

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



“Despite the confined site conditions, the excavation shoring work could be carried out quickly, economically and to the full satisfaction of the client.”

Ferdinand and Christian Niesen
TORKRET GmbH

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

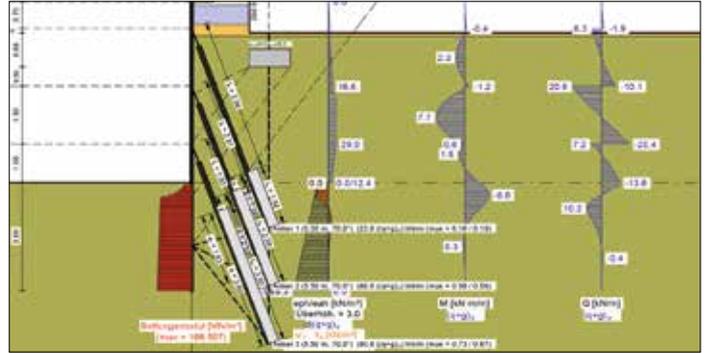
Contractor: TORKRET GmbH, Ferdinand Niesen / Christian Niesen, Klausen

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)



The excavation next to the Church of St. Clement.



The micropile wall was designed by Friedr. Ischebeck GmbH.



Self-drilling installation of micropiles on a confined site with a small drilling rig.

The benefits of TITAN micropiles

- 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)



The Ischebeck TITAN micropiles were installed to form a contiguous bored cast-in-place pile wall.

Would you like to find out more about TITAN micropiles?

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



The first row of TITAN micropile anchors, with end plates already fitted.

FRIEDR. ISCHEBECK GMBH

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