InQuikRail



InQuik Rail Bridge System

InQuik® is excited to introduce the InQuik Rail Bridge, an innovative addition to our modular bridge range. With a design life of at least 100 years, the Rail Bridge design is based on our successful Road Bridge which has been utilized in the construction of over 200 road bridges across Australia, the Pacific Islands and the USA.

The InQuik Rail Bridge utilises our patented semi-modular technology, where prefabricated steel formwork and reinforcing bars create self-supporting panels, which are placed on-site then filled with 40 MPa concrete. The bridge is thus a monolithic mass capable of resisting heavy loads from floodwaters.

The rail bridge design is certified by SMEC to the Australian Bridge Design Code AS5100 (2017), using the 300LA loading requirements. We also collaborated with researchers from the University of Sydney to ensure the design included appropriate failsafe features to account for fatigue effects from rail traffic, so the final design has a fatigue design life far in excess of 100 years. The Rail Bridge has been designed with a maximum clear span of 14.2 m meters and a total width of 4.1 m (single track).

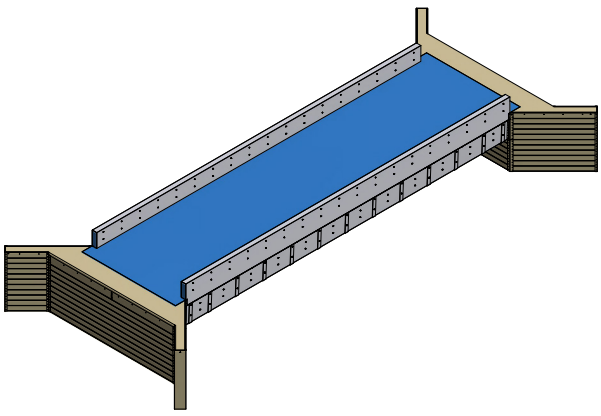
INQUIK RAIL BRIDGE - SPECIAL FEATURES	
Modular components	A single span consists of two deck panels, each approximately 2 meters wide. The bridge has four girders, two of them centrally positioned beneath the track.
Ballast/derailment kerbs	The standard concrete ballast kerb height is 600 mm. However, if required, the height of these kerbs can be increased to 1000 mm to serve as derailment kerbs, providing additional safety measures in case of potential train derailments.
Pedestrian walkway	If needed, a steel walkway can be attached to the outside of the ballast/derailment kerb. This addition would create a designated pedestrian walkway alongside the rail bridge.

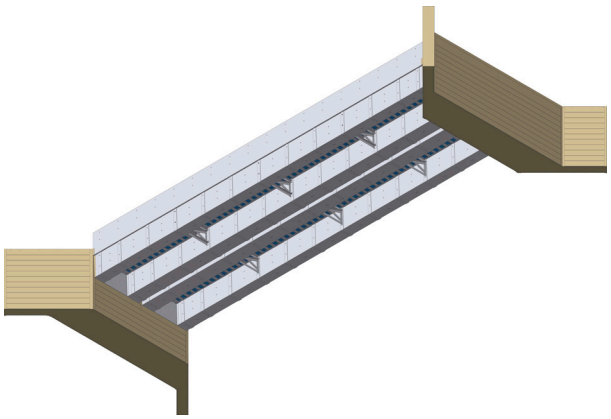
This innovative rail bridge system follows the same InQuik accelerated construction methodology as road bridges. Temporary formwork and supports are eliminated, lightweight mobile cranes can be used during construction, and installation/assembly can be carried out from above, minimizing the need to work beneath the bridge. This not only enhances worker safety but also reduces environmental impact. The system is suitable for single and multi-span structures, and we have designs for both fully integral, simply supported, or mixed bridge articulations. Abutments, wing walls, headstocks, and blade piers are constructed using a similar semi-modular approach as the deck.

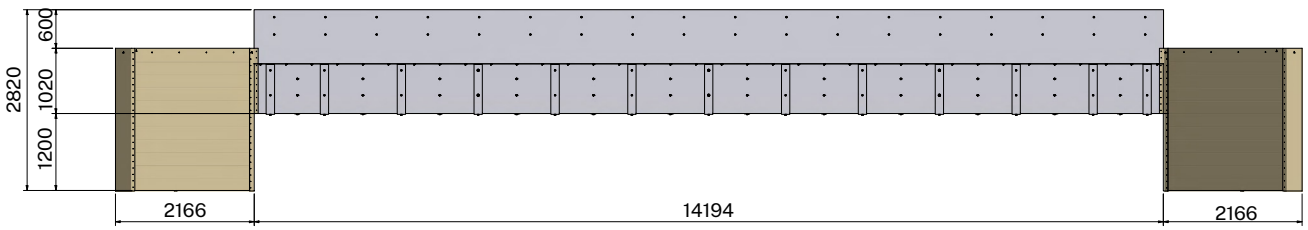
Bridge Specifications	
Load Rating	300LA in accordance with AS5100 (2017)
Spans Lengths	Integral up to 15.4m effective span (14.2m clear span) single or multi-span
Bridge Width	4100mm
Deck Depth	1020mm
Abutment Height	1200 to 2400mm
Wing Walls	45º or 90º
Support Condition	Fully integral up to 60m Semi-integral Simply Supported

One of the significant advantages of the InQuik Rail Bridge is its reduced long-term maintenance requirements compared to precast structures, primarily due to the absence of longitudinal deck joints. The integral bridge design also eliminates the need for tie-downs and bearings.

The deck formwork is a permanent fixture that remains in place, offering protection to the concrete against environmental factors that could cause damage or degradation. The most suitable cladding material is based on aesthetics and corrosivity of the environment, with zinc alloy-coated steel, stainless steel and weathering steel options available.







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