



■ Bridges



Reference Details:

**Owner** Republic of Philippines, Department of Public Works & Highways +++ **Design and consulting engineer** Katahira & Engineers International; Sir William Halcrow & Pturs Ltd; Schema Consult, Inc.; Cebu Engineering & Development Corp; DCCD Engineering +++ **General Contractor** Kajima and Sumitomo Joint Venture

**DSI Services** Supply of DYWIDAG Tendons 4 and 12-0.5"; Supply of DYWIDAG stay cable system with bond socket; Rental of DYWIDAG form travellers, rental of equipment; Technical field assistance.



**Record breaking 185 m main span with newly developed DYWIDAG post-tensioning system**

**Second Mandaue-Mactan Bridge Project, Cebu, Philippines**

The Second Mandaue-Mactan Bridge will serve as a vital link between the Mactan Island and Cebu, the larger main island. The bridge will relieve the traffic congestion volume between the two islands.

The main structure is an extradosed post-tensioned bridge with a main span width of 185m which is a world record for this construction type. "Extradosed" refers to a hybrid structural system where tendons are elevated above the bridge deck, increasing the steel-to-neutral axis distance and thus

the moment capacity at the piers. So the bridge is similar to a stay cable bridge however they differ in their principle of function, What was originally planned as a pre-cast free-cantilever construction now does not put any constraints on the work progress avoiding interference with the heavy traffic on the waterway underneath the bridge.

In co-operation with the general contractor, DSI developed a system to erect the main portion of the superstructure with DYWIDAG form travellers using the free-cantilever method. The tight project team of DSI Taiwan, DSI Hong Kong and the general contractor succeeded to deliver the special accessories for this construction method. DSI Taiwan supplied the DYWIDAG form travellers and supervised the traveller erection. DYWIDAG stay cable technology and post-tensioning tendons originated from DSI Hong Kong. The general contractor utilized the DYWIDAG licensee Sumitomo Electric Industries Ltd., Japan to supply the bar post-tensioning. Form traveller design and detailing was contributed by DYWIDAG headquarters and DSI in Munich.

Erection of the DYWIDAG form travellers began in July 1998 with a DSI supervisor on site. All DSI form systems and services were delivered on time.