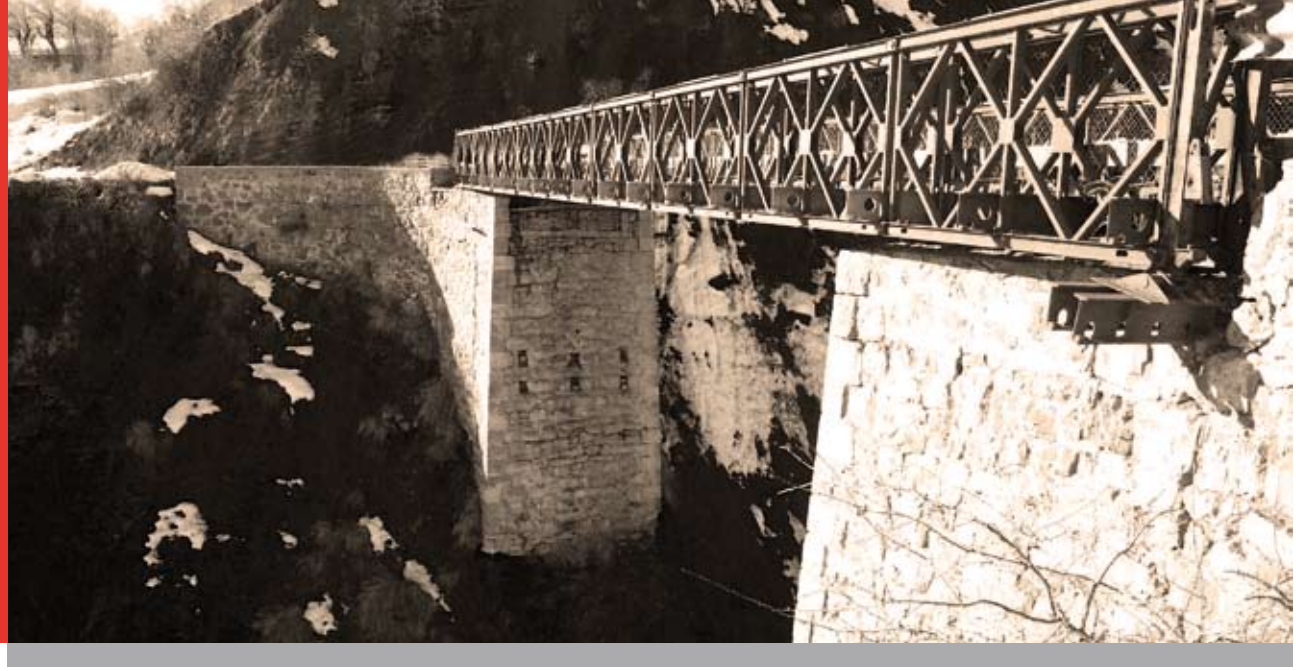





Unibridge®
trading



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It was during WWII that British engineer Donald Bailey invented the first portable metallic bridge. The heaviest parts could be carried by teams of men 4 or 6-strong. The elements could be assembled on site by a section of the Army Corps of Engineers. Allied armed forces made ample use of his Bailey Bridge, to replace structures destroyed by the occupying army. "Without him, we couldn't have won the war," asserted General Montgomery.

During the 60 years since that period, the Bailey Bridge has been used extensively, as a temporary structure, on worksites, following natural disasters or inside war zones.

In 2003, however, a new concept changed everything: more elaborate, more modular, easier to assemble, as well as more aesthetic, UNIBRIDGE® by Matière® has revolutionised the metallic bridge market.

With the UNIBRIDGE®, the gap between the 20th and 21st centuries has been spanned. Multiple panels and parts have been replaced by 11.40-metre long watertight box girders, prefabricated at the factory and assembled on site. The process has been approved by the IVOR Independent Experts Committee, who found it to be "original in its functionalities (modular geometry, scalability over time) and in the assembly methods implemented."

Numerous countries have confirmed this opinion: over 500 UNIBRIDGE® bridges have to this day been built or ordered in France, Australia, the Philippines, Papua New Guinea, Iraq, Haiti and many African countries.

Standards

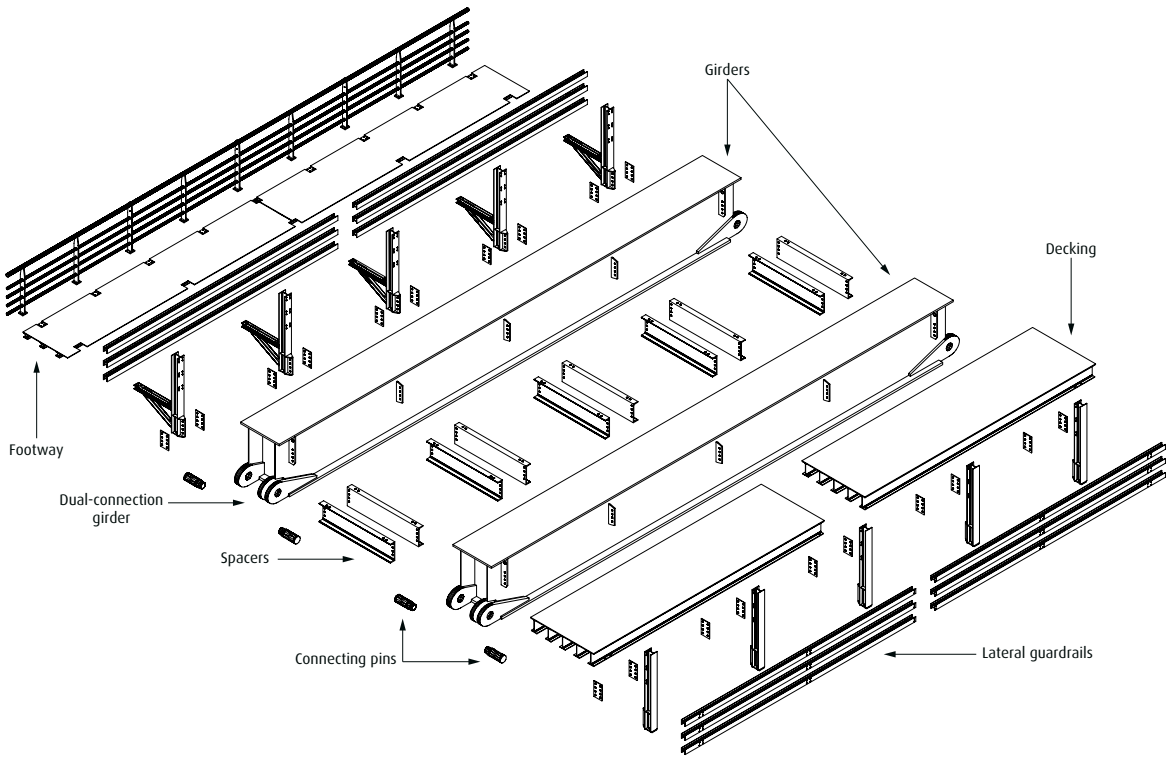
UNIBRIDGE® structures are calculated according to the standards in effect within the country where they are to be installed (Eurocodes, AASHTO, British standards, Australian standards, SATCC, etc). Accepted load specifications are therefore those defined by the selected standards.

Easy to transport, easy to install

Every UNIBRIDGE® structure is designed as a permanent bridge that can be enlarged with the addition of extra beams. It may however be dismantled and reassembled elsewhere if the user wishes.

The modules are easy to transport: by road, a semi-trailer lorry is sufficient. By sea, the girders fit into 40-foot containers.

A highly reduced number of industrial components



Basic Principle

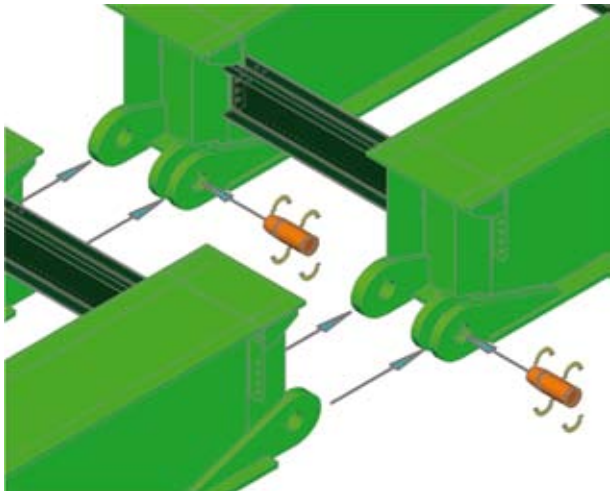
Made of beam elements 11.40 metres and 6 metres long, assembled lengthwise by pins and transversally by spacers, the UNIBRIDGE® is entirely modular.

It is possible to construct bridges with multiple spans. At this time, the maximum length between two abutments is limited to 50 metres.

UNIBRIDGE® structures are supplied with the whole range of components needed for assembly, and come with an assembly manual specifying the identification, marking and weight of each part.

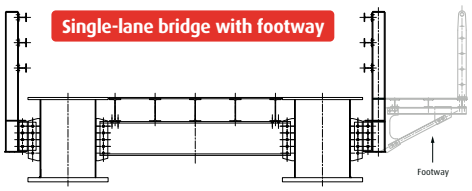
Assembly

All UNIBRIDGE® bridge components can be transported via conventional means or by 40-foot container. The UNIBRIDGE® was designed to be installed quickly and easily using minimal equipment, to allow our customers or ordering parties to perform the assembly themselves if they wish, using their own teams and light equipment (power shovel, lifting crane, hoist etc). In the event of a new structure where there are no existing abutments, it is possible to manufacture temporary or permanent supports using prefabricated elements. Metallic axes that provide the bridge's continuity link together the standard 11.40-metre box girders.

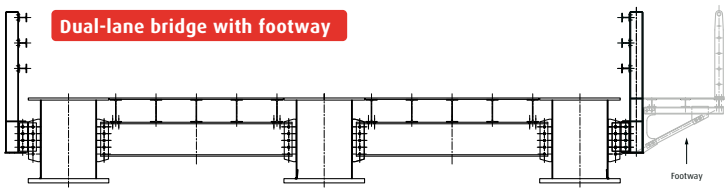


UNIBRIDGE®: total modularity

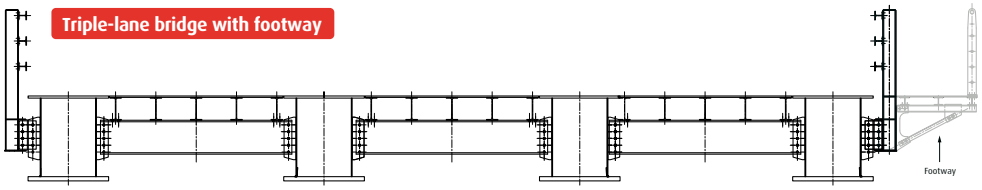
Single-lane bridge with footway



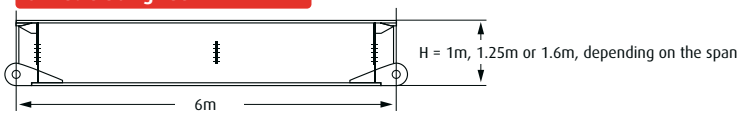
Dual-lane bridge with footway



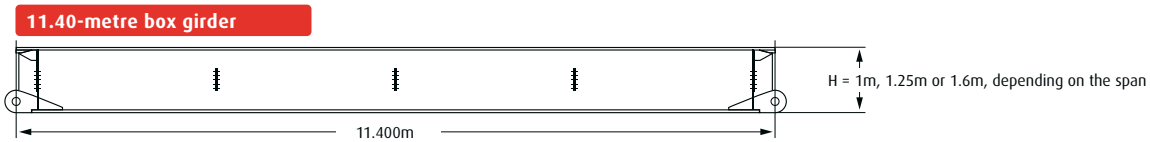
Triple-lane bridge with footway



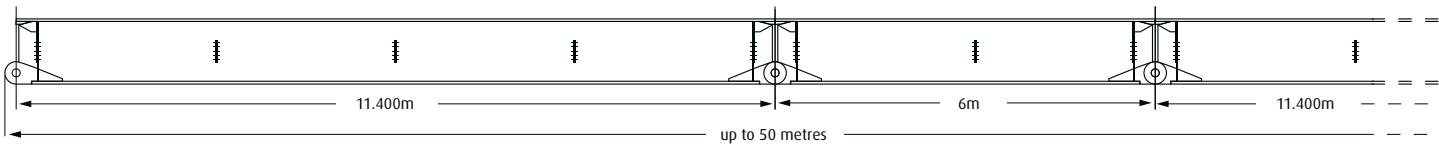
6-metre box girder



11.40-metre box girder



Bridge beams made from UNIBRIDGE® box girders, assembled lengthwise



The type of installation for each UNIBRIDGE® is based on aspects of the bridge site (height, location of water) and the means of bridge launching available.

UNIBRIDGE® structures are either launched or installed by crane.

Crane Installation

Crane installation involves assembling the principal beams (UNIBRIDGE® box girders) on the ground.

The crane then lifts them individually onto their permanent bearings before they are linked together by spacers.

With minimal preparation and faster installation, craining is the optimal solution, and can be adapted to the equipment and tools available on-site.

Launching

Launching is the preferred method of installation when on-site lifting equipment is limited.

The beams are positioned on frames or rollers, in a straight line along the axis of the gap which is to be spanned.

A launching nose is installed on the leading beam (photo 1).

The line of beams are either pulled into place using a winch or pushed into place using an excavator or other common construction machinery (photo 2).

This operation is repeated for each beam. After they have been placed in their permanent positions, the transversal elements, spacers, decking and guardrails are installed.

1 - Launching nose on the leading beam

2 - Pushing with a power shovel

In the case of short-span and single-span structures, the bridges are launched in their assembled form from one of the banks, using a simplified launching nose.

RCA - Goui Bridge

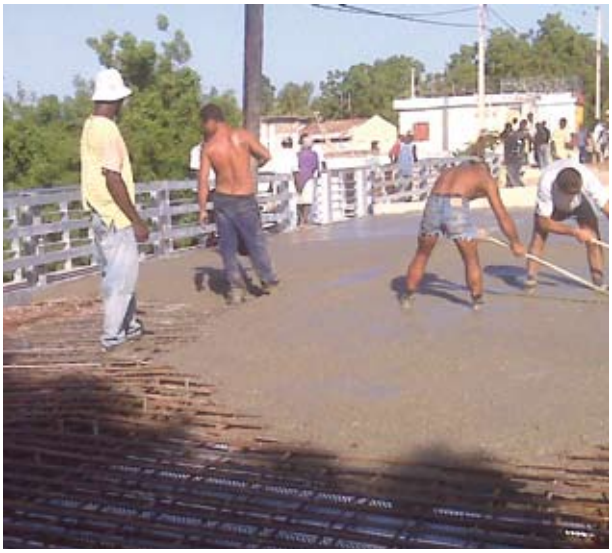
Composite version: metal-concrete

The UNIBRIDGE® is the only modular bridge in the world that can be fitted with a composite (metal-concrete) deck.

Once the steel beams are installed by launching or by crane, lost formwork (galvanized cladding) is installed, the reinforcing bars are put in place and concrete is poured directly. The concrete is waterproof-tested and the footways are installed. Lastly, the roadway surface is completed.

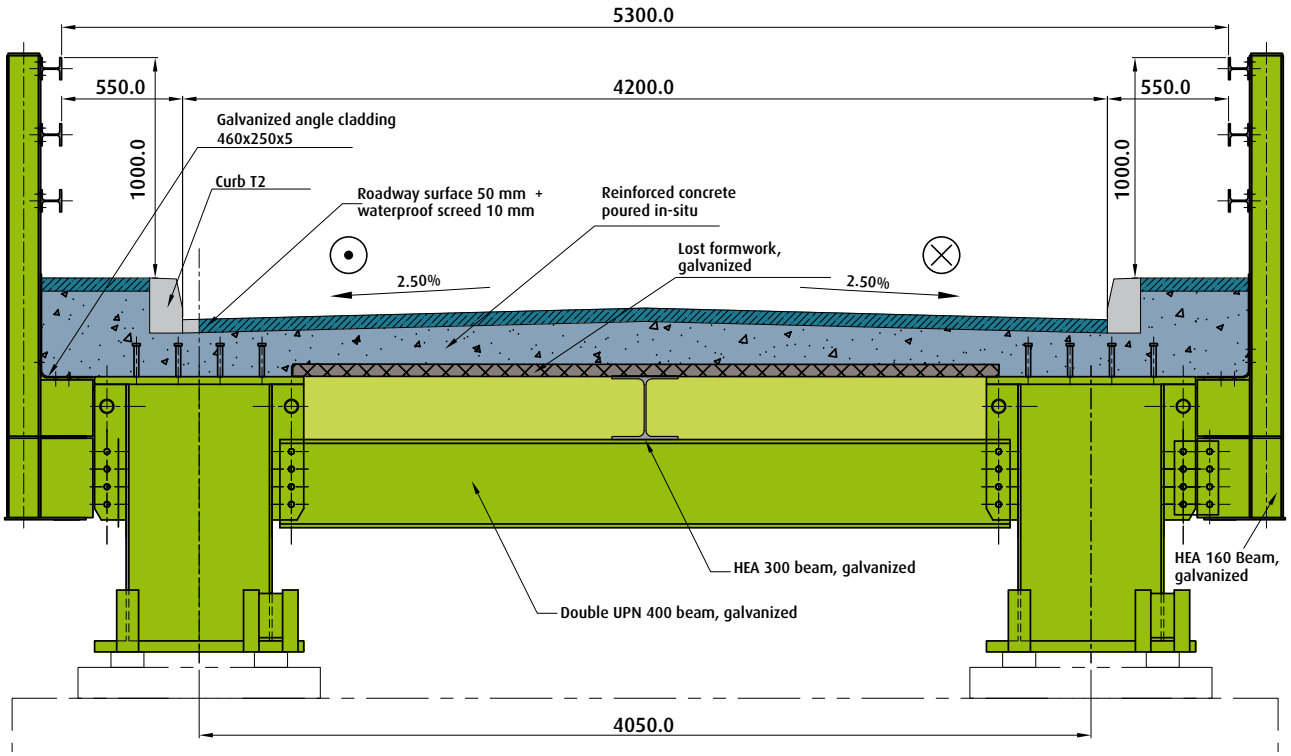
The process of concrete pouring and curing takes approximately 2 weeks.

This type of structure requires very little tools or equipment, and provides a fast, simple and permanent solution.



Haiti – Montrouis Bridge

Composite UNIBRIDGE®
Two-lane model 4.2m - (2 x 0.55m footway width)



The quality control process runs throughout the entire manufacturing cycle

Steel

All steel used in the UNIBRIDGE® is of the same grade and origin as those used on major metallic art structures. It originates from European factories and is subject to permanent traceability standards throughout the manufacturing process.

Manufacturing operational methods

The European NF EN1090-2 manufacturing standard is applied for all manufacturing operations of girders, decking and accessories (from flame-cutting to final machining, including reconstruction by means of welding robots).

Anti-corrosion coating

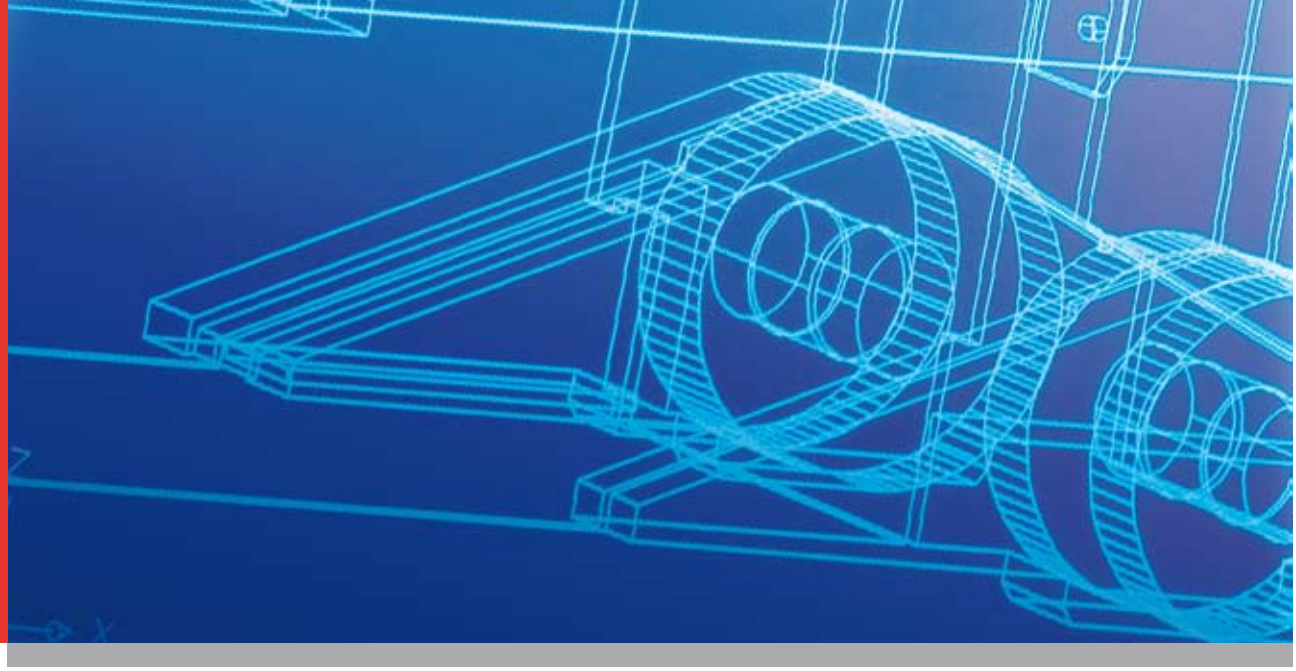
Particular care is given in applying the anti-corrosive agent: after going through the shot-blasting unit, components are painted in compliance with ACQPA specifications.

Audits

Ongoing audits are performed throughout the manufacturing chain, from steel traceability to pre-painting coarseness control, from welding verification to checking the adhesive properties of the anti-skid coating. Once they are completed and recorded, these audit files represent a valuable set of references for the bridge, prior to commissioning.

Oxycutting

Welding



A state of the art industrial manufacturing process

UNIBRIDGE® structures are designed and manufactured in France, using steel and other components from European factories respecting European norms.

The industrial cycle of a UNIBRIDGE® involves complete traceability of the entire product as well as all raw materials used during the manufacturing process.

Our manufacturing process uses the latest tools, machinery and robotic equipment, in order to guarantee the highest quality production, with permanent product assessment and optimised lead-times.

Oxycutting

Production site

Plasma cutting

Robot for manufacturing box girders

Preliminary sandblasting for all UNIBRIDGE® parts

Gantry crane / finishing the box girders

Reamer

Sandblasting before painting

A concept supporting sustainable development

As a temporary structure, UNIBRIDGE® is reusable. Since it is easy to dismantle, easy to transport and easy to reassemble, the metallic bridge may have several lives, in a variety of places. A bridge that takes a team of 5 people 12 hours to install can be dismantled in 4 hours.

As a permanent installation, the bridge will enjoy a particularly long life: it is designed to last at least 100 years and to handle 2 million 80-tonne vehicle crossing cycles per annum.

Once it has reached the end of its life, the UNIBRIDGE® can be reborn into another shape since its base component, steel, has almost unlimited recycling potential.

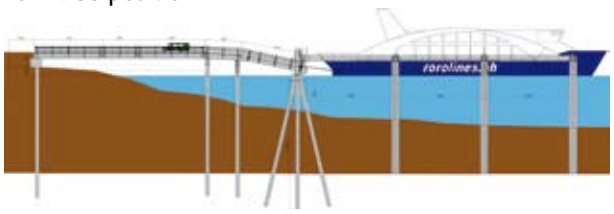
Maritime application

Many countries experience the need to connect their terrestrial communications networks to maritime routes in order to link together the various parts of their territory.

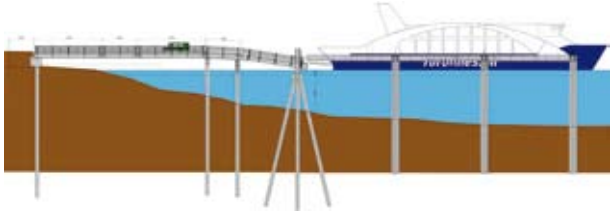
UNIBRIDGE® Marine was designed to provide a fast, competitive means of equipping seaside (or riverside) sites with jetties, intended to dock roll-on/roll-off vessels sailing between areas separated by marine inlets or situated on the riverside.

UNIBRIDGE® Marine consists of a UNIBRIDGE® access deck made of box girders, linking the bank to an articulated platform, like a drawbridge. Its vertical mobility allows it to adapt to various tide heights and different kinds of boats, as well as to whatever kind of loading/unloading equipment is used.

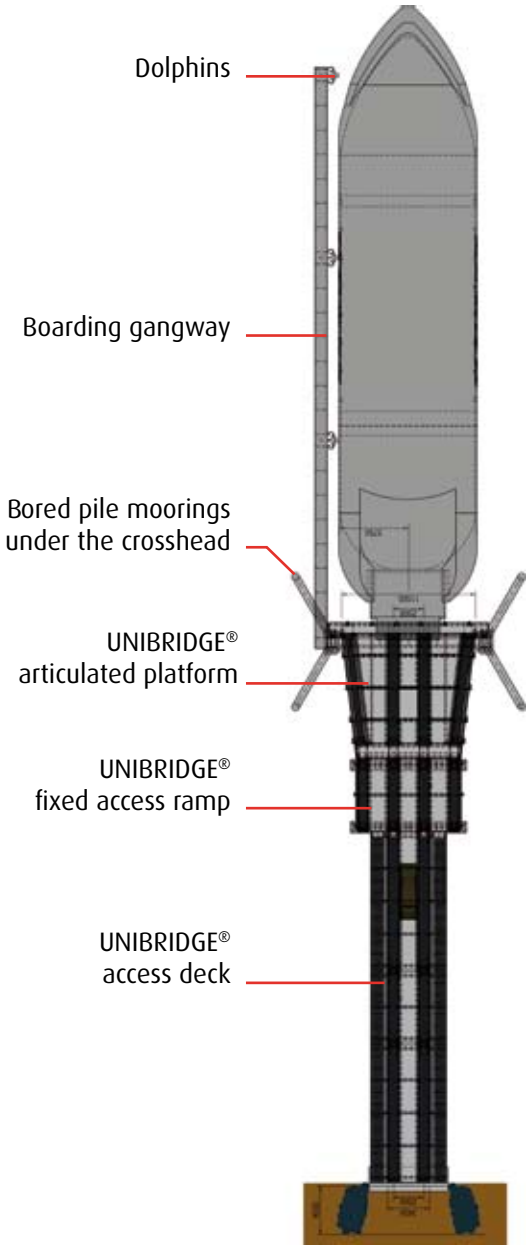
Low-tide position



Mid-tide position



High-tide position



Iraq - Baghdad – Al-Nahrawan Bridge

An international product

Structures installed across 5 continents demonstrate the versatility and flexibility of this product.

To date, UNIBRIDGE® structures have applications in Africa, Asia, Australia, Central America, South America and the Middle East.

RCA - Goui Bridge

Container transport

Haiti – Montrouis Bridge

Philippines – Malibacsan Bridge

New Caledonia

Iraq - Baghdad – Al-Nahrawan Bridge

Cameroon – Bridge over the Ongue River

Iraq - Baghdad – Al-Nahrawan Bridge

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UnibridgeTrading® is a shared subsidiary of MATIERE® and EIFFEL®, for the marketing, manufacture and construction of metallic, modular, permanent and rapid-assembly bridges.

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