
Overview Application of RIVER BRIDGE

1. Introduction

RIVER BRIDGE™ “JFE Steel-Concrete Composite Deck Bridge” is a type of bridge that was developed to have a reduced structural height while maintaining economic efficiency. This is achieved through the use of T-section steel beams with deformations on the top of the flange. RIVER BRIDGE is suitable for small and medium spans.

Other features of RIVER BRIDGE include a high

bridges with a low structural height to prevent river flooding caused by typhoons and hurricanes. This article explains the performance requirements for bridges over rivers in tropical countries and the reasons why RIVER BRIDGE is the superior option for meeting those performance requirements.

2. Performance Requirements

2.1 Structural Height and Clearance

The greatest advantage of RIVER BRIDGE is its low structural height. The span length to structural height ratio at the center of the span is about 1/30 to 1/42, and the structural height at the girder ends can be

lowered to a minimum of about 30 cm. When compared to PC bridges (which are becoming the mainstream in developing countries), this difference is remarkable (Fig. 1¹⁾).

In tropical countries, the upper reaches of a river system are usually a forested area filled with evergreen trees. During heavy rainfall, a large amount of driftwood is washed downstream together with soil. This driftwood can be deposited and accumulate at the bottom of a bridge crossing the river, and can eventually damage the bridge itself. Because RIVER BRIDGE can accommodate a higher vertical clearance under the main girder, it has a clear advantage over typical PC bridges in terms of resistance to damage caused by floods.

2.2 Construction and Maintenance

In developing countries where social infrastructure is weak, it is difficult to allocate a sufficient budget for disaster prevention, which results in extensive damage when a disaster occurs. Consequently, the usual situation after a disaster is that developing countries request that other countries provide an emergency response and support for rebuilding/restoration of damaged structures. In cases where bridges are damaged by flooding, detour routes in neighboring areas are usually not established, which results in a huge negative impact on the affected communities. In addition to the urgency of construction, construction periods are often limited by environmental and weather changes during the rainy and dry seasons peculiar to tropical countries, and

completing the construction work in a short period of time is a challenge. RIVER BRIDGE is significantly lighter than concrete bridges, allowing for downsizing

