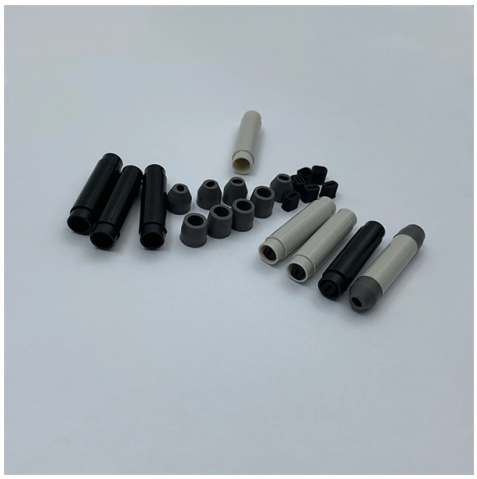
Method for fabricating elbows on bridge girders



AI Overview

Elbows in bridge girders are fabricated using controlled bending, welding, and plate assembly techniques to achieve precise curvature while maintaining structural integrity.

Materials and Standards

Elbows for steel bridge girders are typically fabricated from structural steel plates and shapes that comply with standards such as ASTM A709/A709M, Grade 50, or equivalent Eurocode specifications for steel structures (BS EN 1993) depending on the region . The steel must have consistent mechanical properties to withstand bending stresses and welding heat without cracking.

Fabrication Methods

1. Plate Bending

• Cold bending: For small curvature radii, steel plates can be bent using hydraulic presses or rolling machines. This method preserves the steel's mechanical properties but is limited by plate thickness and bend radius .

• Hot bending: For thicker plates or tighter radii, the steel is heated locally to reduce yield stress, then bent to the required angle. Controlled heating ensures minimal distortion and residual stress.

2. Welded Segments

Article Content

Guidelines for Steel Girder Fabrication | PDF

This document provides guidelines for field engineers on the fabrication of steel girders for railway bridges. It outlines the codes and

Design & Construction of Skewed & Curved I-Girder Bridges

AASHTO LRFD 6.7.2 – “For straight skewed and horizontally curved I-girder bridges with or without skewed supports, the contract

Bracing systems

Bracing systems A bracing system is a secondary but essential part of a bridge structure. A bracing system serves to stabilize the

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How Girders for Bridges and Flyovers is the Backbone of Uganda''s Infrastructure? Girders in major bridges and

ESDEP LECTURE NOTE

There are a number of methods for the erection of bridges. These include the lifting of the whole bridge (or the main girders) in one

Superstructure / Girder bridges

Multi-cell box sections are common in long span cable supported bridges, where the box girder must adopt an aerodynamic form,

3.3.12 Camber Design for Plate Girders

3.3.12 Camber Design for Plate Girders Typical slab-on-beam bridges have space between the bottom of the slab and the top of the

Techniques For Fabricating Galvanized Pipe Elbows

Galvanized pipe elbows play a crucial role in connecting and directing the flow of air, fluids, or gases in various

Bridge Geometry Manual

Chapter 7 – Geometry of Concrete Curved Bridges with Straight Precast Concrete Girders .....91 7.1 Introduction

Horizontally Curved Steel Girders—Fabrication and Design

There are two general methods for the fabrication of horizontally curved girders for bridges. The first, until recent years the generally

WisDOT Bridge Manual Chapter 24 – Steel Girder Structur

24.1 Introduction Steel girders are recommended due to depth of section considerations for short span structures and due to their

LRFD Steel Girder SuperStructure Design Example

For this steel girder design example, a plate girder will be designed for an HL-93 live load. The girder is assumed to

Mastering Steel Girder Fabrication: A Complete Guide to Process ...

Discover the fascinating world of steel girder fabrication in our latest article. We delve into the intricate processes involved, from

Design for steel bridge construction

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

CHAPTER 2 Steel Bridge Fabrication

1.0 INTRODUCTION The purpose of this chapter is to explain the basic concepts of fabricating steel bridge structures. It is intended

GUIDELINES FOR DESIGN AND CONSTRUCTION OF DECKED

This report documents part of the results of a study of decked, precast, prestressed, concrete bridge girders. This type of bridge

Steel Bridge Design Handbook Vol. 2

The user of this guide should be familiar with the AASHTO/NSBA Steel Bridge Collaboration Standards; S2.1, Steel Bridge

Steel Bridge Design Handbook

Explains the preparation and use of steel bridge shop drawings, including detailing practices, fabrication requirements, and the

What is Girder Bridge Fabrication The Process for Large Bridge ...

Girder bridge fabrication refers to the manufacturing process of the main structural components, known as girders, which form the

CHAPTER 2 Steel Bridge Fabrication

AASHTO/NSBA Steel Bridge Collaboration Guidelines G1.4 Guidelines for Design Details (11) and G12.1 Guidelines to Design for

Synthesis of Repair Materials and Methods for Reinforced Concrete

In practice, most of the repair methods might cause concerns for the industry and Departments of Transportation

GUIDELINES ON FABRICATION OF STEEL GIRDERS FOR

FABRICATION OF STEEL GIRDERS The fabrication of steel girder bridges is being done by various Railway Workshops as well as

Method for Fabricating 90-Degree Bend Elbows for Cable Tray

The method for producing bridge bend elbows is as follows: Take a 90-degree cable tray bend elbow as an example, and apply the

CHAPTER 4: THE CONSTRUCTION PROCESS OF SEGMENTAL BRIDGES

In that, these girders resemble the erection girders of the span-by-span method, which are used to assemble precast segments.

Sheet Metal Elbow Fabrication: A Comprehensive Guide to

Fabrication Techniques There are several methods for fabricating sheet metal elbows, each with its advantages and drawbacks.

Steel Bridge Design Handbook Vol. 2

The purpose of this module is to explain the basic concepts of fabricating steel bridge structures. It is intended to serve as a resource

EXPERTISE SPOTLIGHT: Erection Plans for Bridge Girders

An erection plan for bridge girders is a detailed scheme outlining how to move shop-manufactured girders and

Design and Construction of Spliced 1-Girder Bridges

In the design of concrete bridges using spliced girders, the span layout is frequently determined by site condi tions. The maximum

Connections in bridges

In ladder deck and multi-girder bridges, the structural connections are the splices in the longitudinal girders

CHAPTER 6.2 STEEL PLATE GIRDERS

In this chapter, straight composite steel-concrete plate girder bridges are discussed. Design considerations for span and framing

Steel Bridge Design Basics

The “fit” or “fit condition” of an I-girder bridge refers to the deflected girder geometry associated with a specific load

Guidance Note Main girder connections No. 2

Scope This Guidance Note, together with GN 2.03, covers a number of the typical connection details that occur in the fabrication and

Steel Bridge Design Basics

Considering all of the girders across the width of the unit within the span, the sum of the largest total factored

Steel Bridge Design Handbook

Everything You Need to Design a Steel Bridge The NSBA Steel Bridge Design Handbook provides comprehensive

1. Method statement of Steel Girder Fabrication and ...

The document outlines the method statement for steel girder fabrication and erection, detailing the necessary approvals, quality

Bridges | Ficep

ENTERPRISE Bridge girders and welded structures drilling GEMINI Plates thermal cutting, drilling and milling VALIANT High

Steel Bridges: Bracing System Design

For bridges with straight I-shaped girders, some type of bracing systems will most likely be necessary to control lateral buckling of

Bridge Design Details 11.1 June 2025

Layout sheets may show location and application of the finished product; however, all parts must be described clearly with

Guidelines for Steel Girder Fabrication

The document provides guidelines for fabrication of steel girders for construction/field engineers. It outlines important items that

Steel Bridge Design Handbook Vol. 11

A more detailed explanation of cambers for girder bridges is provided in the Steel Bridge Design Handbook module titled Stringer

Manufacturing, Erection and Construction Control of Steel Girders of ...

This chapter continues to use the Wufengshan Yangtze River Bridge as an example to illustrate the manufacturing,

Contact Us

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