

Job site report: Ulmer Sedelhöfe

CUTTER WHEEL DEMOLISHES PARKING GARAGE

The „Sedelhöfe“ job site is located in a new retail and residential development project opposite the main railway station in the German city of Ulm. Before construction could start the old infrastructure had to be cleared which included the demolition of a four-story underground parking garage. Demolition specialists Prünstner used a KEMROC DMW 220 cutter wheel to remove the thick, occasionally heavily re-enforced, concrete structure in record time and without any noise.

Based in Ichenhausen near Ulm, Prünstner is a small demolition and core drilling company whose success is built on a reputation for completing jobs requiring unconventional methods or equipment. The main contractor, Züblin Spezialtiefbau GmbH, had subcontracted Prünstner to work with them on a project to construct a turnkey foundation for a new residential and retail area called „Sedelhöfe“, located opposite the main railway station in Ulm. Around June 2017 Prünstner received the contract to demolish and remove a four-story parking garage in a built-up area close to Ulm city center. Instead of using conventional breakers and shearers for this job, the 40 ton excavator was fitted with a cutter wheel to break the concrete structure into pieces.

As to be expected, the underground garage was made up of extremely large concrete segments. Both the excavator operator and the Managing Director, Karl Prünstner senior were very skeptical when it came to the use of the cutter wheel but encouraged by job site reports in magazines, they decided to give it a try. They rented the cutter wheel for a trial period and had the attachment delivered to site. The interior parking decks had already been removed using an excavator with conventional breaker and shear attachments. All that was remaining was the empty shell consisting of 18m high, heavily re-enforced, thick walls, an overlapping bored pile wall located behind the concrete walls and the re-enforced concrete base. In addition to the concrete structures, the contract also included the removal of 180,000 m³ of soil and overburden. This had to be completed within a very tight schedule with all the constraints associated with projects in city center environments. Noise was a particular problem and the project had to be completed with the minimum amount of noise possible.

Most of the people on site were surprised to see the wheel cutting through 30 mm diameter rebar. When the cutter wheel attachment was used for the first time, the excavator operator cut a 13 m long, 100 cm deep slot through the garage wall into the bored pile wall behind it. At this point, the site personnel were convinced that the cutter wheel could do



Sedelhöfe, a new residential and retail sector under construction in Ulm, a German city on the Danube. Outdated buildings and infrastructure had to be demolished.



The demolition and foundations specialist company Prünstner uses a KEMROC ERW 220 cutter wheel to demolish an underground parking garage.

the job. Slots were then cut from top to bottom in the heavily re-enforced internal concrete wall, dividing it into approximately 4m wide sections. A 100 ton excavator was then used to topple the sections into the empty center of old garage where they were broken down into transportable pieces using breakers and shearers. The next stage was to use the breakers to remove the section of the piled walls that were not re-enforced and then to remove the last sections of the wall containing rebar. Finally, the 60 to 80 cm thick re-enforced concrete base was cut into 4 x 4 m sections with a cutting speed of 2 m per minute. These sections were raised onto rubble and reduced in size using breakers.

Quicker and quieter, ideal for use in the city

The rebar contained in the cut sections of concrete wall were in lengths that could be easily transported in containers. This was an additional benefit from using the cutter wheel that saved a considerable amount of time and money. The concrete sections were passed through a mobile crusher set to a particle size of 0/45 allowing the rebar to be separated easily from the concrete which could then be sold as road building material without any additional handling.

Powerful and silent, strong and efficient – these were the words used by Karl Prünstner senior to describe working with the KEMROC cutter wheel. He said, “We achieved more in 10 minutes with one 40 ton excavator and the cutter wheel than we did in one hour using two excavators fitted with breakers. The consumable cost was around Euro 20 per meter cut which was comparable to the cost of consumables with the breakers. However, the cutter wheel was significantly quieter than the breakers: 107 dB(A) was recorded on site with breakers compared to 97.1 dB(A) from the cutter wheel which was quieter than the noise from the excavator!”.

The engineers at Prünstner have already included the use of the cutter wheel in their repertoire of demolition methods. The Managing Director considers it as a fast, quiet tool for infrastructure renovation projects in urban areas and it can also be used in a wide variety of demolition applications where surrounding structures need to be protected. ■

Publisher

KEMROC Spezialmaschinen GmbH
 Jeremiasstr. 4
 36433 Leimbach
 Germany

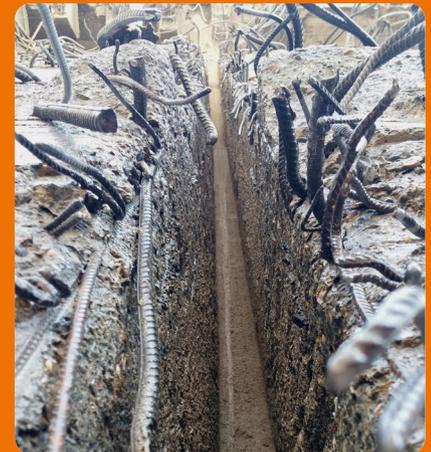
Phone +49 3695 850 2550
 Fax +49 3695 850 2579
 E-Mail info@kemroc.de

www.kemroc.de

KEMROC[®]
 revolution of cutting



At rapid speed, the KEMROC cutter wheel cutting through heavily re-enforced concrete walls and the bored piles located behind them.



Considered impossible, the wheel cut through 30 mm diameter rebar with ease and with low consumption of wear parts.