER
28
XTENSER
29
WRAPMAN
30
WRAPMAN
7 mm
=M4X12

4.4.5.MACHINE INSTALLATION (PACKAGING IN CASE – ONE UNIQUE PACKAGE)

WRAPMAN 2.0 / 2.4 / 2.8.
To install the machine, follow the phases, represented in the figures **1,2,3,4,5,6,8,11,13**.

XTENSER 2.0 / 2.4
To install the machine, follow the phases, represented in the figures **1,2,3,4,5,7,9,10,11,12,13**.




6
WRAPMAN
150 kg
7
XTENSER
180 kg
8
WRAPMAN
9
XTENSER
13 mm
10
XTENSER
11
13 mm
=M8X30
=8,5X18X3
12
XTENSER
13 mm
=M8X20
=8,5X18X3
13
10 mm
10 mm

5. INFORMATION ON ADJUSTMENTS

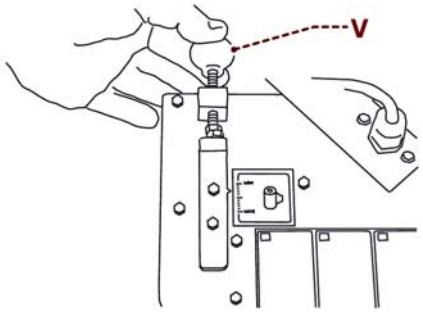
5.1. RECOMMENDATIONS FOR ADJUSTMENTS

- **Before performing any operation, the authorised operator must make sure that he/she understood the "Instructions for use".**
- **Before carrying out any intervention, activate all the safety de-vices provided, stop the machine and assess if any residual energy is still present.**
- **Provide suitable safety conditions in compliance with the regulations on workplace safety to prevent and minimise the risks.**
- **Pay attention to the SAFETY WARNINGS, do not use the machine for UNSPECIFIED PURPOSES and assess the possible RESIDUAL RISKS.**

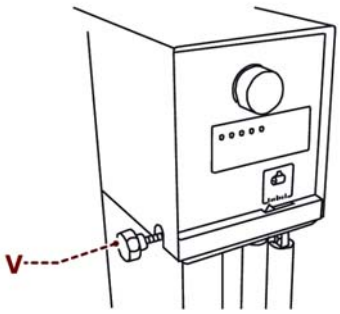
5.2. FILM TENSION ADJUSTMENT (ONLY FOR VERSIONS WITH MOTORIZED DRAWING)

The strain of the coating can be adjusted by means of the handwheel **(V)** placed on the reel carriage.

WRAPMAN

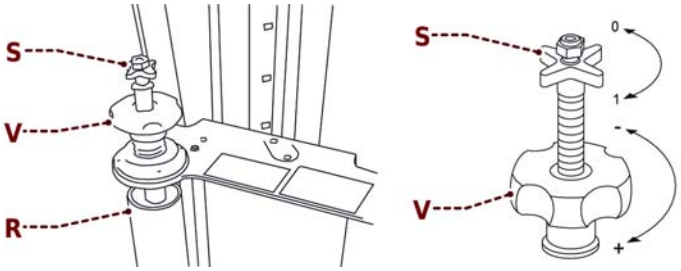


XTENSER



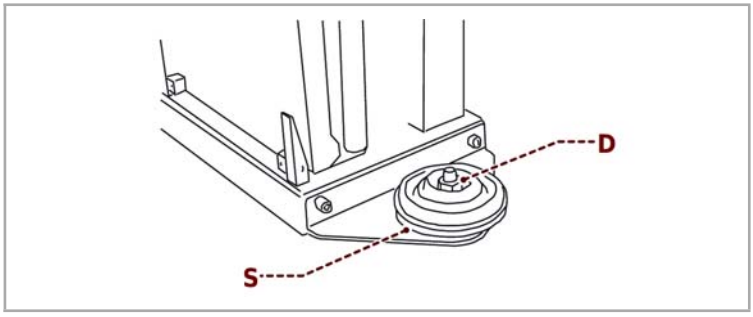
5.3. FILM TENSION ADJUSTMENT (ONLY FOR VERSIONS WITH FRICTIONED ROLLER)

The strain of the coating can be adjusted by means of the handwheel **(V)** placed on the reel carriage.
To extract the film without losing the tensioning degree it is necessary to release the roller **(R)** by rotating the handwheel **(S)** clockwise.
Once the coating is extracted, turn the handwheel **(S)** anti-clockwise to restore the braking action of the roller.



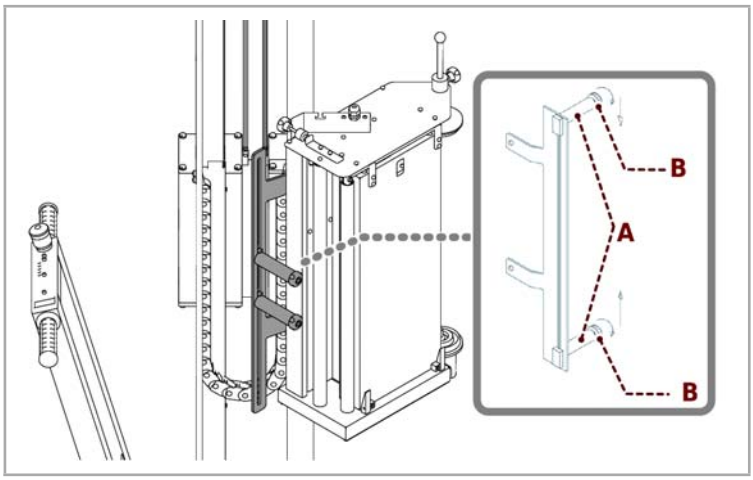
5.4. HEIGHT ADJUSTMENT OF THE LOWER DISC (ONLY FOR VERSIONS WITH MOTORIZED DRAWING)

To modify the wrapping height compared to the ground, it is necessary to loosen the nut **(D)** and turn the disc **(S)** until the desired height. Tighten the nut to lock the new position of the disc.



5.5. MANUAL BAND WRAPPING KIT

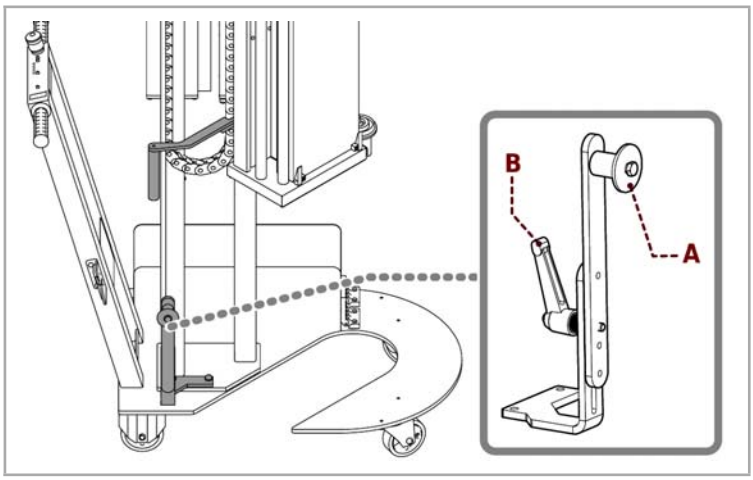
Folding device: it is used to collect the film in a point during wrapping so as to reinforce the package.



Adjust the height of the rollers **(A)** by intervening on the handwheels **(B)**.

5.6. LOWER FOLDING KIT

Film reinforcing device: it is used to reinforce the film at the base of the product or on the pallet.

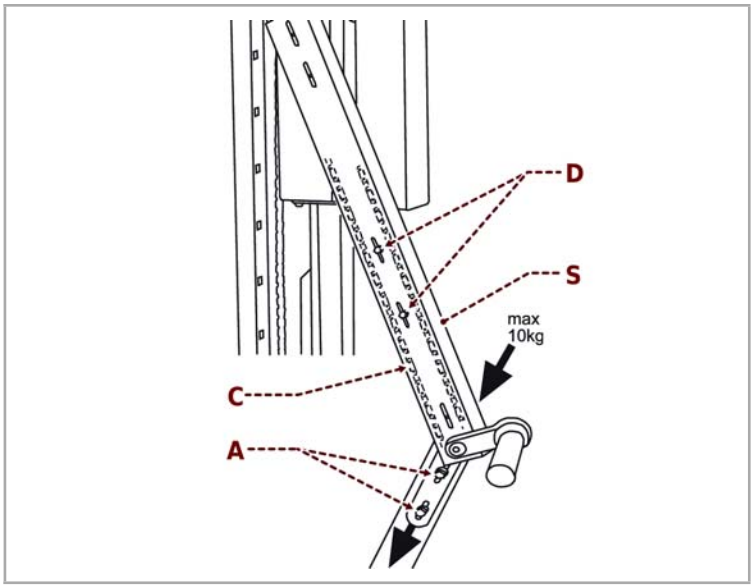


Adjust the height of the roller **(A)** by intervening on the handwheels **(B)**.

5.7. ADJUSTMENT OF THE CONTROL OF THE ROLLER CHAIN (ONLY FOR XTENSER)

To adjust the strain of the chain **(C)**, it is necessary to:

- Loosen no. **2** screws **(A)**.
- Loosen no. **2** screws **(D)**.
- Press the support **(S)** with a maximum strength of **10 kg** in the direction of the arrow and lock the new position, by tightening the screws **(A)**.
- Tighten the screws **(D)**.



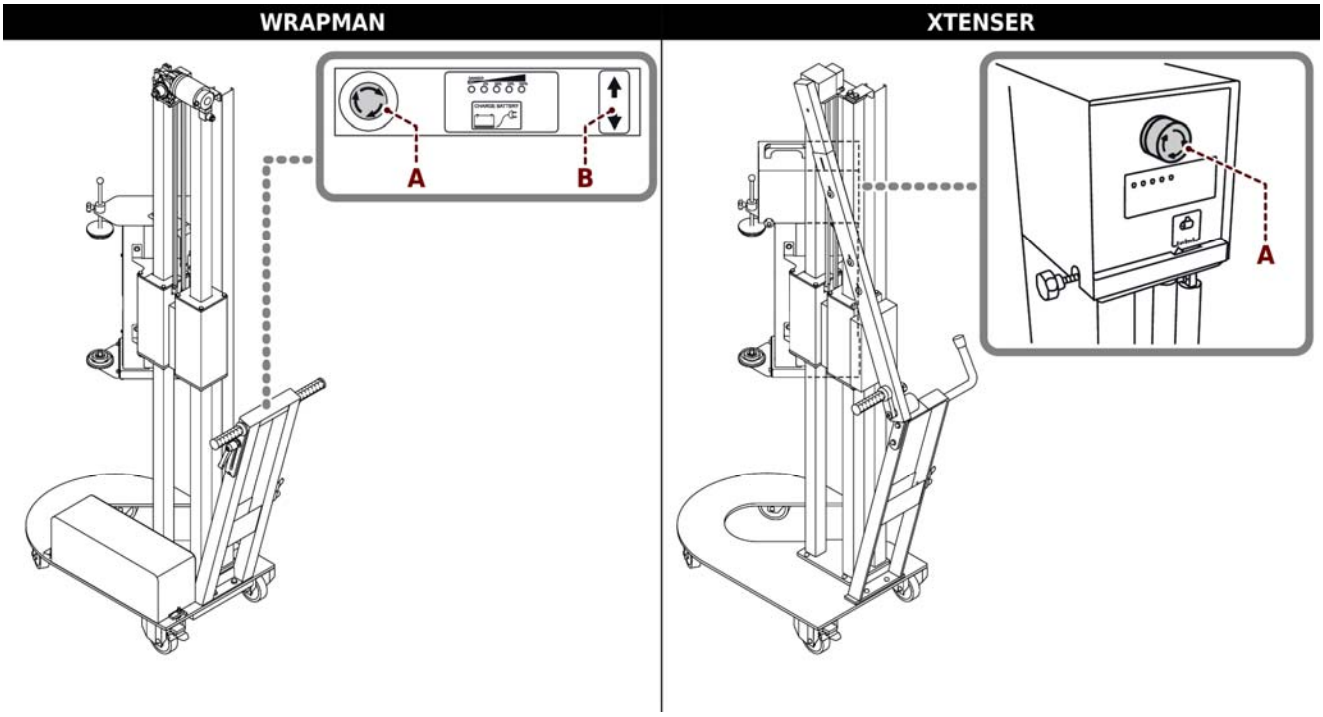
6. ABOUT THE USE

6.1. RECOMMENDATIONS FOR OPERATION AND USE

- Before performing any operation, the operator must make sure that he/she understood the "Instructions for use".
- When using the machine for the first time, the operator must read the manual and identify the controls and simulate some operations, especially the start-up and shutdown.
- Check that all safety devices are installed correctly and in good working order.
- Only implement the uses intended by the manufacturer and do not tamper with any device to obtain performances different from the intended ones.

6.2. CONTROL DESCRIPTION

The illustration shows the main controls of the machine and the list shows their description and function.



A) Emergency stop push-button: it is used to stop with a voluntary action, in case of imminent risk, the organs of the machine that may pose a rick (Push-button not provided on the models **XTENSER STH**).

B) Push-buttons (non-release hold): they are used to enable the lifting and the lowering of the reel carriage.

For further details consult the paragraph "Description of safety devices" (only for **WRAPMAN**).

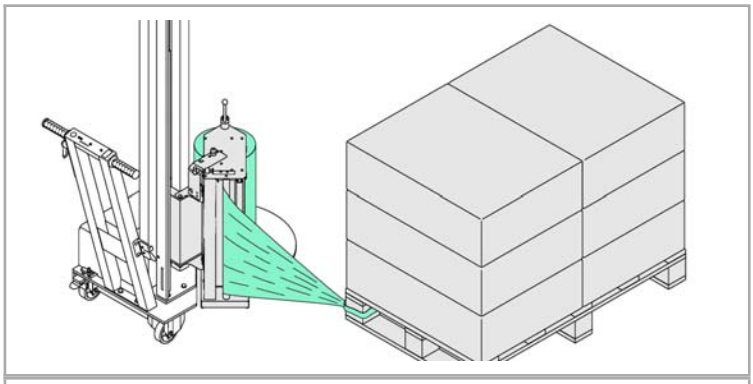
6.3. WRAPPING START AND STOP

Proceed as indicated.

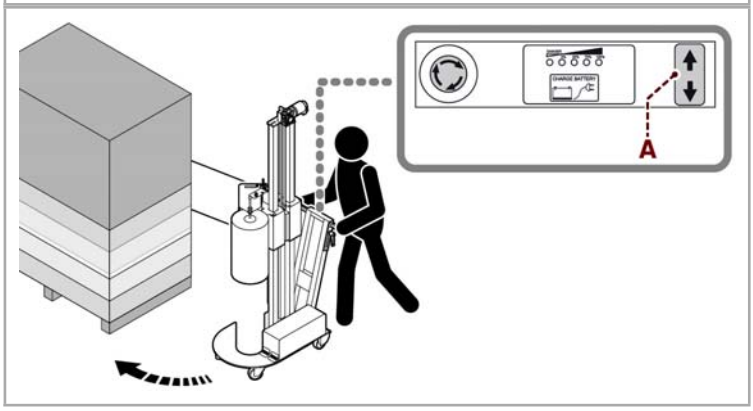
WRAPMAN

1. Approach the machine to the pallet.

2. Extract the end section from the reel carriage and tie to any point of the pallet to wrap.



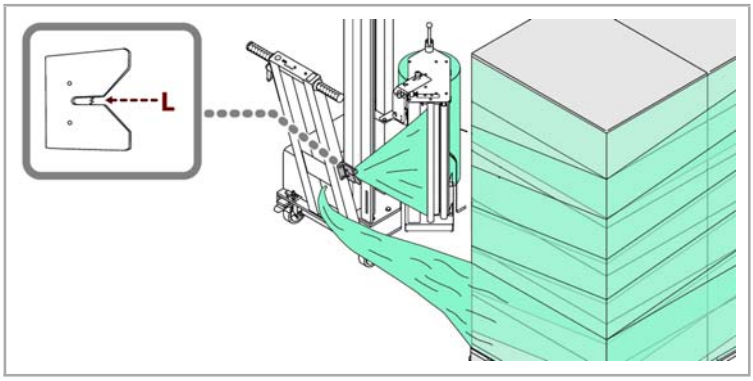
3. Wrap the pallet by using the push-button **(A)** to lift the reel carriage until the desired height.



Attention

The wrapping speed depends on the operator.
It is forbidden to exceed the speed of **1** m/sec.

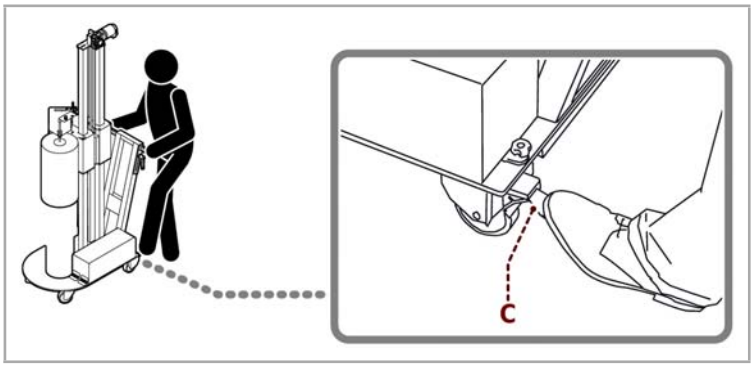
4. Cut the coating at the end of wrapping, by using the blade **(L)**.



5. Shut off the machine by using the emergency button.

6. Move the machine away from the wrapped pallet.

7. Run the parking brake by means of the pedal **(C)**.

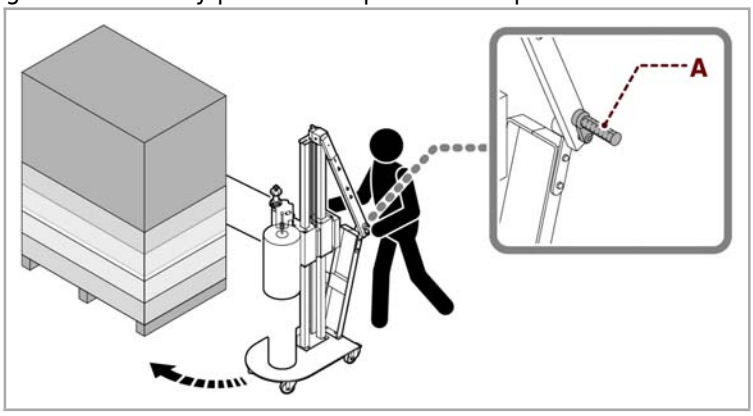


XTENSER

1. Approach the machine to the pallet.

2. Extract the end section from the reel carriage and tie to any point of the pallet to wrap.

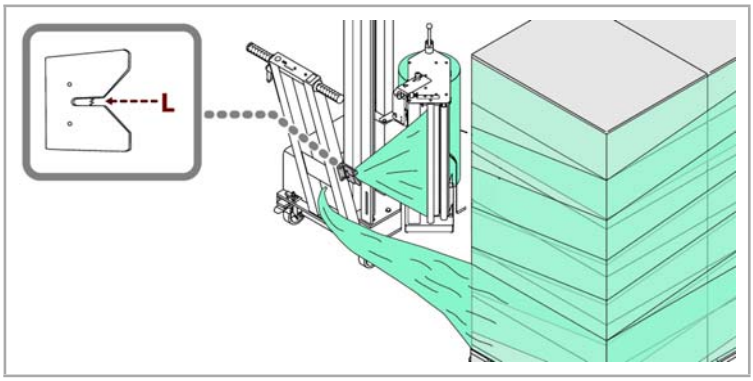
3. Wrap the pallet, by using the handwheel **(A)** to lift the reel carriage until the desired height.



Attention

The wrapping speed depends on the operator.
It is forbidden to exceed the speed of **1** m/sec.

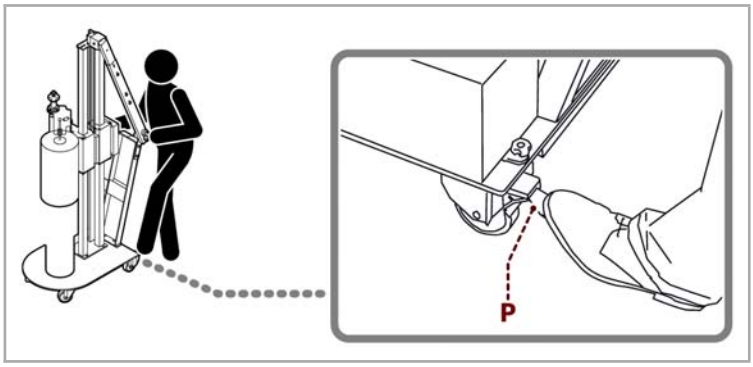
4. Cut the coating at the end of wrapping, by using the blade **(L)** (Optional).



5. Shut off the machine by using the emergency button (Only for the model with motorised drawing).

6. Move the machine away from the wrapped pallet.

7. Run the parking brake by means of the pedal **(P)**.



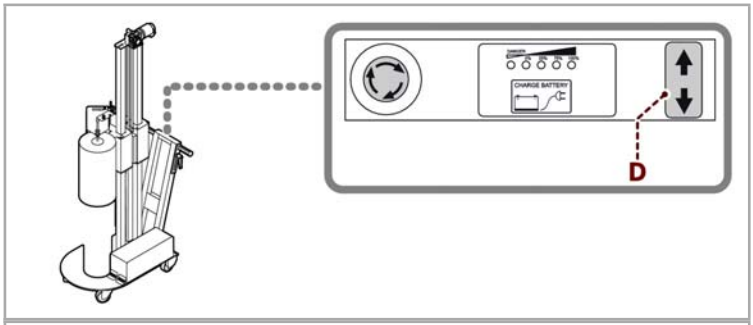
6.4. FILM COIL FEEDING

Proceed as indicated.

WRAPMAN

1. Press the **(D)** push-button to position the reel carriage at a height that will allow the insertion of the reel of film.

2. Shut off the machine by using the emergency button.

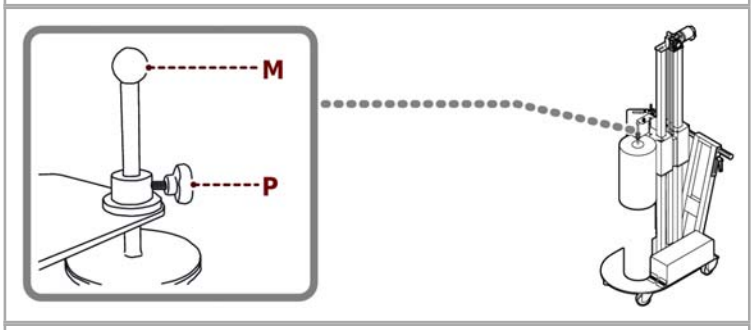


3. Unscrew the screw **(P)** and lift the hub **(M)**.

4. Insert the reel of film.

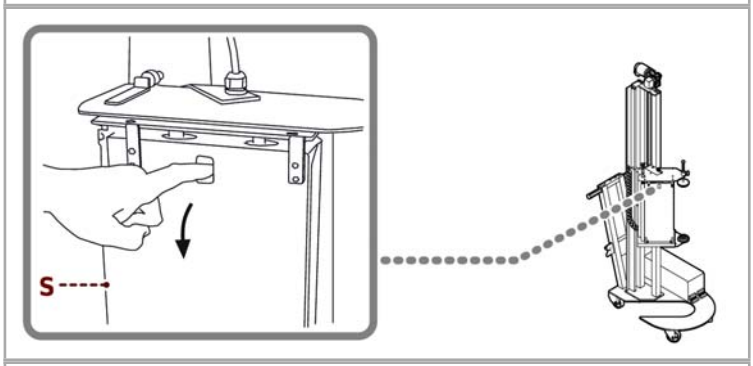
5. Lower the hub **(M)** and centre the core of the reel.

6. Lock the hub **(M)** by screwing the screw **(P)**.

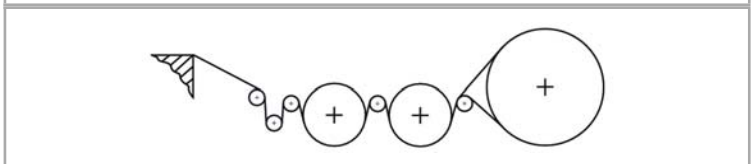


7. Open the **(S)** door of the reel carriage (Only for the model with motorised drawing).

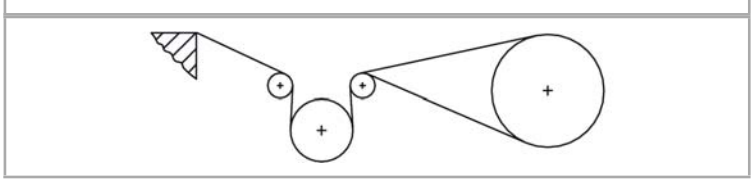
8. Insert the film through the rollers and close the **(S)** door.



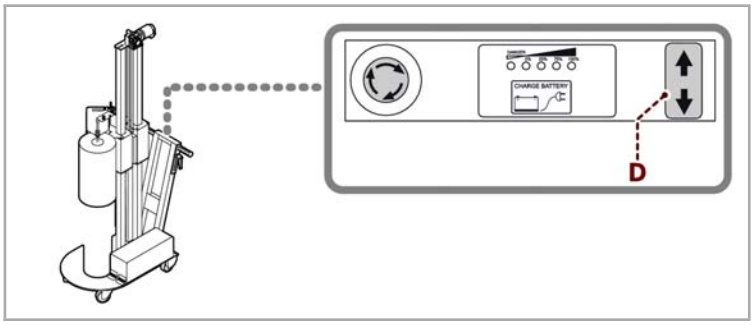
Version of the reel carriage with motorised drawing



Version of the reel carriage with frictioned roller

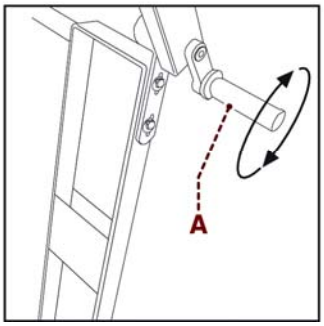


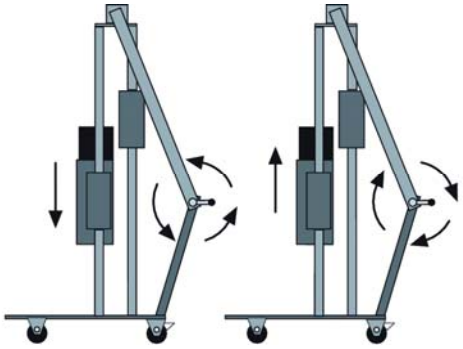
9. Unlock the emergency button.
10. Lower the reel carriage by means of the push-button **(D)** up to the lower stopper.



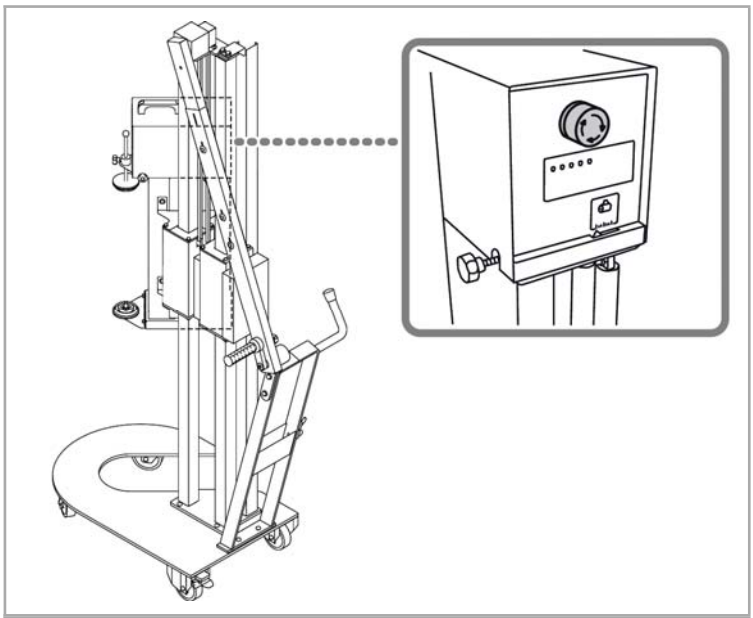
XTENSER

1. Act on the handwheel **(A)** to place the reel carriage at such a height so to facilitate the loading of the reel.

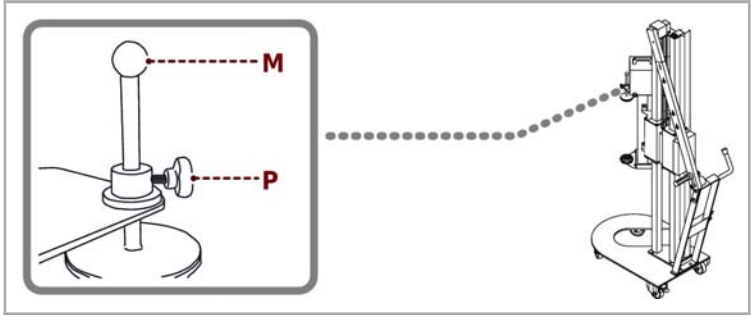




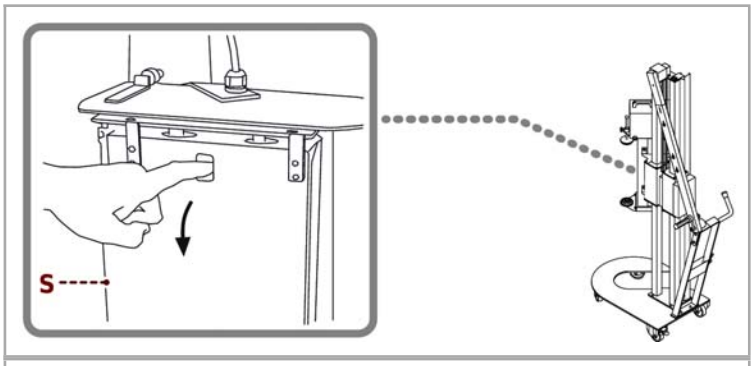
2. Shut off the machine by using the emergency button (Only for the model with motorised drawing).



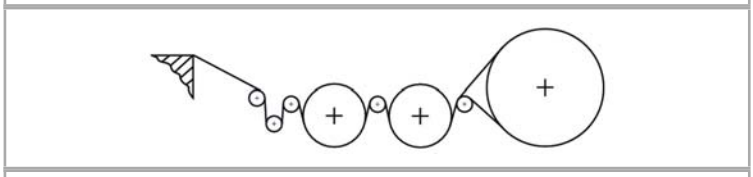
3. Unscrew the screw **(P)** and lift the hub **(M)**.
4. Insert the reel of film.
5. Lower the hub **(M)** and centre the core of the reel.
6. Lock the hub **(M)** by screwing the screw **(P)**.



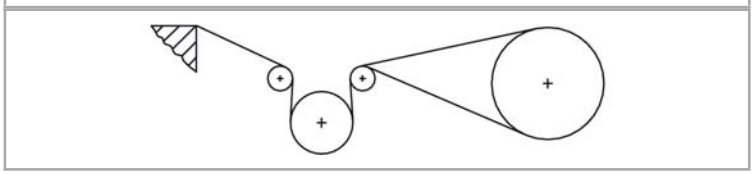
7. Open the **(S)** door of the reel carriage (Only for the model with motorised drawing).
8. Insert the film through the rollers and close the **(S)** door.



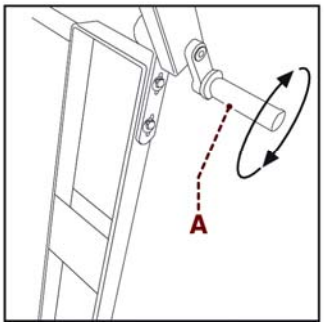
Version of the reel carriage with motorised drawing

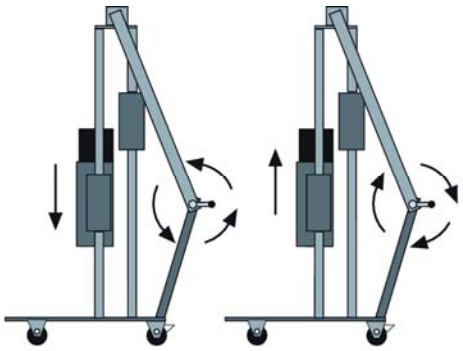


Version of the reel carriage with frictioned roller

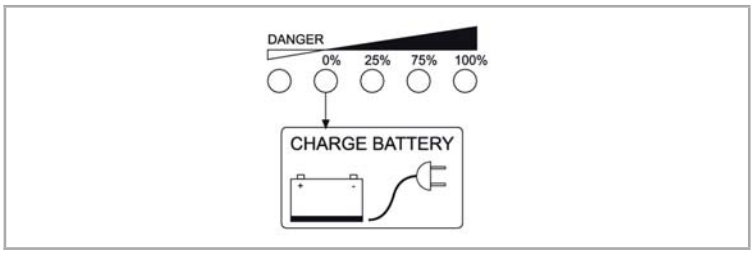


9. Unlock the emergency button.
10. Lower the reel carriage by means of the handwheel **(A)** up to the lower stopper.





6.5. BATTERY CHARGING MODE



Recharge the batteries immediately after the led **25%** turns off.
The forced use of the machine with level **0%** causes a drastic reduction of the life of the batteries and, so, their early expiry.
The recharging of the batteries may be carried out even when the charge level is greater than **0%**.

Attention
The level indicator of the batteries may be controlled with the machine at a stop, or when the machine is on, but is not running.

Attention
In order not to jeopardise the functioning of the battery, avoid to discharge it completely.

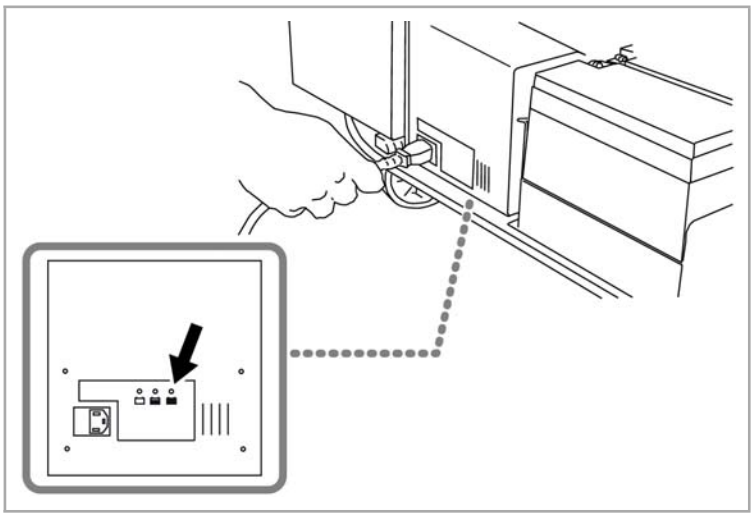
If the machine remains on for a long time, the charge level of the batteries may decrease below the minimum allowed limit.
Turn off the machine after use to preserve the life of the batteries.
If the machine remains off for long periods, batteries may discharge.
Always carry out a complete recharge prior to a machine stop longer than **15** days.
For longer machine stops, check and recharge the batteries at least **1** times a month.

6.5.1.RECHARGING PROCEDURE

Danger - Warning
Recharging of the batteries has to be carried out in well-ventilated places far from flames or sparks.

WRAPMAN

- Turn off the machine and open the casing of the battery compartment.
- Make sure that the voltage of the battery charger (see the identification dataplate) is correct and, then, insert the power plug.
- When the recharging is terminated the **"Battery Charged"** LED light turns on. Remove the power supply plug and close the casing.

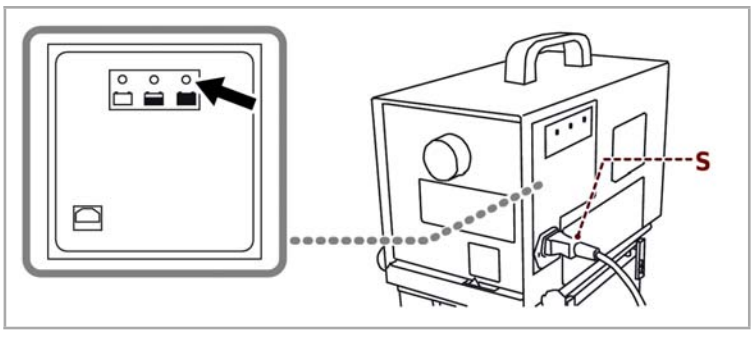


Attention
The batteries must be recharged completely until reaching the led **"Battery Charged"**.
On the contrary, the functioning of the battery may be compromised.

Attention
The machine must be kept off for the whole duration of the recharging phase.

XTENSER

- Unlock the emergency push button to turn the machine on (The display turns on).
- Connect the power supply plug **(S)**.
- When the recharging is terminated the **"Battery Charged"** LED light turns on.



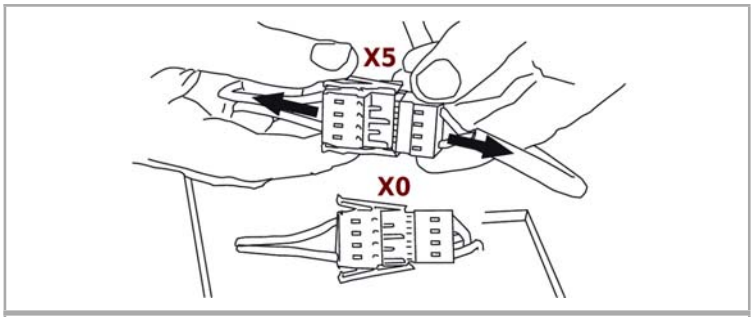
Attention

The batteries must be recharged completely until reaching the led **"Battery Charged"**.
On the contrary, the functioning of the battery may be compromised.

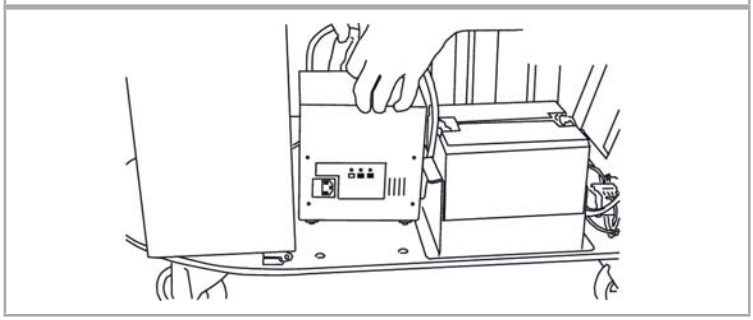
6.6. USE OF THE BATTERY CHARGER OUTSIDE THE MACHINE (ONLY FOR WRAPMAN)

The battery charger may be extracted in order to offer the possibility to recharge a second unit of batteries.

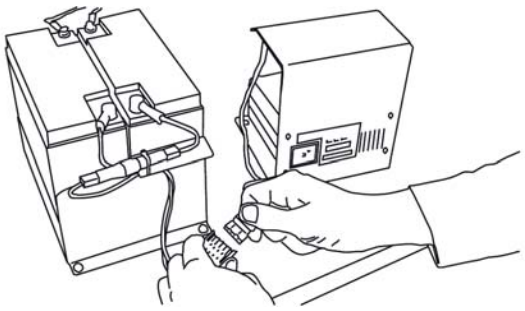
– Disconnect the connector **(X5),** which connects the battery charger to the machine.

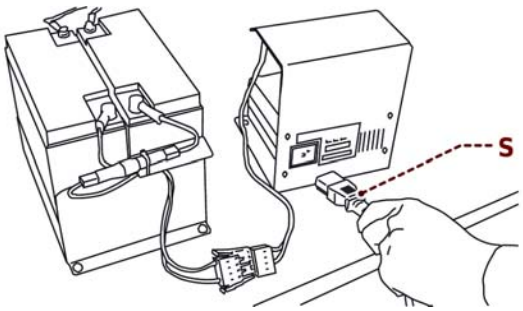


– Extract the battery charger with its entire connection cable to the batteries.



– Place the battery charger outside of the machine, where the recharge is desired to be carried out.
– Connect the connectors of the batteries to the connector of the battery charger.
– Connect the power supply plug **(S)**.
– At the end of the recharge, disconnect first the power supply plug **(S)** and only after the connection connector to the batteries.





Danger - Warning

Recharging of the batteries has to be carried out in well-ventilated places far from flames or sparks.

6.7. REMOVAL OF THE POWER SUPPLY UNIT (ONLY XTENSER FOR VERSIONS WITH MOTORISED DRAWING)

To assure work continuity, it is possible to remove the discharged power supply unit (to recharge the batteries outside of the machine) and replace it with a new charged batteries unit.
For the removal and replacement of the unit, see “Replacement power supply unit”.

7. MAINTENANCE INFORMATION

7.1. MAINTENANCE INSTRUCTIONS

- **A good maintenance will allow for a longer working life and constant compliance with the safety requirements..**
- **Before performing any operation, the authorised operator must make sure that he/she understood the "Instructions for use".**
- **Pay attention to the SAFETY WARNINGS, do not use the machine for UNSPECIFIED PURPOSES and assess the possible RESIDUAL RISKS.**
- **Carry out the interventions with all the safety devices enabled and wear the DPI provided.**
- **Mark the intervention area and prevent access to the devices that, if activated, may cause unexpected hazards and jeopardize the safety level..**
- **DO NOT carry out any intervention that is not described in the manual but contact an Assistance Service authorised by the manufacturer.**
- **DO NOT damp in the environment materials, pollutant liquids and the residues created during the interventions but dispose them according to the standards in force.**

7.2. MAINTENANCE PERIOD TABLE

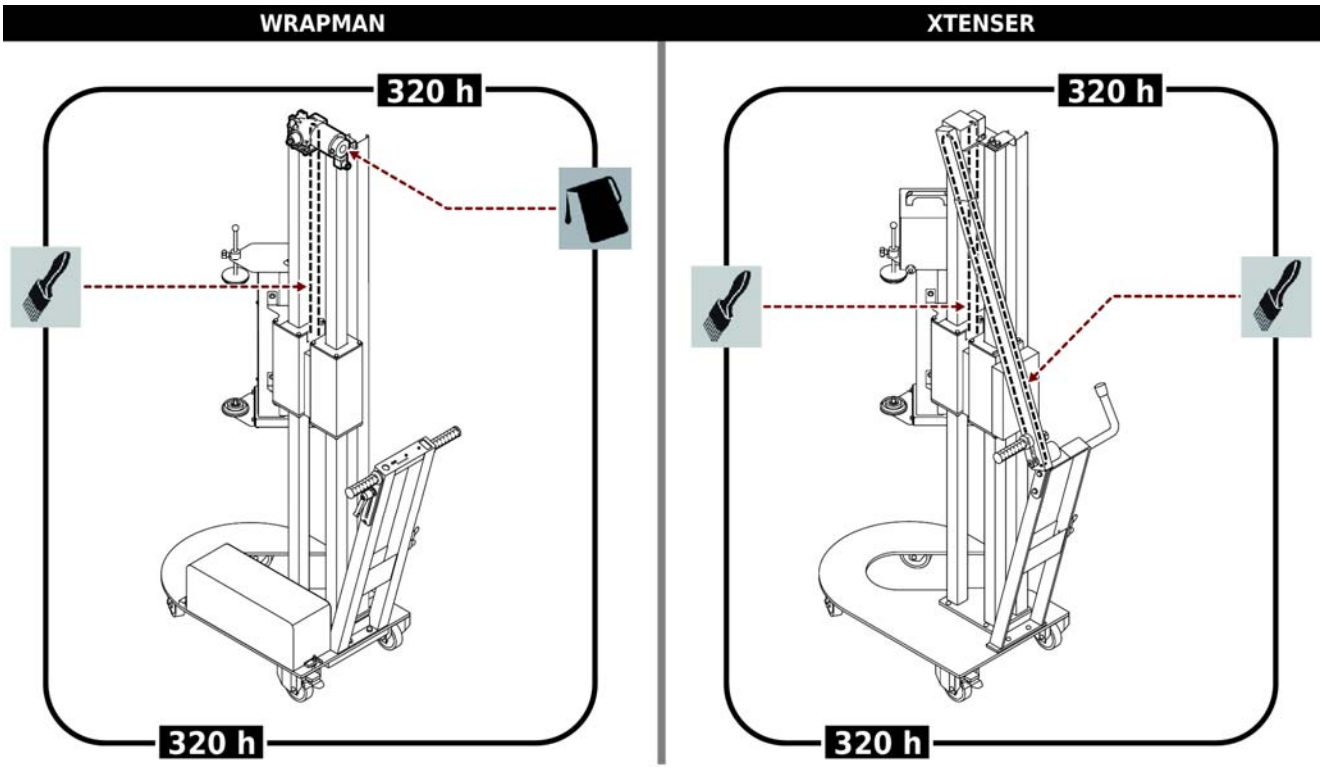
The table below specifies the routine maintenance intervals to be followed to ensure top performances, a longer working life and constant compliance with the safety requirements.

Frequency	*Component*	*Type of intervention*	*Procedure*	*Reference*
Every 38 hours	Parts that are external to the machine.	Cleaning.	Use a cloth or compressed air.	**-**
Every 38 hours	Operational area of the machine.	Cleaning.	Use a cloth or compressed air.	**-**
Every 320 hours	Parts of the machine.	Carry out careful cleaning of the mechanical and electrical organs.	Use a cloth or compressed air.	**-**
Every 320 hours	Ring chain.	Lubricate.	**-**	See “Lubrication point diagram”.
Every 320 hours	Antifall system of the carriage.	Check efficiency.	Check the state of the spring and the rotation of the block.	See "Adjustment of the antifall system of the carriage”.
Every 320 hours	Emergency button.	Check operation.	Press the emergency push-button and check that it remains pressed.	**-**

Every 320 hours	Service brake.	Check operation.	Check that the wheel is locked when the brake is connected.	**-**
Every 320 hours	Roller chain comand (only for **XTENSER**).	Check tension.	Check and, in case, adjust the strain of the roller chain.	See “Adjustment strain roller chain (only for **XTENSER**)”.
Every 320 hours	Roller chain comand.	Lubricate.	**-**	See “Lubrication point diagram”.
Every 320 hours	Parts of the machine.	General inspection.	**-**	**-**
Every 320 hours	Components of the machine.	Check for wear of the components.	**-**	Contact the Dealer.
Every 2000 hours or at least 1 times per year	Non-routine maintenance.	**-**	Plan a non-routine maintenance, performed only and exclusively by specialised personnel trained by **Robopac S.p.A.**	**-**

7.3. LUBRICATION POINT DIAGRAM

The following diagram shows the main components and the frequency of the lubrication interventions.



Symbol and Description

Smear with grease.

Check lubricant level.

Do not top-up and/or replace the lubricant in reduction gears and gearmotors lubricated for life.

Keep to the recommended lubrication frequency to get top machine performances and a longer operating life..
Use lubricants (oils or grease) recommended by the manufacturer or with similar chemical-physical features.

7.4. LUBRICANTS TABLE

The table below specifies the lubricants recommended by the Manufacturer for each component and/or area of the machine..
Use lubricants (oils or grease) recommended by the manufacturer or with similar chemical-physical features.

Lubricant specifications

Type of lubricant	*Name*	*Parts to be lubricated*
Mineral oil	**23°C / 50°C - 320 CST 40°C MELLANA OIL 320 IP SPARTAN EP 320 ESSO BLASIA 320 AGIP MOBILGEAR 632 MOBIL OMALA EP 320 SHELL ENERGOL GR-XP 320 BP**	Gear motor
Mineral oil	**32°C / 50°C - 460 CST 40°C MELLANA OIL 460 IP SPARTAN EP 460 ESSO BLASIA 460 AGIP MOBILGEAR 634 MOBIL OMALA EP 460 SHELL ENERGOL GR-XP 460 BP**	Worm gear motor
Grease	**TELESIA COMPOUND B IP STRUCTOVIS P LIQUID KLUBER TOTALCARTER SYOO TOTAL**	Gear and worm gear motor
Synthetic oil	**TELESIA OIL IP SYNTHESO D 220 EP KLUBER BLASIA S 220 AGIP**	Gear and worm gear motor

Lithium grease	**ALVANIA R2 SHELL** **HL 2 ARAL** **ENERGREASE LS2 BP** **BEACON 2 ESSO** **MOBILIX MOBIL**	Bearings with support
Synthetic oil	**-5°C / +5°C VG 68 (SAE 20)** **+5°C / +25°C VG 100 (SAE 30)**	Spool carriage chain

Important

Do not mix oils of different makes and specifications.

8. SPARE PARTS REPLACEMENT INFORMATION

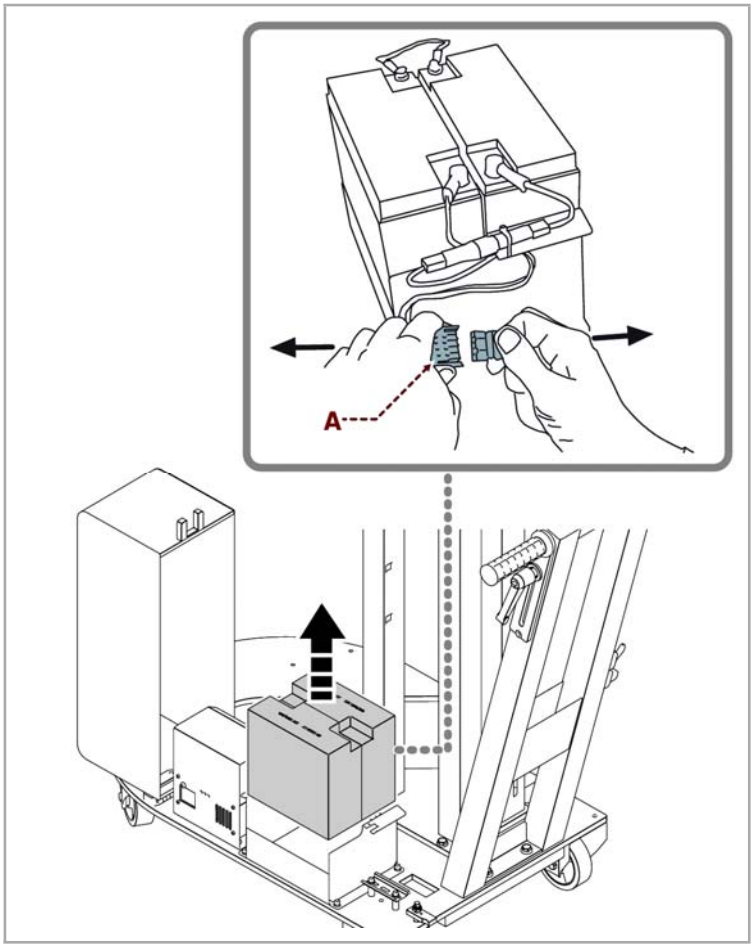
8.1. RECOMMENDATIONS FOR REPLACING PARTS

- **Before performing any operation, the authorised operator must make sure that he/she understood the "Instructions for use".**
- **Carry out the interventions with all the safety devices enabled and wear the DPI provided.**
- **Delimitate the work area complying with the safety conditions as provided by the standards on workplace safety in order to minimise the risks.**
- **DO NOT carry out any intervention that is not described in the manual but contact an Assistance Service authorised by the manufacturer.**
- **DO NOT damp in the environment materials, pollutant liquids and the residues created during the interventions but dispose them according to the standards in force.**
- **Replace the components ONLY with ORIGINAL PARE PARTS or with SIMILAR design and functional features.**
  The use of similar but non-original spare parts may lead to improper repairs, altered performance and economic damage.
- **The components and/or safety devices shall be replaces ONLY with original spare parts to avoid altering the provided safety level.**

8.2. BATTERY REPLACEMENT

Proceed as indicated:

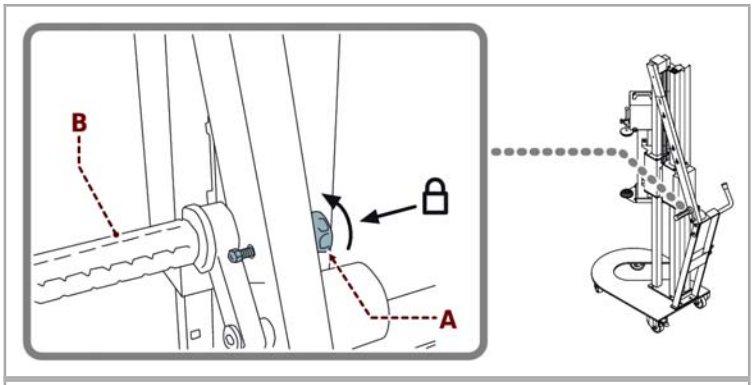
- Detach the connector **(A)**;
- Extract the batteries unit from the machine.



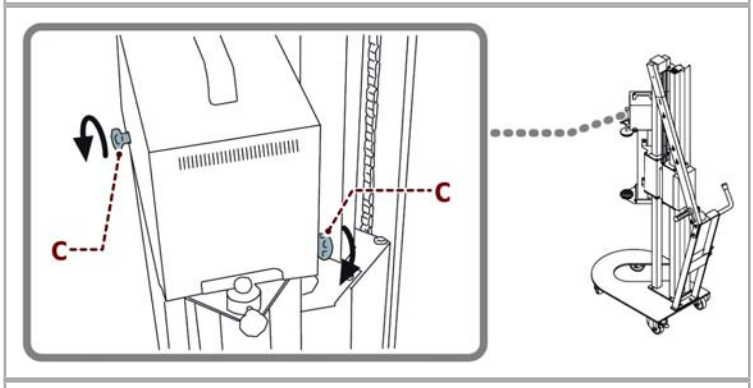
8.3. REPLACEMENT POWER SUPPLY UNIT (ONLY XTENSER FOR VERSIONS WITH MOTORISED DRAWING)

To remove the power supply unit, it is necessary to:

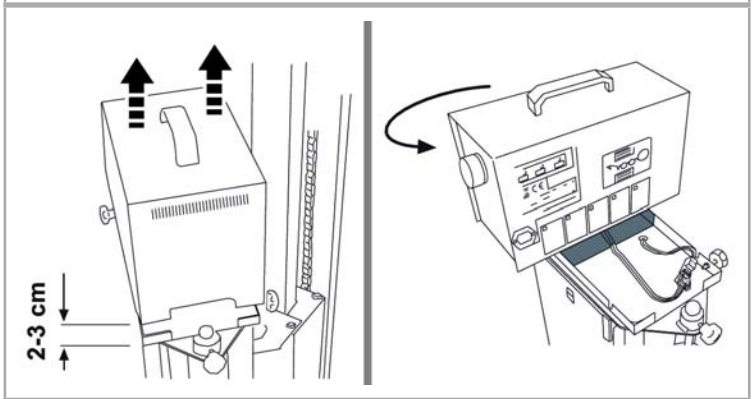
1. Insert the stop handwheel **(A)** so to avoid the rotation of the crank **(B)**.



2. Loosen the handwheels **(C)**.



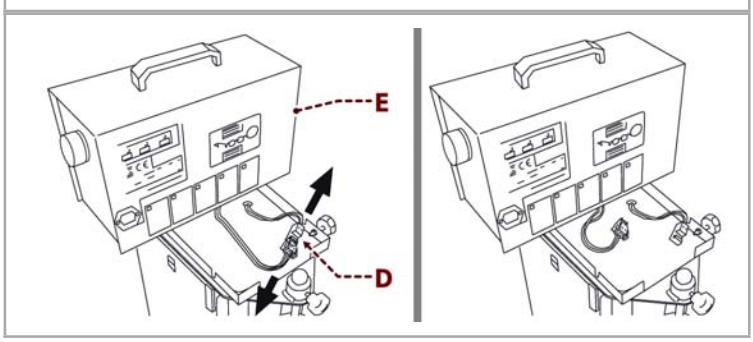
3. Lift the power supply unit by about **2÷3 cm** and turn it so to expose the connection cables.



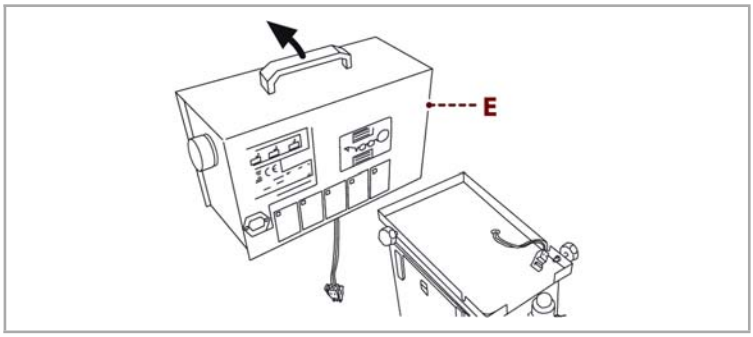
4. Detach the connector **(D)**.

Attention

Disconnect the connector **(D)** before removing the power supply unit **(E)**.



5. Remove the power supply unit **(E)**.



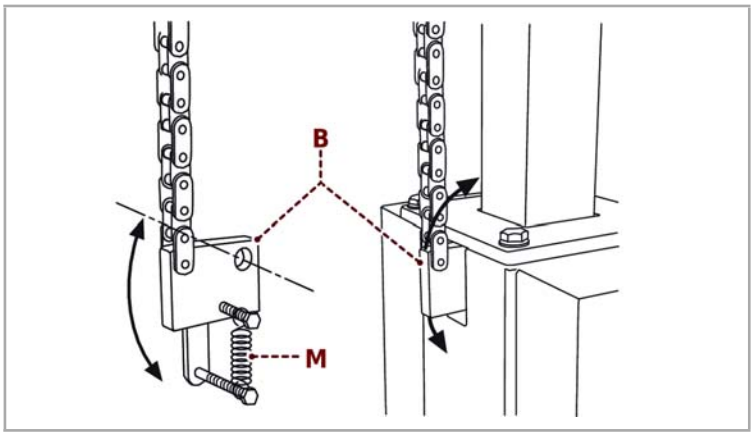
Danger

If the power supply unit **(E)** has been removed from the machine the stop handwheel **(A)** must always be in the stoppage position.
The stop handwheel may be released only if the power supply unit **(E)** has been reassembled on the machine.

6. At this point, it is possible to proceed with the assembly of a new power supply unit, by following the above-mentioned procedure in the opposite manner.

8.4. CHECK THE ANTIFALL SYSTEM OF THE CARRIAGE

The machine is equipped with an antifall system of the reel carriage and the relative counterweight that is automatically enabled in the case of breakage of the lifting roller chain.
It is important to periodically check the state of the **(M)** spring and the relative rotation of the **(B)** block so that such safety device is always efficient.



8.5. LIST OF THE RECOMMENDED SPARE PARTS

List of the spare parts of easy wear and of which it would be necessary to have available to avoid long operation stops of the machine.
For ordering, contact your local Dealer and refer to the spare parts catalogue.

- Carriage friction plate (Only for **STH** models).
- Batteries.
- Front wheels.
- Rear wheels.

8.6. MACHINE DISPOSAL AND SCRAPING

Proceed as indicated.

8.6.1.TAKING THE MACHINERY OUT OF SERVICE

- Disconnect the supplies to the machine (electrical, pneumatic, Etc…) so that it cannot be restarted and position it in a place not easy to access..
- Empty in ad adequate way the systems containing damaging substances and do it in accordance with the current laws in force at workplaces and those regulating environmental protection.

8.6.2.MACHINE SCRAPPING

- Scrapping must be entrusted to authorized centres having the adequate skills and equipment to operate in safety conditions.
- The personnel carrying out the scrapping of the machine must identify any residual energy and implement a "safety plan" to avoid any unexpected hazard.
- The components must be selected depending on the chemical and physical characteristics of the materials and disposed of in a differentiated way, as per current regulations.
- Empty in ad adequate way the systems containing damaging substances and do it in accordance with the current laws in force at workplaces and those regulating environmental protection.

9. ENCLOSED DOCUMENTATION

9.1. WARRANTY CONDITIONS

ROBOPAC S.p.A. pledges, within the limits described herein, to replace or repair, at no charge, the parts that become defective during the **12** (twelve) months following the date indicated on the company's shipping documents.
To utilise the warranty, the user must immediately notify the company that a defect exists, always referring to the machine serial number.
ROBOPAC S.p.A., in its final judgement, will decide whether to replace the defective part or request it to be shipped for tests and/or repairs.
By replacing or repairing the defective part, **ROBOPAC S.p.A.** fully complies with its warranty obligations and will be released from all liabilities and obligations relative to transport, travel and hotel expenses for technicians and installers.
ROBOPAC S.p.A. will never be held responsible for any losses due to lack of production or injuries to persons or damage to things caused by malfunctions or forced suspension in using the machine covered by the warranty.

THE WARRANTY DOES NOT COVER:
- damage caused by transport.
- damage due to incorrect installation.
- improper use of the machine or negligence.
- tampering or repairs by unauthorised personnel.
- lack of maintenance.
- parts subject to normal wear and tear.

For purchased components and parts, **ROBOPAC S.p.A.** offers the user the same warranty conditions that the company obtains from the suppliers of the aforementioned components and/or parts.
ROBOPAC S.p.A. does not guarantee the conformity of machines to current standards in countries that are not part of the European Union.
Concerning any adjustments to standards of the country in which the machine is installed, the user will be fully responsible for the changes made, releasing **ROBOPAC S.p.A.** from any obligation and /or liability relative to any claims that may be submitted by third parties due to non-compliance with the referenced standards.

9.2. DOCUMENTATION OF ELECTRONIC BATTERY CHARGE

Shown below are the directions for use provided directly by the manufacturer of the commercial device, standard or optional, installed on the machine.
The language of such documentation may not correspond to that in which the machine’s directions for use are written.

CBHD1● CBHD2 ● HF1-IP ● HF2-IP

ELECTRONIC BATTERY CHARGER

OPERATING MANUAL

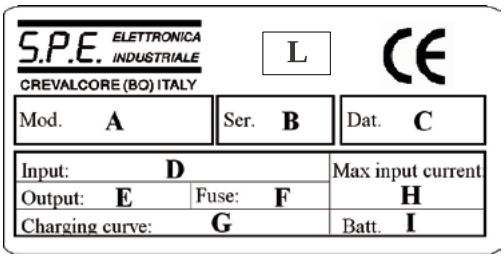
Attention: read carefully the operating manual before using the battery charger

S.P.E. ELETTRONICA INDUSTRIALE

	Model	Voltage	Current	Charging Curve				
				IUIa ACD	IUIa GEL	IUIa AGM	IUUo GEL	OTHER
	CBHD1	12V	2A					
	CBHD1	12V	4A					
	CBHD1	12V	5A					
	CBHD1	12V	6A					
	CBHD1	12V	8A					
	CBHD1	12V	9A					
	CBHD1	12V	10A					
	CBHD1	12V	11A					
	CBHD1	24V	2A					
	CBHD1	24V	4A					
	CBHD1	24V	5A					
	CBHD1	24V	6A					
	CBHD1	24V	8A					
	CBHD1	24V	9A					
	CBHD1	24V	10A					
	CBHD1	24V	11A					
	CBHD1	36V	2A					
	CBHD1	36V	6A					
	CBHD2	12V	13A					
	CBHD2	12V	15A					
	CBHD2	12V	18A					
	CBHD2	12V	20A					
	CBHD2	24V	13A					
	CBHD2	24V	15A					
	CBHD2	24V	18A					
	CBHD2	24V	20A					
	CBHD3	12V	15A					
	CBHD3	12V	20A					
	CBHD3	12V	25A					
	CBHD3	24V	15A					
	CBHD3	24V	20A					
	CBHD3	24V	25A					
	HF1-IP	12V	10A					
	HF1-IP	12V	11A					
	HF1-IP	12V	13A					
	HF1-IP	24V	10A					
	HF1-IP	24V	11A					
	HF1-IP	24V	13A					
Other								
	Model	**Voltage**	**Current**	**Charging Curve**				
				IUIa ACD	**IUIa GEL**	**IUIa AGM**	**IUUo GEL**	**OTHER**

– Storage temperature: from -20°C to +50°C
– Relative humidity: 0 - 80% up to 50°C
– Operating temperature : from 0°C to 40°C

BATTERY CHARGER IDENTIFICATION LABEL



A	Model
B	Battery charger serial number
C	Battery charger manufacture date
D	Input voltage
E	Output voltage and current
F	Mains fuse value
G	Charging curve
H	Mains absorption
I	Battery capacity range
L	Product certification stamps

Important safety instruction. Keep these instructions. This manual contains important instructions for the safety of the user and operation of the device.

GENERAL WARNINGS
1) Before each use of the battery charger the instructions set out below must be carefully read and abided by.
2) The failure to follow these instructions and /or errors in installing or using the battery charger, could lead to endangering the operator and /or damaging the device, voiding the manufacturer's guarantee.
3) The battery charger cannot be used as a component in systems which provide life support and/or medical devices, without explicit written authorisation from S.P.E. ELETTRONICA INDUSTRIALE.
4) The battery charger must not be used by persons with reduced physical, sensory and mental capabilities or with lack of experience and/or knowledge, unless they are properly supervised and instructed by a person responsible for their safety.

CHILDREN
5) The battery charger must not be used by children. The battery charger is not a toy and must not be treated as such.

WHERE TO INSTALL
6) Never place the battery charger in the immediate vicinity of the battery in order to prevent gases produced and/or emitted by the actual battery during charging corroding and/or damaging the battery charger. Place the battery charger as far away from the battery as the length of cables permits.
7) Do not install the battery charger in a closed space or in such a way as to somehow prevent ventilation. For units equipped with fans, at least 30 mm clearance must be left around the vents. In order to facilitate the heat exchange of the battery charger it must be positioned vertically, exploiting the fixture holes (where provided).
8) Do not use the battery charger outdoors.
9) Do not expose the battery charger to rain, water splashes or steam.
10) Do not install the battery charger in caravans and / or similar vehicles.
11) Do not install the battery charger near any heat sources or in areas with high concentrations of dust.
12) Do not install the battery charger near any potential sources of flammable material, for example methane gas pipes or fuel depots (petrol, kerosene, ...).
13) Do not place and/or fit the battery charger onto surfaces manufactured out of combustible materials, like wooden shelves or walls.

BATTERIES
14) Follow the specific safety instructions provided by the battery manufacturer carefully, for example, whether or not to remove cell caps during charging and the recommended charge rates.
15) Working in the vicinity of a lead-acid battery is dangerous, as batteries generate explosives gases during charging. Therefore smoking and/or generating open flames and/or sparks must be avoided.
16) Never charge a frozen battery.
17) Batteries must be charged in specific, well-ventilated areas.
18) In order to reduce risk of injury only charge Lead–Acid, GEL or AGM type, Lithium Polymer or Lithium Ion batteries. Do not charge other types of rechargeable or non-rechargeable batteries as they could explode causing damage and/or injury.

FURTHER SPECIFICATIONS FOR LITHIUM BATTERIES
19) In order to charge Lithium Polymer and Lithium Ion batteries, a BMS (Battery Management System) must always be used, comprising an active and passive safety system, in compliance with safety regulations in force.
20) The possibility of the BMS acting directly on the battery charger operation during cell balancing phases rules out, for any reason whatsoever, that the battery charger is held directly responsible should damage caused to the battery, or even a fire or an explosion, be due to an error in the BMS software.
21) The faculty offered by the materials produced by S.P.E. ELETTRONICA INDUSTRIALE to select different levels of voltage for charging, is entrusted to the control and supervision of the end user and S.P.E. ELETTRONICA INDUSTRIALE is not liable for any consequences resulting from the selection of the incorrect level of voltage. If in doubt, the user should ask a qualified professional for clarification.

22) The battery charger tolerance thresholds, as far as levels of over-voltage and overcharging are concerned, are used only for the safeguarding of the systems of the same and have no safety functions for the battery itself, the safety of which depends solely on the BMS, even when the battery charger is connected to the battery, whether the latter is being charged or not.
23) Should the client want to use the battery charger on a specific on-board system and in general in any cases of special usage, it is the client's responsibility to inform S.P.E. ELETTRONICA INDUSTRIALE, so that the latter can draw up any necessary recommendations. In this case, the client must provide S.P.E. ELETTRONICA INDUSTRIALE with all designs, diagrams and descriptive material necessary. S.P.E. ELETTRONICA INDUSTRIALE cannot be held responsible for any damage resulting from the use of the battery charger after opening it and/or modifying it and/or inserting it into other systems.
24) Under no circumstances can S.P.E. ELETTRONICA INDUSTRIALE be held responsible for the malfunctioning of the batteries or the incineration/explosion of these, in so much as the safety of the battery is the task of the BMS and not of the battery charger.

CHECKING CABLES, GRID, EARTHING
25) Do not transport the battery charger by pulling on the cables as they could be damaged.
Use the handles, if provided.
26) Before using the battery charger, check that the sleeving on the mains cable and battery cables is in good condition. Should one of the cables be damaged, have it replaced by a S.P.E. ELETTRONICA INDUSTRIALE qualified technician.
27) Check that the input voltage of the battery charger given on the data plate is in line with the voltage available.
28) Check the compatibility of the mains plug supplied with the battery charger: the use of adaptors is not recommended (in Canada it is against the law).
29) The battery charger must be plugged into a socket fitted with an earth wire. Should the socket not be equipped with an earth connection, do not use the device before having a suitable socket installed by a qualified technician.
30) The power socket to which the battery charger is to be connected must be protected by an electrical device by law (fuse and/or automatic cut-out), capable of absorbing an electrical current equalling the absorption of current stated on the matriculation number of the battery charger, increased by 10%.
31) Do not open the battery charger as there are no parts which can be serviced and/or replaced by the user. Only specialised personnel, authorised by S.P.E. ELETTRONICA INDUSTRIALE may carry out servicing which involves opening the actual device. Electrical/electronic components inside may cause electric shocks even if the device is not plugged in.

CHECKING BATTERY CHARGER OPERATION and CURVE
32) Before charging, make sure that the battery charger is in line with the voltage of the battery, that the charging current suits the capacity of the battery and that the selected charging curve (for lead-acid batteries, or for airtight GEL or AGM type batteries, Lithium Polymer or Lithium Ion batteries) is correct for the type of battery to be charged.
33) We recommend fitting a fuse between battery charger and battery. The fuse must be installed along the connection to the positive terminal of the battery. The rating of the fuse must be proportionate to the nominal output current of the battery charger, the diameter of cable used and the environment in which it is to be installed.
34) We recommend unplugging it from the mains supply before connecting and disconnecting batteries.
35) During normal operation of the battery charger, the external surface may become hot and may remain so for a certain period of time after it has been switched off.
36) The battery charger needs no special maintenance, only regular cleaning procedures, to be carried out according to the type of working environment. Cleaning procedures should only be carried out on the external surface of the battery charger. Before starting any cleaning procedures, the mains supply cable and battery cables must be unplugged. Do NOT use water and/or detergents in general and/or pressure washers of any kind when carrying out cleaning.

LACK OF USE
37) If safe operation of the battery charger can no longer be ensured, stop the device and ensure that it cannot be put back into operation.
38) The specifications set out in this manual are subject to change without any notice. This publication replaces any previously supplied information.

ELECTRONIC BATTERY CHARGER OPERATING MANUAL

TECHNICAL FEATURES OF THE CBHD1 – CBHD2 - CBHD3 - HF1-IP

The innovative characteristics of the *CBHD1 – CBHD2 – CBHD3 - HF1-IP* range of battery chargers are the following:

1. Advanced technology **High frequency** system.
2. Charging process fully controlled by microprocessor.
3. Universal input voltage: 100-240 Vac
4. Charging process start in the “soft start” mode.
5. Available on request automatic Reset on insertion of a new battery and automatic charge cycle start.
6. Protection against polarity inversions, short-circuits, over-voltages or anomalies by means of an output relay.
7. Battery to battery charger connection without sparks on the output terminals with obvious advantages for the active safety, thanks to the recognition of the battery voltage downstream the normally open output relay.
8. Signaling of possible anomalies by red LED flashing.
9. Insensitive charge parameters in case of ±10% network voltage oscillations.
10. Efficiency > 85%.
11. Output ripple at maximum charge lower than 100mV.
12. Start of the charge cycle even with 2V batteries.

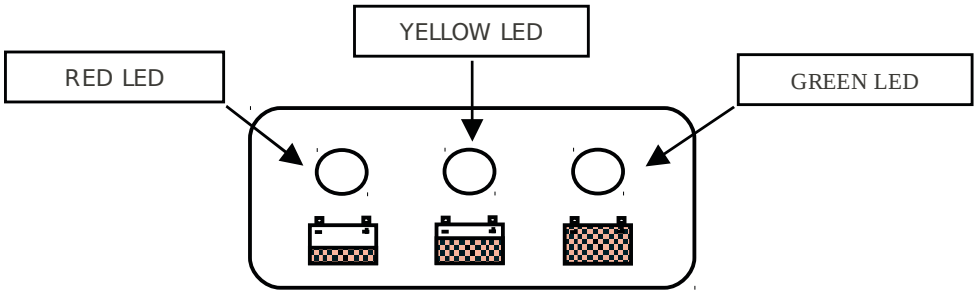
OPERATING PRINCIPLE OF THE CBHD1 – CBHD2 – CBHD3 - HF1-IP

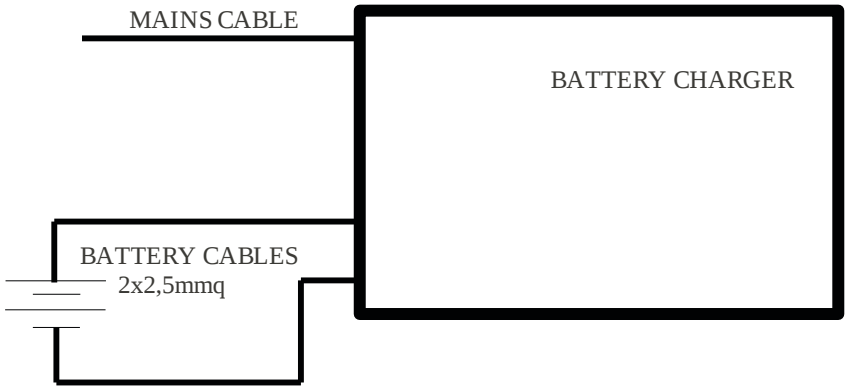
On switching on a new battery charger of the CBHD1 – CBHD2 – CBHD3 – HF1-IP series, the charger will check the battery voltage and decide whether to start the charging process. If the battery is not connected to the battery charger, the yellow LED will flash. If the result of the test is positive after 1 second the charging of the battery can start, with the red LED on. The output relay closes and the current of the first phase rises slowly till the nominal value programmed is reached. If during the battery charge process the user disconnects the actual battery from the battery charger, after a few seconds the battery charger will reset and get ready to start a new charge process (available on request). The progress of the charging process is shown by three LED’s: red, yellow and green, as in the whole range of the battery chargers. The green LED shows the end of the charging or the last phase in case of deep charging process; in the former case, the relay is opened to disconnect galvanically the battery from the battery charger.

VISUAL SIGNALS

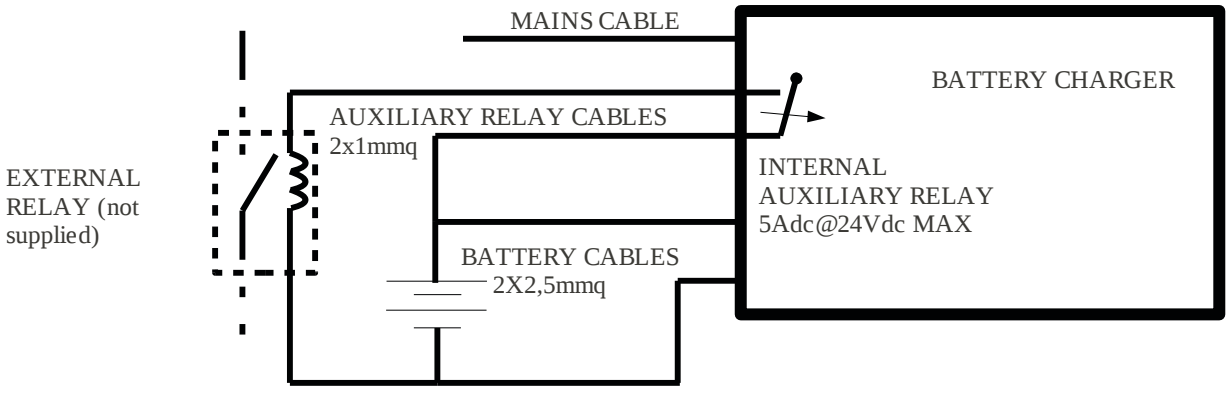
Please find in the following table a list of the visual signals of the CBHD1 – CBHD2 – CBHD3 - HF1-IP.

SIGNAL (LED)	MEANING
Red LED flashing (twice)	Battery charger set to charge Lead-Acid batteries
Green LED flashing (twice)	Battery charger set to charge GEL and/or AGM batteries
Red LED on	First phase of charge in progress
Yellow LED on	Second phase of charge in progress
Green LED on	End of charge or maintenance phase
ANOMALIES	
Yellow LED flashing	UNSUITABLE BATTERY OR BATTERY NOT CONNECTED OR OUTPUT SHORT CIRCUIT
Red LED flashing	SAFETY TIMER EXCEEDED INTERNAL SHORT CIRCUIT





Example diagram of connection between battery charger and battery.



Example diagram of connection with use of battery charger internal auxiliary relay.
The auxiliary relay is Normally Off and switches on when the battery charger is turned on.
The internal auxiliary relay can be used with maximum voltages of 5Adc to 24Vdc.

CE DECLARATION OF CONFORMITY

According to: **UNI CEI EN ISO/IEC 17050-1:2005**

We

S.P.E. ELETTRONICA INDUSTRIALE di Poletti Sergio
Via di Mezzo Ponente, 383 – 40014 Crevalcore (Bologna) ITALY

Declare under our sole responsibility that the product:

ELECTRONIC AUTOMATIC BATTERY CHARGER MODEL:

to which this declaration applies, complies with the provisions of the Directives of the Council of the European Union on the approximation of the laws of the members states:

Relating to Electromagnetic Compatibility (EMC) Directive 2004/108/EC of the European Parliament and of the council of 15 December 2004 on the approximation of the laws of the member states relating to electromagnetic compatibility and repealing directive 89/336/EEC, conformity is proven by compliance with the following standard:

- ✔ EN 55014-1 (Emission)
- ✔ EN 55014-2+A1+A2 (Immunity – Category II)

Relating to Extra Low Voltage (LVD) Directive 2006/95/EC of the European parliament and of the council of 12 December 2006 on the harmonisation of the laws of member states relating to electrical equipment designed for use within certain voltage limits, conformity is proven by compliance with the following standard:

- ✔ EN 60335-2-29:

"Safety of household and similar electrical appliance – Part 2: Particular requirements for battery chargers".

- ✔ EN 62233:

"Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure"

Crevalcore 01-12-2009

Signature

9.3. BATTERY DOCUMENTATION

Shown below are the directions for use provided directly by the manufacturer of the commercial device, standard or optional, installed on the machine.

The language of such documentation may not correspond to that in which the machine’s directions for use are written.

Date of last revision: 27th April 2015

1. Product and company identification

1.1 Product identification:

- Commercial name: **Valve regulated lead acid battery**
- Material identification: **UN 2800** – **Batteries, wet, non-spillable, electric storage**
- Use: Energy for stationary use

1.2 Relevant identified uses of the substance or mixture and unadvisable uses:

- Identified uses: Uses by workers in industrial location
  Battery production
  Recycle of batteries
  Sample, load, unload, transport and distribution of batteries
  Customer use: traction batteries, lighting, stationary use, starting
- Unadvisable uses: Any use that will involve aerosol, steam release or squirt hazard to eyes/skin of workers during the use without protection for breathing apparatus, eyes or skin

1.3 Information about the supplier of MSDS

- Supplier: FAM Batterie srl – Via Arnaldo Accardi, 1 – 47014 Meldola (FC)
  Tel +39 0543493570, fax +39 0543495178
  SDS manager e-mail: liliana@fambatterie.it

1.4 Emergency phone numbers:

For urgent information please call: Poison Center (CAV) open 24h/24h:
Milano – 0266101029 / Napoli – 0817472870
Pavia – 038224444 / Bergamo - 035269469
Roma – 063054343 opp. 06490663

2. Hazards identification

2.1 Substance classification:

- In accordance with Reg. CE 1272/2008 (CLP):

Classification Danger indication	Corrosive for skin (cat.1A) H314	It can cause serious burns and eyes injuries

- Ai sensi della Direttiva 67/548 (DSD):

Classification Danger indication	C, Corrosive R35	It can cause serious burns 

- Other information:

Environmental and human advices: Sulphuric acid inside batteries can be corrosive on human tissues and can damage breathing apparatus, eyes, skin and intestines. Environmental effects can occur on local scale because of PH.

2.2 Label elements:

Labelling in accordance to Regulation 1272/2008 (CLP)

Danger symbol		GHS 05

Hazard indication:

Hazard indication	H314 H332 H302 H373 H360	

Caution advices:

Caution advices	P260 P280 P301+P330+P331 P303+P361+P353 P363 P310 P304+P340 P305+P351+P338 P405 P501	

2.3 Other hazards: Not available

3. Ingredients composition/information

3.1 Substances

Component	% in weight	EINECS#-CAS#	Symbol	Phrase	EU limit
Metal lead and mixture	70-80	Lead 231-100-4/7439-92-1 Lead monoxide 215-267-0/1317-36-8	T	H332 H302 H373 H360 Df H400 H410 P264 P270 P301+P312+P330 P261+P271 P304+P340 P312 P260 P201 P202 P281 P273 P391	Lead in the air: 0,15 mg/m^3 Lead in the blood: 60 µg/dl (Italia) 70 µg/dl (EU)
Sulphuric acid in solution	12-20	231-639-5 7664-93-9	C GHS05	H314 P260 P264 P280 P301+P330+P331 P303+P361+P353 P304+P340 P310 P321 P305-P351+P338 P363 P405	1 mg/m^3 vapore in aria
Separator	2-3	266-046-0/ 65997-17-3	Xn	H351	5 mg/m^3 2 fibre/ml fibre in aria
Thermoplastic polymer	6-9				

Ingredients information:

Danger of explosion:
During charge, inside the battery a mixture of explosive gases with hydrogen can be produced. Avoid flames, cigarettes sparks near batteries. Avoid shortcircuits between terminals. Use antistatic materials for cleaning. Do not store the product in hermetic containers; keep the product in cold and well ventilated place far from sun rays and heat.

Contact hazard:
Corrosive e irritating for eyes and skin because of sulphuric acid inside the battery (acueous solution, density 1.21-1.30 kg/l).

Health hazard:
No danger in normal condition of use: the battery contains mixture of lead that can be dangerous if inhalated.

Sulphuric Acid:
Irritation and damage to internal tissues if ingested; it causes irritation to eyes and skin. It can cause rash.

4. First aid measures

4.1 First aid measures description

First aid measures are directed in particular to possible exposure to sulphuric acid (electrolyte) since other components are solid and do not represent hazardous risks in normal conditions of use.

Inhalation

Inhalation is not a likely way of exposure to the product. However, in case of emergency move the injured person far from the polluted area to the fresh air. If breathing is difficult, obtain medical attention.
Sulphuric acid: If steams have been inhalated, move away from exposure and breath immediately fresh air. If complications persists consult a doctor.
Piombo e composti: Allontanarsi dall'esposizione e sciacquare bocca e naso con acqua corrente.

Skin contact

Sulphuric acid: Wash immediately with water. Take off any contaminated garment. If irritarion persists, ask for medical advice.
Lead and mixture: Wash the skin with water and soap

Eyes contact

Sulphuric acid: Wash immediately at open eyes with a big quantity of water. Obtain medical attention.
Lead and mixture: Wash immediately at open eyes with a big quantity of water.

Ingestion

Sulphuric acid: Rinse mouth with water. Drink water. Do not provoke vomit. Ask for medical assistance.
Lead and mixture: Ask for medical attention. Do not provoke vomit.

Specific way of treatment to be used in case of emergency:
bottles for eyewash or emergency eyewash fountains, showers

4.2 Main symptoms and effects, severe or delayed:

- Symptoms	It is highly corrosive to eyes, mucous and exposed skin
- Risks	It can cause serious burns and damage to eyes and skin

4.3 Other indication:

- Remove immediately every contaminated garment. Rinse skin with water/shower.
  Move far from danger area.

5. Fire fighting measures

5.1 Mezzi di estinzione

L'accumulatore al piombo è debolmente combustibile per la presenza di polimeri termoplastici nella misura del 6-9% in peso. Le batterie sotto carica possono emettere gas idrogeno che è altamente infiammabile; questo può essere innescato da una scintilla qualsiasi. Le batterie sotto carica devono essere isolate dalla sorgente di energia prima di tentare di spegnere il fuoco. Interrompere l'alimentazione elettrica. Non utilizzare acqua. Le batterie danneggiate possono esporre le piastre negative di colore grigio che possono infiammarsi quando si asciugano troppo. Queste piastre dovrebbero essere bagnate con acqua dopo essere state rimosse dai circuiti.
Indossare adeguati mezzi di protezione delle vie respiratorie.

Mezzi di estinzione appropriati:	Polvere secca, schiumogeni, anidride carbonica.
Mezzi di estinzione sconsigliati:	Acqua (a contatto con l'acido si avrebbe un ulteriore sviluppo di calore).

5.2 Pericoli speciali derivanti dalla sostanza o dalla miscela

Il prodotto non è infiammabile e non supporta la combustione.
Allontanarsi dai contenitori e raffreddarli con acqua da posizione protetta.
Il prodotto reagisce con la maggior parte dei metalli producendo gas idrogeno esplosivo e ossidi di zolfo. L'acido solforico si dissocia prontamente in acqua componendosi in protoni idratati e ioni zolfo.

5.3 Raccomandazioni per gli addetti all'estinzione degli incendi

In caso di versamenti o scarichi incontrollati in corsi d'acqua si devono immediatamente informare le preposte autorità locali (ad esempio Agenzia per l'Ambiente, AUSL, ecc.). Raccogliere (asciugare) con materiali inerti e non combustibili, poi sciacquare la zona con acqua. La sostanza raccolta va conservata in recipienti a tenuta ermetica e consegnata per lo smaltimento secondo le normative locali. Mezzi protettivi per il personale antincendio: maschere facciali antigas con filtro universale oppure autorespiratori.

6. Misure in caso di rilascio accidentale

6.1 Precauzioni personali, dispositivi di protezione e procedure in caso di emergenza

In caso di fuoriuscita accidentale dell'elettrolito prevenire il contatto con la pelle e con gli occhi indossando mezzi di protezione individuale quali: guanti di gomma, stivali di gomma, occhiali e indumenti antiacido

6.2 Precauzioni ambientali

Tenere l'elettrolito ed eventuali polveri di piombo lontano da scarichi idrici o acque di superficie.

6.3 Metodi e materiali per il contenimento e per la bonifica

Neutralizzare con soda o carbonato di calcio. Contenere l'elettrolito con sabbia, terra o altro materiale assorbente. Non usare stracci o segatura. Non usare acqua (l'acido solforico, seppur in soluzione, potrebbe reagire in maniera esotermica).

6.4 Riferimento ad altre sezioni

Vedere la sezione 8 (dispositivi di protezione individuale) e la sezione 13 (smaltimento dei rifiuti).

7. Manipolazione e immagazzinamento

7.1 Precauzioni per la manipolazione sicura:

- Misure/precauzioni tecniche	Gli accumulatori carichi potrebbero sviluppare idrogeno (gas infiammabile ed esplosivo). Tenere lontano da fonti di calore, scintille e fiamme libere. Non immagazzinare il prodotto in contenitori ermetici o in ambienti completamente chiusi; mantenere il prodotto in un'area ben ventilata lontano dal contatto diretto con fonti di calore
- Igiene generale	Non portarsi le mani agli occhi durante l'uso. Non mangiare, bere o fumare nelle zone di lavoro. Togliere eventuali indumenti contaminati ed i dispositivi di protezione prima di entrare in aree destinate all'alimentazione. Togliere con cura gli indumenti potenzialmente contaminati e lavarli prima di riutilizzarli. Lavare mani, braccia e viso dopo aver toccato prodotti chimici, prima di mangiare, fumare e usare il bagno e alla fine del periodo di lavoro.

7.2 Condizioni per l'immagazzinamento sicuro, comprese eventuali incompatibilità:

Misure tecniche / Modalità di stoccaggio	Conservare nel contenitore originale. Tenere il contenitore ermeticamente chiuso in un luogo fresco, asciutto e ben ventilato. Tenere il prodotto lontano da calore (<40°C), dalla luce solare diretta, lontano dai materiali incompatibili (alcali ed ossidanti)
Materiali adatti all'imballaggio:	contenitori in plastica
Ulteriori informazioni	Il prodotto è stabile ma puòessere corrosivo per i metalli Non congelare. Nel caso si usassero contenitori metallici, assicurarsi che siano protetti all'interno contro la corrosione.
Prodotti incompatibili	Alcali ed ossidanti

8. Controllo dell'esposizione/protezione individuale

8.1 Parametri di controllo

- Valori limite di esposizione professionale regolamentati:

Componente	CAS	Valori TLV	Parametri di controllo	Aggiornamento	Forma di esposizione
Acido solforico	7664-93-9	STEL (15 min) TWA (8 ore)	0,05 mg/m³ 0,1 mg/m³	Recente	Nebbia di aerosol gas
Ulteriori informazioni		STEL e TWA sono stati raccomandati del Gruppo Scientifico Esperto sui Limiti di Esposizione Occupazionali nel 1994			

- Valori limite di esposizione per lavoratori e consumatori (a seguito della valutazione della sicurezza chimica eseguita)

Modello di esposizione	Livelli derivati senza effetti (DNEL)	
	Acuta (15 minuti)	Lungo termine (8 ore)
Inalazione	0,1 mg/m³	0,05 mg/m³
	Concentrazione Prevedibile Priva di Effetti (PNEC) in acqua	
Acqua marina	0,002 mg/L	
Acqua corrente	0,0025 mg/L	

8.2 Controlli dell'esposizione

- Controlli tecnici idonei: Usare un'adeguata ed efficace ventilazione. Inoltre è di buona prassi dotarsi un impianto di lavaggio degli occhi e una doccia di sicurezza nei pressi degli impianti di stoccaggio o impiego del materiale. Gli scenari di esposizione (allegati) prevedono un impiego di 360 giorni l'anno.
- Misure di protezione individuali, tipi di dispositivi di protezione individuale: Con l'eccezione delle scarpe di sicurezza, gli altri mezzi di protezione individuale sono tutti relativi dell'esposizione all'elettrolito, in quanto le altre componenti sono solide e non rappresentano fattori di rischio (se non per ingestione volontaria o accidentale di composti del piombo, i quali sono tossici per l'organismo umano).

⇨Protezione respiratoria: Predisporre punti di aspirazione (con espulsione dell'aria) laddove avviene trasferimento di materiale negli altri punti aperti. Scaricare all'esterno in una cabina ventilata dotata di flusso d'aria laminare. Automatizzare attività laddove possibile. Indossare maschera per vapori di acido (esempio DIN 3181 ABEK)

⇨Protezione delle mani: Guanti di protezione anti-acido (es: plastica, gomma) marcati EN374

⇨Protezione degli occhi: Usare occhiali di protezione contro la penetrazione accidentale di liquidi. Occhiali di sicurezza

⇨Protezione della pelle e del corpo: Tuta di protezione del corpo. Scegliere il tipo più adeguato in funzione della quantità e della concentrazione della sostanza sul posto di lavoro

⇨Altre misure di controllo: Manipolare rispettando una buona igiene industriale e di sicurezza. Durante il lavoro non mangiare né bere. Durante il lavoro non fumare. Lavarsi le mani prima delle pause e al termine della giornata lavorativa. Predisporre adeguate azioni di pronto soccorso prima di iniziare a lavorare con questo prodotto

⇨Controllo dell'esposizione ambientale: Non scaricare in acque libere o in sistemi fognari sanitari.
- Aria: abbattere gas, fumi e / o polvere con acqua.
- Suolo: evitare la penetrazione nel sottosuolo.
- Acqua: non lasciar penetrare il prodotto negli scarichi.

9. Proprietà fisiche e chimiche

9.1 Informazioni sulle proprietà fisiche e chimiche fondamentali:

Aspetto: Stato solido di forma prismatica ermetica (batteria al piombo acido a ricombinazione di gas)
Elettrolito: Acido solforico in soluzione acquosa interamente assorbito attivo solo se l'accumulatore dovesse Essere sottoposto a sovraccarica o dovesse venire perforato
Corrosivo
Densità 1.21-1.30 kg/l
Inodore
Non infiammabile

Il prodotto integro è un componente in una custodia di plastica inerte, che si infiamma se sottoposta a temperature molto elevate. Alcuni tipi di batterie sono prodotti in plastica ritardante alle fiamme. Le batterie sotto carica possono emettere gas idrogeno che è altamente infiammabile e forma una miscela esplosiva. L'elettrolita è un liquido chiaro con poco o nessun odore. E' composto da acqua e fino al 40% di acido solforico. Perdite di elettrolita possono asciugarsi e formare chiazze biancastre o verde/marrone se sono stati attaccati metalli che possono essere acidi.

9.2 Altre informazioni: nulla da segnalare

10. Stabilità e reattività

10.1 Reattività: Il prodotto è normalmente stabile e non reattivo fino a 60°C

10.2 Stabilità chimica: Il prodotto è normalmente stabile e non reattivo fino a 60°C

10.3 Possibilità di reazioni pericolose: Quantità trascurabili di idrogeno ed ossigeno allo stato gassoso vengono rilasciate nell'ambiente circostante.

10.4 Condizioni da evitare: Fiamme libere o scintille in prossimità del prodotto

10.5 Materiali incompatibil Metalli, combustibili, qualsiasi materiale che provochi scintille.

10.6 Prodotti di decomposizione pericolosi: Idrogeno

11. Informazioni tossicologiche

11.1 Informazioni sugli effetti tossicologici

Non applicabile al prodotto accumulatore ermetico al piombo-acido a ricombinazione, ma applicabile ai suoi principali componenti (con tali componenti in condizioni normali di utilizzo non vi è alcun contatto).

Acido solforico:
Vie di penetrazione: inalazione, ingestione, contatto con la pelle e con gli occhi

Tossicità sperimentale: LD50 (orale, ratto) 2140 mg/Kg; LC50 (inalazione, ratto) 510 mg/mc/2h

Effetti per la salute:
Tossicità acuta: (rischio di intossicazione per inalazione di vapori con rritazione della gola,danni polmonari, perdita di coscienza)
Esposizione cronica (ripetute e prolungate esposizioni possono provocare bronchiti croniche).
Sensibilizzazione (possono aversi reazioni allergiche quali dermatiti).
Inalazione (ripetute e prolungate inalazioni di nebbie di acido solforico possono causare infiammazioni delle alte vie respiratorie sino ad arrivare a bronchiti croniche. L'inalazione di vapori concentrati o nebbie da acido caldo può causare perdita di conoscenza con seri danni ai tessuti polmonari).
Ingestione (moderatamente tossico per ingestione); contatto con gli occhi (è un severo irritante per gli occhi).
Contatto con la pelle (estremamente irritante, corrosivo e tossico per i tessuti umani, dato che provoca profonde bruciature.

Se un'estesa area della pelle è interessata si può avere shock, collasso e sintomi come quelli provocati da profonde ustioni. Ripetuti contatti con soluzioni diluite possono provocare dermatiti).

Composti del piombo:
Tossicità cronica e a lungo termine (tossico per la riproduzione, cat. 1): gli effetti dovuti al piombo si manifestano clinicamente sotto diverse forme acute più o meno marcate:
- manifestazioni sanguinee: anemie;
- manifestazioni renali: insufficienza renale cronica;
- manifestazioni digestive: dolori addominali, costipazioni qualche volta accompagnate da spinta di ipertensione arteriosa; manifestazioni nervose;
- problemi al sistema nervoso (centrale e/o periferico);
- riproduzione: le donne in età fertile possono essere sottoposte a concentrazioni molto basse; le donne incinte o in fase di allattamento devono essere allontanate dai luoghi di esposizione.

Separatori:
Il prodotto non è stato testato direttamente, le informazioni si riferiscono pertanto al componente fibra di vetro.
- Tossicità acuta: la fibra di vetro è irritante del tratto respiratorio, pelle e occhi;
- Tossicità cronica: classificato in gruppo 2B (possibile cancerogeno per l'uomo) dallo IARC (International Agency for Research on Cancer) in base a studi su animali (Car, cat.3 Dir. 97/69 CE del 13/12/1997)

12. Informazioni ecologiche

12.1 Tossicità

È assodato che la tossicità acquatica dell'acido solforico contenuto negli accumulatori si manifesta se è presente una quantità d'acido sufficiente a produrre un pH molto basso (cioè pH 3-5). Dato che la valutazione dell'esposizione ambientale mostra insignificanti variazioni dei livelli di pH acquatici in funzione della formulazione del prodotto e del suo uso proposto, si

ritiene che non vi è alcun rischio a lungo termine per gli organismi acquatici e, pertanto, non sono richiesti dati sugli effetti cronici pesce

Pesce (breve termine)	96-ore LC_{50}: 16-28 mg/l (pH 3,25-3,5)
Pesce (lungo termine)	EC10/LC10 o NOEC : 0,025 mg/L
Daphnia magna (breve termine)	48-ore EC_{50}: >100 mg/l (OECD 202)
Daphnia magna (lungo termine)	EC10/LC10 o NOEC : 0,15 mg/L
Alghe	72-ore ErC_{50}: > 100 mg/l
Fattore M	10
Inibizione dell'attività microbica	Dato non disponibile, in quanto non ci si attende alcuna forma di esposizione del terreno

12.2 Persistenza e degradabilità:

- Biodegradabilità: Test non eseguibile in quanto la sostanza è inorganica, né ci si aspetta che il normale impiego possa portare ad un significativo rilascio della sostanza in mare.
- Idrolisi: Non è possibile eseguire test di idrolisi, si dissocia completamente in ioni

12.3 Potenziale di bioaccumulo: Coefficiente di ripartizione n-ottanolo/acqua Non èsignificativo in quanto la sostanza è inorganica.
Fattore di bioconcentrazione (BCF) Bassissimo potenziale di bioaccumulo, stanti le proprietà della sostanza

12.4 Mobilità nel suolo

- Coefficiente di assorbimento: Relativamente alla mobilità terrestre non dovrebbe essere rilevante. Se a contatto col suolo, l'assorbimento da parte di particelle di terreno è trascurabile. A seconda della capacità tampone del suolo, gli ioni H+ saranno neutralizzati in acqua dei pori del terreno dalla sostanza organica o inorganica o il pH può diminuire.

12.5 Risultati della valutazione PBT e vPvB La sostanza non soddisfa tutti i criteri per essereclassificate come PBT o vPvB

- Valutazione sulla Persistenza.: La sostanza può essere considerata come non biodegradabili per l'ambiente acquatico e terrestre. I risultati dei test indicano che la sostanza è persistente (emivita in acqua marina >60 giorni, nel suolo >120 giorni). Pertanto sono soddisfatti i criteri per la classificazione P.
- Valutazione sulla Bioaccumulazione.: La sostanza è considerata cationica a livelli di pH ambientale, il log Kow è stato calcolato su un valore di –1. Seguendo la Guida all'allegato VIII questo valore non comporta alcun potenziale di biooaccumulazione.

12.6. Altre informazioni: Per l'ambiente acquatico gli effetti dell'acido solforico sono chiaramente riconducibili all'effetto del pH, come acido si dissocia completamente in ioni. La stessa sostanza, quindi, non raggiungerà l'ambiente sedimento/terrestre.

13. Considerazioni sullo smaltimento

13.1. Metodi di trattamento dei rifiuti:

- Rifiuti da residui: Conformemente ai regolamenti locali e nazionali derivanti da disposizioni comunitarie, smaltire in discarica o incenerire. Codice CER: 06 01 01, rifiuto pericoloso; per piccole quantità di Acido Solforico contenuto negli accumulatori si può utilizzare un agente neutralizzante
- Rifiuti dal prodotto: Gli accumulatori al piombo esausti sono classificati "rifiuti pericolosi" è obbligatorio per legge il loro conferimento ad un apposito Consorzio per lo smaltimento mediante riciclaggio.
  E' vietato abbandonare questi rifiuti nell'ambiente. Le batterie esauste devono essere immagazzinate in contenitori a tenuta; devono essere trattate come rifiuto speciale.
  Per ulteriori informazioni e per conoscere il centro di raccolta più vicino rivolgersi al:
  COBAT – Consorzio obbligatorio batterie al piombo esauste e rifiuti piombosi
  Via Toscana, 1 – 00187 ROMA www.cobat.it
- Contenitori: I contenitori devono essere puliti in modo adeguato prima di essere riutilizzati o eliminati come rifiuto secondo le norme regionali o nazionali derivanti da disposizioni comunitarie. Si raccomanda di non eliminare l'etichetta finché il contenitore non sia stato adeguatamente ripulito.

14. Informazioni sul trasporto

Via TERRA:

N° ONU:	UN 2800
Classificazione ADR/RID:	Classe 8 Corrosivo
Denominazione corretta (Proper Shipping Name):	Accumulatori Elettrici a tenuta riempiti di elettrolito liquido
Gruppo di imballaggio (Packing Group):	III

Gli accumulatori nuovi godono di esenzione totale secondo la disposizione speciale 598 dell'ADR/RID, purché vengano rispettate le indicazioni in essi contenute.

Via MARE (IMDG Code) pag. regolamento IMO 8120:

UN N°:	UN 2800
Classificazione:	Classe 8
Denominazione corretta (Proper Shipping Name):	Accumulatori Elettrici a tenuta riempiti di elettrolito liquido
Categoria stivaggio IMO	A
Disposizioni speciali	29 - 238
Gruppo di imballaggio (Packing Group) IMO:	III
Istruzioni di imballaggio	P 003 - PP16
Etichettatura:	Corrosivo classe 8 (Etichettatura IMO non richiesta)
EmS:	F-A, S-B

Se soddisfano la Special Provision 238 non sono soggette a tale regolamento purchè vengano rispettate le condizioni di imballaggio contenute nel regolamento.

Via AEREA (IATA-ICAO):

UN N°:	UN 2800
Classificazione:	Class 8
Denominazione corretta (Proper Shipping Name):	Accumulatori Elettrici a tenuta riempiti di elettrolito liquido
Gruppo di imballaggio (Packing Group) IMO:	III
Etichettatura IATA:	Corrosivo classe 8

Se soddisfano la Special Provision A 67 non sono soggette a tale regolamento purchè vengano rispettate le condizioni di imballaggio contenute nel regolamento (norme 806 sugli imballi).

15. Informazioni sulla regolamentazione

15.1 Norme e legislazione su salute, sicurezza e ambiente specifiche per la sostanza o la miscela.

Simboli: 

Le batterie fornite da FAM Batterie srl sono soggette alla regolamentazione relativa alle batterie e accumulatori (che contengono sostanze pericolose) e sono contrassegnate in accordo ai requisiti della prescrizione.

15.2 Valutazione della sicurezza chimica Ai sensi dell'art. 14 del Reg. CE 1907/2006, è stata eseguita una valutazione della sicurezza chimica della sostanza

16. Altre informazioni

Frasi H/P (indicative poiché non direttamente applicabili al prodotto ma solo a parte di esso, ovvero l'elettrolita contenuto all'interno dell'accumulatore rappresenta il principale rischio relativo al prodotto):

H314 Può produrre gravi ustioni cutanee e gravi lesioni oculari
H302 Nocivo se ingerito
H332 Nocivo se inalato

H360Df Può nuocere al feto. Sospettato di nuocere alla fertilità
H373 Può provocare danni agli organi in caso di esposizione prolungata o ripetuta
P260 Non respirare la polvere / i fumi / i gas / la nebbia / i vapori / gli aerosol
P280 Indossare guanti/indumenti protettivi/Proteggere gli occhi/Proteggere il viso
P301 + P330 + P331 IN CASO DI INGESTIONE: sciacquare la bocca. NON provocare il vomito
P303 + P361 + P353 IN CASO DI CONTATTO CON LA PELLE (o con i capelli): Togliere gli indumenti contaminati. Sciacquare la pelle/fare una doccia
P363 Lavare gli indumenti contaminati prima di indossarli nuovamente
P304 + P340 IN CASO DI INALAZIONE: Trasportare l'infortunato all'aria aperta e mantenerlo a riposo in posizione che favorisca la respirazione
P310 Contattare immediatamente un medico
P305 + P351 + P338 IN CASO DI CONTATTO CON GLI OCCHI: sciacquare accuratamente per parecchi minuti. Togliere le eventuali lenti a contatto se è agevole farlo. Continuare a sciacquare
P405 Conservare sotto chiave
P501 Smaltire il prodotto/recipiente in conformità alla regolamentazione vigente

Le batterie devono essere caricate con carica-batterie idoneo e poste in locale con adeguata ventilazione.
Non creare corto circuiti con i terminali poiché le scintilli possono causare incendio.
Non caricare le batterie oltre i 50°C né scaricare e/o immagazzinare ad oltre 60°C.
A condizioni estreme di malfunzionamento del carica-batterie, un elevato voltaggio e/o un'elevata temperatura possono causare una trasformazione del Solfuro di Idrogeno (H2S) che è tossico. Se rilevato nel sito odore di uova marce, spegnere il carica-batterie e ventilare bene l'area. Prestare attenzione prima di riavviare il carica-batterie.
Per installazione, uso, ventilazione locali batterie attenersi alle normative vigenti nazionali (per Italia CEI EN 60896/3)

Principali fonti bibliografiche:
ECDIN – Environmental Chemicals Data and Information Network – Joint research centre commision of the European Communities,
SAX's Dangerous Properties of Industrial Materials – Eight etition – Van Nostrad Reinold,
CCNL – Allegato 1,
Istituto Superiore della Sanità – Inventario nazionale Sostanze Chimiche

Leggere le istruzioni d'uso contenute nel certificato di garanzia.

Acronimi e sigle	
CER	Catalogo Europeo dei Rifiuti
DNEL	Livello derivato di non effetto (senza effetto)
ECETOC	(European Centre for Ecotoxicology and Toxicology of Chemical) Centro Europeo per la Ecotossicologia e la Tossicologia dei prodotti chimici
ECHA	(European Chemicals Agency) Agenzia Europea per la Chimica
IUPAC	International Union of Pure and Applied Chemistry
LEV	(local exhaust ventilation) Ventilazione forzata locale
NOAEL	(No observed adverse effect level) Dose senza effetto avverso osservabile
NOEC	(No Observed Effect Concentration) Massima concentrazione senza effetto
Numero EC	Numero EINECS (European Inventory of Existing Commercial Chemical Substances)
Numero CAS	Chemical Abstracts Service
OECD - OCSE	(Organisation for Economic Co-operationand Development)
PBT	(Persistent Bioaccumulating and Toxic) Sostanza Persistente, Bioaccumulabile e Tossica pc/g – peso corporeo/giorno
PNEC	(Predicted No Effect Concentration) Concentrazione Prevedibile Priva di Effetti
REACH	(Registration, Evaluation and Authorization of Chemicals) Regolamento per la Registrazione, Valutazione ed Autorizzazione delle sostanze Chimiche
SCOEL	(Scientific Commitee on Occupational Exposure Limits) Comitato scientifico sui limiti di esposizione lavorativi
STEL	(short term exposure limit) limite di esposizione a breve termine
SVHC	(Substances of Very High Concern) Sostanze ad elevato grado di pericolosità
TRA	(Targeted Risk Assessment) Valutazione miratadel rischio
TLV	(Threshold Limit Value) Valore di soglia
TWA	(Time-Weighed Average) Media ponderata
vPvB	(very Persistent very Bioaccumulating) Sostanza molto Persistente molto Bioaccumulabile

Le informazioni qui contenute si basano sulle nostre conoscenze alla data sopra riportata. Sono riferite unicamente al prodotto indicato e non costituiscono garanzia di particolari qualità.
L'utilizzatore è comunque tenuto ad assicurarsi della idoneità e completezza di tali informazioni in relazione all'utilizzo specifico che ne deve fare.

TECHNICAL FEATURES
ACCUMULATORS with AGM technology

SEALED BATTERIES
The special construction techniques of the AGM (Absorbent Glass Mat – batteries with absorbing fiberglass) sealed batteries and/or VRLA (Valve Regulated Lead Acid Batteries – Valve-regulated sealed batteries) prevents the loss of liquid in any position without affecting the ability or the durability of the products.

ELECTROLYTE SUSPENSION SYSTEM
AGM batteries use an electrolyte suspension system, consisting in fiberglass material with high porosity which, associated to the plates, absorbs completely and contains the electrolyte. The microporous feature of the fiberglass also serves as insulation between the plates and it is also an efficient material to contain the heat caused by the charging process.

PRODUCTION OF GAS
AGM batteries have an integrated structure, which controls the production of gas and allows more than 99% recombination of gases, generated during use.

NO MAINTENANCE
For this type of battery, it is not necessary to check the level of the electrolyte or top up with distilled water as for normal lead-acid batteries. Therefore, no special maintenance precautions are required.

LOW PRESSURE VALVE ADJUSTMENT SYSTEM
All AGM batteries have safety valves, designed to operate between 2 and 5 psi and with automatic sealing. In this way, there is never an excessive accumulation of gas inside these batteries.

HIGH PERFORMANCE GRIDS
Calcium-lead alloy inserted between the grids allows higher performance both in the cyclic use and in the buffer use, even after several discharging cycles.

CYCLIC USE
AGM batteries are designed to perform various charge/discharge cycles.

SELF-DISCHARGE
Self-discharge rate of AGM series at room temperature is about 3% of the monthly capacity rate.

OPERATING TEMPERATURE
AGM batteries may operate in a wide temperature range.

RECOVERY OF THE CAPACITY
AGM batteries recover their ability even after repeated thorough discharges.

CHARGING INSTRUCTIONS

- The battery chargers for AGM or VRLA accumulators are different from normal battery chargers for lead-acid accumulators. It is, therefore, necessary to use only electronically controlled battery chargers.
  Recharge mode
  ⇒ for cyclic use, recharge with maximum voltage of 14.5 V
  ⇒ for buffer use, recharge with maximum voltage of 13.6 V
- Never charge batteries in direct sunlight or near heat sources. Otherwise, the battery temperature may increase abnormally and batteries can overload.
- The batteries should be charged properly (avoiding overcharging or insufficient charging) for additional safety and durability and full performance of the products.
- In cyclic use, do not continue to charge the battery over 24 hours in order to avoid deterioration and overloading.

DISCHARGING PRECAUTIONS

- Do not discharge the batteries under the recommended discharging final voltage (cut-off voltage) to prevent underdischarging.
- The batteries should be recharged immediately after use, even if the discharge has been interrupted before the recommended discharge minimum voltage. If a battery is not loaded after discharge and left idle for a certain period of time, it may deteriorate and compromise charging; this is due to the increase of the internal resistance.

STORAGE INSTRUCTIONS

- Store the AGM batteries in a steady position and away from conductive materials (e.g. metals).
- Disconnect the battery from their equipment before storage to avoid possible underdischarging or damage to the product. Storage must be in a dry place to reduce self-discharge and prevent corrosion of the terminals.

REFRESH CHARGE

- Batteries may self-discharge during transport and storage; It is, therefore, useful to refresh the charge before commissioning in order to restore its total capacity.
- During storage, carry out a refresh charge at least every six months, especially if the temperature is below 20° c.
- The capacity of batteries stored for a long time may not be fully restored. If the batteries have not been working for a long period of time, 12/25 hours extra for charging may be required.
- Check and replace batteries regularly.

PRECAUTIONS FOR TRANSPORTATION

- Handle batteries with care to avoid injury.
- Avoid the contact of the batteries and/or packages with rain and humidity.
- Carry the batteries in an upright position and avoid vibration and shocks above the limit.
- Do not lift the batteries via the terminals. Otherwise, the internal construction may be damaged and the liquid inside may leak.

MAINTENANCE

The life and performance of the AGM batteries can be optimised taking into account the following guidelines:

- The same manufacturing system of the AGM sealed batteries controls the production of gas and allows a recombination of over 99%, however it is recommended not to recharge batteries in completely closed and sealed spaces. It is necessary to recharge in a suitably large and airy space.
- To achieve a longer service life, recharge the battery after discharge. Never store them when discharged.
- AGM batteries can also operate between -15° C and 50° C, but it is between 20° C and 25° C that they can expand their lifetime.
- Fasten the ends of the battery in a suitable manner and use a shock absorber to protect it from vibrations and bumps during use.
- Provide space around the batteries; the minimum distance between a battery and the other one must be from 5 to 10 mm.
- Avoid using together batteries with different capacities and different ages, as these differing features may cause damage to the batteries or to the equipment.
- To achieve a longer service life, plastic or rubber are required as insulation between the battery and the shelf, when input exceeds 60V. Also keep the resistance over 1 Megaohm between the battery and the shelf apart from incorporating some alarm circuit to detect any power loss.
- Replace the battery in case of abnormal performance, cracks or deformities of the container, causing leakage of the electrolyte.
- Recharge the battery if it has been discharged in low current for several times until it is fully charged; avoid letting it operate if not fully charged.

ADDITIONAL PRECAUTIONS

- Clean the battery with a soft and damp cloth. Do not apply oil, polyvinyl chloride or organic solvents (such as benzene or thinner). Otherwise, the battery case may break or deform, and then cause the release of the electrolyte.
- Never attempt to open the battery.
- If, despite the precautions, the sulphuric acid settles, partly or in trace amounts, on skin or clothing, wash immediately with water. Shall it splash into eyes, wash with abundant water and seek medical care immediately.
- Avoid dusting with a cloth, made of chemical fabric, as this could generate small and dangerous static electric shocks.
- Do not short circuit the terminals.
- Do not place the battery on heat sources.
- When batteries are connected in series to provide more than 100V, ensure that an appropriate treatment is arranged to prevent any power loss.
- It is not possible to carry out welding near the battery, especially at the poles. If the procedure is an inevitable consequence of the environment, this should be done within three seconds of time using a copper welding at 100 W.

EC DECLARATION OF CONFORMITY

(Annex IIA DIR. 2006/42/EC)

Robopac S.p.A.
Via Fabrizio da Montebello, 81 - 47892
Gualdicciolo Republic of San Marino

DECLARES THAT THE MACHINE

Robopac S.p.A.
Via Fabrizio da Montebello, 81
47892 – Gualdicciolo
Repubblica di San Marino
http://www.aetnagroup.com/

MODELLO MODEL		
MATRICOLA SERIAL NUMBER		
DATA DATE OF MANUF.		
ALIMENTAZIONE SUPPLY VOL.		**[V]**
FREQUENZA FREQUENCY		**[HZ]**
N° FASI PHASE		
ASSORBIMENTO ABSORPTION		**[A]**
POTENZA TOT. TOTAL POWER		**[kW]**
CONSUMO ARIA AIR CONSUMPTION		**[nl/min]**
PRESSIONE MAX MAX PRESSURE		**[bar]**
PESO WEIGHT		**[kg]**

IS IN CONFORMITY WITH DIRECTIVES

DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC.
DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

Reference to harmonised standards and relevant annexes, in applicable points:
EN ISO 12100:2010, EN 60204-1:2006/A1:2009, EN 415-5:2010, EN 415-6:2013, EN 415-10:2014.

THE INDIVIDUAL AUTHORISED TO DRAFT THE TECHNICAL BOOKLET IS

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Document date and place **Ing. Pierangelo Laghi - R&D Manager**

San Marino, **Signature**