



PLANT AND MACHINERY FOR THE PRODUCTION OF PRECAST AND PRESTRESSED CONCRETE ELEMENTS

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EN INSTRUCTIONS FOR USE AND MAINTENANCE

TELESCOPIC LIFTING BEAM FOR ON SITE USE

Main Index

1. General Information	1-3
Overview	1-4
Symbols	1-6
Declaration of conformity	1-7
Identification labels	1-8
Testing	1-9
Warranty	1-9
Technical specifications	1-10
2. Configuration, Operation, Control, Safety and Maintenance	2-1
Configuration	2-2
Shipment and Transport	2-2
Lifting	2-3
Machine description	2-4
Lifting beam	2-4
Clamp	2-5
Adjusting the distance between clamps	2-6
Adjusting the distance between the clamps on the centre beam	2-7
Adjusting the distance between the clamps on the extension	2-8
Connection of the clamps to the lifting beam	2-9
To position the clamps on the centre beam	2-10
To position the clamps on the extension beam	2-10
Extension beam (telescopic arm) adjustment	2-11
Adjusting the height of the jaw teeth relative to the top of the panel	2-12
Operation	2-13
Clamping the elements	2-13
Using the beam on-site	2-16
Stacking the elements	2-18
Safety	2-19
General safety Information regarding production equipment and procedures	2-19
Safety: Preliminary checks	2-21
General protections and dangerous areas	2-22
Summary of production risks and precautionary measures	2-23
Cable stressing	2-24
Working on the production bed	2-25
Lifting and transport operations	2-27
Other operations	2-28
Maintenance	2-29
General rules	2-29
Daily maintenance	2-30
Monthly maintenance	2-30
Yearly maintenance	2-30
Recommended lubricant greases and oils	2-31
Greasing points	2-32
3. Spare Parts	3-1
Maintenance stock	3-2
List of suggested spare parts	3-2

How to order spare parts	3-3
Spare parts order form	3-4
4. Mechanical overview	4-1
5. Hydraulic and pneumatic overview	5-1
6. Electrical overview	6-1
7. Other	7-1

1. General Information

Overview	1-4
Symbols	1-6
Declaration of conformity	1-7
Identification labels	1-8
Testing	1-9
Warranty	1-9
Technical specifications	1-10

Overview

NORDIMPIANTI SYSTEM SRL thanks you and your company for investing in its products. Users of its facilities, equipment and machines must read and understand the following instructions.

This lifting beam has been designed specifically for on-site use to move elements at the construction site. The appropriate clamps for the appropriate element must be fitted to the lifting beam.

The lifting beam with clamps is shown below



BEFORE INSTALLING AND USING ANY MACHINE, PART OR RELATED EQUIPMENT, IT IS COMPULSORY FOR ALL RELEVANT PERSONNEL TO READ THE FOLLOWING INSTRUCTIONS WITH THE UTMOST CARE¹

This **O&M** guide complies with the European “Machine Directive” 2006/42/ EC and with the guidelines set out by EN 292/2. This guide, together with any attached documents provide all the necessary information for the proper operation and maintenance of all machines and parts supplied by **NORDIMPIANTI**, therefore they must always remain together with the machine or equipment they refer to and must always be available for any user or person carrying out maintenance operations.

These instructions are in fact, part of the equipment they refer to and they must be kept together with the machine until its dismantling. If the machine is sold to a third party this guide must also be given to the new owner.

This Operating manual is the main instrument to understand the machine and to train competent personnel in its use and maintenance. **NORDIMPIANTI** makes every effort to represent the actual machines in the photographs and drawings but sometimes the photographs and drawings may differ from the machine supplied and are shown solely to illustrate the instruction in the manual.



Always keep these instructions safe, updated and always available for further reference.

In order to improve the performance and safety of our products, **NORDIMPIANTI SYSTEM SRL** welcomes comments and suggestions, and thanks customers and operators for their feedback.



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¹**NORDIMPIANTI SYSTEM SRL reserves the right to change without notice the current instructions and technical specifications of its machines**

Symbols

The following symbols and the related explanations are included in this manual in order to focus the reader's attention on the main aspects of the instructions. Symbols and explanations provide indications of potential risks caused by the non-observance of the recommendations in this guide.

SYMBOL	MEANING	DESCRIPTION
	DANGER STOP EVERYTHING	Indicates potential danger of worker injury including the risk of death
	DANGER OF ELECTROCUTION	Indicates electricity as a potential hazard that can lead to worker injury including the risk of death.
	WARNING	Indicates a situation that could damage the machine, other objects or the environment
	NOTE	Highlights the main functions or useful information to be read carefully
	INFORMATION	Highlights supplementary information or references to other documents
	ADVICE	Useful advice

In order to prevent accidents, machines and equipment also have standard warning notices. Some examples are shown below.



Declaration of conformity

The machine is provided with a Declaration of compliance to the according to the 'Machine Directive' 2006/42/CE¹. The machine complies with EC rules for the exclusive use described in these instructions. Any different use needs not only a new risk assessment that might result in a new declaration of conformity, but also an update of the current recommendations given in these instructions. The manufacturer is not liable for incorrect or improper use of the machine, including any danger caused by the machine's changed use and purpose, without prior manufacturer's approval.

EC DECLARATION OF CONFORMITY

According to the "Machine Directive" 2006/42/CE¹

The Company NORDIMPIANTI SYSTEM SRL

Situated at Via Erasmo Piaggio, 19/A
66100 Chieti (CH) – Italy

Manufacturer of the following machine/equipment

TELESCOPIC LIFTING BEAM FOR ON SITE USE

In detail, the lifting beam together with the appropriate clamps this machine is designed for the lifting of hollow core slabs

Built in

Serial Number

declares

that the machine described above complies with the rules stated in the 'Machine Directive' 2006/42/EC, as far as the main safety requirements provided for in Annex I are concerned.

Electric and electronic equipment on board of the machine complies with the following directives:

- EN 60204 Electric equipment for industrial machinery – Part 1: General requirements;
- 2014/30/UE Electromagnetic compatibility
- 2014/35/UE Low Voltage Directive

that the person authorised to compile the technical file is Nunzio Gagliardi, legal representative of Nordimpianti System Srl, via Erasmo Piaggio 19/A 66100 Chieti (CH) ITALY

Chieti 10-12-2020

Nunzio Gagliardi
(Legal Representative)

¹The European Directive 2006/42/EC is the amendment to the Directive 98/37/EC, based on the original 'Machine Directive' 89/392/EEC

Identification labels

The machine has identification tags which display the European symbol 'CE' together with the following details: name of the manufacturer, building year, type of machine, serial number, technical information (weight). These details should be quoted whenever maintenance or spare parts are required.

Example of the CE Tag.

 nordimpianti Technology for Precast and Prestressed Concrete Industry Via E. Piaggio 19/A - 66013 Chieti Scalo - Phone +39 0871 540222 - Fax +39 0871 562408		 	
SERIAL No.	NISY-xxxx	YEAR	20xx
TYPE	xxxxxxxxxxxxxxxxxxxxxxxx		
xxxxxxxxxxxxxxxxxxxxxxxx		WEIGHT KGXXXX	



Note: The tag shown above is only explanatory and it has no reference to the equipment. Refer only to the tags fixed onto the equipment.



CAUTION!

Never tamper with the tags or the information displayed on them and make sure that they are always legible. Replace if they are not legible.

Testing

This machine was successfully tested according to the manufacturer's testing procedures. The following checks were carried out:

- All components were properly assembled and fastened
- Dangerous situations were removed
- All accident prevention measures set out in these instructions were adopted. They cannot be easily bypassed, and altering them is very difficult
- Accident prevention measures used for this machine have already proved successful on previous occasions and they do not hinder workers
- Components that might be exposed to pressure were tested at the maximum loading pressure
- No leaks were recorded
- No external faults were identified on the machine
- The power system works properly
- These instructions were thoroughly revised and approved. Recommendations are clear and complete and residual risks have been identified.

Warranty

NORDIMPIANTI SYSTEM SRL commits itself to replace free of charge any part of the machine that, **from within 6 (six) months from delivery**, proves to be faulty in terms of the material or the manufacturing process. Delivery charges to and from our premises are at the customer's expense. The guarantee does cover defects and breakages of the wear parts but does not cover the wear on the wear parts.

Replacement of the whole machine is not an option and will not be considered.

Components produced by third parties are covered by the guarantee provided by the original manufacturer.

This guarantee does not apply if:

- the equipment undergoes any change without prior approval of **NORDIMPIANTI SYSTEM SRL**
- the equipment is used for a different purpose from the original design as described explicitly in these instructions for use
- the equipment is used without care
- non-original spare parts are used
- regular maintenance, described in the section on Maintenance, is not carried out
- recommendations set out in the section on Safety are not complied with.

If one of the above stated situations applies, **NORDIMPIANTI SYSTEM SRL** is not liable for damage to the machine itself, other persons or other objects.

Technical specifications

Size		
	Length	12500 mm
	Width with clamp	1400 mm
	Width without clamp	300 mm
	Height with clamp	1850 mm
	Height without clamp	1180 mm
Weight		
	Clamps (each one)	225 Kg
	Total (Beam + 2 clamps)	1200 Kg
Lifting		
	Work Load Limit (W.L.L.)	8000 Kg
Material		
	Clamps : Laminated Steel. Grade S355JR EN 10025/2004	
	Lifting beam : Welded steel rectangular hollow sections to EN 10210/2006 grade S355J2H	
Colour		
	Yellow RAL 1006 opaque, Grey RAL 7040	

2. Configuration, Operation, Control, Safety and Maintenance

Configuration	2-2
Shipment and Transport	2-2
Lifting	2-3
Machine description	2-4
Lifting beam	2-4
Clamp	2-5
Adjusting the distance between clamps	2-6
Adjusting the distance between the clamps on the centre beam	2-7
Adjusting the distance between the clamps on the extension	2-8
Connection of the clamps to the lifting beam	2-9
To position the clamps on the centre beam	2-10
To position the clamps on the extension beam	2-10
Extension beam (telescopic arm) adjustment	2-11
Adjusting the height of the jaw teeth relative to the top of the panel	2-12
Operation	2-13
Clamping the elements	2-13
Using the beam on-site	2-16
Stacking the elements	2-18
Safety	2-19
General safety Information regarding production equipment and procedures	2-19
Safety: Preliminary checks	2-21
General protections and dangerous areas	2-22
Summary of production risks and precautionary measures	2-23
Cable stressing	2-24
Working on the production bed	2-25
Lifting and transport operations	2-27
Other operations	2-28
Maintenance	2-29
General rules	2-29
Daily maintenance	2-30
Monthly maintenance	2-30
Yearly maintenance	2-30
Recommended lubricant greases and oils	2-31
Greasing points	2-32

Configuration

Shipment and Transport

During transport all parts of the machine must be fixed and stable.



If the machine is to be transported completely assembled make sure that connecting pins and bolts of the various parts of the machine are in place and correctly tightened.

Make sure that the fixing sling encompasses all the assemblies that make up the machine

Lifting

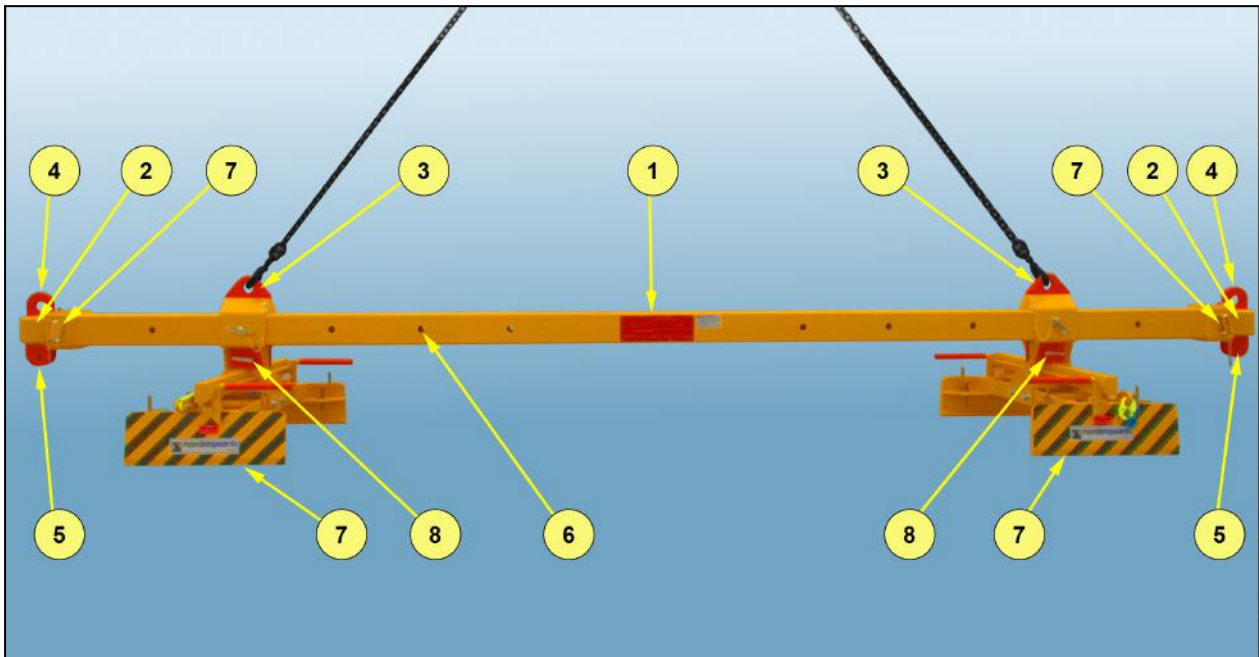
The lifting beam must be used with a crane.



WARNING! During lifting carefully observe safety rules and safety distances. Periodically check all lifting equipment, chains and clamps.

Machine description

Lifting beam



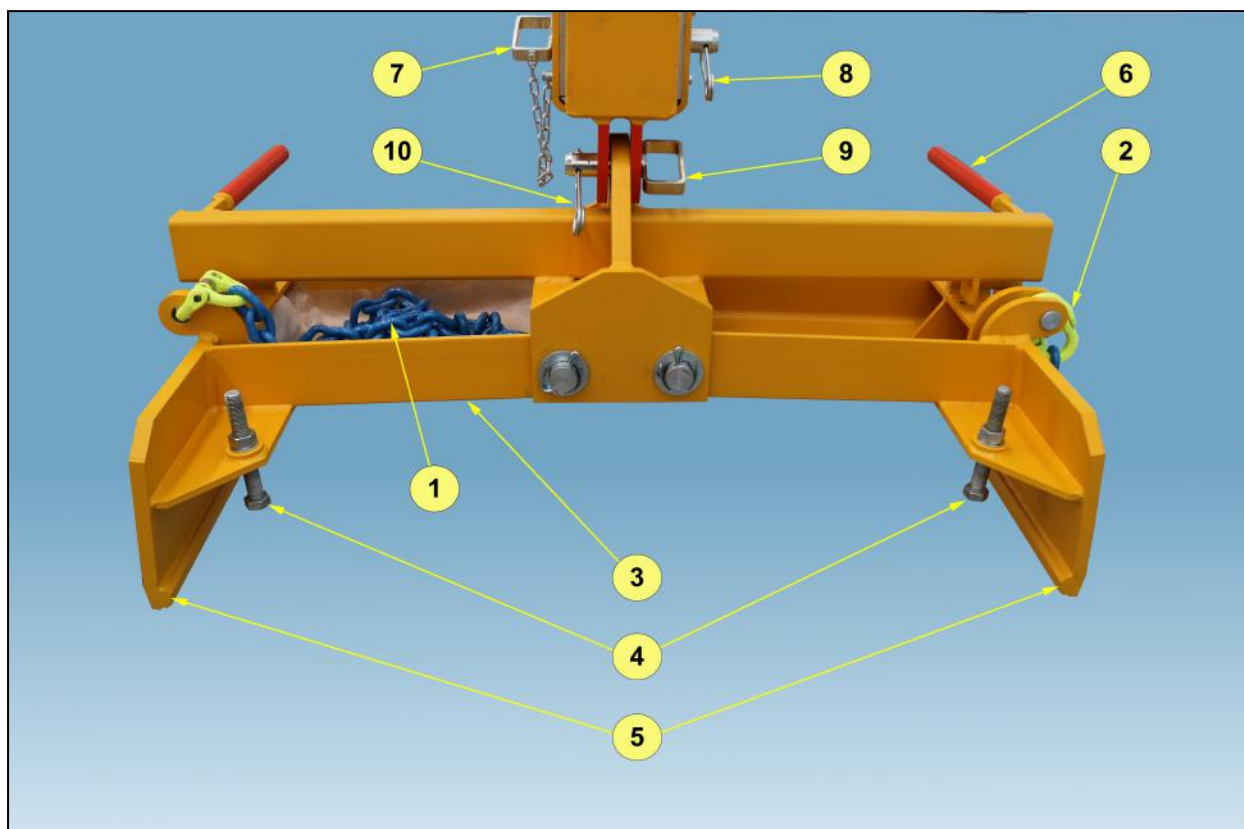
No	Description
1	Main centre beam
2	Extending telescopic beams (2 Off)
3	Movable main beam lifting points (when clamps are on the main beam) (2 Off)
4	Lifting points on the telescopic beams (2 Off)
5	Clamp attaching points for the telescopic beams (2 Off)
6	Docking hole points (10 Off on the main centre beam)
7	Clamps
8	Clamp attachment pins



WITH REFERENCE TO THE ABOVE PHOTO IF THE CLAMPS ARE POSITIONED ON THE CENTRE BEAM (1) THE LIFTING POINTS (3) MUST BE USED

HOWEVER, IF THE CLAMPS ARE MOUNTED ON THE TELESCOPIC ARMS AT (5) IT IS IMPERATIVE THAT THE CRANE IS ATTACHED TO THE LIFTING POINTS ON THE TELESCOPIC ARMS AT (4) AND THAT THE DOCKING PINS AT (7) ARE CORRECTLY POSITIONED

Clamp



No	Description
1	Safety chain
2	Safety chain connection point
3	Safety chain storage tray
4	Element top surface feet position rests
5	Groove profiles to engage with the element grooves
6	Clamp position handles
7	Pin to position clamp along the beam
8	Safety blocking pin for (7)
9	Clamp connection pin
10	Safety blocking pin for (9)

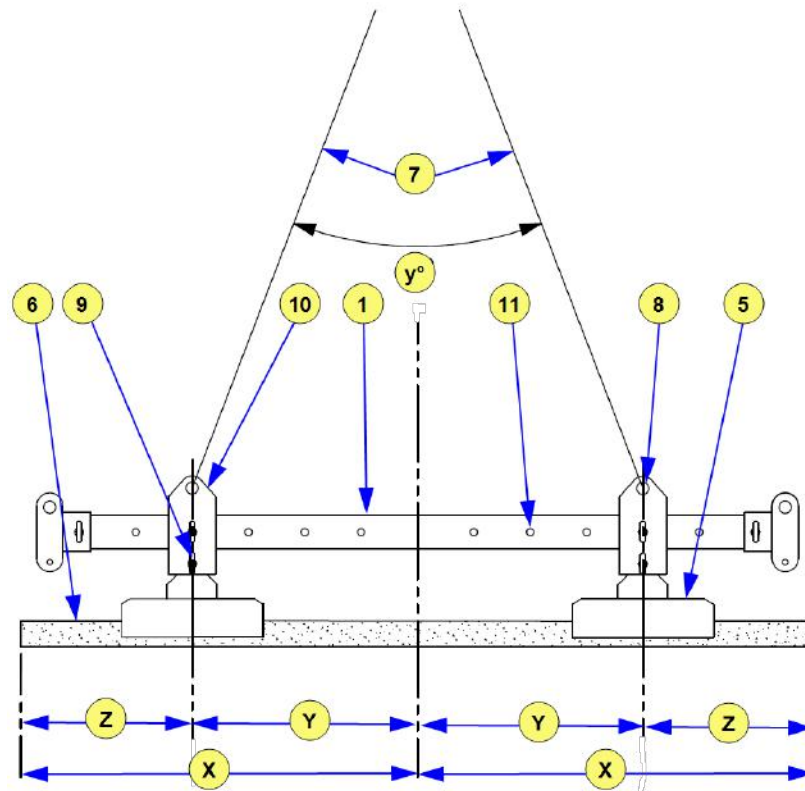
Adjusting the distance between clamps

The lifting beam must be used with a suitable on-site crane.

The lifting operation must take place with absolute regard to safety of personnel and equipment.

To set the position of the clamps relative to the element to be lifted do the following:

Adjusting the distance between the clamps on the centre beam



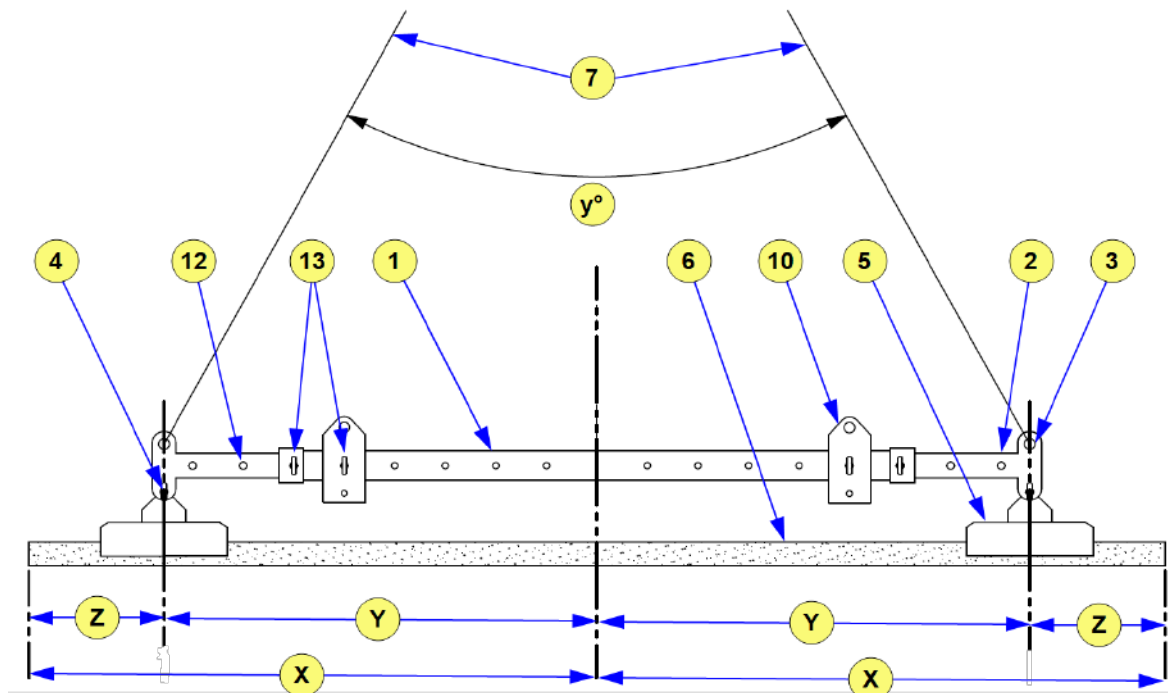
No	Description
1	Centre beam
5	Clamp
6	Element
7	Lifting chains
8	Hooking point for lifting chains to beam trolleys when clamps are on the centre beam
9	Hooking point for clamps to beam trolleys when clamps are on the centre beam
10	Beam trolleys
11	Mating holes for beam trolley positions whilst on centre beam (5 on each side)
X	Symmetrical distance for the element from the centre of the beam
Y	Symmetrical distance for the clamp centres from the centre of the beam
y°	Maximum angle of the lifting chains must not exceed 60°
Z	Element overhand from the centre of the clamps. This must not be excessive.

- The Clamps must be symmetrical about the centre point.
- Also the adjustment between the clamps along the beam must be done taking into account the overhand distance beyond the clamps.



It is good practise to have a table of clamp distances relative to the length and type of panel to be moved. (Pay close attention to the technical specifications of the panel. IF IN ANY DOUBT CONSULT THOSE RESPONSIBLE FOR HEALTH AND SAFETY.

Adjusting the distance between the clamps on the extension



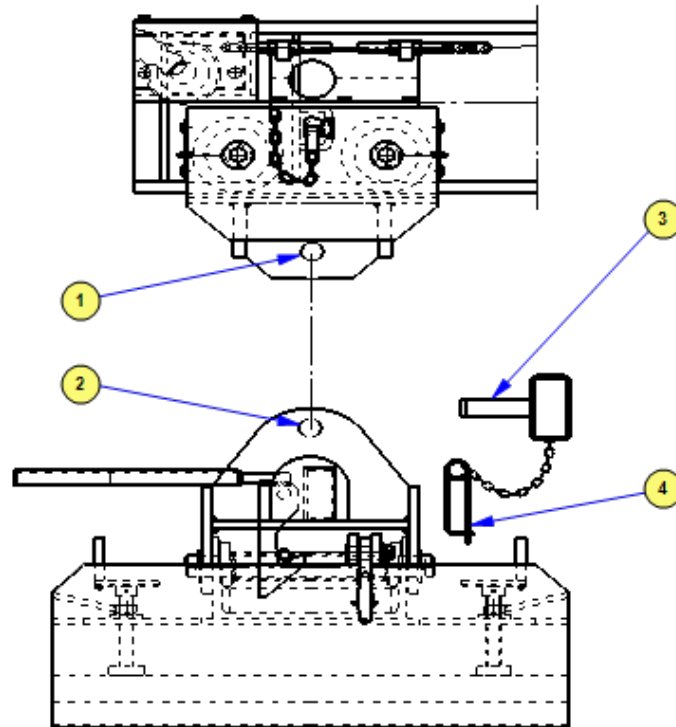
No	Description
1	Centre beam
2	Extension beam
3	Hooking point of the beam when the clamps are on the extension beam
4	Hooking point of the clamps to the extension beam
5	Clamp
6	Element
7	Lifting chains
10	Beam trolleys
11	Mating holes for beam trolley positions whilst on centre beam (5 on each side)
12	Mating holes for positioning the extension beam
13	Location pins to lock extension in position. TWO ON EACH SIDE MUST BE USED AND ENGAGED WITH THE EXTENSION BEAM
X	Symmetrical distance for the element from the centre of the beam
Y	Symmetrical distance for the clamp centres from the centre of the beam
y°	Maximum angle of the lifting chains must not exceed 60°
Z	Element overhand from the centre of the clamps. This must not be excessive.

- The clamps must be symmetrical about the centre point.
- Also the adjustment between the clamps along the beam must be done taking into account the overhang distance beyond the clamps.



It is good practise to have a table of clamp distances relative to the length and type of panel to be moved. (Pay close attention to the technical specifications of the panel. IF IN ANY DOUBT CONSULT THOSE RESPONSIBLE FOR HEALTH AND SAFETY.

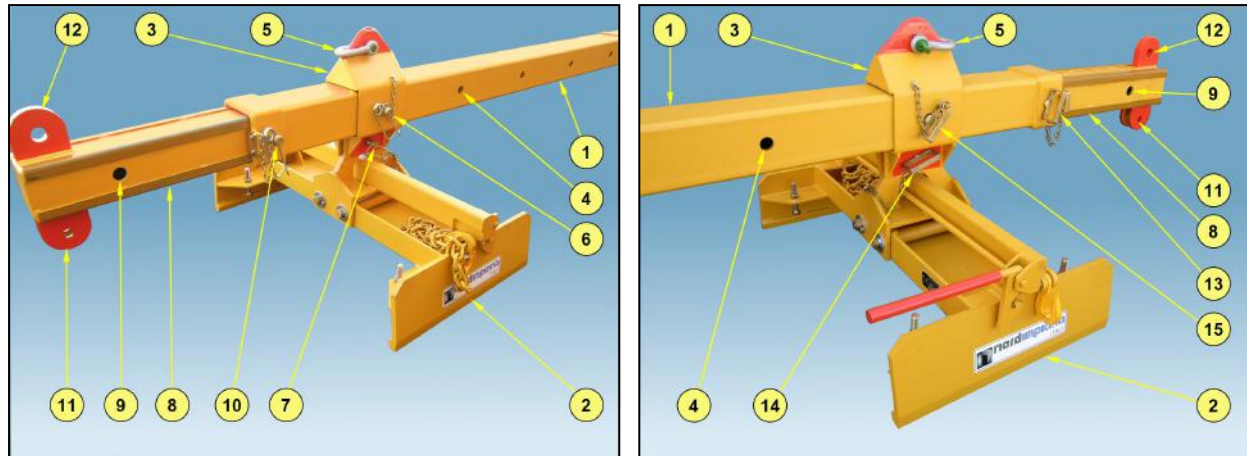
Connection of the clamps to the lifting beam



No	Description
1	Positioning hole on beam
2	Positioning hole on clamp
3	Connection pin
4	Connection pin position lock

To attach the clamps to the beam do the following:

- Using a bridge or overhead crane bring the lifting beam into position over a clamp
- Manoeuvre the beam so that the positioning holes **(1)** and **(2)** line up
- Put the positioning pins **(3)** through both position holes
- Make sure to secure the pins with the connection pin position lock **(4)**
- Do the same for the other clamp



No	Description
1	Centre beam
2	Clamp
3	Beam trolley for clamp
4	Mating holes for beam trolley positions whilst on centre beam (5 on each end)
5	Lifting points when clamps are on the centre beam
6	Safety blocking pin for (15)
7	Safety blocking pin for (14)
8	Extension beam
9	Mating holes for positioning the extension beam
10	Safety blocking pin for (13)
11	Attachment point for the clamps when on the extension beam
12	Lifting points when clamps are on the extension beam
13	Pin to fix position of extension beam
14	Clamp connection pin
15	Pin to position clamp along the beam

To position the clamps on the centre beam

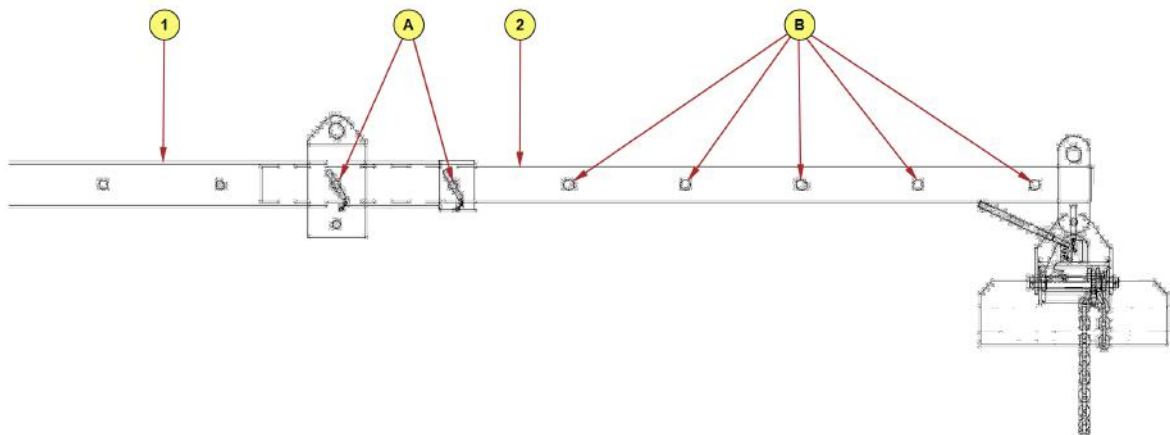
- Rest the whole beam on the ground and detach the clamps by removing the safety blocking pin (7) and the clamp connection pin (14) of both clamps
- Lift the beam clear of the clamps.
- Remove the safety blocking pin (6) and then remove the positioning pin (15) so that the beam trolleys (3) are free to move.
- Move the beam trolleys to the desired position
- Replace the positioning pin (15) and the safety blocking pin (6)
- With the crane hooked to the beam trolleys (3), position the beam close to a clamp
- Re-attach the clamp using the clamp connection pin (14) and the safety blocking pin (7)
- Repeat for the other clamp bearing in mind that the beam is unbalanced with only one clamp attached. Support as necessary.

To position the clamps on the extension beam

- Rest the whole beam on the ground and detach the clamps by removing the safety blocking pin (7) and the clamp connection pin (14) of both clamps

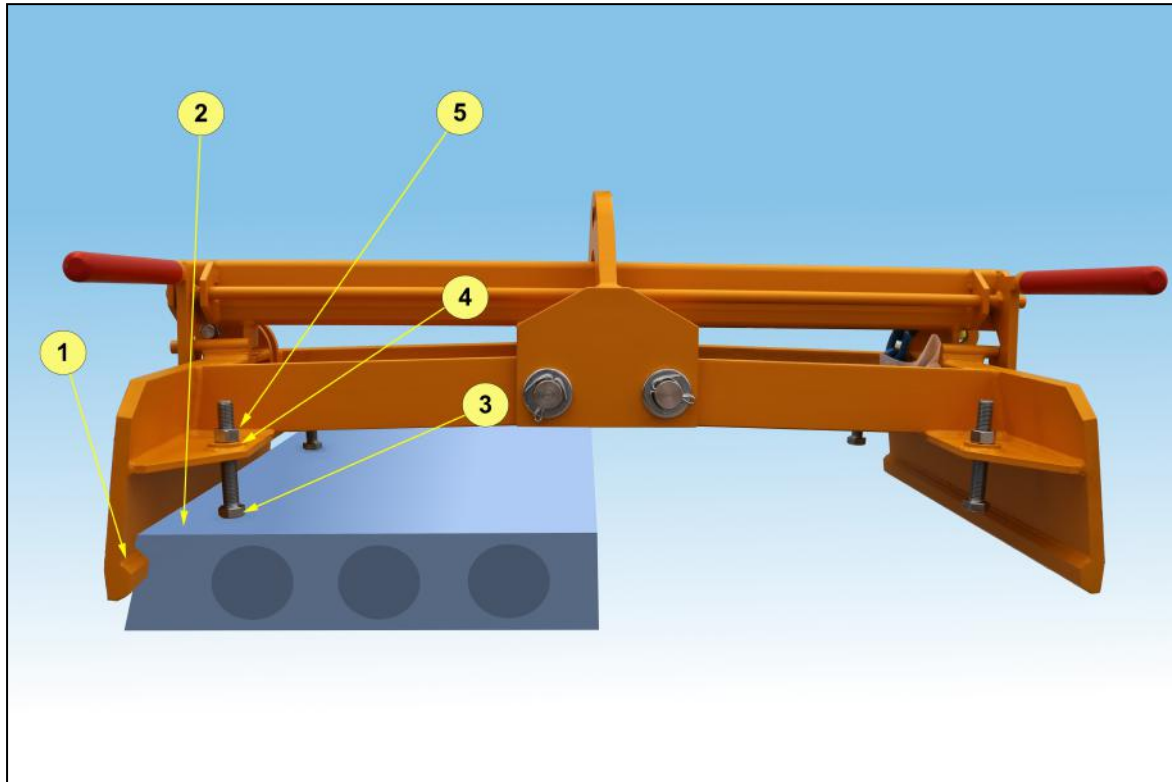
- Lift the beam clear of the clamps. Remove the safety blocking pin (6) and then remove the positioning pin (15) so that the beam trolleys (3) are free to move and in this case to allow movement of the extension beam to occur.
- Remove the safety blocking pin (10) and then remove the pin to fix position of extension beam (13)
- The extension beam (8) is now free to move. Move it to a desired position where the pins can engage the holes of the extension beam.
- It is desirable that the beam trolleys (3) be moved to the outer positioning points as they are in the photographs above **but in any case both position pins (13) and (15) must engage two positioning holes (9) on the extension beam**
- Put the positioning pins (13) and (15) in place and make sure to correctly place their respective safety blocking pins (10) and (6)
- Attach the crane to the hooking points on the extension beam (12)
- Position the beam close to a clamp
- Re-attach the clamp using the clamp connection pin (14) and the safety blocking pin (7)
- Repeat for the other clamp bearing in mind that the beam is unbalanced with only one clamp attached. Support as necessary.

Extension beam (telescopic arm) adjustment



No	Description
A	TWO LOCKING POINT HOLES FROM THE EXTENSION BEAM MUST BE LOCKED TO THE CENTRE BEAM WHEN EXTENSION BEAM IS EXTENDED
B	MAXIMUM OF 5 HOLES VISIBLE WHEN EXTENSION BEAM IS EXTENDED
1	Centre beam
2	Extension beam

Adjusting the height of the jaw teeth relative to the top of the panel



No	Description
1	Profile on clamp jaw to mate with groove on element
2	Top surface of element
3	Clamp rest to rest on the top surface of the element (4 off)
4	Threaded hole
5	lock nut

The height of the jaw teeth (1) relative to the top surface of the panel (2) can be adjusted by changing the height of the 4 feet fitted to each clamp (3). This height is adjusted to make sure the teeth of the jaws are in the proper position to mate correctly with the grooves in the manufactured panel

- Still with the beam being supported by the overhead crane lightly rest the clamps on the top surface of the element
- Loosen the lock nuts (5)
- Adjust the clamp rests (3) so that the teeth of the jaws (1) are aligned with the element grooves
- Re-tighten the lock nut (5)
- Initiate a slow lift for a short distance
- Check that the adjustment has been made correctly. Readjust if necessary

Operation

Clamping the elements

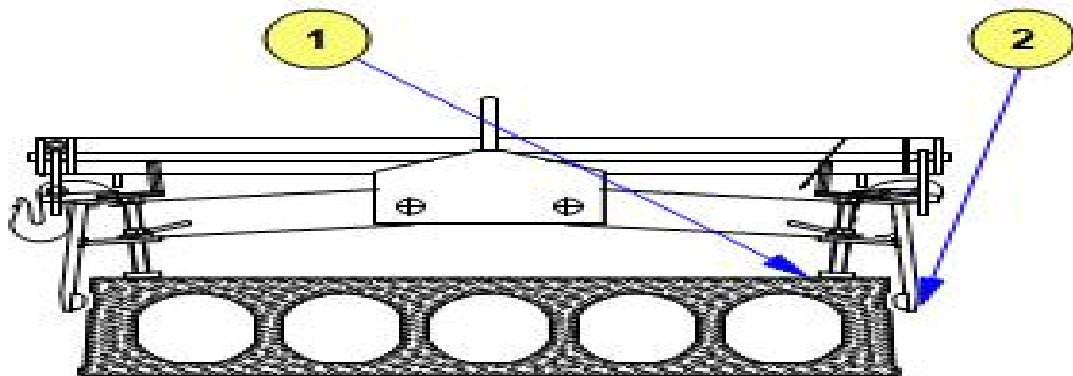
For proper and safe operation of the lifting beam with clamps read the following carefully:

- Hook the Lifting beam to the crane or bridge crane.



CAREFULLY CHECK THAT THE CRANE OR BRIDGE CRANE HAS A MAXIMUM LOAD RATING SUPERIOR TO THAT OF THE WEIGHT OF THE LIFTING BEAM WITH CLAMPS, ADDED TO THE WEIGHT OF THE PANEL TO BE LIFTED.

- Check that the distance between the clamps is correctly set for the panel to be lifted. Adjust this distance if necessary (see section *Adjusting the distance between clamps* page 1)
- Bring the lifting beam over the elements to be lifted making sure the centre of the beam is in the same position as the centre of the element.
- Carefully lower the beam delicately positioning the clamps on the panel until the feet of the clamps rest on the panel.
- Check that the feet of the clamps are set at the correct height on the top of the panel relative to the teeth of the clamping jaws so that when the lift is executed, the jaws will mate with the longitudinal grooves (see section *Adjusting the height of the jaw teeth relative to the top of the panel* page 2-12)
- The situation will then be as shown in the graphic below.



No	Description
1	Clamp feet resting on top surface of the element
2	Clamp jaws in the open position
3	Lift enable handle in the blocked position

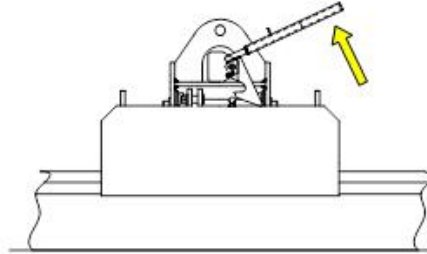


CHECK THAT THE JAW PROFILE IS COMPATIBLE WITH THE LONGITUDINAL GROOVES OF THE ELEMENT TO BE LIFTED. IF THIS IS NOT THE CASE DO NOT USE THE LIFTING BEAM AND CONTACT NORDIMPIANTI.

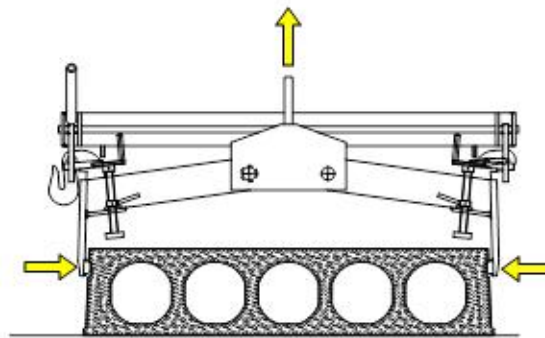


CHECK THAT THE AREAS ON THE ELEMENT WHERE THE CLAMPING JAWS MAKE CONTACT WITH THE ELEMENT HAVE NO VISIBLE PRODUCT DEFECTS SUCH AS CRACKING, SPLITTING OR SWELLING ETC.

The clamp is now resting on the element. To enable the clamp to clamp the element and to lift the element do the following:

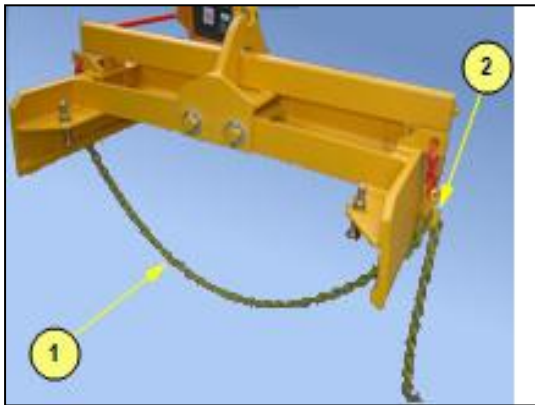
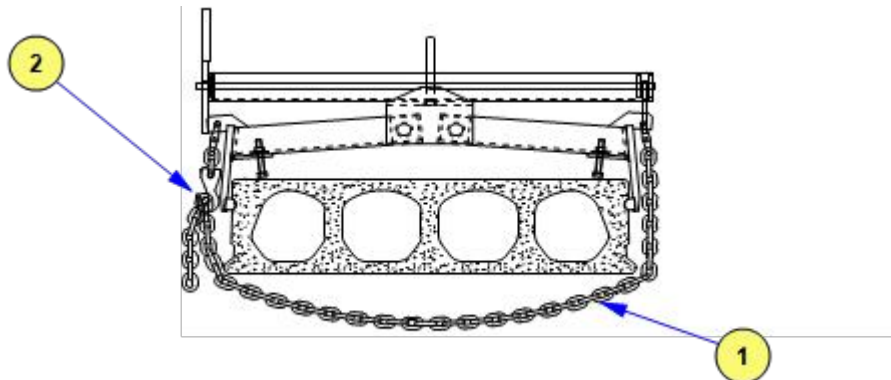


- On both clamps at the same time raise the clamping lever so that the jaws are ready to clamp onto the grooves of the panel when the lift is executed. An operator must hold this lever in the upright position during the initial part of the lift



- Start a slow lift of the crane and check:
 - that the teeth of the clamping jaws are absolutely correctly mated with the longitudinal grooves of the element. If necessary lower to the ground and re adjust the feet of the clamps
 - that the panel is reasonably balanced. If the element is not reasonably balanced lower the panel to the ground and correctly reposition the jaws along the element

- If everything is correct raise the panel to about 20 cms above the ground



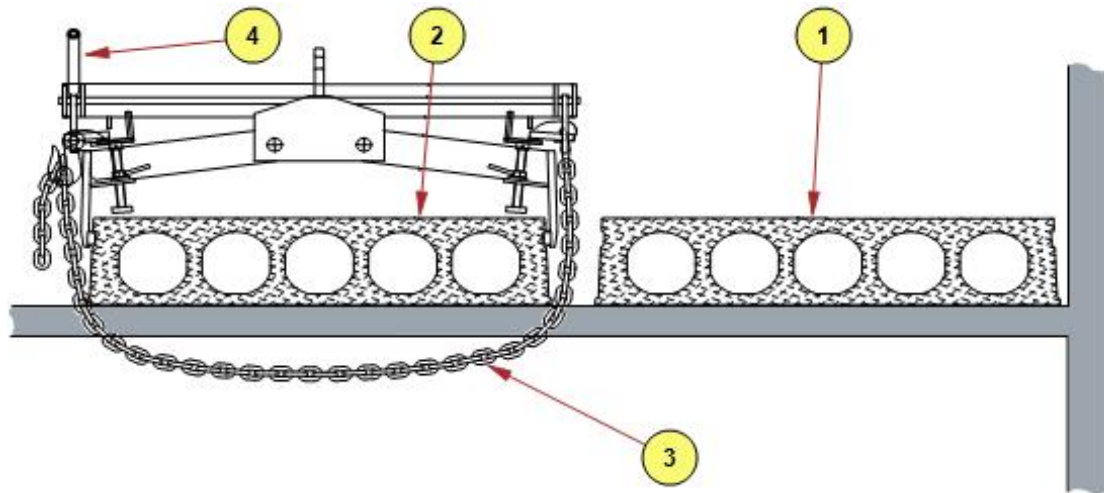
No	Description
1	Safety chain
2	Safety chain hooking point
3	Safety chain storage tray

- Take the safety chain (1) from it's storage position (3) on the clamp and pass it with extreme care under the element. Keep limbs away from the area underneath the panel. Hook the chain on the other side of the clamp (2) so that there is the minimum slack on the chain without damaging the element. repeat the procedure for all the clamps. Only after the safety chains have been attached can the element be transported.
- Raise and move the element to its loading point whilst meticulously following the crane manufacturers' instructions and all the safety instructions and distances.

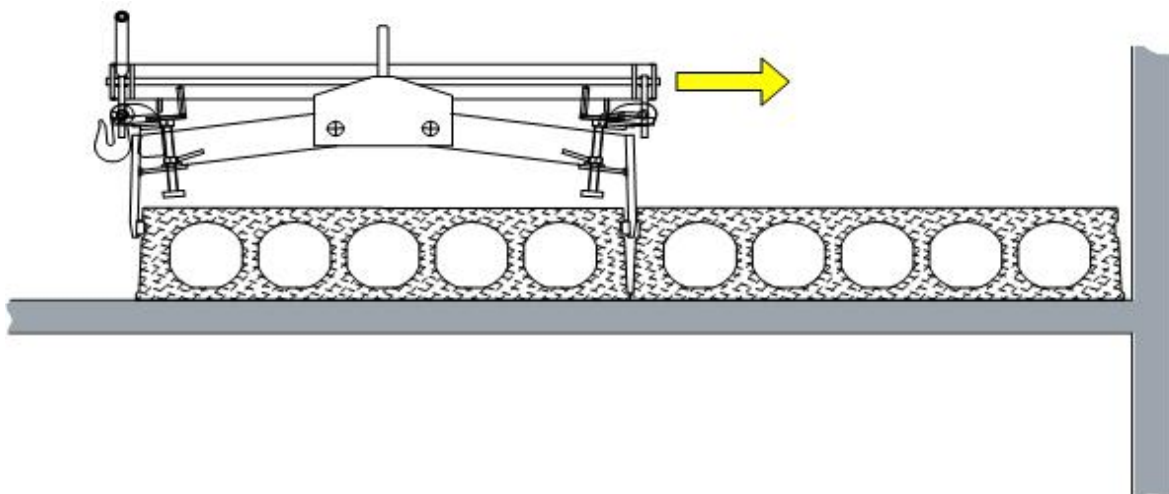
Using the beam on-site

This particular beam is designed to be used outside the factory or specifically at the construction site.

The lifting beam must be used with a suitable crane.



- Follow the instructions in the section clamping the elements (see page 2-13) lift the panel from the ground with the safety chains in position.
- Rest the 1st panel in position (1) next to the wall. As the panel is rested the jaws of the clamp will automatically open. The open close lever (4) will fall to keep the clamp jaws open. Check that this has happened.
- Unhook the safety chains (3) and store them in their containers.
- Without the hindrance of the safety chain, lift the panel slightly and position the panel as close to the wall as possible. Return the telescopic lift to the ground ready to transport the next panel.



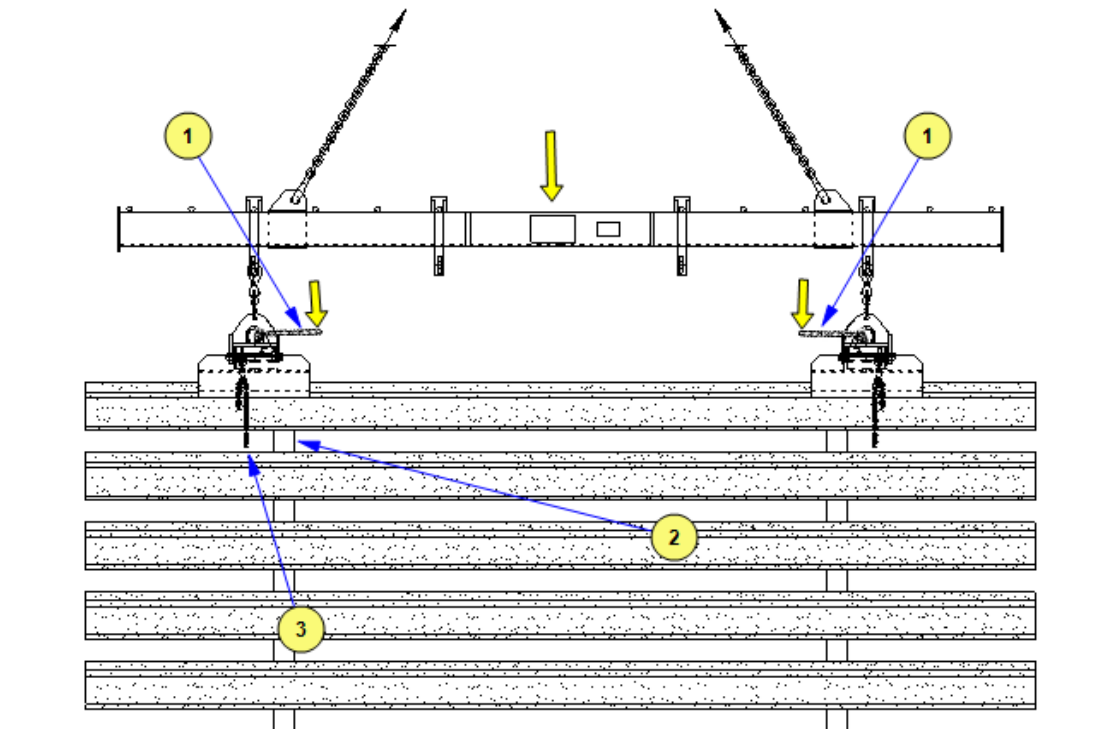
- Lift and transport another panel (2) making sure that the safety chains are positioned correctly.
- Rest the panel in position (2), next to panel (1);
- Unhook the safety chains (3) and store them in their containers
- Without the hindrance of the safety chain, lift the panel slightly and position the panel as close to

- panel (1) as possible. Return the ground ready to transport the next panel.
- Repeat the operations until all the panels are installed.



WARNING! During lifting carefully observe safety rules and safety distances. Periodically check all lifting equipment, chains and clamps.

Stacking the elements



No	Description
1	Lift enable lever
2	element support lintels
3	Safety chain

- Carefully lower the element until completely supported on a wooden or other type of lintel (2). As the element comes to rest on the lintel the jaws of the clamp will automatically open and the lift enable lever (1) will fall into a position that maintains the jaws of the clamps in the open position. (Check that the lift enable lever is now in the down position and that the jaws of the clamps are open and completely free of the element)
- Make sure that there is nothing under the clamps to hinder the removal of the safety chain (3). Unhook the safety chain and carefully take it under the element. Store in the tray on top of the clamp. Attach the free end of the chain to where the other end is attached to limit the damage should the chain fall. Do this for all clamps.
- Before lifting the lifting beam clear of the panel check again that the clamp jaws are locked in the open position and that the lift enable lever is down. Lift the lifting beam clear of the stored panel.
- Repeat the operation to move another panel.

Safety

General safety Information regarding production equipment and procedures

This section includes general safety recommendations concerning machines, equipment and facilities manufactured by **NORDIMPIANTI SYSTEM SRL**. Other, more specific recommendations are provided throughout the manual. The recommendations stated do not exempt operators and maintenance workers from complying with specific country laws and regulations in matters of Health and Safety and any "Accident prevention at work" regulations in force at the installation or operating site. The operator is directly responsible for the application of safety rules, either enforced by law or included in this manual. The operator is also responsible for any damage or accidents that may occur to himself and /or to any others that might be exposed to danger due to the unsafe operation of the equipment.



If these instructions are not clear please consult NORDIMPIANTI for clarification.

NORDIMPIANTI SYSTEM SRL is not liable for injury to people or damage to objects due to lack of compliance with the safety and accident prevention rules as set out by the law in force and by these instructions.

- All machines, equipment and facilities described in these instructions and annexes
- can be used only for the purposes they were designed for and that are explicitly mentioned in these instructions
- must be operated only if their safety devices are unmodified, undamaged and in excellent working order. If the equipment is modified, and the working parameters of the safety equipment and systems are changed then, all the workers that may use the equipment must be informed immediately
- are used only by competent personnel, who have been fully trained as to how to use them and have read and understood this operating and maintenance guide, paying particular attention to all safety instructions as advised by the manufacturer
- will undergo regular maintenance operations carried out by competent and specially trained workers.

Any person responsible for the use and /or maintenance of the machines will:

- know how the machine and its devices were assembled and how they work
- abide by all safety instructions, including all warning notices on the machines
- comply with accident prevention rules
- use self-protection equipment where necessary (gloves, ear defenders, etc.)
- be familiar with the whole production facility.



The use of machines, facilities and equipment in a way that differs from these instructions, and for any other purpose without prior approval from the manufacturer, is strictly forbidden and In particular, the manufacturer is not liable for any subsequent injury or damage to people and /or objects.

For the safe use of a machine/device/piece of equipment an Emergency Stop button is fitted to stop the machine if a dangerous situation occurs. Before starting to use the machine/device, the user must know the position or positions of the Emergency Stop Button.

Regular and proper maintenance and use, carried out in accordance with these instructions are necessary to keep machines, facilities and equipment in excellent working order and to ensure the machine has the longest possible working life.

The maintenance schedule must be regularly looked at, and maintenance operations must be carried out accordingly. Careless use and/or maintenance can cause early wear and tear of the machines, as well as unwanted downtime. If any unusual noises, leaks or other anomalies such as higher-than-normal temperatures (e.g. concerning motors, gearboxes or oil-pressure devices) or any unusual instrument readings are detected, they must be immediately reported by the operator.

The use of damaged machines is strictly forbidden. They can be used again only after having been fully repaired so that the machine is restored to its original specifications and safety standards.

Nordimpianti System SRL guarantees the normal working of its machines, facilities and equipment as provided for by the contract, but it is not responsible for any damage produced by careless or incorrect use or improper maintenance of the machine.

The proper use of the machines relies on an adequate working environment, and a corporate culture that implements the safety and hygiene laws in force. The premises or venue hosting a machine must comply with fire prevention laws, have an ambient temperature between 5°C and 40°C, have no poisonous waste, and have lighting conditions of a minimum of 300 Lux (for 'measuring units' see the International Measuring System).

When no length measuring unit is provided, the intended measuring unit is the millimetre (mm).

Machines and equipment have been designed and built with special attention to their safe use and maintenance but not all accident risks can be removed, therefore, these instructions provide the guidelines and prevention measures that equipment operators are strongly advised to adopt. However as some accidents cannot be foreseen we urge all operators, maintenance personnel and all persons who have to work in the vicinity of the machine to make safety their absolute priority.

Rules, opinions and technical solutions concerning the safe functioning of machines can change over time. If such a change occurs, the user is compelled to update the recommendations in use and, as a consequence, change the relevant working practices concerning the machine. Any additional changes concerning these instructions must be immediately included in this manual by the user, and complied with. **NORDIMPIANTI** is not liable for the failure to update recommendations concerning the use or revision of the machines or equipment.

NORDIMPIANTI SYSTEM SRL reserves the right to change without notice the current instructions and the technical specifications of its machines, equipment and facilities.



Carefully read the section Safety: Preliminary Checks on the following page.

Safety: Preliminary checks



As well as reading this section refer also to the section, general rules, in the chapter MAINTENANCE



- Before starting the machine, the user has to carefully study the whole manual, especially this chapter on Safety
- The user has to adopt accident prevention measures (in particular the use of self-protection equipment such as gloves, safety shoes, helmets etc.). Untrained workers are strictly forbidden to use the machine. Not only the operator, but also any persons who are close to the working area have to comply with the warning signs displayed on the machine and as described in the manual. The operator is directly responsible for the observance of the safety rules.



- Use of damaged machines is forbidden, and they must be repaired immediately
- Power must be off before cleaning, maintenance or repair. The power control panel must be regularly checked
- Regular checks must be carried out daily, monthly and every three months, as written in the section MAINTENANCE
- Before maintenance or repairing operations, carefully read the section MAINTENANCE.

While the machine is working:



- Protect electric cables from high temperatures, lubricants and sharp edges
- Do not disconnect electrical sockets by pulling on the cables
- Do not touch electric components on the panel if the power is on, or while the machine is working



- Do not touch components, motors, or moving parts while they are working
- The user must always be on-guard to detect anomalies and always pay close attention to the information displays: manometers, ammeters, warning lights, etc. From all parts of the machine look and listen for unusual noises, leaks, high motor temperatures, jerky motions or anything else unexpected. If an anomaly is detected, the machine must be stopped immediately and inspected and appropriately repaired before re-starting.



If you need any further clarification please contact NORDIMPIANTI SYSTEM SRL or the relevant third party manufacturer.

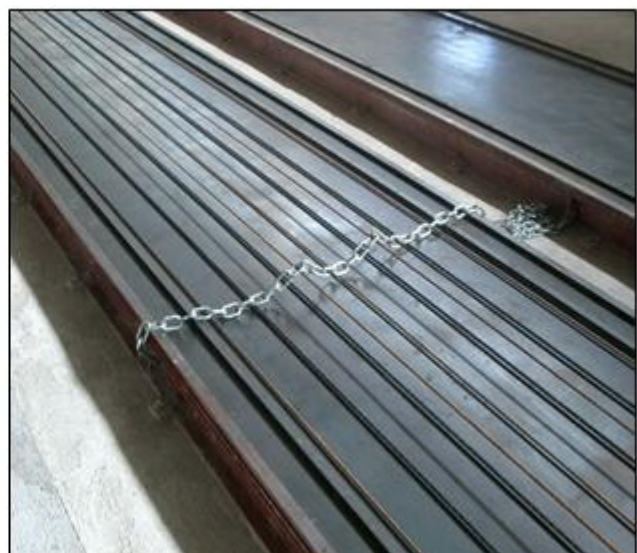
General protections and dangerous areas

NORDIMPIANTI SYSTEM SRL advises about the care and precautions that should be taken with particular reference to the production bed. On the production bed there are cables which are under great tension, having been previously pre-stressed. Also the bed is sometimes sprayed with detaching oil therefore the whole bed must be considered as a dangerous zone. To limit any risks of injury caused by the whiplash of cables should a breakage occur, safety bars (in the case of a concrete bed) or safety chains (in the case of a metallic bed) should be placed at regular intervals along the bed. (see the photographs below).

It should be noted that more than once machine at a time maybe using the production bed. Always be vigilant for yourself and your colleagues whilst working on the bed. Pay attention to the warning sirens and hazard warning lights that are fitted on the machines. Be aware that some machines work in an automatic mode and unexpected movements or actions may occur.



Safety Bars placed at regular intervals along a concrete production bed



Safety Chains placed at regular intervals along the a steel casting bed



DANGER! Do not walk or remain on the bed when concrete elements are being manufactured.

Summary of production risks and precautionary measures

As with most industrial processes there are always risks that need to be identified and assessed by all personnel involved with the activity of the factory and, furthermore, as safety should be of the utmost priority this assessment should be carried out within a corporate culture of “safety first”. Some risks are general and some are specific to certain operations. It is impossible to draw up measures for each individual facility so the list set out below should be treated as a helpful start guide to be tailored to every company’s own particular situation and combined with the information set out in individual manuals.

Note and observe any safety notices that might be present on the machines or in the factory. Some examples of these types of notices are shown below.



Cable stressing

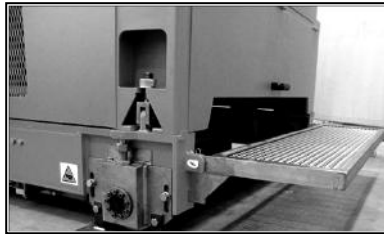
Cable stressing
Principle risks
Injury, especially to the face and eyes when handling steel cables Injury or death due to failure of the stressing cylinders or single wire stressing machine Injury or death due to failure of blocking cylinders Injury or death due to cable whiplash due to the failure of the stressing cables when under tension.
Preventative measures
Use proper personal safety equipment: gloves, slip resistant safety shoes, helmets, masks, ear-defenders, etc. Do not wear loose clothing, ties, scarves, long sleeves, jewellery or anything that might get caught in the machine. Keep long hair tied up Always work with blocking cylinders with the same technical specifications avoiding any deformation during positioning Periodically check the correct working of the automatic limiting devices attaining but not exceeding the stressing pre-fixed values Never exceed the maximum tensioning force as stated on the lowest rated piece of equipment or material Never exceed the maximum tensioning force as stated on the lowest rated piece of equipment or material When starting the stressing operation always initiate the warning light and siren During tensioning it is forbidden for personnel to be on the bed and especially close to the moving anchor equipment at bed ends Install a suitable shelter at the Stressing end fitted with correct front, side and ceiling protections and placed in such a way to allow complete visibility of the production bed Connect safety chains or metal safety bars across the bed at 15-20 m intervals to limit any damage caused by failure of any part of the stressing equipment or cables.
 

Working on the production bed

Working on the production bed
Principle risks
Feet being crushed on the tracks of the bed during the travelling of machines Slipping on the bed and on the work lanes between the beds especially when there are stressing cables, obstacles and detaching oil Entanglement in a moving part (Especially if protections are removed) Traumas due to collisions against machines Falling from machines Noise, especially from slipformers or cutting saws Dust inhalation, especially when cutting if the cutting disc water spray is not operating correctly Inhalation of oil mist during the application of the detaching oil The risk of being hit by flying debris, especially from cutting or cleaning operations Other risks arising from neighbouring production beds where different production phases may be taking place.
Preventative measures
Use proper personal safety equipment: gloves, slip resistant safety shoes, helmets, masks, ear-defenders, etc. Do not wear loose clothing, ties, scarves, long sleeves, jewellery or anything that might get caught in the machine. Keep long hair tied up Follow the specific operating instructions for the machines, tools and materials in use Always use the machines only for their intended purpose and work within the specifications of the machines Do not remove the protections and the fixed shields of the moving parts of a machine (wheels, chains, belts, pulleys). Replace after removal or damage. Only work without the protection panels when the machine is powered off and disconnected from the power supply. Only work without the protection panels when carrying out maintenance operations and only if the head of safety has been consulted and permission granted. Never undertake normal production with any protection removed Workers must be mentally and physically fit and not under prescribed medication, or the influence of drugs or alcohol Operators must not leave the machine unattended Always action all Audio Sirens and Warning Lights when fitted Only the operator(s) is /are allowed to access to the work lane between two metallic beds. to carry out checks. However, if the machine is fitted with walkways, (see the photo below)

Preventative measures

these must be used to carry out the checks. Not using these walkways, when carrying out maintenance in the lanes between the production beds, runs the risk of being hit by a walkway should the machine be moving. This is because the walkways extend into this area



Always be aware of your surroundings with particular attention to any nearby machines or operations.

Lifting and transport operations

Lifting and transport operations
Principle risks
Injury or death caused by being crushed by the lifting beam if it or any part of it fails Injury or death caused by being crushed by the lifting beam or clamps due to operator error Injury or death caused by falling from the manufactured parts during the hooking operation Injury or death caused being crushed whilst connecting the safety chains Injury or death caused by element breakage. It is for this reason that the safety chains must be used Injury or death caused by falling chains or ropes Injury or death caused by crushing during the lifting operation Injury or death caused by falling in the stocking area from a high position or from the truck during unhooking and loading Injury or death caused by elements not being properly stocked in the factory or loaded correctly onto the trucks.
Preventative measures
Use proper personal safety equipment: gloves, slip resistant safety shoes, helmets, masks, ear-defenders, etc. Do not wear loose clothing, ties, scarves, long sleeves, jewellery or anything that might get caught in the machine. Keep long hair tied up Follow the specific operating instructions for the machines, tools and materials in use Use the correct tools for the task. (Balance lifts, clamps, ropes, chains, hooks etc.) Devise and implement a correct maintenance program for the apparatus. This includes all machines and equipment not supplied by NORDIMPIANTleg. bridge cranes hooks chains etc. periodically check for signs of wear of all equipment Make sure that the stocking areas and the areas through which the elements are transported are well organised and free of obstacles Make sure the elements to be stocked and loaded are produced to a high quality and that no obvious product defects exist Use appropriate ladders to access the trucks Make sure that the elements are loaded correctly onto the lorries and are fixed correctly with the appropriate ropes or ratchet lashings. During Transportation respect “The Highway Code”.

Other operations

Other operations	
Principle risks	
Risk of explosion due to gases produced during battery charging Risk of Acid burns from the battery electrolyte Risk of eye damage caused by CLASS 2 laser on the machine.	
Preventative measures	
Don't allow flames or sparks close in the area where the recharging is taking place. Do allow sufficient ventilation and time to disperse the gases during and immediately after the charging operation Keep the battery level at the correct level Be careful when topping up battery with distilled water to avoid spillage or splashing of battery acid Make sure that the beam is not at eye level, or can be reflected to eye level, or that eye wear protection is worn.	

Maintenance

General rules

In order to maximize the performance of the machines and the equipment and to guarantee their efficient working, regular and appropriate maintenance is required. This is why **NORDIMPIANTI** designs machines paying special attention to maintenance and productivity. The following instructions help the user to attain a complete understanding of the working and maintenance of machine. Carelessness in carrying out proper maintenance may cause premature wear of the machine and possible unnecessary downtimes.



- The manufacturer guarantees by means of a written contract the good working of the machine, but the manufacturer is not liable for damage due to misuse.



- Besides the recommended regular checks (daily/monthly/3 monthly/yearly) described in the next sections, it is necessary to follow the instructions, in order to maximise the life of the machine.



- Before starting the machine, the operator has to study this manual and especially the section Configuration, production, control, safety and maintenance. The operator must adopt the safety measures, such as the use of gloves, ear-defenders, etc. Untrained workers are not allowed to use the machine.



- The user must always be on-guard to detect anomalies and always pay close attention to the information displays: manometers, ammeters, warning lights, etc
- From all parts of the machine listen and look for unusual noises, leaks, high motor temperatures, jerky motions or anything else unexpected. If an anomaly is detected, the machine must be stopped immediately and inspected and appropriately repaired before re-starting.



- Make sure that the power is off before any maintenance
- Maintenance of electrical components must be carried out in a dry, dust free environment.
- If the machine is not to be used for a long time, make sure that its parts are protected. Bare metal parts must be treated with oil and surface protecting substances. If present, the hydraulic oil tanks and the water tanks must be emptied.



Caution! If welding is necessary to repair the machine, make sure that the ground wire is connected to a completely clean and good conducting surface, so as to protect the programmable microprocessor control and machine switches from damage due to induced electrical currents during welding



For maintenance of the machine's motors and pumps, see the instructions provided by the original manufacturers, either included among the annexes or delivered upon request from **NORDIMPIANTI**.

Daily maintenance

Clean the machine after a working cycle or if the machine has been idle for a period of time:

- The lifting beam is assembled correctly
- That all nuts and bolts are correctly tightened. That all safety pins, and blocking pins are present and work correctly
- That dirt and debris (concrete in particular) have not penetrated the moving parts, such as levers, mechanical joints, guide ways, bearings, pipes, gaskets, hydraulic and electrical units, gears, wheels, chains, belts, pulleys etc
- That the parts are not excessively worn and that there is sufficient lubrication for the parts to work smoothly
- The state of the grease nipples. Repair if they are leaking or if they are damaged
- The tension of the chains and clean and grease when necessary.

Monthly maintenance

- The state of the lifting chain and related components. Replace if necessary.
- The state of the safety chains and related components. Replace if necessary.
- The state of the safety pins and blocking pins. Replace if necessary
- That there is no excessive play from the moving parts;
- That there are no signs of wear or corrosion. Replace if necessary;
- That the protective paintwork is in good condition. repaint if necessary

Yearly maintenance

- Replace the lifting chains and the safety chains

Recommended lubricant greases and oils



The machine obviously has moving parts and needs to be lubricated every week through the grease nipples. (Refer to all the greasing points mentioned in this manual)

The following table lists a series of lubricants (oils and greases) to achieve optimum performance and to maximise the life of the machine (**For gear motors consult the manufacturers manual**).

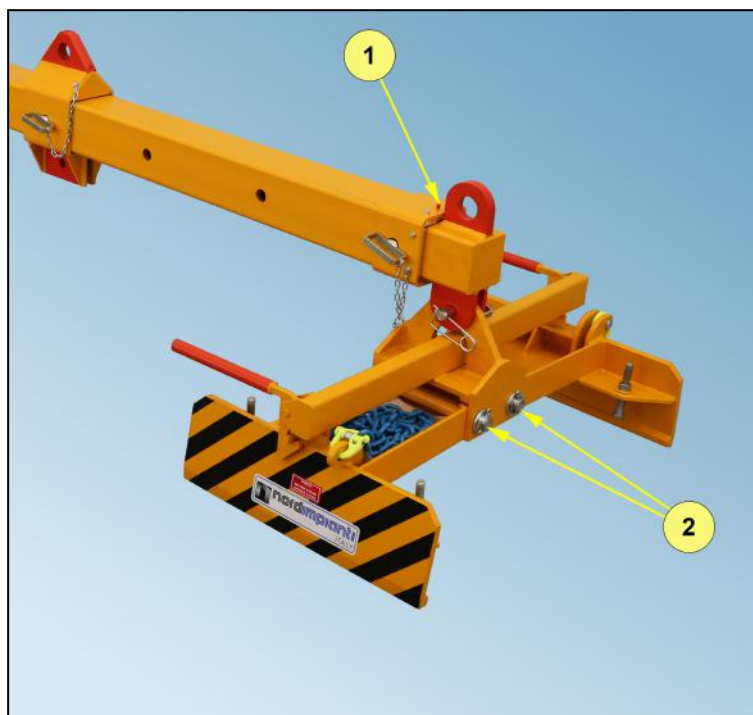
NORDIMPIANTI recommends the following greases						
Brand	BP*	Agip	IP	Shell	Mobil	API
Type	GREASE UNIVERSAL NLG I 2	GR MU EP 1	Athesia GR 1	Alvania EP GR 1	Mobilux 46	PGX0 EPL 1
* This is the grease that NORDIMPIANTI uses in its factories						



CAUTION! PROPER OIL DISPOSAL IS NORMALLY SUBJECT TO A STATUTORY WASTE MANAGEMENT DIRECTIVE. BE SURE TO ABIDE BY THE LAWS IN FORCE. IF IN DOUBT CONTACT THE RELEVANT AUTHORITIES

Greasing points

The telescopic lift is a very basic machine not requiring a lot of lubrication. **NORDIMPIANTI** recommends light lubrication on the parts highlighted below. Bear in mind that the parts to be lubricated may be repeated on the other side of the machine but are not in view on the photograph.



No	Description
1	Grease nipple to lubricate the surfaces of the extension beam
2	Clamp movement pins



Make sure that no grease or oil is deposited on any parts that come into direct contact with the element to be lifted. If this should happen thoroughly clean the grease or oil away.

3. Spare Parts

Maintenance stock	3-2
List of suggested spare parts	3-2
How to order spare parts	3-3
Spare parts order form	3-4

Maintenance stock

List of suggested spare parts

In order to reduce downtime, **NORDIMPIANTI** advises maintaining the following stock of parts:

Description	Qty
Safety chain for clamps	1
Pinion bearings	2
Connection pins	2

How to order spare parts

In case of a damaged device, the simplest and most secure way to fix it is replacing it with an original item by **NORDIMPIANTI SYSTEM SRL**. To order spare parts use a copy of the order form on the following page. When ordering spare parts always write the following information. Some of this information can be found on the Identification labels (see section *Identification labels* page 1-8)

- Order number
- Date
- Customer's corporate name
- Address for the invoice
- Delivery address
- Brand of the machine
- Type of the machine
- Serial number
- Year of manufacture
- Name of the item, drawing and code number, if available
- Quantity
- Preferred delivery method (truck, ship, plane or other)
- The order must be signed and stamped.

Send your order to:

NORDIMPIANTI SYSTEM SRL
Via Erasmo Piaggio, 19/A
66100 Chieti (CH) – Italy
T. +39 0871 540222
F. +39 0871 562408

E-mail: info@nordimpianti.com



Please do not hesitate to contact **NORDIMPIANTI SYSTEM SRL** if you need help concerning which spare parts to order.

Spare parts order form

Order No. _____ Date _____

Name of buyer _____

Invoice address _____

Delivery address _____

Machine _____ Type _____

Serial Number _____ Year _____ of _____
manufacture _____

Name of detail	☐ Drawing No. (if available)	Qty
	☐ Reference page in Instruction manual and position no. (if identifiable in picture/drawing)	

Supplementary notes _____

Means of transport

- | | | |
|--------------------------------------|--------------------------|-------|
| ☐ Truck | Name of carrier | _____ |
| ☐ Ship | Name of shipping company | _____ |
| ☐ Airplane | Name of Airline | _____ |
| ☐ Own vehicle | Reference | _____ |

Name and surname of the person sending the order

In block capitals _____

Signature and stamp _____

NORDIMPIANTI SYSTEM SRL
Via Erasmo Piaggio, 19/A
66100 Chieti (CH) – Italy

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4. Mechanical overview

5. Hydraulic and pneumatic overview

6. Electrical overview

7. Other