

Demolishing foundations with a KEMROC cutter wheel

CUTTING THROUGH LARGE BLOCKS

Working quieter and with less dust in Konstanz

Demolition experts from CK Abbruch & Erdbau were confronted with an unusual task at a job site in Konstanz, on the shores of Lake Constance. To demolish an old hospital, they had to remove a 110 cm thick concrete foundation. After weighing up all options and calculating expected costs, the team around Markus Christadler chose to use a KEMROC cutter wheel mounted on one of their 40-ton excavators. This proved to be the most economical solution by far and the most environmentally friendly.

The 2.5-hectare site of the old Vincentius Hospital in the southern German city of Konstanz had to be cleared before construction could start on the development of a modern residential area complete with retail units and restaurants. The contract for the first phase, which involved the careful demolition of the 40,000 m³ existing building, was given to demolition specialists CK Abbruch & Erdbau GmbH based in Eisligen. They quickly discovered that there was an unexpected challenge; the hospital, constructed in the 1970's, was built on a 2,000 m² concrete slab which was about 110 cm thick. According to an independent report, the use of an excavator with hydraulic breaker was ruled out because of the unacceptably high noise levels that would be generated. An additional complication was that the vibration from the hydraulic breaker transmitted through soils saturated with water, due to the proximity to the lake, could damage a neighbouring listed building which had to be preserved. Demolition using drill and blast was also ruled out on the grounds of noise and cost. Using a concrete saw was also considered but it wasn't economically acceptable. After an amicable exchange of experiences with another local demolition contractor, Managing Director Markus Christadler decided to try a KEMROC cutter wheel mounted on one of their own 40-t excavators.

There are four different size models in the KEMROC DMW range of cutter wheel attachments suitable for excavators from 15 to 60-ton operating weight. Two high torque hydraulic motors, one each side of the cutter wheel, guarantee high productivity with maximum cutting force. Even in hard rock or heavily re-enforced concrete, there is enough power to achieve high production rates. The availability of several variations of cutter wheel, for depths to 1,000 mm and widths up to 400 mm, opens a large of applications for the cutter wheel attachment. For this project, Markus Christadler rented a DMW 220_1000 cutter wheel with 1,000 mm cutting depth for a test. After one week of trials on a 40-ton excava-



At a project in Konstanz, CK Abbruch & Erdbau GmbH had to break up a huge concrete pad. The trial rental of a KEMROC cutter wheel was so successful that the company purchased an identical machine.

Photo: CK Abbruch & Erdbau



The cutter wheel purchased by CK Abbruch & Erdbau in action. The operator cuts through the 10 cm thick concrete slab at a speed of 10 – 15 m per hour.

Photo: ©Frank foto art studio

tor, results were so positive that the demolition company purchased an identical attachment for the completion of the crucial phase of the project.

Profitable and Environmentally Friendly

At the demolition project in Konstanz, the excavator operator cut out 15 m² blocks which were subsequently lifted and stood on edge using an 80-ton excavator before being broken up using a shearer. Some of the broken material was processed through a mobile crusher on site and the rest was transported to a recycling facility. "It would have been quicker with a larger excavator and hydraulic breaker," said Markus Christadler when commenting on his first project with his new KEMROC cutter wheel, "but under these conditions, it was not possible. Even so, we achieved average rates of 10 to 15 m cutting length per hour which gave us a production rate equivalent to using drill and blast but at a much lower cost. The noise monitors didn't record any high values. Drilling 800 to 1,000 bore holes would have been much noisier and uncomfortable for the people living nearby. At surface levels, the cutter wheel was working under a small depth of water so there was very little dust generated."

Since the project in Konstanz, CK Abbruch & Erdbau have had several applications where they have been able to use their KEMROC cutter wheel, one of which involved the excavation of trenches to tight dimensional tolerances in compact rock for foundations. Markus Christadler summed up his comments on the cutter wheel by saying, "All in all, the cutter wheel attachment is a tool well suited for the demolition of concrete and excavating in urban environments where there are major constraints on pollution." ■

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A close-up view of the cutter wheel with round attack picks. In the lightly re-enforced concrete at Konstanz, wear costs were held to acceptable levels.

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The demolition method involved cutting out 15 m² blocks which were subsequently lifted out using an 80-ton excavator.

Photo: CK Abbruch & Erdbau