

MAURER MMBS

Modular bridging system for civil works at expansion joints



In the former West Germany, the majority of bridges were constructed between 1960 and 1980. In former East Germany it commenced in 1990. Depending on the time of construction, a big increase in terms of strain for these bridges can be noticed. Be the cause in an increase of load cycles or in terms of wheel loads, the existing bridges require manifold actions for their strengthening. The budget for the maintenance of federal roads and bridges is estimated to be annually EUR 3 billion, and this for the next decade. The share of this budget for engineering structures like tunnels and bridges is in the range of up to 45%.

The expansion joints count among the structural members with the highest strain, which means that in case of replacement often comprehensive procedures have to be implemented to control the traffic flow. By way of the "MMBS" system, Maurer Söhne offers a possibility for minimizing such detrimental effects to the traffic flow. The usage of a mobile bridging system will contribute to an essential relaxation of the traffic situation:

- By way of a contribution of an unrestricted passing width during rush hour / in day time in combination

with a speed limit of 70 km/h and a flexible and lane by lane usage during night time all civil works can be carried out without creating major traffic jams.

- Demolition works, waterproofing or concreting works can be carried out in one go, such that structural joints like in case of concreting or welded butt joint connections can be avoided.
- In case of a full closure of a bridge at both ends can be worked simultaneously, because in case of need the MMBS system can be immediately activated and job site traffic can pass.
- If an MMBS is available at short notice (e.g. stored at the maintenance centre), the MMBS can also be employed in case of sudden accidents at expansion joints.

The handling of the system is simple and safe. The modular system (width per module 1 m) permits the adaptation to various road widths. For example the individual modules are being placed in a nightly shift when the road is closed and then fixated at one side. This facilitates a longitudinal displacement at the other

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support. The unfolding respectively folding of each module takes about 5 minutes.

Apart from inner cities (like at the Donnersberger Bridge in Munich) this modular system was also employed at federal highways. One example is the "Paradise Bridge" which is located at the A43 Expressway near Wuppertal, when the existing expansion joint was replaced by way

of the so called box-in-box solution. Because this bridge is considered to be a focal point in local traffic, a conventional closing down of this bridge would have caused major traffic jams. By way of the MMBS system, the replacement works at the expansion joint was carried out between 19.30 hrs and 06.00 hrs. During daytime, the traffic could flow over the job site at a speed of 70 km/h.



Fig 1: Set up while road is closed



Fig 2: Opening with wrench and tripod



Fig 3: Preparation for night shift works

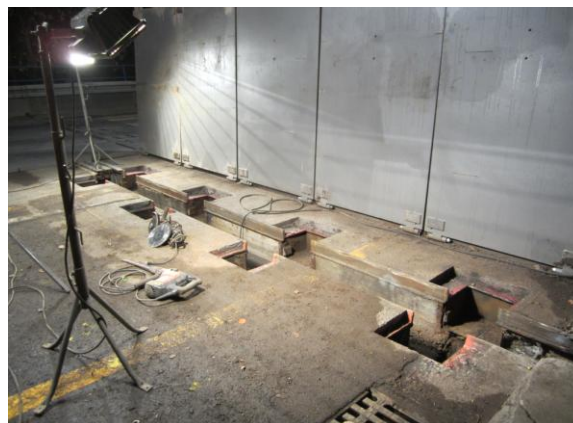


Fig 4: Job site