

Method for placing Prefabricated Slab Elements on Bridge Decks

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Abstract

The Institute of Structural Engineering of TU Wien is working on a new method for the construction of deck slabs for bridges, using partial depth precast concrete elements with an in-situ concrete layer. This construction method can be used for all types of bridges, but in this paper, the application for steel- concrete- composite bridges is shown.

Building the slab with partial depth precast elements are used. These elements will be delivered from the precast factory to the building site, where they are stored next to the abutment. An installation carriage with vertically adjustable steel bars is picking up the elements from the assembly area and carrying them to the installation site where the elements are situated in their final position. The additional reinforcement will be placed and a concrete layer will be applied.

Keywords: precast concrete elements, deck slab, installation carriage, fatigue tests

1 Introduction

For building a deck slab of a bridge, bridge main girders are required first. These bridge girders can be made out of different materials as well as with different cross sections. For using the new invention by TU Wien for building the deck slab, all different kinds of main girders are possible. To describe this new method for placing partial depth precast slab elements for building the deck slab, the focus in this paper is on main girders made out of steel. These steel girders can be fitted by using common construction methods, as erection with cranes, erection by launching or cantilever erection.

For building the deck slab, different common methods are available. The slab can be made out of in situ concrete, cast either on a fixed formwork or on a formwork carriage, which can be seen in Figure 1.



Figure 1. Formwork carriage (photo: DOKA) [1]

In 2005 and 2006 such a formwork carriage was used for building a new deck slab for a bridge in Austria, called “Talübergang Wolfsgraben”.