

A package including form travelers, design assistance and the post-tensioning



▲ *General view of the bridge*

The 13 span bridge across the Vistula river near Torun will be a part of the A1 motorway in Poland connecting Gdansk with Torun and which will eventually continue south' to the Slovak border. The river is 350 m wide at the crossing and is located in the middle of the flood plain.

The bridge is symmetrical and its total length is 965.4 m. The two central piers are located within the river bed. There are three main 130 m spans, followed on

each side by adjacent 78 m spans and three 55 m spans.

Finally, both end spans are 44.7 m long. The bridge cross-section is a 6.8 m wide box girder with a 14.8 m deck width. The webs are vertical.

The box height of the main spans box is 8 m at the supports and 4 m at midspan. The approach spans are 4 m high.

A balanced cantilever construction method was used to link the four middle piers.

Scope of works performed

- design assistance for the bridge,
- design of the form travelers,
- hydraulic equipment for the form travelers,
- all post-tensioning materials (610 t of strand and 20 t of stressbars),
- permanent technical field assistance.



▲ *The balanced cantilever section spanning the Vistula river*

The approaches were built by incremental launching.

The construction of the superstructure started in 1995 and was completed in 1997.

Severe winters resulting in the river freezing over, followed by the ice-melt and flooding challenges for the bridge builders.

The post-tensioning consisted of VSL System CS both for the internal and external PT.

The post-tensioning tendons consisted of 7-wire strands, $\text{Ø}15.2 \text{ mm}$, with a 140 mm^2 cross section. For the pier segments, $\text{Ø} 36 \text{ mm}$ stressbars were used.

Internal bonded 19 strand tendons were used for the balanced cantilever portion and 12 strand tendons for the incrementally launched portion.

The final continuity prestressing was provided by the external tendons CS 6-12 running through external HDPE plastic pipes.

OWNER

Dyrekcja Okregowa
DrogPublicznychw Bydgoszczy

DESIGNERS

Zaklad Nowych Technologii i
WdrozenInkom, Gliwice in
cooperation with VSL

MAIN CONTRACTOR

Zaklady Budownictwa
MostowegoPrzedsiębiorstwo
InnowacyjnoProdukcyjne Inkom (until
mid 1995)Espebepe, Szczecin from
mid 1995)

POST-TENSIONING

VSL Systems (CZ) Ltd.Construction

Period

1995-1997

▼ *The form travelers designed by VSL*



▼ *General view of the project*



www.vsl.com