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The Balinghe Bridge in China – World's Highest Bridge

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In China, a great bridge by name the Balinghe Bridge is under construction. It is a suspension bridge, main span 1088 m, one of the longest in the 2000's. The vertical clearance is 375 m, which makes it as the highest bridge in the world

The Balinghe Bridge is situated in Guanling District in Guizhou Province, some 400 km south of a large town by name Chongqing which itself is situated in a beeline some 1500 km west of Shanghai. The Balinghe Bridge is built across the gorge with the same name. The vertical clearance of the bridge above the gorge is 375 m, according to present knowledge highest in the world [1]. However, according to preliminary information even a higher bridge is planned to be built in Mexico in the 2010's. It is the Baluarte Bridge across the gorge with the same name, a cable-stayed bridge, main span 520 m, vertical clearance 400 m [2].

The main span of the Balinghe Bridge is 1088 m and the anchorage distance is 1564 m. The towers are made of concrete, as usual in long-span Chinese suspension bridges. The western tower is 204,5 m tall, while the eastern tower is a few meters shorter 189 m. The diameter of the two main cables is about \varnothing 80 cm each.

Contrary to other long-span Chinese suspension bridges, which usually have a streamlined steel box girder deck, the Balinghe Bridge has an American style steel truss girder deck, cross-section 28,0 x 10,0 m. Only the main span is

suspended by cables, while the side spans are supported by underneath columns. The cables are anchored in eastern side in block anchorage, in western side in tunnel anchorage.

The Balinghe Bridge is due for completion in 2010. Then there will be in China 7 suspension bridges having a span longer than 1000 m, most in the world [3]. Furthermore there will be in China the world's only two cable-stayed bridges with a span longer than 1000 m, Sutong Bridge (1088 m) and Stonecutters Bridge (1018 m) [4].



Fig.1: General view of the Balinghe Bridge. • Photo: Tongji University

The world's leading suspension bridges, span >1000 m, [3]

No.	Bridge	Span	Location	Year
1	Akashi-Kaikyo	1991 m	Kobe-Naruto, Japan	1998
2	Xihoumen	1650 m	Zhoushan, China	2008
3	Great Belt East	1624 m	Korsor, Denmark	1998
4	Runyang South	1490 m	Zhenjiang, China	2005
5	Humber	1410 m	Hull, Britain	1981
6	Jiangyin	1385 m	Jiangsu, China	1999
7	Tsing Ma	1377 m	Hong Kong, China	1997
8	Verrazano-Narrows	1298 m	New York, NY, USA	1964
9	Golden Gate	1280 m	San Francisco, CA, USA	1937
10	Yangluo	1280 m	Wuhan, China	2007
11	Höga Kusten	1210 m	Kramfors, Sweden	1997
12	Mackinac	1158 m	Mackinaw City, MI, USA	1957
13	Huangpu-1	1108 m	Guangzhou, China	2008
14	Minami Bisan-seto	1100 m	Kojima-Sakaide, Japan	1988
15	Fatih Sultan Mehmet	1090 m	Istanbul, Turkey	1988
16	Balinghe	1088 m	Guanling, China	2010
17	Bosporus	1074 m	Istanbul, Turkey	1973
18	George Washington	1067 m	New York, NY, USA	1931
19	Kurushima-3	1030 m	Onomichi-Imabari, Japan	1999
20	Kurushima-2	1020 m	Onomichi-Imabari, Japan	1999
21	Ponte 25 de Abril	1013 m	Lisbon, Portugal	1966
22	Forth Road	1006 m	Edinburgh, Britain	1964

References:

- [1] Information and material kindly given by the Tongji University Shanghai, and by the Nanjing Institute of Technology (NIT).
- [2] "Down Mexico Way". Bridge Update, issue 71 (October 2007), p. 2.
- [3] Bridge tables of the Helsinki University of Technology (TKK), www.tkk.fi/Units/Bridge/longspan.html
- [4] Juhani Virola: "Los puentes atinrantados de mayor vano del mundo". Revista de la Asociación de Ingenieros del Uruguay AIU, N. 51 (Diciembre 2006), p. 17-20.



Fig.2: Another view of the Balinghe Bridge showing the deep gorge. • Photo: Tongji University

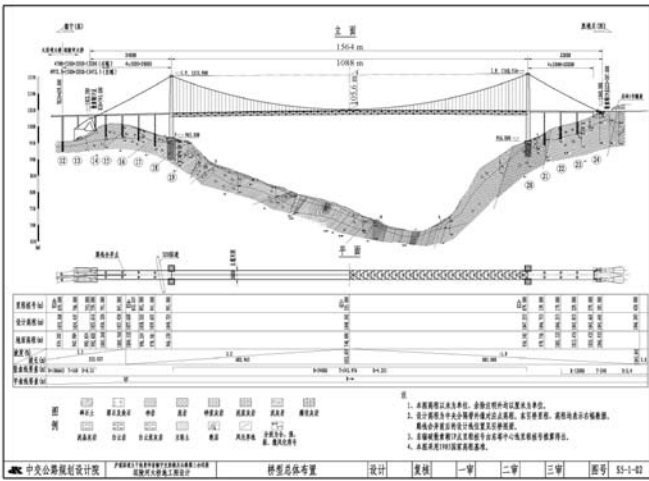


Fig.3: Longitudinal profile and plane of the bridge.

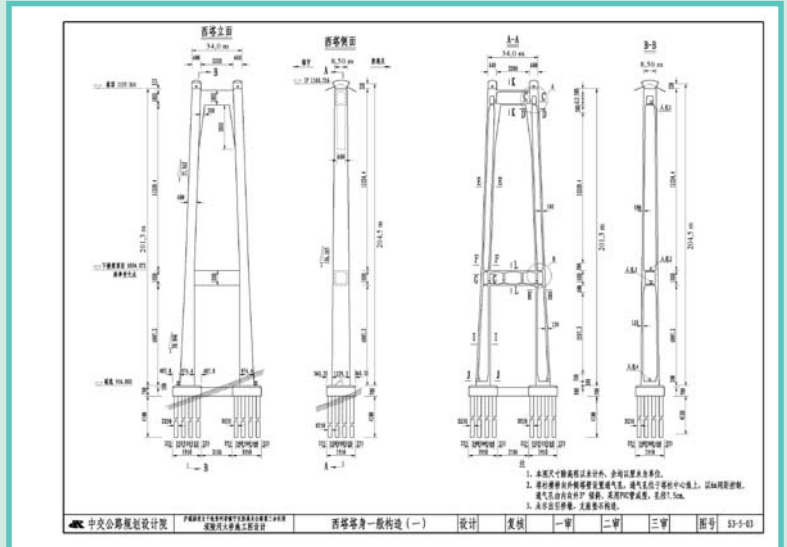


Fig.5: Front and side elevations and vertical cross-sections of the western tower.

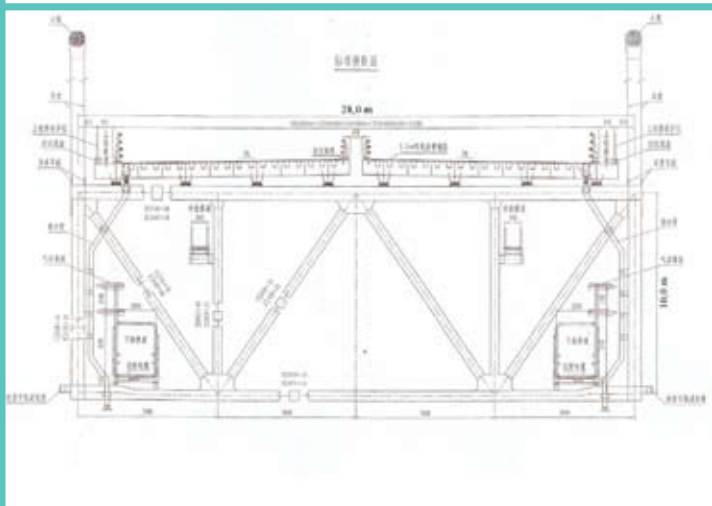


Fig.4: Cross-section of the deck.