

## New apartments with basement parking in Trier-Ruwer: Excavation shoring with TITAN micropiles



The River Ruwer flows into the Moselle in the district of Ruwer in the City of Trier. New apartments with basement parking are currently being built next to the neo-Romanesque Church of St. Clement dating from 1871.

### The challenge

The building plot is being used to the full, which leaves little extra space for working. Large plant could not be employed and the neighbouring buildings (some historic) could not be subjected to any vibrations. It even proved impossible to employ a normal approach using anchors installed at a shallow angle to secure the shoring and protect the existing buildings. The small clearance to the plot boundary combined with uncertainty regarding the effects on the neighbouring buildings, with old rubble stone foundations in places, presented an unacceptable risk.

### The solution

A contiguous micropile wall was built with steep anchors and reinforced shotcrete panels. To suit the different loading situations of the nearby buildings, various sizes of TITAN micropile were used in the wall (TITAN 73/35 to TITAN 73/53), all 7.5 m long. The choice was tailored exactly to the situation based on detailed calculations and the need to achieve an economic solution. It was possible to install the micropiles as a contiguous wall virtually without vibration. A very steep angle (70° to the horizontal) was chosen for the anchors in order to remain within the plot boundaries and avoid interfering with the foundations of the adjacent buildings. TITAN 30/11 micropiles were therefore installed at several levels and a shotcrete facing added afterwards. One of the advantages of using TITAN micropiles was that only a small drilling rig (Klemm 802) was required for the work.

**Project:** New apartments with basement parking, Kennerweg 6, Trier-Ruwer

**Construction period:**  
May–June 2021

**Client:** Wohnungsbau und Treuhand AG, Trier

**Architect:** Heinrich Masselter, Trier

**Contractor:** TORKRET GmbH, Ferdinand Niesen / Christian Niesen, Klausen

### Products used:

- TITAN micropiles
  - approx. 40 pcs. TITAN 73/53
  - approx. 20 pcs. TITAN 73/45
  - approx. 15 pcs. TITAN 73/35
  - approx. 65 pcs. TITAN 30/11
- 90 mm cross-cut bit (TITAN 73/53, TITAN 73/45, TITAN 73/35)
- 75 mm cross-cut bit (TITAN 30/11)



[illegible]

A yellow tracked drilling rig is shown in operation on a construction site. The rig is mounted on a track system and is drilling a hole into the ground. The drilling mechanism is visible, with a vertical drill bit extending from the rig's arm. The ground around the rig is disturbed, showing signs of recent drilling activity. The rig is positioned on a flat, light-colored surface, possibly a prepared area for foundation work.

- Good economics and fast progress on site with the self-drilling system
- Design calculations by Friedr. Ischebeck GmbH
- Anchorages provided within the plot boundaries (adjacent structures not affected)
- Extremely low-vibration, rotary percussive installation (maximum protection for nearby historical buildings)
- Cramped site conditions meant that only a small drilling rig could be used (Klemm 802)

We would be happy to advise you about your particular project. Simply get in touch with us. We look forward to hearing from you.