



■ Bridges



## Two motorway bridges over the estuaries of the rivers Ibi and Kiso, Japan

### Reference Details:

Ibi: **Owner** Japan Highway Public Corporation, Japan +++  
**Basic Design** CTI Engineering Co. Ltd., Japan +++  
**Detail Design and Contractor** Ibi East JV: Sumitomo Construction Co. Ltd., DPS Bridge Works Co.Ltd., Mitsubishi Heavy Industries, Ltd., all Japan; Ibi West JV: P. S. Corporation, Taisei Corporation, Yokogawa Bridge Corporation, all Japan  
Kiso: **Owner** Japan Highway Public Corporation, Japan +++  
**Basic Design** Japan Bridge & Structure Institute, Inc., Japan +++  
**Detail Design and Contractor** Kiso East JV: Oriental Construction Co. Ltd., Nippon Koatsu Concrete Co.Ltd., Kawada Industries, Inc., all Japan; Kiso West JV: Kajima Corporation, The Zenitaka Corporation, Nkk Corporation, all Japan

**DSI Services** (Ibi and Kiso) Supply of "extradosed"-Strand Tendons type MC 19 Ø 0.6" and 27 Ø 0.6" with

### New impressive examples for "extradosed" bridges

The Meichin Expressway crosses the neighboring mouths of the Ibi and Kiso rivers via two 30 m wide six lane bridge structures, that are 1.4 and 1.1 km long respectively. Both bridges include a total of nine, virtually identical extradosed structures, each with a "wingspread" of about 170 m, built using the free cantilever construction method.

The extradosed bridges are connected by intermediate steel girders of about 100 m length, resulting in typical span lengths of about 270 m. The bridges are characterized by one single plane of pylons and tendons, located on the center line of the six-lane-structures.

The bridge girders consist of precast concrete segments, which are 33 m wide, 5 m long, up to 7 m deep and weigh up to 400 t: five times the weight of any precast bridge segments so far produced in Japan. The segments, as well as the intermediate steel girders, weighing approximately 2,000 t, were transported to the site on barges.

The extradosed tendons are of the type MC 19 and 27 Ø 15.2 mm. As internal tendons DYWIDAG Strand Tendons type MA 12 Ø 15.2 mm and DYWIDAG Bar Tendons 32 mm are applied.

epoxy-coated strands;  
DYWIDAG Strand  
Tendons type MA 12 Ø  
0.6" and DYWIDAG Bar  
Tendons Ø 32 mm.

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