Amstetten, October 2011

Press release

# Modular solution for extreme cross-sections

**On a motorway bridge being built over the River Mureş in Romania, four Doka cantilever forming travellers and the Large-area formwork Top 50 and Load-bearing tower Staxo 100 systems together ensured smooth construction progress. Doka delivered a comprehensive, custom-tailored formwork solution for everything from the bridge piers to the pier-heads and the technically challenging superstructure.**

In western Romania, the National Motorway Company CNADNR is building a 12.5 km long stretch of the country’s A1 motorway close to the city of Arad. This “Arad Bypass”-project is crossing the River Mureş on a new bridge with an overall length of approx. 430 m and a main span of 150 m. The contracting consortium of Porr Bau GmbH and FCC Construction S.A. decided to work with the Doka Formwork Experts on this technically challenging bridge-building project, as the 150 m long main span was to be constructed using the balanced cantilever method. For this method, Doka has developed an optimum system with integrated formwork. The first factor that decided the issue for the contracting firms was the Doka cantilever forming traveller’s modular design concept. This makes it possible to accommodate even unusual superstructure cross-sections using standard components. The second aspect was the formwork solution, which scored for permitting high-speed working with cycle times of nearly one week per each segment. Porr Site Manager Sven Riedel’s comment: “Doka convinced us three times over: with its professional planning and extensive technical support in all phases of the project; with the assistance it provided during site erection; and with the troublefree operation the equipment gave us on the site.”

**Cross-sections made special demands**

The 305 m long cantilevered stretch of motorway across the River Mureş was constructed as a twin-cell box-girder bridge with vertical sidewalls. The cross-sectional inclination changed by between 2.5 % and 4.5 %, the radius being 900 m. Four rentable Doka cantilever forming travellers (CFTs) were fielded here for the 63 casting segments, each of which was max. 5 m in length. Due to the sizeable cross-sectional width of 27.5 m, the Doka bridge specialists designed the CFTs with three longitudinal trusses assembled from the modular system. These huge superstructure dimensions meant that the segments in the first casting sections each weighed nearly 300 tonnes. The drive components developed specially for this assignment ensured that the CFTs could be advanced both smoothly and swiftly. The extreme width also made it necessary to provide the cross-beams of the bottom grid with a standardised undertruss.

**Efficient forming of complex cross-section**

When designing the inside formwork, the Doka cantilevering specialists had to allow not only for a continuous reduction in the height of the superstructure deck, but also for a significant narrowing in the inside widths of the box-girder sidewalls. The height of the superstructure deck varied from 8.5 m to 3.6 m, while the sidewalls tapered from 0.6 m to 0.4 m. To allow the necessary modifications to be accomplished as efficiently as possible in every casting section, Large-area formwork Top 50 was mounted on movable custom profiles here, enabling it to be adjusted quickly, accurately and easily with heavy-duty screw jacks.

**Everything from a one-stop supplier**

The specialists from the Competence Centre for Cantilever Construction at Doka HQ in Amstetten planned and implemented this technically challenging project in close collaboration with Doka România. The local Doka branch supplied versatile Large-area formwork Top 50 and the high-capacity Load-bearing tower Staxo 100 system for forming and casting the bridge piers and pier-heads. A Doka Formwork Instructor was on hand to assist with erection of the CFTs on the pier-heads and with the first travelling operation, and also instructed the site crew in how to handle the formwork systems correctly.

The Doka cantilever forming travellers performed 100% convincingly on this bridge-building project in terms of safety, too, e.g. with self-locking slide bearings for permanent protection against unwanted travel. Caged ladders, and guard rails on all working platforms, ensured ‘all-round’ safety, as did the side platforms which were also used here.

**Press release and photos to download:** [www.doka.com](http://www.doka.com) – Newsroom – Press

**About Doka:**

Doka is one of the world's leading companies for developing, manufacturing and distributing formwork technology for use in all fields of the construction sector. With more than 140 sales and logistics facilities in over 70 countries, the Doka Group has a highly efficient distribution network which ensures that equipment and technical support can be provided swiftly and professionally. The Doka Group is a division of the Umdasch Group and employs more than 5200 people worldwide.

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**Captions:**

**Doka\_2011\_10\_Mureş\_Bridge\_IMG\_01**

Four Doka cantilever forming travellers kept work moving ahead swiftly on the Mureş Bridge, part of the Arad Bypass in western Romania, with cycle times of only one week.

Photo: Doka

**Doka\_2011\_10\_Mureş\_Bridge\_IMG\_02**

The sizeable cross-sectional width of 27.5 m made it necessary to provide the cross-beams of the bottom grid with a standardised undertruss.

Photo: Doka