

VSL Heavy Lifting tilting office bridges at Berlin's new Main Railway Station.



▲ Tilting of the bridge halves of the Eastern office building, the Western office bridge already in place

A very important step in the construction of Berlin's new main railway station was accomplished in July and August 2005, when the steel skeletons of 2 office bridges were tilted from their vertical erection position to the final horizontal level.

The bridges will accommodate 4 levels of offices.

They span 87 m over the glass roof that covers railway lines and platforms.

The owner imposed that assembly work could not be done over ongoing rail traffic. This

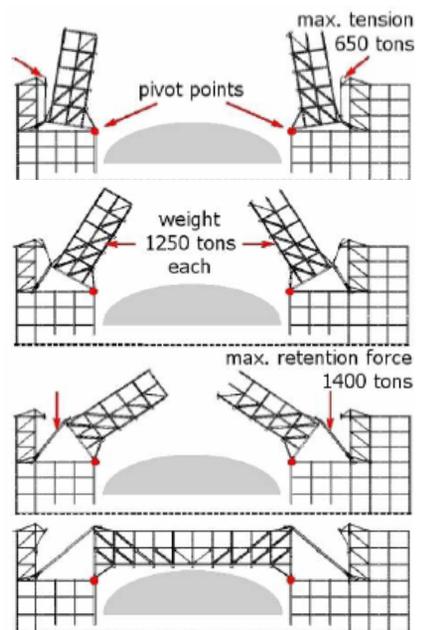
limited the possible work over the rails and trains to a few night hours per day.

The Main Contractor, a JV headed by Donges Stahlbau GmbH, opted for assembling each bridge in 2 halves in vertical position on top of the 4 office towers adjacent to the station area. The 4 bridge halves had then to be tilted to horizontal position.

VSL was contacted at an early design stage to advise on how to rotate such structures from their vertical position through a phase of unstable equilibrium to the horizontal. VSL's concept consisted in tilting each bridge half from the vertical erection position to the balance by firstly lifting with 4 strand units.

Two groups of 4 strand lowering units were then necessary to retain the 1,250 tonne structures

between the balance and the horizontal. The positions around the balance were delicate, because somewhere within this sector the required lifting and retaining forces were zero.



▲ Sequence of works

Scope of works performed

- Structural steel erection
- Lowering of 2 office bridges from vertical to horizontal position

To cope with this, the 4 lifting units were used to maintain a tilting force beyond the balance point. Thus, the retaining cables could be connected and the lowering units activated well before the balance point, allowing controlled rotation through this critical sector, with defined forces in the strand cables.

8 units SLU 330 for lifting and 16 units SMU 330 for lowering or retaining were used for the tilting operation of 2 bridge halves (330 = working capacity in metric tons). The tilting of the 2 western bridge halves took place at the

end of July and was concluded within the given time window despite a violent thunderstorm. The second tilting was concluded in a smooth operation that brought the bridge halves to the horizontal, ready for welding connection on Saturday, 13 August 2005. All planning, design, fabrication and erection activities had to be achieved under considerable time pressure, to meet the fixed possession dates given by the railway authority. VSL is proud and grateful to have been able to participate in this demanding construction phase of Berlin's new main railway station.

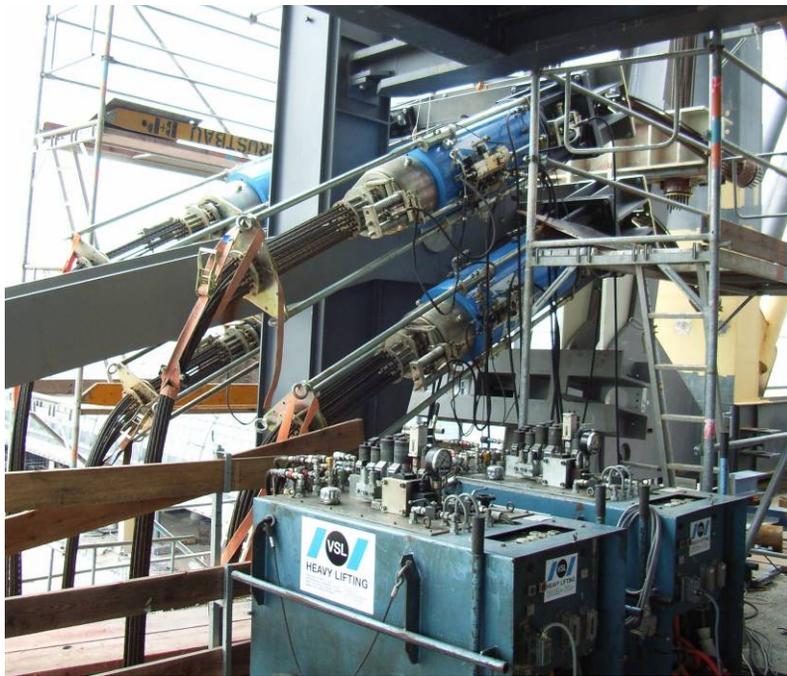
OWNER
DB Station und Service AG, Berlin

ARCHITECT
von Gerkan, Marg und Partner, Hamburg

ENGINEERING CONSULTANT
Schlaich Bergermann und Partner, Stuttgart

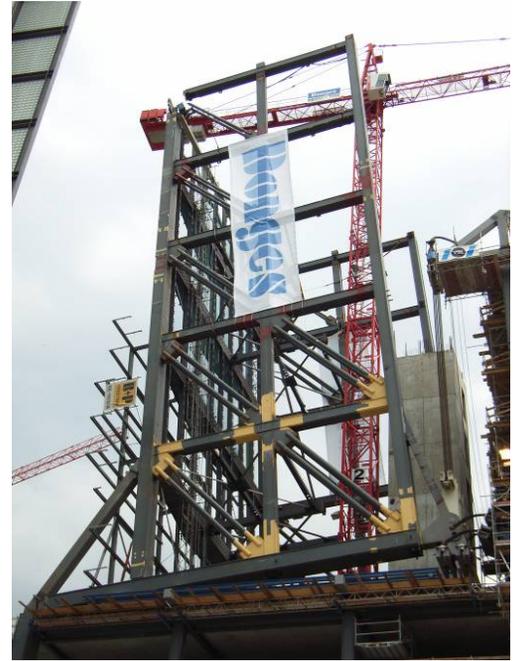
CLIENT
Donges Stahlbau GmbH, Darmstadt

STRAND JACKING OPERATIONS
VSL (Switzerland) Ltd.

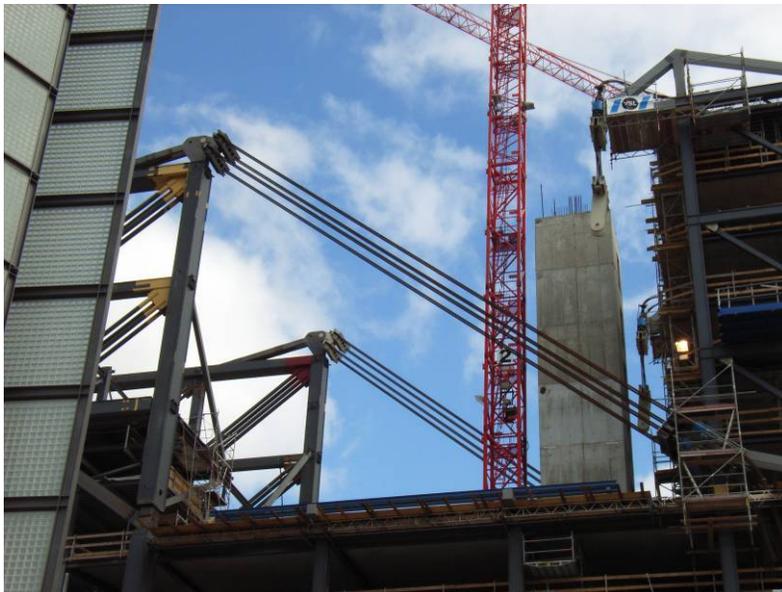


▲ Lowering installation at one corner

▼ At the end of the operation



▲ Soon after the start of the operation



▲ In the critical phase during the night



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