

Erecting box bridges



Article Overview

Box girder bridges are typically erected using segmental construction, cantilever methods, and specialized lifting equipment such as launching gantries or cranes to position precast or cast-in-place segments.

Overview of Box Girder Bridges

A box girder bridge uses hollow, box-shaped beams as the main supporting elements. These beams can be made from prestressed concrete, structural steel, or a composite of both, and may have a rectangular or trapezoidal cross-section. The hollow interior reduces material usage while providing superior torsional stiffness, which is essential for resisting twisting forces under uneven loads . Box girders can be single-cell or multi-cell, depending on the bridge width and load requirements .

Segmental Construction

Modern box bridges are often built using segmental construction, where the bridge is assembled from smaller precast or cast-in-place segments . Precast segments are manufactured off-site or in a temporary yard, then transported to the site by truck or barge. They are lifted into position using gantry cranes, floating cranes, or launching girders, and connected with post-tensioning tendons to form a continuous structure . Cast-in-place segments are poured directly into formwork supported by temporary falsework until the concrete cures .

Erection Methods

- **Balanced Cantilever Erection:** Segments are added symmetrically on either side o...

Article Content

Research on Key Technology of Rapid Integrated Construction of Fully ...

Based on the reconstruction and expansion project of an expressway, a set of rapid construction technology for

Launching gantry

A launching gantry (also called bridge building crane, and bridge-building machine) is a special-purpose mobile gantry crane used in

Box Girder Bridges: Design, Construction, Applications, and Benefits

In this article, we will explore the design features, construction methods, applications, and benefits of box girder

Mike Briggs, PE, SE

Mike Briggs, PE, SE Steel Design Considerations for Erection & Constructability

CHAPTER 4: THE CONSTRUCTION PROCESS OF SEGMENTAL

The following Chapter 4 presents the important techniques for erection of concrete segmental bridges. Their characteristics are

Box Girder Bridge: Design, Construction, and Applications

Widely used in modern engineering for highways, railways, and river crossings, these

Design and development of bridge erecting machine with small curve ...

Du took the JQS 1000 bridge erecting machine as the research object and proposed key technologies and improvement plans that

Recommended Practice for Segmental Construction in Prestressed

1.1—General Segmental construction is defined as a method of construction for bridges, buildings, tanks, tunnels, and other

Jacking Construction Technology of Curved Steel Box Girder

4.2 Local Stress Analysis Because the bridge is constructed by pushing curved steel box girder, and the span is large,

Fabrication and Erection of Precast Concrete Segmental Boxes for

The two parallel 11-span bridges over the Connecticut River between Old Saybrook and Old Lyme are segmental post tensioned

Box Girder Bridges | Types, Components, Specification

Box girder bridges can be constructed in different ways according to their types. The general methods are cast in situ, fabrication and

Box girder bridges

Box girder bridges Steel box girders and steel and concrete composite box girders are used for long spans, where the self weight of

Box Girder Bridges

The Yarra River box girder bridge in Melbourne, Australia, collapsed during construction in October 1970, primarily

Long-term performance of a continuous box-girder bridge constructed ...

Thus, the effect of the naturally cured UHPC shrinkage and creep on the bridge's long-term performance should be

BCSA Guide to the Erection of Steel Bridges

1.3 THE PROCESS This guide covers the work of the bridge project team relating to erection – from concept to completion; that is for

Design, selecting type and application of SLJ 900/32 mobile bridge ...

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Microsoft Word

A box girder bridge is a bridge in which the main beams comprise girders in the shape of a hollow box. The box girder normally

Microsoft Word

After a brainstorming session, the design-build team selected a composite single steel box girder superstructure due to its

In-Depth Analysis of Prestressed Concrete Box Girder Bridges

In this article, we conduct a thorough analysis of the structural design, construction techniques, performance factors, and

Original Design of the SSJ900-Type Bridge Girder Erection Machine

Based on the above, we have specifically developed the SSJ900-type bridge girder erection machine with the function

Freyssinet Precast segmental erection methods

As part of the design-build project for a set of precast segmental bridges, choice of the erection method was key to its achievement.

Box girder bridge

A box girder bridge, or box section bridge, is a bridge in which the main beams comprise girders in the

What are box girder bridges? Their Advantages, Types and

Conclusion Box girder bridges represent a sophisticated engineering solution that combines strength, stability, and

Design for steel bridge construction

To ensure that a steel bridge design can be safely, economically and reliably executed (fabricated, assembled and erected),

SEGMENTAL AND STAGE CONSTRUCTION OF PRESTRESSED CONCRETE BOX GIRDER BRIDGES

The use of prestressed concrete for medium span structures has increased dramatically over the last decade, and now is the

Freyssinet Precast segmental erection methods

Balanced cantilever erection with launching gantry or lifting frames, Span by span or Precast girder

Key Construction Technology of Widened Design Box Girder

For the box girder installation of the bridge connecting with a tunnel, truck crane or truck crane with bridge erecting

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