

ELEPHANT

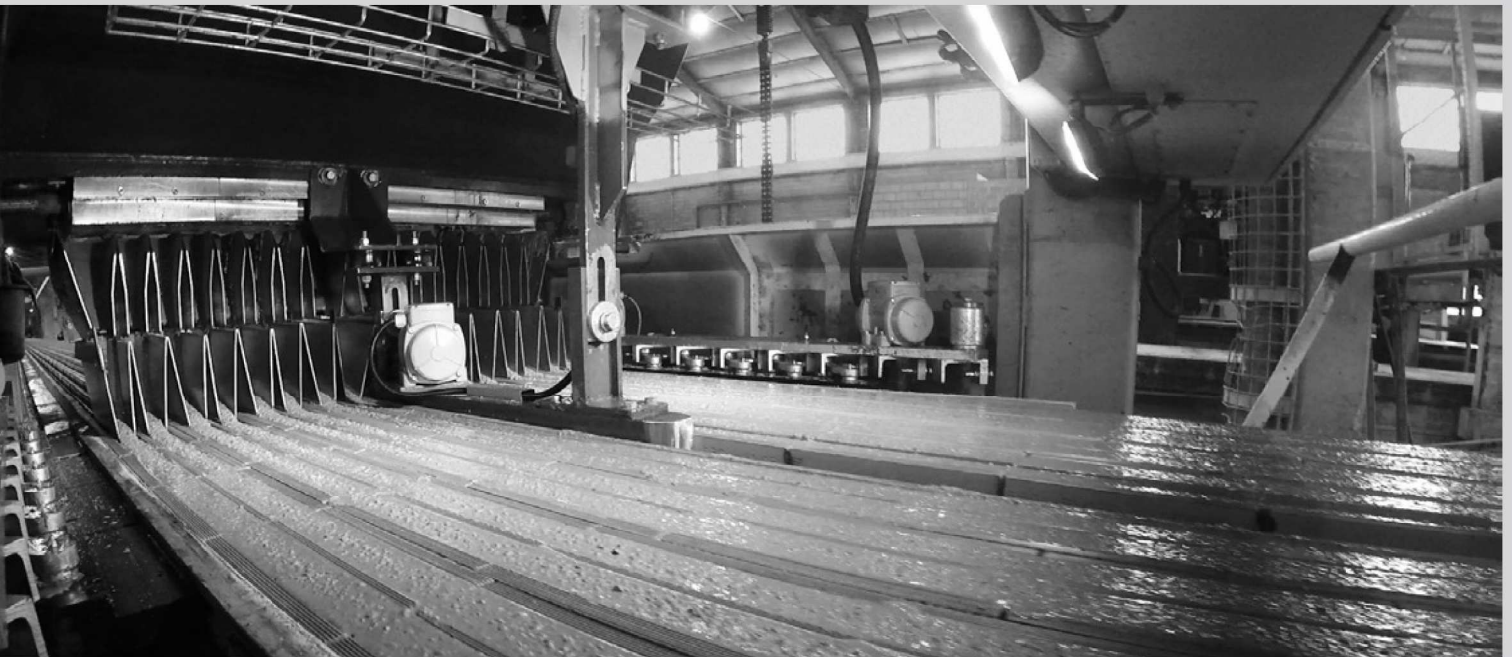


LINTELER 120/600

Highly automated system to produce prestressed lintels in brick-cement.

The system is so well designed it is able to turn out daily:

- all six prestressing benches
- working with a single 3-men team
- in one 8-hour shift.



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The system is designed to produce prestressed lintels at industrial level, specifically prestressed brick-cement lintels.

The brick-cement items

These items feature a reinforced concrete core, embedded into a brick shell.

The brick shell consists of a well-aligned set of equal modules, up to 50cm long, in bricks, called "rafter shaping blocks" or "bottom bases".

Special features

Brick-cement items have their own specific features.

In general:

- they improve the structure's soundproofing and thermal insulation
- they improve the structure's breathability
- they improve aesthetics in "exposed brickwork".

Technically:

- it is correct to match normal brickwork items (interposed filler blocks, hollow bricks) with these specific structural brick-cement items: **both have the same hygroscopic behaviour** and this prevents dark spots that appear on the plaster in correspondence to all-concrete items due to moisture changes
- it is required to prevent reinforcements from coming in contact with the brick shell: **in full compliance with standard EN15037**, which requires minimum concrete enclosure around reinforcements to protect them from oxidation.

System composition

The system consists of **three well-integrated groups** of elements:

- the pre-stressing benches
- the moving machinery
- the ancillary equipment.

A high efficiency system

Thanks to the use of **high-efficiency machinery**, among which:

- the automatic casting device with displacement rotor
- the automatic shakeout device by means of "Elephant"
- the automatic cutting device by means of two simultaneously operating stations.

Thanks especially to accurate mechanical and electrical integration of all individual components, **the entire system is so well designed it is able to turn out daily:**

- **all six prestressing benches working with a single 3-men team**
- **in one 8-hour shift.**

Production capacity

In one 8-hour work shift, with a 3-men team it completes daily all benches, with productive capacity equal to:

- 9600 linear m of lintels, width 6 cm
- 4800 linear m of lintels, width 8+12 cm
- 2400 linear m of lintels, width 14+25 cm.

Tasks

- two workers are in charge of controlling the operating machines
- one worker with forklift truck is in charge of feeding the raw materials and storage of the finished product.

Standard EN 15037

To assure proper winding of the strands, in full compliance with European legislation on reinforced concrete products, having regard to the protection of reinforcements from oxidation, the self-propelled feeder carriage is equipped with a special retractable frame, installed immediately upstream of the distributor, fitted with a comb with small retaining hooks, used to support in height and maintain in position the steel strands during the casting and vibro-compaction stage.

Configuration of the standard model

To streamline manpower, space requirements and initial cost of the system, with special regard to the cost of the prestressing benches and operating carriages, standard configuration of the **Elephant Linteler system** includes:

A. Operating surfaces:

6 metal benches, with useful length 100 m each. In addition to prestressing heads each bench consists of 7 identical modules, 12m long, 120cm wide and 80cm high.

B. Laying the Bricks:

requires 1 operator

B.1 laying Carriage, self-propelled, with pneumatic undoing clamps

B.2 1 Jolly carriage, self-propelled, feeds the packs

B.3 1 shuttle-carriage, motorised, transfers the self-propelled carriages between the 6 prestressing benches

B.4 1 dipping wetting tank, for the brick packs.

C. Concrete preparation:

1 concrete mixing plant under the customer's responsibility (unless required otherwise).

D. Prestressing:

requires 1 operator

D.1 6 relieving heads

D.2 6 pulling heads

D.3 1 reel carrying carriage, motorised, transfers the reels with the steel strands between the 6 prestressing benches

D.4 1 pulling unit with oil-hydraulic press, manual, pulls the steel strands.

E. casting and vibro-compaction

requires 1 operator

E.1 1 batching carriage, self-propelled, with hopper and volumetric concrete distributor, with special rotor device

E.2 1 shuttle-carriage, motorised, transfers the batching carriage between the 6 prestressing benches.

F. Curing:

1 heating system, with electrical circuit or steam circuit, under the Customer's responsibility (unless required otherwise).

G. Shakeout, Cutting, Stacking and Strapping:

requires 1 operator. It is a sophisticated multifunction self-propelled carriage, moving on a set of crosswise ground tracks.

It moves independently between the 6 prestressing benches and carries a set of automatic devices on board. In detail, it includes:

G.1 1 Elephant.

Automatic self-propelled carriage with shakeout clamps, it clamps an entire batch of items and extracts it by the head from the prestressing bench.

G.2 1 automatic device for cutting to measure, it includes two cutting stations working simultaneously.

G.3 1 self-propelled carriage with stacking clamps, it picks and stacks automatically the items after cutting, and consistently with the cut it forms one or two stacks simultaneously.

G.4 1 automatic strapping machine, with its own magazine for wood planks, automatically inserted underneath each stack.

G.5 1 roller unloading surface, motorised.

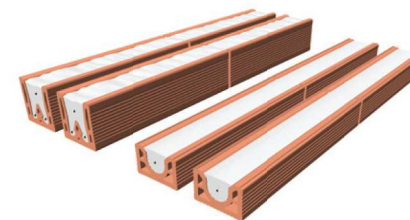
Typical size of the items

Length
from 100 cm to 350 cm

Width
from 6 cm to 25 cm

Height of the bottom bases
from 5 cm to 12 cm

Note
for each different width and height a suitable interchangeable "distribution hopper" is supplied.





↑ Batching carriage in casting stage, operates with one worker only.



← Interchangeable distribution hopper.

↑ 6 prestressing benches, 100 metre long, 123 cm wide.



← Jolly carriage, self-propelled, operates automatically.

↑ Installed on board the batching carriage, the device with retractable hooks it supports the strands during casting.

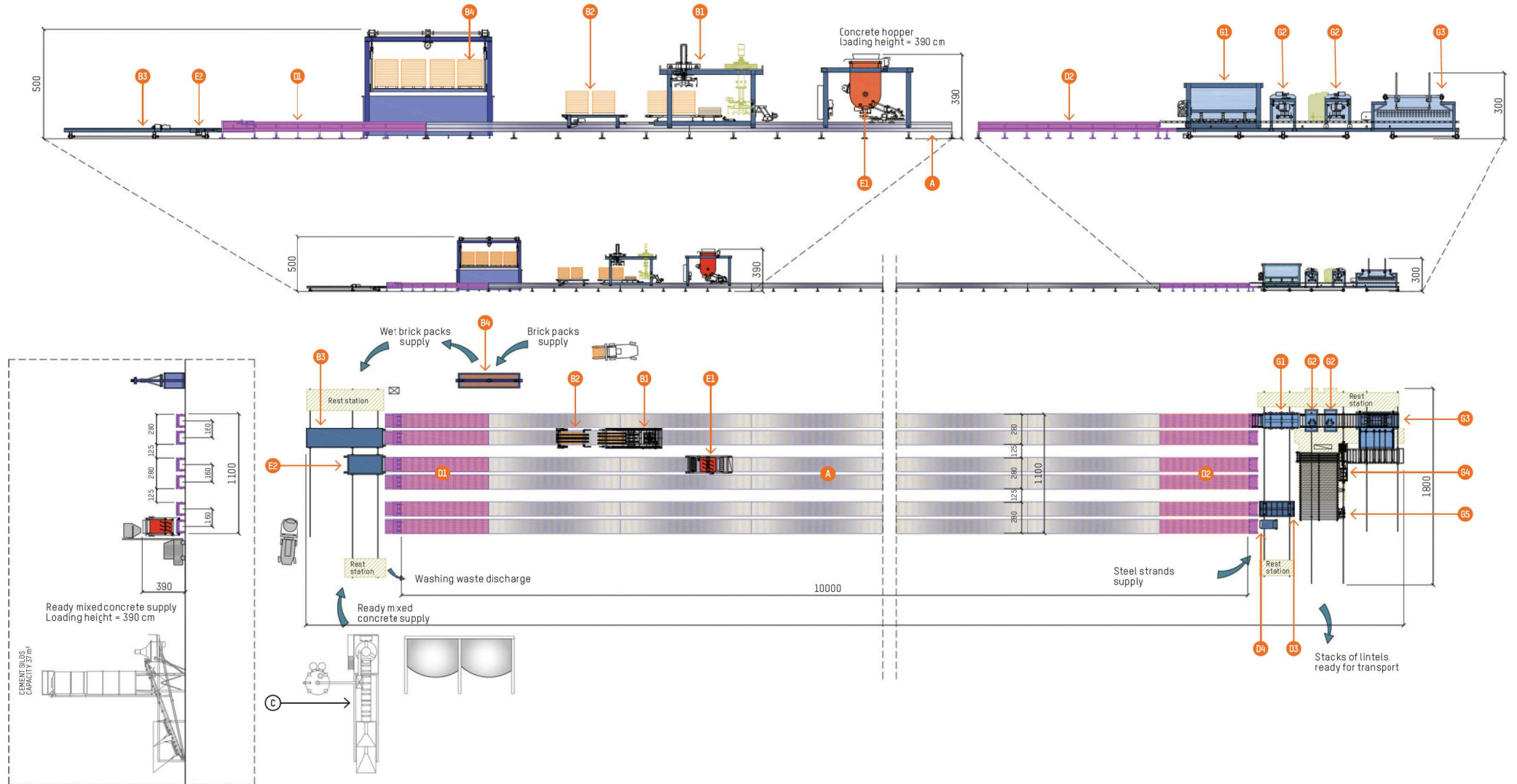


↓ Automatic cutting device, with one fixed and one mobile station.



ELEPHANT LINTELER 120/600

All dimensions are in centimetres.



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|---|---|---|---|
| A 6 Metal benches | B3 1 Shuttle carriage, motorised | D1 6 Relieving heads | D4 1 Pulling unit with oil-hydraulic press |
| B1 1 Laying carriage, self-propelled | B4 1 Immersion wetting tank | D2 6 Pulling heads | E1 1 Batching carriage, self-propelled |
| B2 1 Jolly carriage, self-propelled | C 1 Concrete mixing plant | D3 1 Reel carrying carriage, motorised | E2 1 Batching carriage, self-propelled |
| | | F 1 Heating system | |

- | | | |
|--|---|---|
| G1 1 Elephant. Automatic self-propelled carriage with shakeout clamps. It clamps an entire batch of items and extracts it by the head | G2 1 Automatic device for cutting to measure, with two stations working simultaneously | G4 1 Automatic strapping machine |
| G3 1 Self-propelled carriage with stacking clamps | G5 1 Roller unloading surface, motorised | |

Features of the items

Minimum length 100 cm	Minimum height 4 cm
Maximum length 350 cm	Maximum height 12 cm
Minimum width 6 cm	
Maximum width 25 cm	



Overall machinery dimensions

Length 123 m	Pre-stressing benches 6 fixed benches, with flat surface
Width 18 m	Useful length 100 m
Operating carriages height max 5 m	Width 120 cm
Wetting tank height 5 m	Operative height 80 cm



Average cycle time and work sequence for each 100m long Bench

In the morning Shakeout, cutting, stacking, strapping and unloading 30 minutes, requires one operator only	In the afternoon Preparation and loading of the concrete 20 minutes, requires service worker
Laying the Bricks 30 minutes, requires one operator only	Prestressing and casting 20 minutes, requires two operators



Manpower

3 workers, in one 8-hour shift:
2 workers attending to the machinery
1 service worker, with forklift truck



Daily productive capacity

9600 linear m, with lintels width 6 cm	4800 linear m, with lintels width 8+12 cm	2400 linear m, with lintels width 14+25 cm
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Raw material for daily use

Bottom bases 2440+9600 m*	Power
Concrete 10±7 m ³ *	Installed power 125 kw
Reinforcement wires 4800+9600 m*	Average daily consumption 60 kwh

**variable data according to type and size of the item*



End-of-day washing

7 bar compressed air
approx. 400 litres
Washing water
approx. 300 litres



Concrete hopper

Capacity
2500 litres
Loading height
390 cm



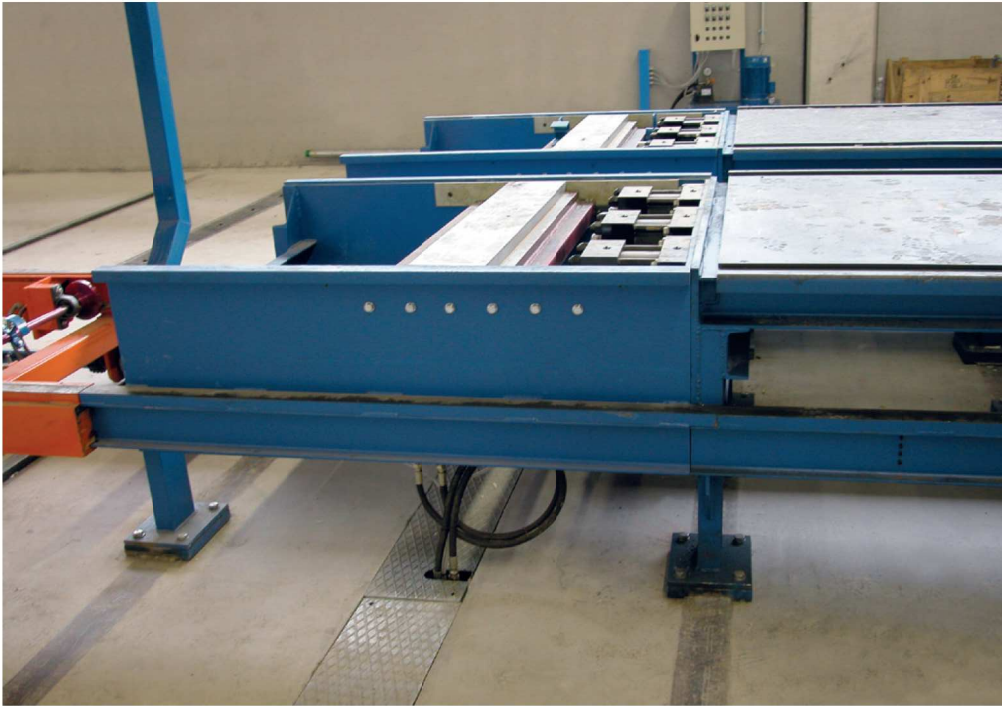
↑ Mult function self-propelled carriage.



← Operation of automatic strapping of a stack of lintels, 12cm wide.

↑ Immersion wetting tank.





↑ The relieving heads.



← Elephant, self-propelled carriage with shakeout clamps.

↓ Sacks of lintels stored in the yard.



↓ Brick laying carriage, operates with one worker only.



← The reel carriage, motorised.

↑ Unloading surface with motorised rollers.





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