

KEMROC chain cutter working in ski area in Styria, Austria

LAYING WATER PIPES IN THE HIGH ALPS

A KEMROC EK 150 chain cutter mounted on a 50-t excavator was used to renovate and extend a ski area in Styria, Austria. On this project, 700 m of trench had to be excavated in hard limestone at an altitude of 1700 m to supply water to new snow cannons. Thanks to the productivity and low transport costs for excavated and fill material resulting from the use of a grinding attachment, the contracting company, Karl Pitzer GmbH, succeeded in completing this ambitious project in time and within budget.

The Loser Ski Resort is located at the same-named, 1803 metres high mountain Loser near the local community of Altaussee in Styria, Austria. At the start of the current season, winter sports will be more attractive there than ever. To secure their future in a very competitive environment, they have invested 4.5 million Euro in improvements which includes renovating some of the existing ski slopes, building some new ski slopes and extending the range of the artificial snow systems with the installation of ten new snow cannons. In the summer of 2018, the contractor Karl Pitzer GmbH went to work with a KEMROC chain cutter, for the first time, to excavate a total of 500 m of pipeline trench to connect the new snow cannons to the 70,000 m³ storage storage reservoir.

Karl Pitzner GmbH is a well-known civil engineering company based in Schladming in Styria, Austria. Operating to their motto, “not possible, is not possible”, the family business run by directors Karl Pitzer and Eng. Christian Pitzer undertake all types of work but they specialise in technically difficult projects such as the installation of artificial snow systems including high-pressure water lines, storage reservoirs, power stations and reclamation work. So, it is no wonder that Pitzner was chosen as one of the contractors taking part in the ambitious construction project to build new ski slopes and snow making facilities at the Loser Ski Resort. The engineers excavating the pipeline trenches at 1,700 m elevation had to overcome difficult geological conditions, a mixture of solid limestone with hard rock boulders. In 2017, at the start of the two-year project, the trench was being excavated using the traditional methods of drill and blast and hydraulic excavator with hammer attachment. At this time, Pitzer had their first contact with Wimmer Felstechnik, KEMROC’s Austrian agent based in Thalgau, Salzburg, followed up by a visit to the MAWEV construction show and the booth of KEMROC, the German manufacturer of specialist excavator attachments. At the show, the engineers had an opportunity to see the chain cutter and to discuss the method of excavating using the excavator attachment. After further discussions with experts from Wimmer, it was decided to try the KEMROC EK 150 chain cutter with an 800 mm wide cutter head on one of Pitzer’s 50-t excavators in the summer of 2018 at the Loser Ski Resort project.



At a pipe laying project at the Loser Ski Resort in Austria, the civil engineering company Karl Pitzer GmbH used a KEMROC chain cutter for the first time.

In most places, trenching in solid rock containing hard rock boulders is still carried out using a combination of the traditional methods of drill and blast and hydraulic excavator with hammer attachment. This excavation method is slow, very hard on the excavator and operator and creates a trench which is always larger than required with a large volume of large particle size excavated material. In comparison, the EK range of chain cutters from KEMROC can sometimes be quicker, more economical and, in ideal conditions, easier on the excavator and less tiring for the operator. On the chain cutter, a patented chain fitted with tungsten carbide round attack picks excavates the material located between the two external cutter drums. The attachment excavates a trench with vertical, parallel sides to the exact dimensions required. With a chain cutter, there is no need to swing the attachment from side to side to remove the material from between the drums, as is necessary with standard rotary drum cutters. It is not necessary to excavate more material than necessary, and the material excavated has a grain size small enough for use as back-fill, making significant savings in the cost of transport and back-fill material.

Pitzer experienced all these advantages on the project at the Loser Ski Resort. From a total of 700 m of trench, 500 m were completed in a period of about four weeks in the summer of 2018. To prevent the high-pressure water pipes from freezing, the trench had to be 150 cm deep; so, this was an exceptional production rate. While excavating with a hydraulic breaker, the operator was forced to start with a much greater width at the top of the trench so that he could achieve the required width of 80 cm at the bottom. In addition, the excavated material had a uniform, small grain size. "Importantly, when excavating in solid rock", explained the experienced excavator operator, "the chain cutter gave us two major benefits: firstly, the trench profile was much smaller and secondly, the material taken out of the trench was re-usable." Karl Pitzer confirmed this by saying, "Compared to using a hydraulic hammer and blasting, our experience has shown that the use of a chain cutter in solid rock has been ideal: we are keeping the size of the trench to a minimum while excavating material that can be put straight back into the trench. In situations such as these, trenching at altitude in the mountains, transportation of large volumes of material represent a very important cost factor and they must be kept to a minimum." ■



Every centimetre advance is important when trenching in scree and solid rock.

Thanks to the patented design of the KEMROC chain cutter, only the minimum amount of material is taken out of the trench.

Publisher

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