



HUANJIANG CANYON GRAND BRIDGE, CHINA

CASE STUDY

Alimak construction hoists assist in the construction of world's highest bridge

Access anytime, anywhere

ALIMAK



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The Huajiang Canyon Grand Bridge, set to become the world's tallest bridge upon completion, emerges as a marvel of modern engineering in the heart of Zhenfeng County, Guizhou Province, China. Alimak was essential in this ambitious project by supplying two single-cage Alimak SC 65/32 construction hoists built on rack and pinion technology.

The selection of Alimak as the preferred provider stems from our reputation for safety and reliability. This was a result of the successful deployment of the Alimak SC 65/32 in the construction of the Guizhou Yunwu super large bridge (with a height of 310 metres), demonstrating the client's trust in Alimak's vertical access solutions.

The Huajiang Canyon Grand Bridge project in Guizhou faces distinctive challenges due to its location atop the Castel geomorphology and geology canyon. Guizhou occupies the pinnacle of this geological formation, positioned in the alternating zone between the Yunnan Plateau and the Lower Yangtze Valley Plain, resulting in frequent shifts between cold and hot air.

Furthermore, being in a plateau region intensifies atmospheric temperature differences between day and night, leading to the likelihood of severe convective weather and consistent valley winds throughout the year.

In the initial stages of project investment, Alimak, aware of these hydrological environments, collaborated closely with the customer. Alimak provided comprehensive wind calculation reports and installed a solar energy-powered anemometer that connects wirelessly with the Alimak control system ALC and professionally addresses these specific challenges. This strategic integration of an anemometer is pivotal in ensuring operational safety.



Zhenfeng County, Guizhou Province, China

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The project demanded expertise and a robust design, particularly for higher wind speeds and an extended mast tie requirement. This specialised tie was crucial due to specific considerations. The decision for an extra-long mast tie arose from the bridge structure's upward contraction in both directions, eliminating the possibility of inclined installation.

The hoist has been positioned vertically at a 90-degree angle to accommodate the upward contraction of the bridge structure in both directions. To address this requirement, mast ties longer than the maximum standard Alimak ties (4.2 m) were necessary. Consequently, the Alimak ties were extended using tie extensions provided by the customer by our force calculations.

Furthermore, Alimak deployed the Alimak SC 65/32 design to overcome these challenges, underscoring the company's commitment to precisely navigating unique project requirements.

The primary objectives of the vertical access solution provided by Alimak were twofold: Firstly, it facilitated the seamless transportation of construction personnel and essential tools to the bridge deck, ensuring the workforce's safe and efficient mobility. Secondly, it was strategically deployed to navigate the challenging terrain, allowing the construction hoist to ascend to the climbing formwork level.

The bridge's main structure is expected to be completed by the end of 2024, with the bridge set to open in early 2025. The bridge's longest span stretches 1,420 metres, and its clearance below 625 metres will make it the world's highest bridge.

HOIST DETAILS

Location:	Zhenfeng County, Guizhou Province, China
Application:	Bridge
Hoist model:	Alimak SC 65/32 FC
No. of units provided:	2 (single)
Capacity:	2,000 kg
Hoist car size: (W x L x H)	1.5 m x 3.2 m x 2.5 m
Speed:	0-60 m/min
No. of landings:	2
Lifting height:	190.5 m



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