

Adherence to the weekly cycle with PERI VARIOKIT VIL Incremental Launching Facility

Expressway S3 Legnica – Lubawka, Poland

The Expressway S3 in western Poland, with a total length of 480.70 km, runs in a southerly direction from the port of Świnoujście to the border between Poland and the Czech Republic. PERI provided support for the section between Legnica and Lubawka. For the construction of the three bridge structures with two superstructures each, a comprehensive PERI solution with the VARIOKIT Incremental Launching Facility proved to be the key to success and was greatly appreciated due to reduced material quantities and time-saving handling.

The project is one of the largest infrastructure projects in Europe at the time of construction and is expected to be completed in mid-2022. For the construction of the three bridges WS 49, WS 52 and WS 54, PERI supplied an optimally coordinated formwork and scaffold solution based on the VARIOKIT Incremental Launching Facility, VARIO GT 24 and TRIO Column Formwork as well as the PERI UP Scaffolding System.

Concreting of the three bridges with different geometries

A major challenge in the project was the planning and implementation of various structures and bridge girders with high demands on the quality of the concrete surface. The bridges differ in their length between 435.00 m and 589.00 m and in their radius, meaning that the concreting work was carried out in different numbers of concreting sections spanning 25.00 m each.

Striking mechanism for the VARIOKIT Rafters

PERI supplied the suitable VARIOKIT formwork solution for the abutments, the high bridge piers, the construction of the incremental launching basement as well as the external, internal and slab formwork for the superstructure. A special feature of the VARIOKIT formwork units for the external formwork is the striking mechanism. When the incremental launching basement was lowered, the mechanism pushed the external formwork outwards in a horizontal direction. This provided the necessary distance between the hardened structure and the struck

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formwork when moving the superstructure, which is necessary for narrower bridge radii. When the incremental launching basement was raised, the mechanism automatically pulled the external formwork back into the concreting position. This meant that no additional alignment of the external formwork was necessary and the site personnel could start directly with the next work steps.

In addition, the VIL Wall Support with Roller Drophead was used for the slab formwork in the trough to implement the movable slab formwork solution with additional quick striking mechanism. The shuttering method of the VIL System allowed the slab formwork to be moved independently into the concreting position by means of pulling. The 25.00-m-long slab formwork was thus pulled into the new cycle and aligned within half an hour. The accelerated and simplified workflow made the VIL Incremental Launching Facility a profitable solution for achieving particularly high performance and efficiency standards in the construction of these bridges. This contributed significantly to the team's ability to stick to the tight schedule and the weekly cycle.

High safety due to the PERI UP Scaffolding Kit

In addition, numerous solutions from the PERI UP Scaffolding Kit were used on the construction site. Among other things, PERI UP provided a high degree of working safety as stair towers, reinforcement scaffolding and working platforms through reliable perimeter protection, and offered safe access for site personnel. Intelligent features integrated into the system, such as the self-locking ledgers and the lift lock of the non-slip decks, not only scored points in terms of safety, they also made it possible to assemble the scaffolding easily and efficiently.

Support from PERI engineers

During the entire project, PERI engineers were on site as contact persons to train the construction site team when the VARIOKIT Incremental Launching Facility was used for the first time. This targeted construction site support also contributed significantly to the success of the project.

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Image 1

For the construction of the three bridges WS 49, WS 52 and WS 54, PERI supplied an optimally coordinated formwork and scaffolding solution based on the VARIOKIT Incremental Launching Facility, VARIO GT 24 and TRIO Column Formwork and the PERI UP Scaffolding System. (Photo: PERI SE)



Image 2

For the construction of the three bridge structures with two superstructures each, a complete PERI solution with the VARIOKIT Incremental Launching Facility proved to be the key to success and was greatly appreciated due to reduced material quantities and time-saving handling. (Photo: PERI SE)



Image 3

The flexible VARIOKIT Formwork Units could be individually adapted to suit the supporting construction and bridge geometry. (Photo: PERI SE)



Image 4

The concreting process for the three bridges using the VARIOKIT Formwork Solution was carried out in different numbers of concreting sections due to the different lengths and radii. (Photo: PERI SE)

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Image 5

The VIL Wall Support with quick striking mechanism accelerated and simplified the workflow and contributed significantly to the team's ability to stick the tight schedule and the specified weekly cycle.

(Photo: PERI SE)



Image 6

VARIO GT 24 column formwork was used for concreting the piers.

(Photo: PERI SE)



Image 7

Targeted construction site support from PERI engineers contributed significantly to the successful first operation of the VARIOKIT Incremental Launching Facility by the construction site personnel, and to the success of the overall project.

(Photo: PERI SE)

Contractor

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