

# Omnia Bridge Deck



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**BISON PRECAST**

a Forterra brand



**The market leader in precast bridge decking technology, used on many major bridge projects throughout the UK, providing us with a wealth of experience in this sector.**



# System Overview

Our highly efficient, cost effective and practical means of providing permanent formwork to deck slabs of bridges, especially where these span over live roads, rail tracks and rivers.

We have been the market leader in precast bridge decking technology for over 20 years, and were instrumental in the compilation of the Department of Transport model specification for precast concrete bridge decking. Since that time our product has been used on many major bridge projects throughout the UK, providing us with a wealth of experience in this sector.

## Design

All Omnia bridge deck units are designed to Eurocodes standards. Fully detailed layout drawings give you a clear indication of individual unit locations, minimising fixing times on site. The planks are primarily designed to cope with temporary condition loads. However, designers can use the reinforcement provided as part of the permanent design.

## Quality Assurance

From initial design through to on-site logistics, all aspects of the Bison Precast operation meet the most exacting quality standards. These are maintained by Bison Precast's own in-house Quality Inspectors, and audited by external certification bodies. Our precast facilities meet the requirements of ISO9001, ISO14001, BES6001 and ISO18001. All units are designed in accordance with Eurocodes and CE certified to BS EN 15050.

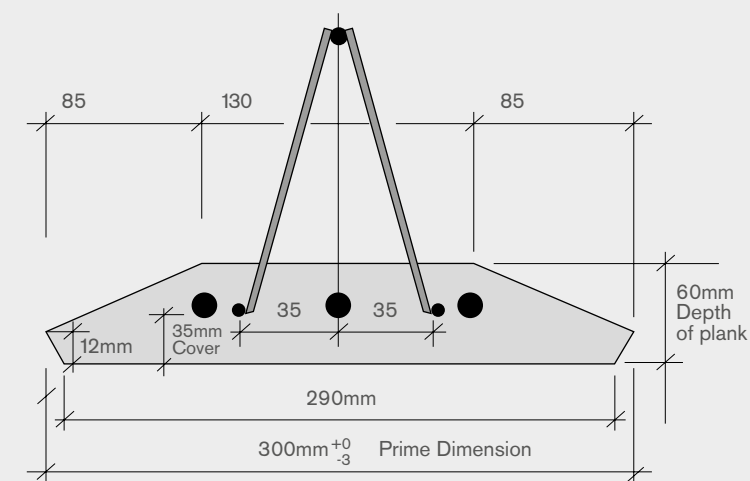
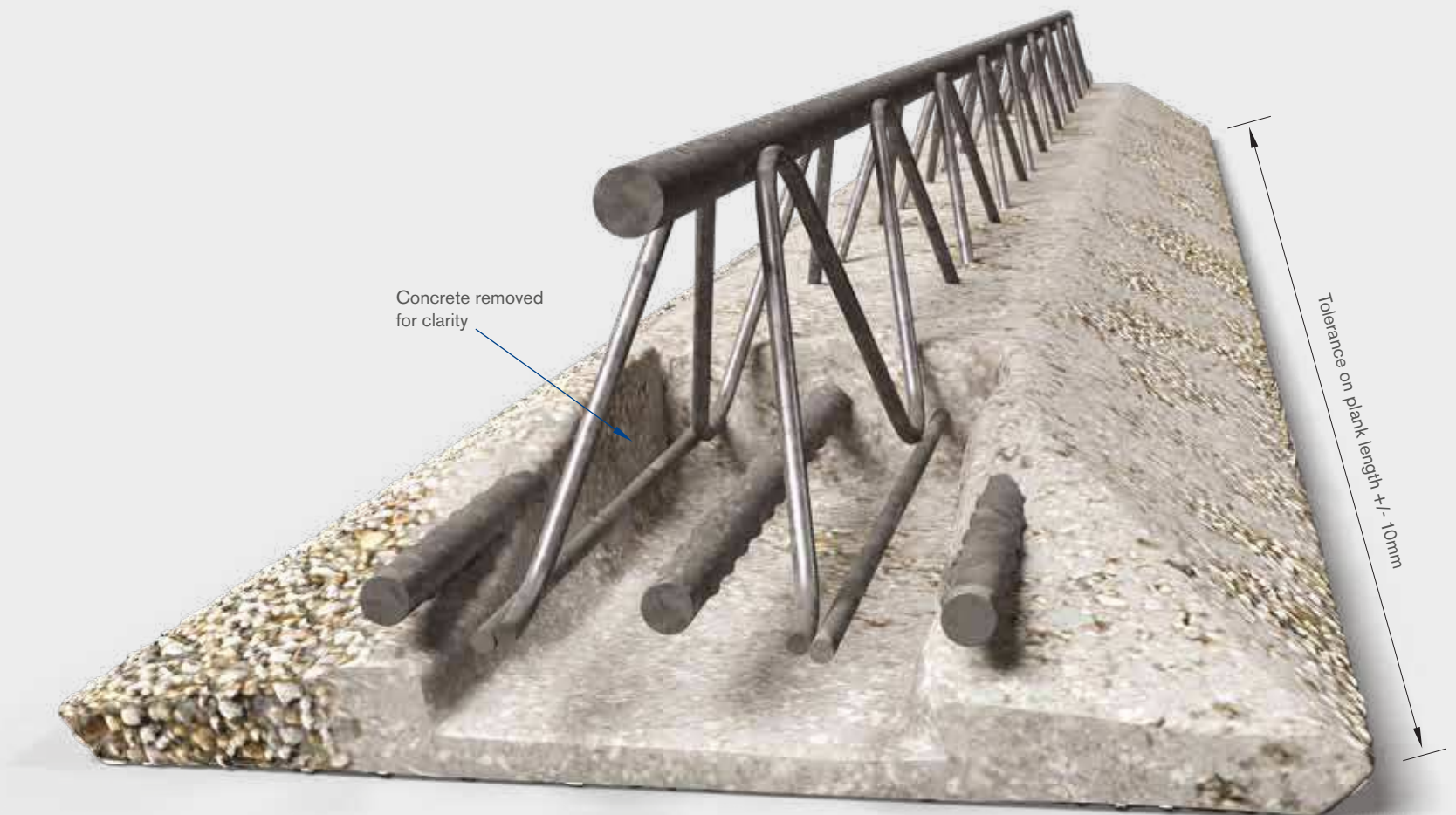
## Manufacture

The standard range of Bison Precast bridge deck units is available with five different heights of lattice in a 300mm wide unit. Bison Precast also have the capacity to manufacture 600mm wide units and can incorporate non-standard lattice arrangements for use as infill panels.

Maximum lengths of 3.8m can be accommodated which will allow for a clear span of 3.69m with a nominal 55mm bearing on each end.

The upper surface of the Omnia planks is water washed during manufacture to expose the aggregate, which, together with the projecting lattice, accommodates horizontal shear stress at the precast/in situ interface. The manufacturing tolerance and soffit finish (Type F2) are as specified /defined in Series 1700 'Specification for Highway Works'.

The units are designed to carry construction loading and limit deflections to span/400 and crack widths to 0.1mm in the temporary case. Wherever possible, the correct size of lattice girder will be selected to provide a chair for the top mat of reinforcement. These are aligned during manufacture to ensure ease of fixing longitudinal reinforcement over the Omnia Bridge Deck planks.



## Plank cross section

A typical cross section of a plank shows the arrangement of the lattice girder and the reinforcement within the precast concrete (see illustration).

Tolerance on given dimensions shall be  $\pm 5\text{mm}$  unless shown otherwise.

60mm depth of plank does not include for the exposed aggregate finish, which could add up to 10mm to the overall depth.

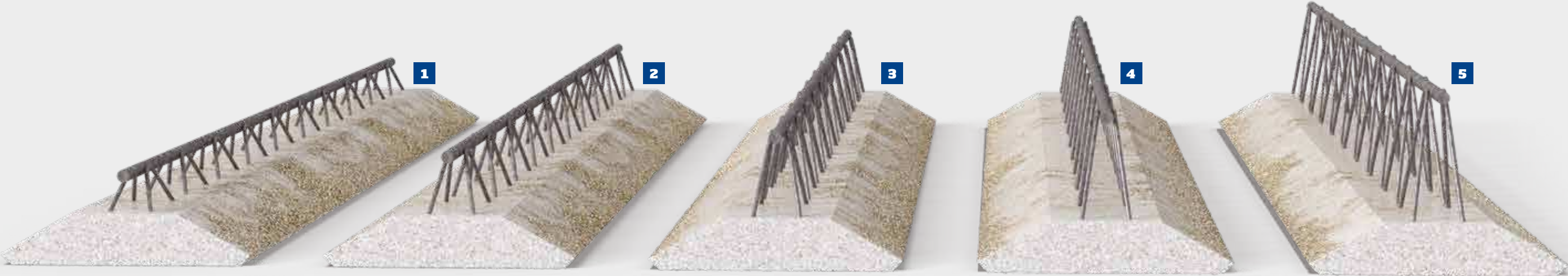
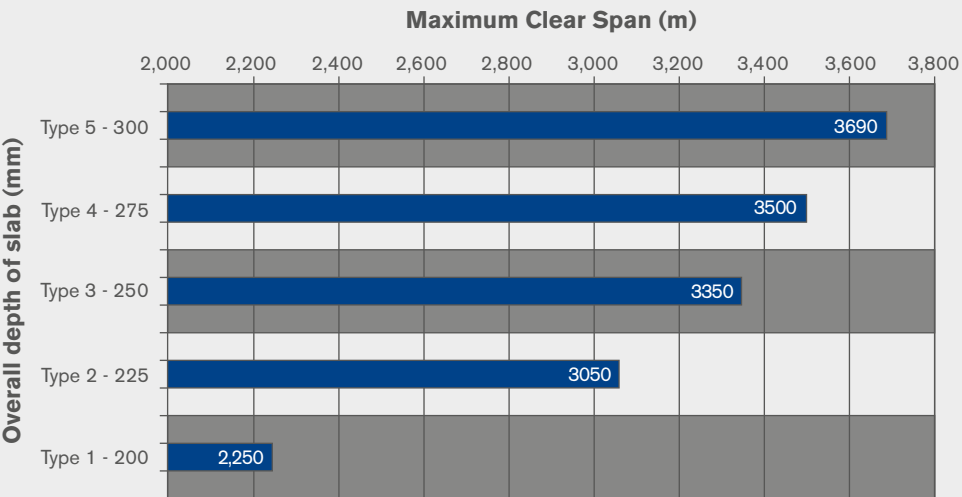
# The Standard Range

Our Omnia Bridge Deck system has been specifically recognised by the Department of Transport through our involvement with the model specification for precast concrete bridge decking.

The system is available in 5 standard lattice sizes, which facilitate deck depths of up to 300mm, enabling spans up to 3.8m. The graph opposite shows the maximum clear span for our range of standard Omnia lattice designs.



## Max clear span for slabs of overall depth



### Type 1 Deck

For a 200mm deep overall slab

Omnia plank depth	60mm
Overall depth including lattice	115mm
Cover to reinforcement	35mm
Lattice depth	80mm
Allowance for in situ reinforcement and cover	85mm

### Type 2 Deck

For a 225mm deep overall slab

Omnia plank depth	60mm
Overall depth including lattice	140mm
Cover to reinforcement	35mm
Lattice depth	105mm
Allowance for in situ reinforcement and cover	85mm

### Type 3 Deck

For a 250mm deep overall slab

Omnia plank depth	60mm
Overall depth including lattice	165mm
Cover to reinforcement	35mm
Lattice depth	130mm
Allowance for in situ reinforcement and cover	85mm

### Type 4 Deck

For a 275mm deep overall slab

Omnia plank depth	60mm
Overall depth including lattice	190mm
Cover to reinforcement	35mm
Lattice depth	155mm
Allowance for in situ reinforcement and cover	85mm

### Type 5 Deck

For a 300mm deep overall slab

Omnia plank depth	60mm
Overall depth including lattice	215mm
Cover to reinforcement	35mm
Lattice depth	180mm
Allowance for in situ reinforcement and cover	85mm

### Special Deck

Various depth overall slab made bespoke to your specifications.



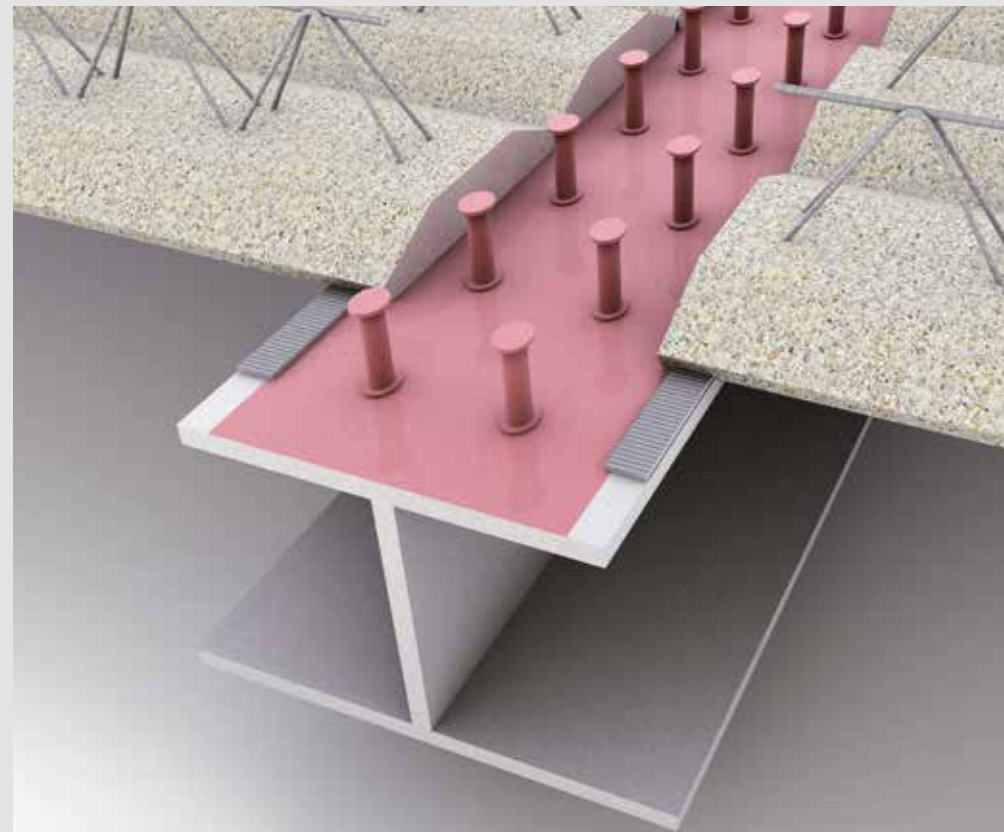
# Ancillary items & enhanced options

## Prevent the loss of grout through flanges of steel/unit joints

Bituminised Compressible Strips can be used in conjunction with the Omnia Bridge Deck.

We would recommend that flanges of steel supporting Omnia Bridge Deck planks are treated prior to placing units with a Bituminised Compressible Strip.

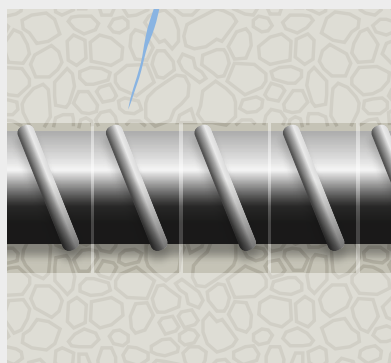
Joints will need to be addressed to prevent grout loss during concreting. Various methods can be used such as flexible sealant, grout and suitable sealant tapes.



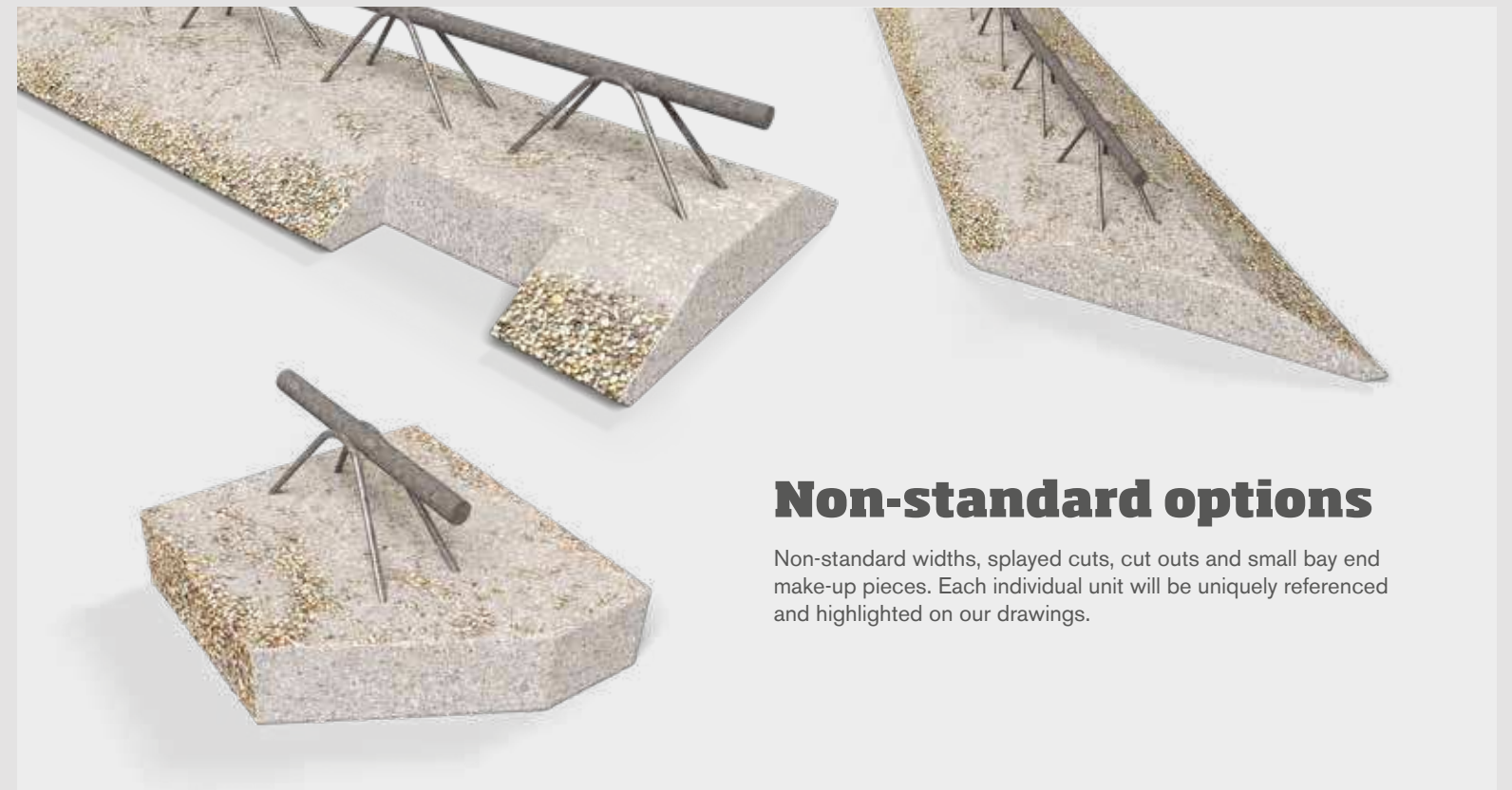
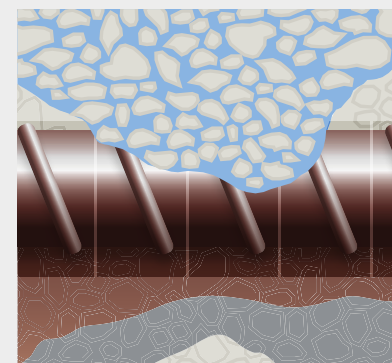
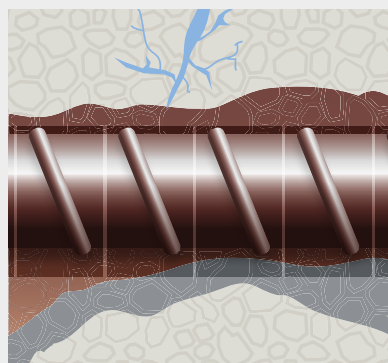
## Enhanced soffit protection

Soffit protection can be enhanced by the application of a suitable treatment which penetrates deeply into the structure to seal voids and block the ingress of moisture whilst allowing the material to breathe. The protectant seals hairline cracks up to 1.4mm wide protecting the soffits of the Omnia Bridge Deck surfaces from damage caused by water ingress, freeze-thaw and weed growth. It also helps to keep the surface free from dirt and stains.

The problem



The consequences



## Non-standard options

Non-standard widths, splayed cuts, cut outs and small bay end make-up pieces. Each individual unit will be uniquely referenced and highlighted on our drawings.



# Bridge Deck QuickLift System

The Bison Precast QuickLift System has been developed to ensure handling times are minimised, providing you with increased output rates up to 20% against other alternative methods.

Omnia Bridge Deck planks are generally delivered on articulated vehicles, palletised in batches of 24 planks (6 deep x 4 wide) and will be delivered in a previously agreed sequence and time/date.

The Omnia Bridge Deck system can be lifted off the wagon using a traditional forklift truck with pallets being placed adjacent to the area to be fixed.

The QuickLift frame should be attached to the crane. If the 8-unit frame is to be used, we would suggest two pallets are offloaded next to each other, further minimising lifting times.

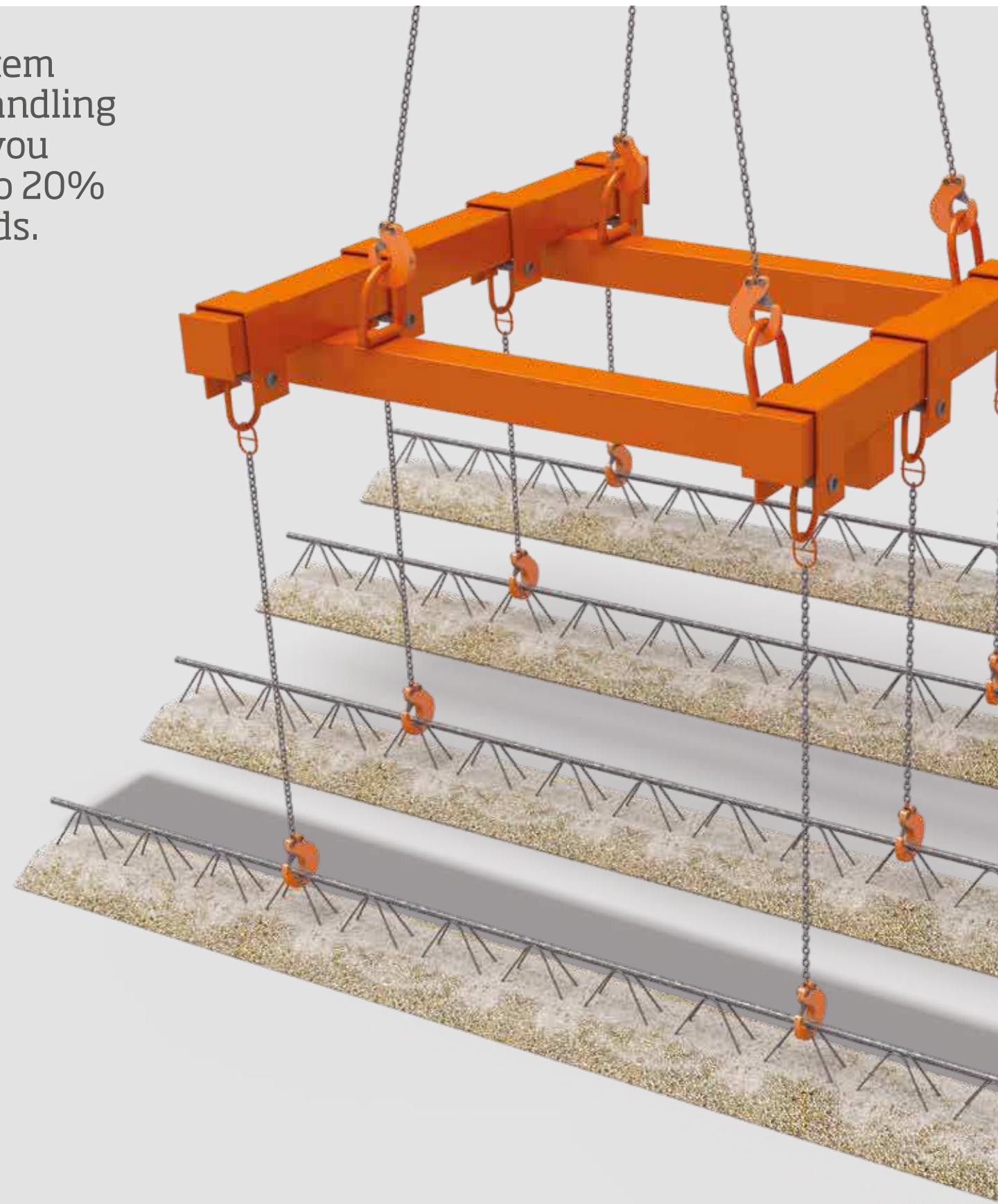
The chain attachments should be released and connected to the Omnia lattice with the hooks positioned under the diagonal section of steel.

The panels should be lifted in sets of 4, 1200mm wide approximately (8 planks will be 2400mm wide approximately).

When placing the units they will need to be butted together to close any gaps, minimising the risk of grout loss. It is recommended that a method of setting adjacent 'sets' is adopted so that each set is placed at 1200mm dimensions.

This will keep the layout of the planks close to that on the drawing, the amount of gaps to a minimum and reduce the risk of any cutting or make-ups due to creep.

Chain shorteners are provided to allow the length of the chain to be adjusted to facilitate installation.



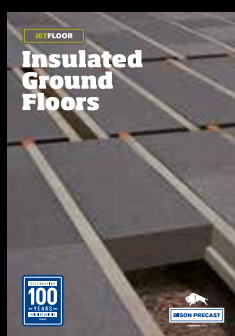




**Forterra is a leading manufacturer of a diverse range of clay and concrete building products, used extensively within the construction sector, and employs over 1,900 people across 18 manufacturing facilities in the UK.**

**It is the second largest brick and aircrete block manufacturer in the country, and the only producer of the iconic London Brick. Other trusted brands from Forterra include Thermalite, Conbloc, Ecostock, Butterley, Cradley, Red Bank, Bison Precast, Jetfloor and Formpave.**

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