Concrete Experience

Machinery and Equipment

Products

Technology for the Precast and Prestressed Concrete Industry

mordimpianti

MACHINERY AND EQUIPMENT

Prestressed concrete element production is made up of different intermediate phases, each one accomplished by a dedicated machine or piece of equipment.

For that reason, NORDIMPIANTI has developed a large range of machines and equipment able to work on every phase of production.

NORDIMPIANTI offers customized solutions for the easy and efficient manufacture of every type of concrete element.

ALL OUR PRODUCTS ARE CHARACTERISED BY

Build quality Our machines are designed for long life using materials and components from leading manufacturers from all over the world.

SEW EURODRIVE · ABB · SIEMENS · italvibras g.silingardi · HARDOX® WEAR PLATE · SICK · CASAPPA FLUID POWER DESIGN

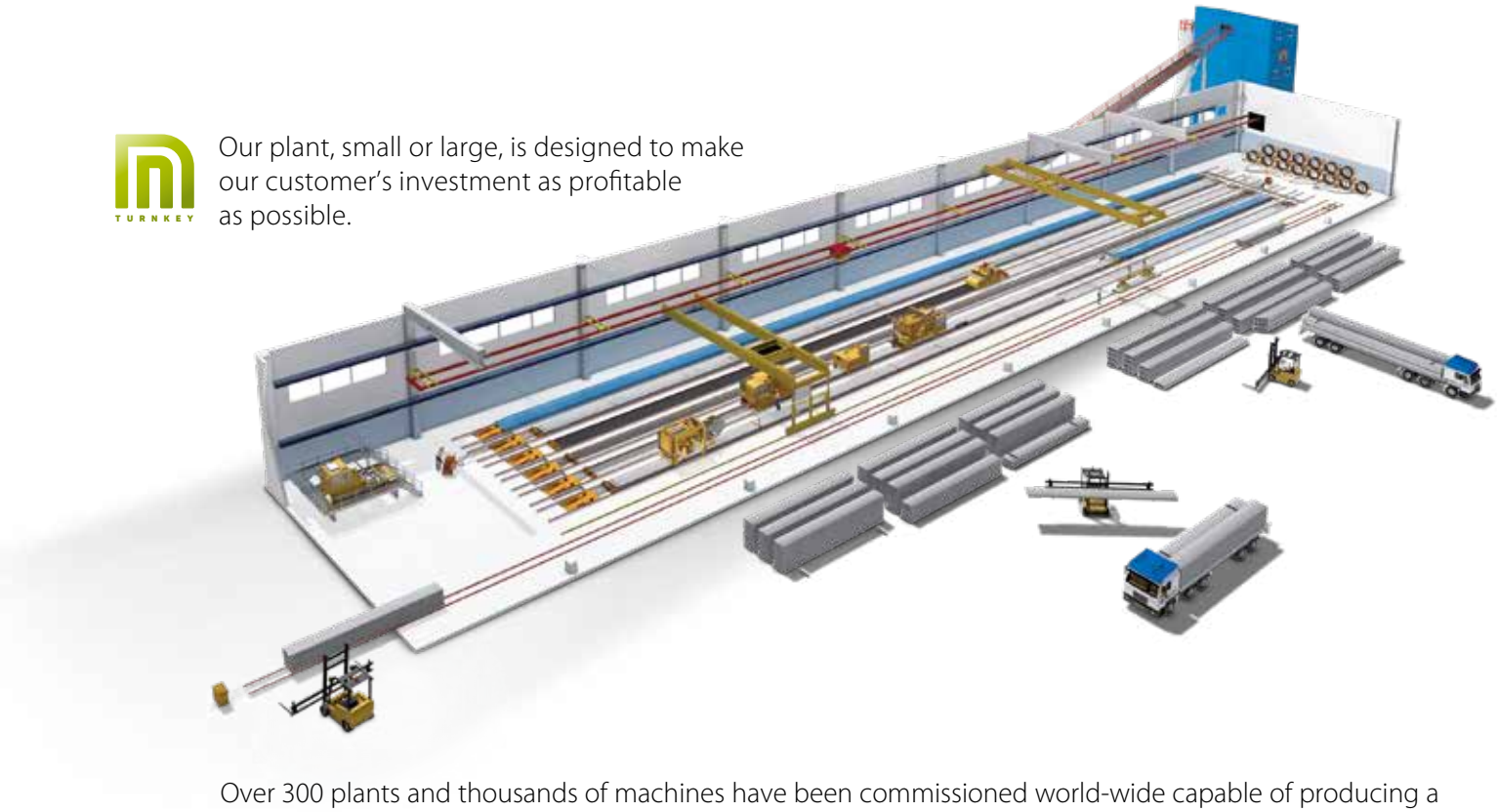
Reliability Our products have a proven international reputation. They are the preferred choice for many leading companies who need and expect the machines to work hard and with the minimum of downtime.

User friendly Our machines are considered simple to use because they are designed and built by listening to the advice of those who use them every day ... our clients.

Quick and easy maintenance It takes just a few simple steps because each operation has been studied and engineered thoroughly.

Safety Our products meet the strictest standards for the safety of workers and of the workplace.

Our plant, small or large, is designed to make our customer's investment as profitable as possible.



Over 300 plants and thousands of machines have been commissioned world-wide capable of producing a large range of prestressed concrete elements such as:

- Hollow core slabs
- Single hole beams
- Solid slabs
- Inverted T and I beams
- Vineyard posts
- Lintels
- Foundation piles
- Half slabs
- Filigree slabs
- Inverted double T slabs
- Inverted triple T slabs
- U slabs

We are able to supply everything from standard plant which includes moveable production machines right up to highly automated carousel plant for high production outputs.

In addition we offer element design, production management software, consultancy services and everything you may need to set up the best and most efficient prestressed and precast factory.

MANUFACTURING PROCESS

The production process of prestressed concrete elements has 12 different phases that should be organized over a 24-hour cycle taking into account the production output desired and the climatic conditions.

The production beds on which the concrete elements are formed have an optimal length of between 120 m to 150 m with widths between 1.2 m or 2.4 m.

However the length of the production bed also depends on the size of the production hall or the land available and may vary greatly from the standard dimensions.

The speed of the casting machine on the production bed varies between 1-3 m/min. according to the types of casting machine used (Extruder, Slipformer, Wet Casting or Nano Extruder) and the size of the prestressed concrete elements being produced.

Usually the production beds are cast once a day but if they are equipped with an accelerating curing plant they can be reused twice a day.

The typical working day starts by detensioning the prestressing wires from the previous day's production, cutting the slabs and moving them to the stocking area.

Production factories are set out in a logical order, with production phases appropriately scheduled to achieve the maximum efficiency with low production costs.

These phases are:

1. Detensioning of the steel wires
2. Element cutting
3. Lifting of the element from the beds
4. Transportation of the elements for stocking
5. Cleaning and oiling of the production bed
6. Laying of the steel wires
7. Stressing of the steel wires
8. Concrete transport and distribution
9. Element casting
10. Fresh concrete working
11. Element marking
12. Concrete curing

1 DETENSIONING OF THE STEEL WIRES
Page 30

When the concrete has reached the required strength to counteract the retracting of the internal prestressing wires, they are released.

Detensioning can be achieved in different ways depending on the stressing method used, single or multi.

With single wire stressing the detensioning is done on all the wires at the same time. This is achieved by the reaction beams on the detensioning side releasing of the tension on the wires in a regulated way through hydraulic cylinders controlled by a detensioning pump unit.

With multi-stressing, the detensioning is achieved by means of the same cylinders that initially stressed the wires, releasing the moveable anchor where the wires are fixed.

2 ELEMENT CUTTING
Page 16

On the production bed the concrete is formed as a continuous element by the casting machine along the entire length of the bed. A cutting saw is then used to cut the elements into the required lengths.

The saw is moved along the bed and is positioned at the desired cutting point where the element is to be cut using a diamond blade. Cuts can be transversal, angular or longitudinal depending on the cutting machine used.

The amount of time needed to make a cut varies between 1- 6 min. according to the kind and height of element to be cut.

During the cutting phase the blade is continuously cooled by a jet of water either from an onboard tank or through a motorized water tube reel and connected to a tap at the end of the bed.

3 LIFTING OF THE ELEMENT FROM THE BEDS
Page 19

After the elements are cut on the production beds they are ready to be lifted and transported to the stocking area. Special clamping equipment is used for the lifting and transportation operation.

This lifting equipment can be hooked onto the overhead crane or onto a special mobile lifting machine independently powered.

This particular lifting machine runs along the production bed, lifts the cut concrete elements off the production bed and deposits them outside at the head end of the shed.

4 TRANSPORTATION OF THE ELEMENTS FOR STOCKING - Page 22

The transfer of concrete elements from the production area to the stocking area can also be done using a rail trolley connected to a pulling system device. The drive motor of the pulling system is radio-controlled and located at the end of the storage area.

The trolleys can either handle elements in a single or double stacked for greater volumes.

The element transport line can cover considerable distances and is therefore a flexible and economically viable solution.

5 CLEANING AND OILING OF THE PRODUCTION BED
Page 24

A certain amount of concrete residue remains on the production beds once the manufactured elements have been removed. Therefore the beds must be thoroughly cleaned before re-using them.

This could be carried out manually using a broom, a shovel and a wheel barrow but would take a considerable waste of time.

The best solution is to use a multi-function cleaning machine that moves along the production bed removing debris and water.

A special oil sprayer is situated at the back of the machine and evenly sprays a fine film of detaching oil onto the surface of the production bed.

By the time the machine has reached the end of the production bed it is once again ready for re-use.

6 LAYING OF THE STEEL WIRES
Page 29

After the cleaning and oiling of the bed the same multi-function cleaning machine or a specific wire drawing trolley pull the steel wires along the bed.

The cross section and the quantity of the steel wires to be positioned depends on the type of the concrete elements being produced and the load bearing requirements.

The steel wires are taken from the coils placed within the appropriate stackable decoilers and placed at the pulling head of beds.

7 STRESSING OF THE STEEL WIRES
Page 30

The reinforcing steel wires have to be fixed at each end of the production bed and then put in tension before concrete casting.

The tensioning operation can be done in two ways, single wire or multi-stressing:

SINGLE WIRE STRESSING: This tensioning operation is done with a wires stressing machine composed of a hydraulic central unit and a stressing jack, which with its conical indented metal rod catches each wire pulling them to a pre-determined tension.

An electronic control device interrupts the tensioning operation once the load on the wire reaches the pre-determined necessary number of kN required.

MULTI-STRESSING: This tensioning operation is done with a multi-stressing machine composed of a 2 big hydraulic cylinders which pull a movable anchor where all wires have been fixed.

In this way all the wires are tensioned simultaneously in one operation.

In both cases the prestressing wires or strands are fixed at the reaction beams with appropriate anchor grips.

8 CONCRETE TRANSPORT AND DISTRIBUTION
Page 33

The concrete transport from the batching plant to the casting machine can be carried out in different ways depending on the customer's requirements and the factory layout.

The most economical method is to use a bucket hooked to an overhead crane.

In cases where quick and high volume production is required it is possible to use a flying bucket and a concrete distributor which follow the casting machine along the production bed reducing the time and manpower needed to deliver the concrete.

9 ELEMENT CASTING
Page 12

When the production bed has been cleaned, oiled and with prestressing wires in tension, the casting machine is brought onto the bed ready to start the element casting.

Depending on the type of concrete element being produced the casting phase can be performed by one of four NORDIMPIANTI casting machines Extruder, Slipfomer, Wet Casting or Nano Extruder.

Extruder:

The machine works with a semi-dry concrete and form the element by means of a extrusion method without any vibration.

The Extruder machine can be fitted with various forming inserts according to the height of element that is to be produced.

Slipformer:

The machine works with a semi-dry concrete and form the element by means of a moulding-vibrating-pressing-finishing action.

The Slipfomer machine can be fitted with various forming inserts according to the element that is to be produced.

Wet Casting:

The machine works with a semi-fluid concrete and form the element by means of a moulding-vibration-finishing action.

The Wet Casting machine can be fitted with various finishing moulds according to the element that is to be produced.

Nano Extruder:

The machine works with a semi-dry concrete and form the element by means of a extrusion and vibration method.

The Nano Extruder machine can be fitted with various forming tubes according to the height of element that is to be produced.

In all cases the casting machine is constantly supplied with concrete over the whole length of the bed.

10

FRESH CONCRETE WORKING
Page 40

Prestressed concrete elements may require work that has to be carried out soon after casting when the concrete is still fresh.

Such works could be:

Making cut outs and notches:

The concrete elements may require notches, holes and breaks according to the design of the building.

This operation can be carried out by a special machine that sucks up concrete from the element whilst the concrete is still wet.

The removed concrete is deposited within an on board debris container that can be easily and quickly emptied.

Making weep holes for rain drainage:

It is a well-known condition that some concrete elements such as hollow core slabs may collect and retain considerable amounts of rain water in the voids whilst in the construction phase and before building works are completed.

This water can cause unsightly cosmetic damage to the lower part of the slabs even after some time.

This problem can be avoided by drilling weep holes (drainage holes) at regular intervals on each void by a dedicated drilling machine.

Longitudinal cutting:

When a concrete element with a smaller width than the standard width is required then the elements can be cut longitudinally.

Usually the longitudinal cut is performed on cured dry concrete elements with a multi-angle cutting machine directly on the production bed. However, this means holding up production whilst the elements remain on the bed that cannot be used for a new production cycle.

To overcome this problem is it possible to use a saw designed specifically to operate solely on fresh concrete.

The fresh concrete saw works a little behind the casting machine and cuts the elements without the need for coolant.

It is such a simple machine that it can be pushed by an operator or, if used frequently, can be motorized for more convenience.

Side indenting:

If required, the sides of concrete elements can be produced with an indented profile. This particular process can be carried out directly by the production machine as it casts the element. It is required to increase the transfer of the horizontal forces generated by seismic action to the vertical resistant elements of the building (diaphragm behavior).

Surface grooving :

Concrete elements normally have a smooth upper part finish. However, with particular applications, it may be required to increase the degree of adhesion key between the upper part of the element and the final in-situ finish casting. To achieve this, it is possible to lightly scratch the surface of the element or to create more indented defined transversal grooves. This is done during the casting of the element when the concrete is still fresh using a groover machine.

The dimensions and the depth of the grooves can be tuned according to the customer's requirements.

11 ELEMENT MARKING

Page 38

Element marking is widely used to print product information or mark out lines on the concrete elements.

Product information may be product data such as name and logo of manufacturer, date of production, product length, batch code or the type of stressing wires pattern used.

Mark out lines may be used for cut lines, drawing out wet working templates or to meet the end user's specific requirements.

These operations can be achieved by plotter machines equipped with an inkjet printer head.

The ink used for the printing is waterproof and can be applied immediately after casting when the concrete is still wet or when the concrete is dry, before the cutting phase.

12 CONCRETE CURING

Page 36

Once the element casting has been completed, it needs a certain amount of time to reach the required strength before the steel wires can be released.

If there is no problem regarding the production volume required the elements are left to dry on the production beds; This takes from 24-72 hours depending on local temperature conditions and element sizes.

However if the number of production beds is limited and daily production output needs to be maximized it is possible to shorten the curing time by using an heating plant. Curing times can be shortened to 6-10 hours, after which the stressing wires can be detesioned and the production beds can be made ready for another casting.

During the curing it is advisable to use covering plastic sheets on the elements in order to limit the rate of evaporation from the concrete.

Products

The best quality
Casting Machines available

INDEX

PRODUCTS

EXTRUDER EVO2

- Extremely silent;
- High concrete compaction and steel wire bonding;
- Excellent top surface flatness;
- Accuracy of slab dimension;
- Cross-section heights available from 120 mm to 520 mm;
- Wide range of element widths i.e. 2 x 600 mm, 1200 mm, 1250 mm, 1500 mm, 2 x 1200 mm or 2400 mm;
- Wear parts engineered to be changed with the minimum of down-time;
- Rapid production changeover to manufacture different profiles and slab heights.

NORDIMPIANTI's EVO2 Extruder machines have been designed for the production of a wide range of prestressed concrete hollow core slabs both for floors and walls on long production beds.

The machine offers a cost-effective solution for companies who are looking for a flexible approach to produce hollow core slabs in various sizes.

The Extruder machine casts elements in a single phase using the extrusion method without the need for vibration thus keeping the noise of the machine to a minimum.

Concrete is pushed into place around the forming tubes by the Archimedean screws ensuring an excellent level of compaction at every point along the element.

The forming tubes and the side formers create the shape and the voids of the element.

The machine is modular and the power unit together with the hopper can easily be transferred to another forming insert to enable a slab with a different height to be produced.

Standard element heights range from 120 mm to 520 mm and are available in widths of 600 mm, 1200 mm, 1250 mm, 1500 mm and 2400 mm.

The heights of the elements, as well as the thickness of the vertical ribs can be varied within certain limits according to the application and the element specifications required.


Extruder EVO2


2.4 m wide Extruder EVO2


Individual screw speed, easy to adjust in operator panel


Trasmission in oil bath


New screws design with even more lifetime


New design for the smoother device


User friendly interface


Minimum downtime for forming insert changing

Low maintencance cost


Excellent surface finish


Excellent concrete compaction and steel wire bonding


Para-seismic side indenting device (Optional)

SLIPFORMER SF

- Product flexibility;
- Cost-effective;
- Cross-section heights available from 60 mm to 1000 mm;
- Wear parts engineered to be changed with the minimum of down-time.

NORDIMPIANTI's SF Slipformers machines have been designed for the production of a wide range of prestressed concrete products both for floors and walls on long production beds.

The machine offers a cost-effective solution for companies that are looking for a flexible approach to produce prestressed elements such as hollow-core slabs, inverted T beams, vineyard posts, lintels, half slabs, solid slabs, inverted double T beams, grandstand panels and other special shapes.

The SF Slipformer casts elements in a single phase using the vibration method without the need for formworks.

Concrete is delivered from the main hopper by feeding tables into delivery hoppers mounted on the forming insert. From here the concrete is delivered to the production bed and the voids are formed by a set of forming tubes. Special vibrating groups provide a two stage vibration process ensuring an excellent level of compaction at every point along the element.

The machine is modular and the power unit together with the hopper can be easily and quickly transferred to another forming insert to produce a different element.

Standard element heights range from 60 mm to 1000 mm and are available in widths of 600 mm, 1200 mm, 1250 mm, 1500 mm and 2400 mm.

The heights of the elements, as well as the thickness of the vertical ribs can be varied within certain limits according to the application and the element specifications required.


Hollow core slabs


Hollow core wall panel with coloured aggregate finish


Solid slabs


Inverted T beams


Half slabs


Slabs with lattice ribs


Vineyard posts


Lintels


Foundation piles


Inverted triple T slabs


Inverted double T slabs


U slabs

WET CASTING WF

- Produces elements with special attributes;
- Excellent surface finish;
- Wear materials designed for long service life;
- Rapid production changeover to manufacture different profiles and with different slab heights.

NORDIMPIANTI's WF Wet Casting machines have been designed for the production of prestressed concrete products with special attributes such as exposed wire or a corrugated upper surface.

The machine offers a cost-effective solution for companies that are looking for a flexible approach to produce hollow core slabs, solid slabs, inverted T beams and lintels that require these special attributes.

The WF Wet Casting machine casts elements in a single phase using the vibration method without the need for formworks.

Concrete is delivered from the auxiliary hopper to the Wet Casting machine's main hopper. It then falls by gravity directly onto the bed passing through the vibrating mould. The vibrating mould is equipped with 2 vibration motors ensuring an excellent level of compaction at every point along the element.

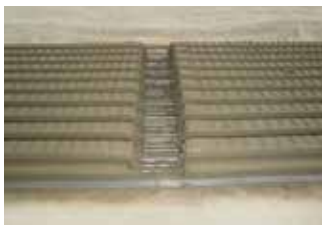
After, the concrete moves through the finishing mould which gives the final profile to the element.

To start production of a different element it is only necessary to change the finishing mould mounted on the machine. This is a quick and straight forward operation.

Standard element heights range from 60 mm to 300 mm and are available in widths of 600 mm, 1200 mm, 1250 mm, 1500 mm and 2400 mm.

The heights of the elements, as well as the thickness of the vertical ribs can be varied within certain limits according to the application and the element specifications required.


WF Wet Casting machine


Exposed wire


Corrugated upper surface


Exposed steel mesh


High quality finish


Vineyard posts


Inverted T beams


Hollow core slabs


Single hole beams


Minimum downtime for finishing mould change-over


Laser for accurate positioning


Auxillary hopper

NANO EXTRUDER

- Excellent surface finish;
- Production of 2x600 mm wide wall panels;
- Wide range of wall panels available;
- High casting speed;
- Rapid production changeover to manufacture different profiles and with different slab heights.

NORDIMPIANTI's NANO Extruder machine represents the state of the art in the production of hollow core slabs suitable for use as either non-load bearing partition walls or as a thin floor slab elements.

Depending on the type of elements to be produced, the NANO extruder from Nordimpianti offers cost-effective solutions for companies who are looking for a flexible approach to produce thin hollow core walls and floors in various sizes and applications.

The Extruder machine casts elements in a single phase using the extrusion method.

The machine is modular and a slab-specific product module can easily be changed in order to produce an element with a different height.

Standard element heights range from 80 mm to 120 mm and is available in widths of 2x600 mm.
The heights of the elements, as well as the thickness of the vertical ribs can be varied within certain limits according to the application and the element specifications required.


Extruder Nano


Extruder Nano


Production of 2x600 mm wide wall panels


Excellent surface finish


Packaging of partition wall panels


Storage of partition wall panels


Partition wall panels on-site


Erected partition wall panels


Example of buildings using partition wall panels

nordimpianti Concrete Experience ITALY

MULTI-ANGLE SAW C-AM

- Precision Cutting;
- Heavy duty construction;
- All types of cutting available (transversal, angular and longitudinal);
- Cutting blade electric motor with toothed drive belt;
- Fully automatic sawing (Optional);
- All speeds step are adjustable;
- Automatic double cut programs build into the saw machine;
- Continues speed control for blade motor;
- Remote support online (Optional).

The model C-AM saw is used to cut prestressed concrete elements to the desired length directly on the production bed.

Transversal cut (0°)
The machine is stationery on the bed whilst the cutting head cuts transversally across the element.

Longitudinal cut (90°)
The machine cuts the element with the cutting head in a fixed position and with the machine advancing along the bed.

Angular cuts (- 90° < 0 > 90°)
The machine and the cutting head advance in synchronization to create angled cuts. All the movements of the machine are electronically driven and controlled by the operator using a touch screen panel.


Multi-angle saw C-AM


Transversal cut


Angular cuts


Longitudinal cut


Casing for cutting water collecting


Washing device for cutted element


Electric cabinet protection


Double protection shield (one mobile and one fixed) for protection when the cutting blade is in operation


Laser device for automatic movement control

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CROSS-CUT SAW ETR

- Precision Cutting;
- Manual or automatic Control system with PLC;
- Fast cutting;
- Cutting blade electric motor with toothed drive belt;
- Fully automatic sawing (Optional).

The saw model ETR is used to cut prestressed concrete elements to the desired length directly on the production bed.

Transversal cut (0)°
The machine is stopped on the bed whilst the cutting head cuts transversally across the element.


Cross-cut Saw ETR


Electric motor and toothed drive belt to rotate the cutting blade


Water shields


Protection grills

CROSS-CUT SAW TR

- Precision Cutting;
- Heavy duty construction;
- Fast cutting;
- Manual or automatic control system with PLC;
- Cutting blade electric motor with toothed drive belt;
- Radio Controlled (Optional);
- Fully automatic sawing (Optional).

The saw model TR is used to cut prestressed concrete elements to the desired length directly on the production bed.

Transversal cut (90°)
The machine is stopped on the bed whilst the cutting head cuts transversally across the element.


Cross-Cut Saw TR


Electric motor and toothed drive belt to rotate


Water shields


Laser device for automatic movement control

FRESH CONCRETE SAW 500L

- Cutting height up to 500 mm;
- Fast cutting;
- Longitudinal cutting on fresh concrete;
- Economical and efficient;
- Manual or motorized.

The 500L model saw is used to make longitudinal cuts on prestressed concrete elements when the concrete is still fresh.

The machine cuts the elements with the cutting head in a fixed position and with the machine advancing along the bed.

The machine is available in two versions, motorized or manual:

Motorized:
The machine has a hydraulic control unit to action machine travel and the cylinder to raise or lower the cutting disc.

The transversal positioning of the disc at the cutting point is manual.

Manual:
The machine is pushed manually by the operator along the track during cutting.

The lowering and raising of the cutting disk is done by a hydraulic cylinder actuated by a hand pump. The lowering and raising of the cutting disk is done by a hydraulic cylinder actuated by a hand pump.


Fresh concrete saw


Fresh concrete saw


Fresh concrete saw


Hollow core slabs longitudinally cutted by fresh concrete saw


Hollow core slabs longitudinally cutted by fresh concrete saw


Hollow core slabs longitudinally cutted by fresh concrete saw

TELESCOPIC LIFTING BEAM WITH CLAMPS FOR HOLLOW CORE SLABS

FACTORY

- Practical and quick operation;
- Wide range of lifting beam lengths;
- Clamps with electromechanical opening-closing mechanism;
- Ability to change the clamp depending on the elements being lifted;
- Safe.

The telescopic lifting beam, hooked to an overhead crane, lifts and removes the elements from the production beds.

It consists of the following:

- Fixed main beam with 2 lifting hooks;
- Telescopic beams with clamp supports that move, adjusting the clamp positions;
- Pair of clamps with electromechanical opening-closing mechanism complete with safety chains.

Available in standard lengths of 9m – 12m – 16 m. NORDIMPIANTI can supply other customized lengths on request.

Telescopic lifting beam for hollow core slab

Telescopic lifting beam for hollow core slabs

Leg supports when arm is not in use

Double lifting hook

LIFTING BEAM WITH CLAMPS FOR HOLLOW CORE SLABS

FACTORY

- Practical and cost-effective;
- Wide range of customized lengths;
- Safe.

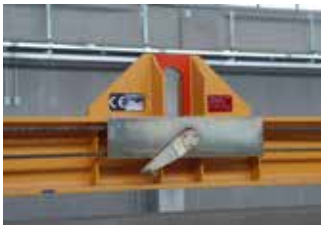
The Lifting beam, hooked to an overhead crane, lifts and removes the elements from the production beds.

It consists of the following:

- Lifting beam with adjustable clamp supports and safety pins;
- System to adjust the clamp's position along the lifting beam's length;
- Pair of clamps with opening and closing mechanism complete with safety chains.

Available in standard lengths of 6m – 7m – 9m – 12m. NORDIMPIANTI can supply other customized lengths on request.

Mechanical lifting beam for hollow core slabs



Clamp distance adjustable over the length of the beam

Double lifting hook for long lifting beams

Pair of clamps with opening closing mechanism complete with safety chains

LIFTING BEAM WITH CLAMPS FOR HOLLOW CORE SLABS

SITE

- Practical and cost-effective;
- Wide range of lifting beam lengths;
- Safe.

The lifting beam, hooked to the building yard crane, is needed for the lifting and erection of the concrete elements.

It consists os the following:

- Lifting beam with clamp supports adjustable along the length of the beam;
- Pair of clamps with opening and closing mechanism complete with safety chains.

The adjustment of the clamps along the length of the arm is carried out manually.

Mechanical fixed lifting beam for hollow core slabs

Clamps with opening and closing mechanism complete with safety chains

Ability to change the clamps to lift hollow core wall panels

TELESCOPIC LIFTING BEAM WITH CLAMPS FOR HOLLOW CORE SLABS

SITE

- Practical and cost-effective;
- Wide range of lifting arm lengths;
- Clamps adjustable over the length of the beam;
- Safe.

The lifting beam, hooked to the building yard crane, is needed for the lifting and erection of the concrete elements.

The extension of the telescopic arms is done manually.

It consists of the following:

- Fixed main beam;
- Telescopic beams with clamp supports adjustable over the length of the beam;
- Pair of clamps with opening and closing mechanism complete with safety chains.

The extension of the telescopic arms is done manually.

Clamps with opening and closing mechanism complete with safety chains

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LIFTING BEAM WITH CLAMPS FOR INVERTED T BEAMS

FACTORY

- Practical and cost-effective.

The Lifting beam, hooked to an overhead crane, lifts and removes the inverted T beams that are more than 2.5 m long from the production bed.

It consists of:

- Lifting beam with adjustable clamp supports and lifting hooks
- Pair of clamps with opening-closing mechanism.

Mechanical lifting beam for inverted T beams

LIFTING CLAMP FOR INVERTED T BEAMS

FACTORY

- Practical and cost-effective.

The clamp, hooked to an overhead crane, lifts and removes the inverted T beams that are less than 2.5 m long from the production bed.

Rubber grips to avoid damage to the elements during lifting

HYDRAULIC LIFTING BEAM

FACTORY

- Practical and cost-effective;
- Possibility to change the lifting clamps

The lifting beam, hooked to an overhead crane, lifts and removes the elements from the production beds.

It consists of the following:

- Fixed main beam with lifting hook;
- Pair of clamps with hydraulic opening-closing mechanism.

Hydraulic lifting clamps for posts

Hydraulic lifting clamps for wall panels

LIFTING MACHINES

- Elements can be lifted without using the overhead crane;
- Quick lifting operations;
- Ability to adjust the position of the clamps depending on the length of the element to be lifted;
- High load capacity.

This machine is used to lift and carry the cut elements from the production bed to the exterior of the factory, from where a forklift or overhead crane will take them to the stocking area.

The lifting machine can be equipped with different clamps depending on the element to be lifted. When lifting short elements the machine can be fitted with more clamps in order to efficiently transport as many elements at the same time as possible.

Lifting machine 3500S

Lifting machine 7000S

Lifting machine 12000S

Interchangeable lifting clamps depending on the element to be lifted

PRODUCT STACKER

- Elements can be lifted without using the overhead crane;
- Quick lifting and transport operations;
- Ability to adjust the position of the clamps depending on the length of the element to be lifted;
- High load capacity.

The machine is used to lift the cut elements from the bed and to stack them along the production bed itself.

Once the stacking is complete the machine is able to lift and transport the entire stack to outside the production hall from where a forklift or overhead crane can take them to the stocking area.

This minimizes the amount of backwards and forwards travel needed to clear a production bed of manufactured product.

The Product Stacker can be fitted with different clamps depending on the element to be lifted. When lifting short elements the machine can be fitted with more clamps in order to efficiently transport as many elements at the same time as possible.

Distance between clamps is adjustable using a handle

Lifting clamps actioned hydraulically

Stacker device

Ergonomic operator seat

PULLING DEVICE FOR ELEMENTS TRANSPORT WAGONS

- High load and transport capacity;
- Ability to move more than one pair of trolleys simultaneously;
- Ability to carry different elements without changing equipment.

The equipment is used to pull the transport wagons from the production area to the stockyard area. The transport wagons are moved by means of a steel cable operated by a pulling system.

An inverter controls the electric motor of the pulling system meaning that the cable movement is gradual.

It consists of:

- A power unit positioned outside the factory in the stocking area.
- A spring loaded buffer positioned at the beginning of the transport line.

Concrete element transport line

Concrete element transport line

Buffer cylinder with safety protections

Possibility to cover large distances

TRANSPORT WAGONS

- High load capacity;
- Easy to use, elements with different sizes can be carried together;
- Wagons available in singles or doubles.

The wagons are used to transport the elements outside the production factory where a lifting trolley or a overhead crane is used to stack them.

The frame is of heavy duty construction with wheels designed for heavy loads.

The elements can be removed from the production beds and loaded one on top of another onto correctly spaced wagons.

Wagons are available for the transport of elements in widths of 1200 mm and 2400 mm.

Single element transport wagons

Double element transport wagons

Concrete element transport line

Double element transport wagons

VACUUM BED CLEANER

- Multitasking (cleaning and oiling);
- Accurate cleaning of the casting beds;
- Heavy-duty construction and efficient so is able to clean and oil the bed in one phase;
- 4 wheels, independently driven by hydraulic motors, give the machine maximum traction on the rails;
- Able to remove the debris attached to the production bed.

The vacuum bed cleaner has been designed to perform 2 different operations within the prestressed concrete element production cycle:

Cleaning the production bed:
The bed is cleaned using rotating disc scrapers which break up the concrete residue on the production bed. The debris, together with the waste water is then sucked up and deposited into a collection bin for quick and easy emptying.

Oiling the production bed:
The oiling takes place by means of nozzles which spray oil onto the production bed. As the oil is sprayed a rubber squeegee spreads the oil evenly across the bed making the machine as efficient as possible with the consumption of the oil.


Vacuum bed cleaner


Debris removal system


Container for collecting debris and water with hydraulically powered emptying


Detaching oil sprayer


Water tank to apply water to the production bed using drippers, during the cleaning phase


Protective noise reducing panels (Optional)


Bed before cleaning


Bed after cleaning

AUTOMATIC MULTIFUNCTION VACUUM BED CLEANER

- 3 different bed preparation operations in a single pass;
- Fully automatic;
- Multitasking (cleaning, oiling and steel wire laying);
- Accurate cleaning of the casting beds;
- Heavy-duty construction and efficient so is able to clean and oil the bed in one phase;
- 4 wheels, independently driven by electric motors, give the machine maximum traction on the rails;
- Able to remove the debris attached to the production bed.

The automatic multifunction vacuum bed cleaner has been designed to perform all of the 3 different bed preparation operations in a single pass:

Cleaning the production bed:
The bed is cleaned using rotating discs with brushes which remove the concrete residue on the production bed. The debris, together with the wastewater is then sucked up and deposited into a collection bin ready for quick and easy emptying.

Oiling the production bed:
The oiling takes place by means of nozzles which spray oil onto the production bed. As the oil is sprayed a rubber squeegee spreads the oil evenly across the bed making the machine as efficient as possible with the consumption of the oil.

Laying the prestressing wires:
The prestressing cables are pulled from one end of the bed to the other by attaching the wires to the rear of the machine using special cable clamps.

The multi-function machine is of heavy-duty construction and together with the 4 wheel drive is able to pull up to twenty 1/2" cables.

Machine travel along the bed is automatic and controlled via a laser. This allows the machine to travel from one end of the bed to the other without any manual intervention.


Automatic multifunction vacuum bed cleaner


Debris removal system


Container for collecting debris and water with hydraulically powered emptying


Side rotating brushes


Detaching oil sprayer


Bar to lay the steel wires


Front scraper

MULTIFUNCTION BED CLEANER

- Multitasking (cleaning, oiling and steel wire laying);
- LPG, DIESEL, ELECTRIC with cable or ELECTRIC BATTERY powered;
- Excellent cleaning of the casting beds;
- Heavy-duty construction and efficient so is able to lay all the steel wires simultaneously;
- 4 wheels independently driven by hydraulic motors to give the machine maximum traction on the rails;
- Double regulation system for the height of rotating brush group.

The multi-function bed cleaner has been designed to perform 3 different operations within the prestressed concrete element production cycle:

Cleaning the production bed:
The machine cleans the production bed by means of a rotating brush that removes the residue from the last production cycle and deposits this into an easy to empty debris container. At the same time two rubber squeegees spanning the width of the bed move waste water to the lower end of the bed for removal.

Oiling the production bed:
The oiling is done through nozzles which spray oil onto the production bed. As the oil is sprayed the rubber squeegees spread the oil evenly across the bed.

Two rubber squeegees are used to maximize the cleaning efficiency of the water removal and to minimize the consumption of oil when oiling.

Laying the prestressing wires:
The prestressing cables are pulled from one end of the bed to the other by attaching the wires to the machine using special cable clamps.

The multi-function machine is of heavy duty construction and together with the 4 wheel drive is able to pull a large number of cables at once thus minimizing the number of times it has to travel up and down the production bed.

Different power options, such as Diesel, Electric, Battery or GPL are available for this machine to enable customers to choose exactly what they need.


Multifunction bed cleaner with rotating brush


Large diameter rotating brush made up interchangeable PVC rings


Detaching oil sprayer


Bar to lay the steel wires


Replaceable squeegee for water collecting


Replaceable squeegee to spread the detaching oil


Container for collecting debris and water with hydraulically powered emptying

DEBRIS CONVEYOR CHAIN

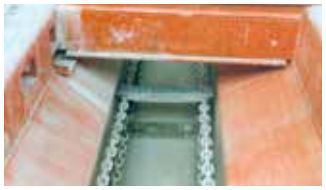
- Solves the problem of the collection and removal of cutting water from the previous cutting cycle;
- Can convey solid debris even large pieces;
- Reduces costs by reducing maintenance and removing the need to manually clean the bed at frequent intervals.

The debris conveyor chain is positioned across the tail end of all the production beds (at the opposite end from the stressing side).

It collects the cutting water and the debris of the production beds and conveys it into a slurry tank.

Debris conveyor chain

Water and the debris in the slurry tank



Debris conveyor chain

Safety grate for debris conveyor chain

Water being collected manually without the debris conveyor chain

WIRE DRAWING TROLLEY

- Heavy-duty construction and efficient so is able to lay all the steel wires simultaneously;
- Fast operation;
- 4 wheels independently driven by hydraulic motors to give maximum traction on the rails;
- Independently diesel powered;
- Operator's seat.

The machine is used to lay the steel wires on the casting beds unwinding the cable from the wire coil holder trolley or the stackable strand decoilers.

The steel wires are fixed to the back of the trolley in two ways. One is by by means of quick coupling devices. The second is by using the movable anchor from the detensioning side's reaction beam which is appropriately positioned on the trolley. The cables are then attached to the reaction beam using anchor grips.

Wire drawing trolley

The anchor and the wire spacer in their positions on the trolley

Equipment to lift the movable anchor (Optional)

High pulling capacity

Double wire drawing trolley

WIRE COIL HOLDER TROLLEY

- Able to stock up to 96 coils;
- Can to be moved in front of the production bed being prepared;
- Possibility of stocking different types of wires;
- Quick and easy operation to change coils.

The wire coil holder trolley is placed at one end of the production bed and is used to store and unwind the wires from the coils.

The trolley is movable and can be positioned in line with the production bed being prepared for production.

Being able to store up to 96 coils makes this equipment particularly useful when producing multiple elements such as joists, posts and lintels where the number of prestressing cables required is very high.

Coil holder trolley during the laying of the steel wires

Guide for the wires during the unwinding

Safety grill protections with side and back panels

STACKABLE STRAND DECOILER

- Economic and easy to use;
- Equipped with an anti-rolling system;
- The frame can be adjusted to suit the width of the coil.

The stackable strand decoiler is used to store strand or wire coils in a steel frame from where they can be unwound.

Stackable decoilers for strands or 2-3 wires

The wire stackable decoilers can be mounted on top of one another to save space and they can be disassembled to reduce space during transport.

SINGLE WIRE CAGES

- Economic and easy to use;
- Equipped with an anti-rolling system;
- The frame can be adjusted to suit the width of the coil.

The single wire cages is used to store single wire coils in asteel frame from where they can be unwound.

Single wire cages are stored horizontally and the cable unwinds through the top of the decoiler when being extracted for cable laying.

Single wire cages

The single wire cages can be disassembled to reduce space during transport.

WIRE STRESSING MACHINE

SINGLE STRESSING SYSTEM

- Practical and fast tensioning;
- Possibility to set the machine according to customer's requirements;
- Accuracy of the applied load;
- Easy to operate.

The wire stressing machine is used to stress the wires using stressing jacks.

Depending on the version required by the customer the wire stressing machine can be equipped with 4 different stressing jacks, each one able to stress different cable types at different pressures.

Wire stressing machine

Wire stressing machine with 4 stressing jacks each with 600 mm strokes

Each stressing jack has it's own dedicated hydraulic circuit

Wire stressing machine holder trolley for movability and to support the stressing jack during the steel wire stressing (Optional)

REACTION BEAMS (WITH DETENSIONING SYSTEM)

SINGLE STRESSING SYSTEM

Tensioning side

Detensioning side

- Heavy-duty construction;
- Possibility to detension the wires before cutting;
- Large range of load capacities un to 500t for the production of concrete elements up to 1 m high.

The reaction beams, fixed in the concrete anchoring blocks, are used to bear the load of the stressing wires.

Depending on the type of the element to be produced reaction beams of 150t – 200t – 300t – 400t and 500t are available.

Each pair consists of a tensioning beam at one of the bed and a detensioning beam at the other end of the bed. The detensioning beam also includes a movable anchor for steel wire releasing before cutting.

Reaction beam (tensioning side)

Reaction beam (detensioning side)

Heavy-duty construction

Prestressing wires fixed with anchor grips on the reaction beams

REACTION PLATES (WITHOUT DETENSIONING SYSTEM)

- Heavy-duty construction;
- Easy and cost-effective solution.

The reaction plates, fixed in the concrete anchoring blocks, are used to bear the load of the stressing wires.

Depending on the type of the element to be produced reaction plates of 200t and 300t are available.

Reaction plates

Reaction plates

Reaction plates

DETENSIONING PUMP UNIT

SINGLE STRESSING SYSTEM

- Cost-effective solution;
- Fast detensioning.

In the single wire stressing the detensiong pump unit is used for the control of the detensioning cylinders installed within the reaction beam on the detensioning side.

The connections between the detensioning pump unit and the cylinders is by high pressure tubes and quick release connectors.

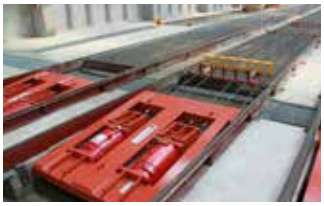
Detensioning pump unit connected to detensioning cylinders

DETENSIONING CYLINDERS

The detensioning cylinders come complete with collar spacers.

In the single wire stressing the detensioning cylinders are installed in the reaction beams (detensioning side) and they are used to release the tension of the steel wires before the cutting of the prestressed concrete element. They are heavily chromium plated.

The connections between the detensioning pump unit and the cylinders is by high pressure tubes and quick release connectors.



The detensioning cylinders installed in the reaction beams

MULTI-STRESSING MACHINE

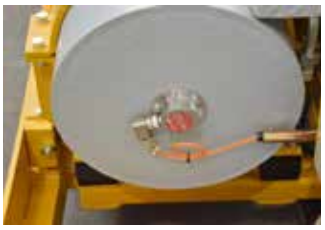
ADVANTAGES
- Quick tensioning and detensioning;
- Only one machine is required to tension and detension stressing wires of different dimensions;
- Operated at a safe distance by remote control.

The multi-stressing group is used to stress and release the preestressing wires simultaneously using hydraulic cylinders.

The multi-stressing group is movable across the heads of the production beds and it is easily operated by a remote control system.

Multi-stressing machine

Multi-stressing machine



Load cell installed on the stressing cyclindres

Hydraulic power unit

Remote control

Reaction beam with reaction spacer incorporated

REACTION BEAMS

MULTI-STRESSING SYSTEM

- Heavy-duty construction;
- Able to detension the wires before cutting;
- Large range of load capacities up to 300t for the production of concrete elements up to 500 mm high.

The reaction beams, fixed in the concrete anchoring blocks, are used to bear the load of the stressing wires.

Depending on the type of the element to be produced reaction beams of 200t and 300t are available.

Each pair consists of a tensioning and detensioning beam at one end of the bed and a fixed reaction plate at the other end of the bed.

Reaction beams
(tensioning and detensionig side)

Reaction plate fixed site

Heavy-duty construction

BUCKET FOR CONCRETE

MECHANICAL OPENING

- Easy and cost-effective solution;
- Wide range of bucket capacities.

This bucket, hooked to an overhead crane is used to transport concrete from the batching plant to the hopper of the casting machine.

It is mechanically opened and the concrete is delivered when it is positioned onto a device fitted on the hopper of the casting machine.

Concrete discharge into the hopper of the casting machine

Concrete discharge into the hopper of the casting machine

The discharge door is activated mechanically by engaging the steel triangles situated on both sides of the casting machine's hopper

BUCKET FOR CONCRETE

HYDRAULIC OPENING

- Easy and cost-effective solution;
- Special design for wet concrete;
- Wide range of bucket capacities.

This bucket, hooked to an overhead crane is used to transport concrete from the batching plant to the hopper of the casting machine or, in case of wet concrete, to the steel mould used.

The bucket opening to deliver the concrete is hydraulically powered and controlled by an operator using a remote control.

The power can be supplied either from a battery or via the crane through a cable reel.

Bucket for wet concrete transport – battery operated

The bucket for wet concrete has a special design to avoid concrete leaking from the sides during discharge

BUCKET HOLDER TROLLEY

- Easy and cost-effective solution.

Where the concrete mixing plant is situated beyond certain limits from the production area it is possible to use a bucket holder trolley to transport the buckets from the mixer to a point where the overhead crane, inside the production area is able to take the buckets and carry them to the production machine or to the steel mould to use.

The trolley moves on rails, and can be either manual or powered via a cable reel drum.

The trolley is designed to transport up to 2 buckets at a time.

Trolley during the bucket transport from the batching plant to the production area

Trolley for 2 hydraulic buckets (Buckets optional)

Anti-collision protection

Manual bucket holder trolley

BUCKETS HOLDER ROTATING PLATFORM

- User friendly;
- Minimum space required.

The platform, positioned between two columns is used to position the buckets under the mixer when the mixer is situated out of the production area.

After the first bucket is loaded the platform is rotated so that the empty bucket is now under the mixer.

The already full bucket can now be hooked to the overhead crane and transported to the casting machine.

Bucket being loaded under the mixer

BELT CONCRETE TRANSPORTER

- Easy and cost-effective solution.

The machine is used to supply concrete to the casting machine when there is no overhead crane available.

It travels along the rails of the production bed. The concrete is delivered from the transporter's hopper to the casting machine's hopper using a belt conveyor.

The transporter's hopper is hydraulically lifted during the concrete discharge and lowered for safety reason when the transporter needs to move along the production bed.

Concrete being supplied to the casting machine

FLY BUCKETS

- Easy and cost-effective solution;
- Automatic transportation of concrete from the batching plant to the casting machine.

The fly bucket is an efficient method to transport the concrete when the batching plant is a long way from casting area or when the concrete has to be supplied through a concrete distributor machine.

The fly bucket travels on rails positioned at high level so that it does not interfere with other equipment in the plant.

The fly buckets are designed to travel at high speeds and are capable of covering considerable distances in a short time and thus do not compromise the quality of the transported concrete.

Combined with a concrete distributor it allows for complete automatic operation from the batching plant without any operator intervention.


Fly bucket


Fly bucket with the concrete distributor


Fly bucket filling the concrete distributor

A management software allows the simultaneous use many fly buckets without the danger of interference. The buckets can be used in new or existing facilities and can travel inclines and tight radius curves.

CONCRETE DISTRIBUTOR

- Easy and cost-effective solution;
- Automatic supply of concrete to the casting machine

The concrete distributor is a bridge crane used for the distribution of concrete to the casting machines. In special cases the concrete distributor can be utilised for additional functions depending on a feasibility study of the plant layout.

There are various models of concrete distributor:

Half gantry concrete distributor:
The concrete distributor travels with one leg on the ground on a rail and the other on a rail mounted on the columns of the factory.

Overhead Concrete distributor:
The concrete distributor travels on overhead rails mounted on the columns of the factory.

On request the concrete distributor can be equipped with:

- A system to lift the bucket or a casting machine;
- Power supply for the casting machine. In this case the casting machine does not need to be fitted with a cable reel;
- Hoists for the concrete bucket;
- A water tank to supply water to the casting machine for production if necessary.


Half gantry concrete distributor


Fly bucket filling the concrete distributor


Casting machine being lifted by the concrete distributor


Electrical supply from the concrete distributor

ACCELERATING CURING PLANT FOR CONCRETE

- Efficient operation;
- Easy plant maintenance;
- Easy to install. Container version avoids building work;
- Low labour costs as the heating cycles are temperature adjustable.

The heating plant supplies hot water to pipes within the production bed to speed up the curing of the concrete.

The heating plant can be supplied separately or already assembled within a 20 or 40 ft. container depending from the size of the plant, ready for use and able to be placed in the desired position within the production factory.

The heating cycle is fully automatic controlled and managed by a maturity control system device.

Heating plant

Installation of the heating plant container

Pumps for the secondary pumping circuit to the production bed

Pressure gauge with ball valve (in-flange type) for each production bed

Insulated aluminium pipes

Primary pumping circuit manifold

MATURITY CONTROL SYSTEM

- Able to program the heating cycle;
- Modular operating system;
- Data logging;
- Manual or automatic operation.

The maturity control system is a software developed to control and manage the heating plant and is configurable depending on the production requirements.
The system consists of a control panel with a touch screen operator panel for easy use and programming.

The main functions of the maturity control system are:

- To program the thermal cycle or automatic start/stop of the plant or to control individual pumps supplying water to the beds beds.
- Adjustment of the boiler to achieve the desired temperature of the bed. This adjustment is done according to sensors on the bed detecting the temperature.
- To signal an alarm if there is a system malfunction.
- Data management of the thermal cycles for the purposes of quality control on the finished product.

The maturity control system allows the plant to be managed automatically ensuring efficient and economical operation whilst at the same time giving the operator the possibility to control the boiler for individual beds.

Maturity control system

Maturity control system

COILER HOLDING TROLLEY

- Easy and cost-effective;
- Able to use cover sheets of different widths depending on the concrete element to cover.

The trolley moves along the production bed in order to lay and roll up the nylon sheets used for the covering of the concrete elements in order to reduce the curing time of the concrete.

The coiler is a steel framed and mounted on the trolley to hold the nylon sheet.

The number of coilers required in the production cycle equals the number of beds in daily production.

The nylon sheets have to be rolled up manually via a crank positioned on the side of the reel.

To prevent interference to machines on adjacent beds the reel can be moved out the way whilst other machines are passing.

Coiler holding trolley behind the casting machine

Coiler holding trolley - manual type

The trolley allows the coiler to be shifted to one side when another machine needs to pass on an adjacent production bed

The coilers are easily interchangeable on the trolley

PLOTTER FOR HOLLOW CORE SLABS

- High quality printing;
- Eliminates human error during marking procedure;
- Ability to print almost any type of line or character on the element;
- Easy to program and to transfer the data to the plotter wirelessly;
- Self powered from a high capacity re-chargeable battery.

The plotter is used to mark hollow core slabs directly on the production bed.

The machine is self-powered and travels on the production bed controlled by computer software and a laser device.

On request the plotter can be fitted with the following accessories:

- Printer head capable of printing on the sides of the hollow core slabs
- Drilling unit to make weep holes on the lower part of the hollow core slabs whilst the concrete is still fresh

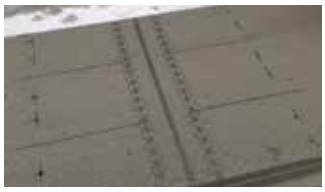

Plotter for hollow core slabs


Inkjet head for during the element marking phase


Laser device


Large touch screen control panel


High quality printing


Able to print various text and marks on the elements


Operators working on the fresh concrete marked out by the plotter


Operators working on the fresh concrete marked out by the plotter

T BEAMS MARKING MACHINE

AUTOMATIC TYPE

- High quality printing;
- Eliminates human error during marking procedure;
- Ability to customize the printing text;
- Easy to program.

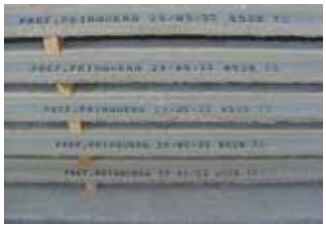
The machine is used to mark Inverted T and I beams directly on the production bed.

The machine is motorized and travels on the production bed controlled by computer software and a laser device.


T beam marking machine automatic type


Ink jet head for marking the cutting point


Laser device


Printed information on Inverted T beams

T BEAMS MARKING MACHINE

SEMI-AUTOMATIC TYPE

- High quality printing;
- Eliminates human error during marking procedure;
- Ability to customize the printing text;
- Element marking and cutting carried out at the same time;
- Printing data transfer is directly from the saw.

The machine is used to mark Inverted T and I beams directly on the production bed.

The machine travels on the production bed coupled and pushed by the cutting saw. The machine is connected to the saw mechanically and electronically.

The electrical supply and printing data comes from the saw. As the saw starts its own cutting cycle it sends a signal to initiate the printing cycle.

T beam marking machine connected with automatic cutting saw

Connection between T beam marking machine and Saw

Printed information on Inverted T beams

CONCRETE ASPIRATOR

- Ability to suck the concrete from elements made by any casting machine;
- High vacuum power;
- Versatile and user friendly;
- Collection bin operated hydraulically and easy to empty;
- Interchangeable suction head;
- Manually operated suction tube mounted on a weight balance for ease of use.

The machine is used to make openings such as notches, holes or breaks on the wet concrete on elements previously marked out either manually or by a NORDIMPIANTI plotter machine.

The wet concrete is sucked through a suction nozzle and pipe operated manually. The removed concrete is deposited in a debris container within the machine that can quickly and easily be emptied.

With this machine it is also possible to remove concrete at the cutting point to expose the prestressing wires.

Concrete aspirator

Concrete aspirator working behind the casting machine

Side vacuum pipes for rail cleaning (Optional)

Vacuum assembly with sound insulated inspection panel

Concrete being removed at the cutting point to expose the wires

Side cut-out with noteworthy dimensions

Exposed wires

Open cores

Hammer head pockets

Holes and breaks

AUTOMATIC CONCRETE ASPIRATOR

- Completely automatic operation
- Ability to suck the concrete from elements made by any casting machine;
- High vacuum power;
- Versatile and user friendly;
- Collection bin operated hydraulically and easy to empty;
- Interchangeable suction head;
- Manually operated suction tube mounted on a weight balance for ease of use.

The automatic concrete aspirator is used to make openings such has open cores, hammer head pockets, step cut outs, side cut outs, holes and breaks on the fresh concrete.

The fresh concrete is sucked through a suction nozzle which is operated by industrial multi-axis robot installed in the front part of the machine.

The removed concrete is deposited in a debris container within the machine that can be quickly and easily emptied.

With this machine it is also possible to remove concrete at the cutting point to expose the prestressing wires.

The work sequence is downloaded onto the machine via a plot file either by WiFi or a USB key. Machine travel along the bed is automatic and controlled via a laser.

All the operations to remove the concrete are carried out automatically by the robot.


Automatic concrete aspirator


Multi-axis robotic arm


Concrete aspirator working behind the casting machine


Scanning laser safety sensor


Side cut-out with noteworthy dimensions


Exposed wires


Open cores


Hammer head pockets


Holes and breaks

WEEP HOLE DRILL

Hollow core slabs with holes

Detail of weep holes at the botton surface of the concrete element

- Drilling precision
- Able to work on hollow core slabs with different void configurations

The machine is used to make holes in the lower part of the hollow core slabs after the concrete has cured. These weep holes are necessary to allow the water that accumulates within the slab during manufacture or stocking to escape.

Drilling takes place by means of percussion drills which are automatically activated as soon as the product is placed on the machine.

SURFACE GROOVES MACHINE

- Manual travel or automatic travel using a laser (optional)
- Able to customize dimensions and also incorporate a second pass
- Speed and precision of the grooves
- Able to make grooves on hollow core elements made from every type of casting machine

The machine is used to make transversal grooves on the upper surface of the hollow core slabs.

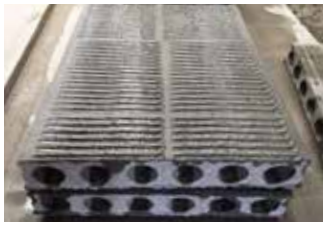
The grooves are made by diamond discs appropriately mounted on a rotating shaft.

The width and depth of the grooves can be set according to customer's requirements.

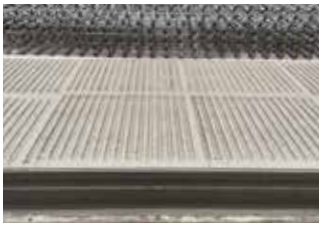
The surface groover follows behind the casting machine and, as an option, can be fitted out to work completely automatically

Surface grooves machine which follow the casting machine

Surface grooves machine



Grooved hollow core slabs



Grooved hollow core slabs

CASTING BEDS

To meet the diverse needs of customers NORDIMPIANTI provides different bed models each with its own specific characteristics. All the models are built to the same quality standards and are designed to withstand all loads expected during element production.

STEEL BED NI-153-160-40

Side edge	160x20mm
Plate thickness	10mm
Width bed	1530mm
Weight approx.	250 Kg/m

STEEL BED NI-153-40-20

Side edge	40x20mm
Plate thickness	10mm
Width bed	1530mm
Weight approx.	210 Kg/m

STEEL BED NI-129-57-25

Side edge	57x25mm
Plate thickness	8mm
Width bed	1290mm
Weight approx.	180 Kg/m

STEEL BED NI-159-57-25

Side edge	57x25mm
Plate thickness	10mm
Width bed	1590mm
Weight approx.	205 Kg/m

CONCRETE BEDS

- Low installation cost;
- Suitable for the production of elements not requiring a smooth bottom surface

The bed is formed by a smoothed concrete base with a set of rails on which the production machines run.

The track gauge is chosen according to the type and number of the products to be produced.

Track laying

Checking the level of the rails

Concrete bed preparation

MILLING MACHINE

FOR CONCRETE BEDS

- High quality finish of the production bed;
- Available for hire as well as for purchase.

The machine is used to level the concrete bed with respect to the rails and polish the concrete bed to a smooth finish.

The polishing takes place by means of a diamond disc and can be used to re-polish the bed as and when necessary.

Milling machine for concrete beds

Worn concrete bed

Concrete bed recently polished

Element with uneven lower surface produced on a worn bed

WALL PANEL INSTALLATION TROLLEY

- Manouverable;
- Safe;
- Easy to use;
- Battery powered for independent operation.

The wall panel trolley is a safe and a useful means to transport and lift wall panels on-site when they are being mounted into position. Equipped with wheels that can be steered, the trolley can be easily maneuvered throughout buildings under construction.

Trolley in the transport position of the wall panel

Trolley in the mounting position of the wall panel

SERVICE PLATFORM

- Convenient for maintenance operations on the machines;
- Structure can be disassembled;
- Wide ramps and walkways.

The service platform helps make the maintenance and calibration of the casting machines easy and efficient.

The machines are supported allowing easy access to the underside of the Extruder, Slipformer, Wet Casting or Nano Extruder machines.

The service platform is also used to perform maintenance operations conveniently and safely.

Service platform in the production area

Single service platform

Double service platform

MACHINE TRANSFER TROLLEY

- Battery powered for independent operation;
- Versatile;
- Optimizes the layout of the factory;
- Easy to use.

The machine transfer trolley makes it easy to transfer production machines from one bed to another without the use of a bridge crane

The trolley has a system for automatically centering the machine with the bed so that the rails of the trolley and the production bed are perfectly aligned.

Casting machine being transferred from one bed to another without the need of an overhead crane

Machine transfer trolley

Machine transfer trolley

Machine transfer trolley

WEDGES AND BARRELS

Wedges and barrels are used for fixing the prestressing wires onto the reaction beams.

Depending on the type of applications barrels may either be closed or open type. The closed type barrels have the wedges kept in place by a ring with a spring.

Wedges and barrels

The choice of wedges and barrels depends on the type and diameter of the prestressing wire to be used.

SINGLE WIRE ●	2 WIRE STRANDS ●●	3 WIRE STRANDS ♣	STRANDS (7 WIRE)
mm			
ø 3	2x2.25 mm	3x2.25 mm	3/8" (9.3 mm)
ø 4		3x3 mm	1/2" (12.5 mm)
ø 5			6/10" (15.2 mm)
ø 6			
ø 7			

DIAMOND CUTTING BLADE

- High quality;
- Long lasting;
- Safe and efficient.

The cutting blades are used to cut prestressed concrete elements with special sawing machines.

The diameter of the blade to be used must be chosen according to the height of the element to be cut.

Ø Blade	Height max. element
600 mm	150 mm
700 mm	200 mm
800 mm	250 mm
900 mm	300 mm
1100 mm	400 mm
1350 mm	520 mm

NORDIMPIANTI can provide cutting blades from the normal "N" series or silenced "S" series depending on customer requirements.

BLINDO TROLLEY LINE

- Able to supply more than one machine from the same blindo line;
- No cables running along the production bed;
- Low maintenance;
- Safe and efficient.

The blindo trolley is mounted longitudinally on a support structure to avoid stressing the equipment during movement.

The machines are connected to the blindo trolley via aluminium sockets with an automatic connection system.

Blindo trolley line

Sliding trolley with 3 axes movement

Sliding trolley

Electrical panel with power supply socket for the production machines

Machinery and Equipment

PRODUCTS

(EN)

PRODUCTS - EN.22.10

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