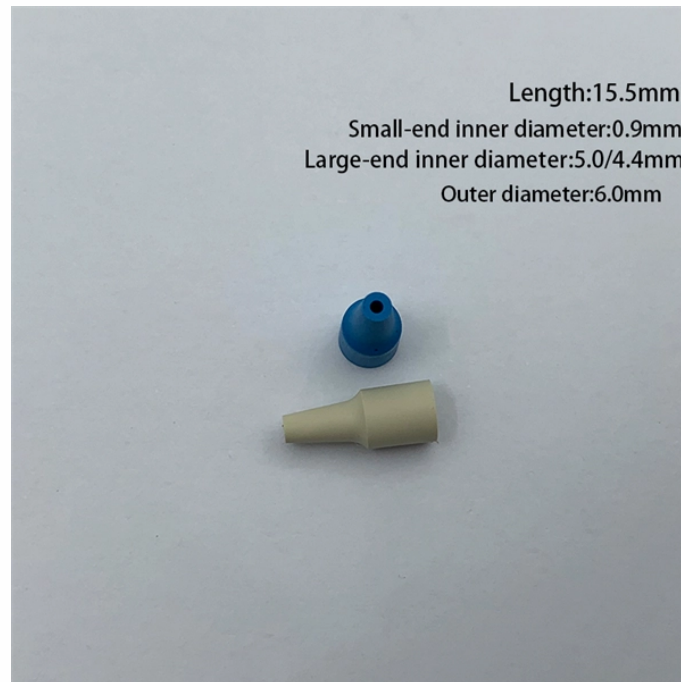


# Butterfly-shaped opening of bridge structure



## Overview

The butterfly-shaped arch bridge is a unique and new type of bridge. The arch ribs of this type of bridge lean outward without a cross connection system and through space polyhedral cables to support the main girder. This design forms the composite arch structure, in which the arch and the beam. The developments in building information modeling (BIM) technology provide a new approach for remote real-time visualized bridge health monitoring and structural damage detection, but so far, there are scarcely any application cases of a BIM-based SHM system for butterfly arch bridges around the world. Jiusha Bridge in Hangzhou city, China, is an asymmetric spatial butterfly-shaped steel arch bridge.

## Butterfly-shaped opening of bridge structure



Based on the deformation characteristics and stress distribution of a butterfly-shaped arch bridge, the deflection and bending moment of each main beam point are analyzed in this study and compared ...



This paper presents issues in the design concept, analysis and test results of a single span special-shaped arch bridge—the Butterfly Arch Bridge located in Zhongshan, Guangdong, China.



Take a real constructed butterfly-shaped concrete-filled steel tube arch bridge as a target bridge, both static and dynamic analysis are carried out to ...



Jiusha Bridge in Hangzhou city, China, is an asymmetric spatial butterfly-shaped steel arch bridge. The bridge deck and steel arch rib form a half-through structure at one end and a through...



Taking Jiuhuashan Bridge as the background project, this paper introduces the design and layout of butterfly special-shaped arch bridge, analyzes the system characteristics of the bridge ...



In this paper, this new shape of CFST arch bridge is introduced, and a refined three-dimensional finite element model (FEM) is established to evaluate static and dynamic behavior of the ...



Take a real constructed butterfly-shaped concrete-filled steel tube arch bridge as a target bridge, both static and dynamic analysis are carried out to better understand the structural behavior ...



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Based on an actual project in southwest China, work on the spatial mechanical properties, the analysis of monitoring requirements, and the design of functional modules of SHM are ...



According to the typical geometric configuration of small-to-medium-span highway bridges in China, eight full-scale specimens of ED shear keys were designed, among which seven ...

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