

KEMROC Powertool drive KRX 70 with milling attachment

# BORED PILE WALL SECURELY ANCHORED

Precise milling of recesses for reinforced concrete belts

Near Osterode in the Harz Mountains, the intake section of the Söse dam is being renovated. In the process, the holding dam had to be resealed using a new bored pile wall. This wall is strengthened at the top and bottom with two reinforced concrete belts. To excavate recesses in the bored pile wall to attach the reinforced concrete spurs, Umwelttechnik & Wasserbau GmbH uses one of their own 24-tonne excavators with a KEMROC KRX 70 Powertool drive unit with longitudinal milling attachment. As a result, the project was completed within the required specifications and on schedule.

With more than 850 employees at twelve locations in Germany, Umwelttechnik & Wasserbau GmbH is a major contractor for all aspects of water related engineering, including pipeline and trenching, civil engineering, and many other fields of work. The company is currently involved in an extensive project in the Harz Mountains. Near Osterode, a holding dam within the Söse dam network is to be completely renovated, primarily to secure the drinking water supply from the reservoir on the river Söse and secondly, to protect the main dam from the consequences of extreme weather events. The project, with a total value of 30 million euros, also includes renovating federal highway 498 which passes over the holding dam and the construction of a new road bridge over the weir. For this reason, the project is being funded jointly by Harz waterworks and the Lower Saxony Road Construction Authority, with a quarter financed from federal funds.

As part of the Sösetal reservoir, there is a holding dam located in front of the actual main dam. During renovation, the holding dam will have a completely new sealing diaphragm installed in its core in the form of a bored pile wall. The bored piles are made with a water-impermeable grade of concrete to seal the dam. For this purpose, the wall will consist of bored piles up to 25 m long and around 120 cm diameter. The combined structure also includes an additional diaphragm wall made from 90 cm diameter bored piles complete with reinforced concrete belts to tie the piles together and strengthen the wall, securing the site during construction. To fasten the reinforced concrete belt to the wall, a recess is made in each pile, into which an anchoring spur is installed. To make the recesses for the anchoring spurs in the piles, U&W used an in-house 24-tonne excavator with a KEMROC Powertool KRX 70 drive with a longitudinal milling attachment.



A 24-tonne excavator and a KRX 70 Powertool drive from KEMROC working on a bored pile wall. Strengthened with reinforced concrete belts, it forms the core of the holding dam at the Söse Valley Project in the Harz Mountains.



The milling attachment is used to make recesses in the bored piles. Reinforced concrete spur anchors are placed into these recesses. A reinforced concrete belt will be fastened to them at a later stage to strengthen the bored pile wall.

## Milling with power and precision

The KRX range of Powertool drives from KEMROC are fitted with high-torque motors and designed to be very robust. Available with a variety of different drilling and milling attachments including some fitted with dragon teeth cutters, they are an extremely versatile excavator attachment. With milling attachments, they can be used in trenching applications, to excavate foundation holes or to clean bored pile heads. Milling attachments with dragon tooth cutters work in permafrost or for tree stump removal. When fitted with augers and drill heads, Powertool drives are transformed into tools for drilling shallow holes up to 1,500 mm in diameter in rocks with uniaxial compressive strength of up to 60 MPa.

Most of the various grinder attachments that the engineers at U&W have available in their tool inventory are supplied by KEMROC. "Working with excavators and milling attachments is a natural part of our everyday work," says Johannes Frankenfeld, site manager for the large-scale Söse Valley Dam project, "but of course we don't have to have every type and size of milling attachment in stock for every conceivable application. For this very specific application on the bored pile wall, the tool of choice was a Powertool KRX 70 drive unit fitted with a milling head, and this is what we rented from our KEMROC dealer for this project."

Work on the large-scale project was scheduled to run from April 2022 to summer 2025. By late autumn 2023, the first concrete anchors on the upper side of the dam were completed. Work on the remaining concrete anchors is expected to continue until the summer of 2024. After that, the versatile KEMROC Powertool drive will be available for rent for other interesting projects. ■

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The rebar formwork has been completed. The formwork is filled with concrete in sections. Afterwards the bored pile wall stands as if made from a single cast.



Video from the construction site:  
<https://projector.kemroc.net/web/?id=vhdrn4Yc5Sab4vJK4VGe>