

 **Bridges****Reference Details:**

Owner Ministerio de Transportes, Comunicaciones, Vivienda y Construcción (MTC), Lima, Peru +++

General Contractor Servicio Industrial de la Marina del Perú (SIMA), Lima, Peru +++

Subcontractor SAMAYCA INGENIEROS S.A., Lima, Peru +++

Engineering SAMAYCA INGENIEROS S.A./DSI Latinamerica, Lima, Peru +++

Consulting Engineer C.Lotti & Associati, Rome, Italy

DSI Services
SAMAYCA INGENIEROS S.A., Lima, Peru: Design and installation of hangers; Supply of 3015 m pipes, dampers and spacers; Rental of equipment;
DSI USA: Supply of 2,560m DYWIDAG THREADBARS[®] dia.36 mm, couplers, anchors and accessories.

**Economical solution for bridge design in Peru****The Bolognesi Bridge spans the River Piura in Piura, Peru**

The Bolognesi Bridge is a 150 m long and 22.7 m wide steel arch bridge in the north of Peru. The steel arch has a maximum height of 30 m.

Originally, the bridge was designed with the hangers supporting the bridge deck consisting of multi-strand tendons. Due to the fatigue loads from traffic and wind, the anchorages needed to be designed similar to stay cable anchorages.

Since this type of anchorage is relatively expensive and the hangers are of short length, a solution using multiple bars proposed by Daniel LeMoigne, DSI's agent for South America and SAMAYCA, DSI's representative for Peru, proved to be much more cost effective. The originally specified 18 strand, 15.2 mm diameter cables, in one common pipe were replaced by four 36 mm DYWIDAG St 835/1035 THREADBARS[®], grouted within individual plastic pipes. Each group of four bars included spacers for preventing wind/rain-induced vibrations and individual sets of O-rings at both ends for dampers. The longer hanger bars required a fatigue resistant coupler with the bar ends inside cut at a 45-degree angle and fixed in place with two-component glue.

Simultaneously with the erection of the bridge deck, the hanger bars were installed, stressed, and grouted individually by SAMAYCA as subcontractor within a four-month period and the project finished in April 2002. The DYWIDAG THREADBARS[®] and accessories were supplied by DSI USA.