



MAJOR PROJECT /

## RISK ASSESSMENT BY FLIP BOOK

What is 802 metres long, weighs 30,000 tonnes and slowly advances across the Rhine? The new A40 Rhine bridge near Duisburg, built by a consortium formed between the construction company Hochtief and the steel construction specialist MCE, and insured by VHV.

June 2020 saw the start of construction of Germany's longest free-span cable-stayed bridge. The current plan is for the construction project to be completed in 2026. Traffic continues to flow over the old bridge during construction. The new bridge will be built in two parts: one bridge section for each direction of traffic. The first new part of the bridge (south bridge) is to be opened to traffic in both directions as early as this year. When the second part (north bridge) is finished, traffic will flow over this section. The first bridge section will then be shifted laterally by 14.4 metres and docked to the second. The new replacement structure directly next to the old bridge will have two pylons, which will be erected 380 metres apart. VHV is the leading insurer of the consortium for construction services and assembly. It also provides cover for the contracting risks of DEGES GmbH – the project management company of the German federal government and the federal states that designs and builds federal trunk roads and is the consortium's client.

### Asking questions is vital in risk assessment

"This is a very complex and demanding project", says Hermann Wulke, Team Manager in the Technical Insurance Department, who is responsible for the project at VHV. "You have to understand the construction process and the associated risks in order to insure such a major construction project", says the civil engineer. "That's why we ask a lot of questions right at the outset. For example, who the policyholder should be. That may sound obvious, but it's fundamental for major construction projects, which are often built by a consortium of several companies. The aim is always to insure the entire project as a whole and consequently the entire consortium, because in the event of an insurance claim, there are fewer discussions about its scope, which in turn reduces the processing workload."



Project manager Hermann Wulke (left) with underwriter Malco Fritsche (right) on the construction site. The visit was part of Fritsche's onboarding at VHV.

## The bridge in numbers



### 380 metres distance between the pylons

For large-scale projects, there are what are known as construction phase plans, in which the construction process is shown step by step with critical intermediate construction stages. "It's a sort of flip-book of construction plans, so to speak. We need to understand the project and its constructional implementation so that we can assess the risks. Only then do we understand the client's insurance needs and can advise the client accordingly."

The project's location also matters. Are there any natural hazards such as flooding or can neighbouring structures be damaged by the construction work? Wulke and his team are also interested in why there is a construction project in the first place. Particularly where infrastructure works are concerned, such as bridges, some structures have reached the end of their service life and their serviceability is in question, so that the replacement construction has to be carried out under time pressure. This in turn increases the risk of implementation errors or construction accidents. "We also include a company's experience in terms of the project in question in our risk assessment. In this project, for example, an entire bridge section is shifted laterally by more than 14 metres. That's hugely ambitious. Not every construction company can do that. Hochtief already successfully completed a lateral shift at the Lennetal Bridge near Hagen and so has the necessary expertise", says Wulke.



Smaller bridge segments are welded to the front end of the bridge.

The companies are building on both sides of the Rhine at the same time. The substructure is formed by structural elements (so-called abutments) and pillars made of reinforced concrete. The bridge's steel superstructure is first shifted longitudinally on the substructure in the direction of the Rhine. Once the longitudinal shift is complete, the workers erect the two pylons, which are welded together from individual steel segments. After that, smaller bridge segments are welded to the front end of the bridge in sections and connected to the pylon via steel cables and anchored back until the last segment connects both bridge sections. Finally, the roadway is laid on top.

VHV's insurance cover for the construction of the bridge also includes so-called extended liability and insures damage that only occurs after acceptance by the client, but where the cause of the damage was already established during the construction period. Any damage to the surrounding buildings caused by the demolition of the old bridge is also covered in this project.

### On-site risk management

VHV offers what is known as risk engineering or on-site risk monitoring for major projects like this. That's why Hermann Wulke usually travels to the bridge once a year and inspects the construction site with the project manager. "First of all, we have the construction progress explained to us and check whether any rescheduling or changes in the construction process make it necessary to adjust the insurance cover. We also provide recommendations for loss prevention if we identify possible sources of danger on the construction site", explains Wulke. "We obviously can't prevent all damage. For example, last year a mentally disturbed person drove a car onto the construction field, parked it next to a pylon pillar and set it on fire. Fortunately, no significant damage was done to the pillar." DEGES estimates that from 2030 onwards, around 126,500 vehicles will cross the bridge every 24 hours on weekdays.



Steel cables connect the pylons to the bridge.



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VHV – the construction insurance specialist

VHV is Germany's leading specialist construction insurer and insures numerous major construction projects, including the A40 Rhine bridge and the construction of the fifth lock chamber in Brunsbüttel, Europe's largest waterway construction site. VHV shares part of the risk in many other projects and insures the project together with other companies in a consortium, for example in a construction section of the Brenner Base Tunnel.

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GEFÄLLT MIR 17

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**380** metres distance  
between the pylons



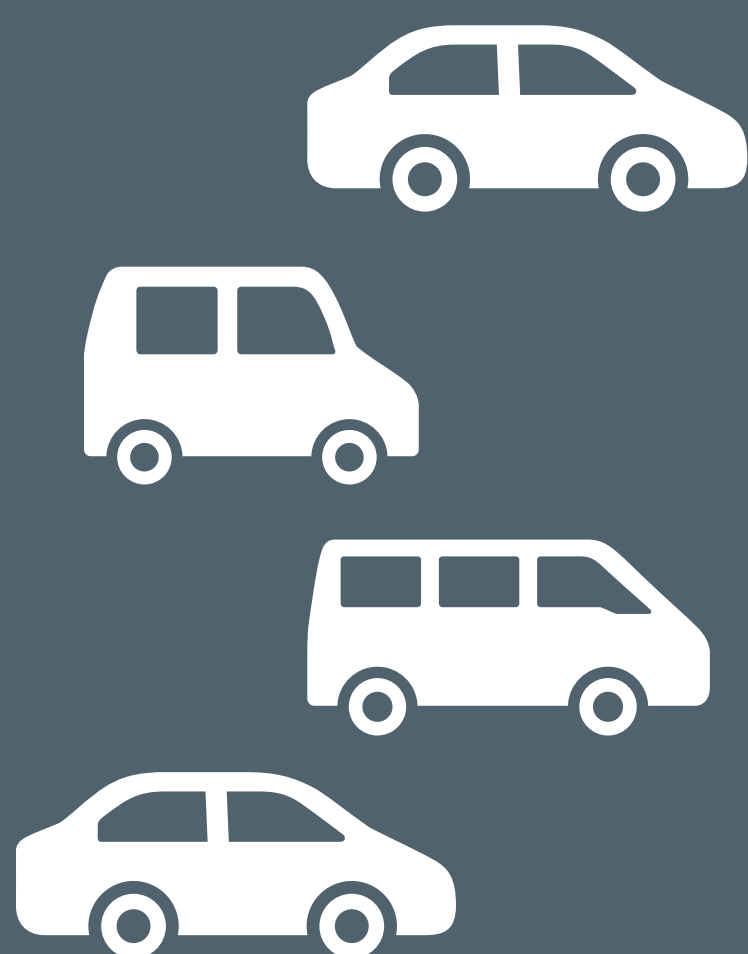
**802**  
metres long



**126.500**  
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**30.000**  
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**4**  
lanes