

KEMROC chain cutter EK 140

IMPROVED PERFORMANCE IN GYPSUM EXTRACTION

The German construction company Bantle made radical changes to the extraction and mineral processing methods at one of its gypsum quarries by using a KEMROC chain cutter EK 140 mounted on a 45-ton excavator. The chain cutter replaced a hydraulic breaker as the primary extraction tool which reduced costs at the crushing plant. Changing the extraction method resulted in considerable savings in both plant and labour costs.

“Buildings and Roads for today and tomorrow” – this is the motto used for decades by the civil engineering company Gebrüder Bantle GmbH & Co. KG. The family run company based in the Swabian town of Böisingen is headed by Engineer Georg Bantle. In a radius of 50 km, the company employs around 135 people at 15 to 20 job sites. Raw materials from their own quarries are used in their construction, civil engineering and road building projects as well as being sold to other raw material suppliers. Due to its proximity to the A 81 motorway near Singen, there has been a high demand for material from their gypsum quarry near Bochingen at the eastern end of the Black Forest. High maintenance and labour costs using a hydraulic breaker as the main production tool resulted in Georg Bantle searching for an alternative production method.

Different extraction method saves many steps in production

For over 12 months, Managing Director, Georg Bantle and his Blasting Manager, Armin Kopf had been investigating different methods of extracting the relatively soft rock from their gypsum quarry. One of the methods considered was the use of a chain cutter. After initial trials in September 2017, the company decided to rent a KEMROC EK 140_800 with an 800 mm wide cutter head to mount on their 45-ton excavator and carry out an extensive test under production conditions over a period of four weeks. The chain cutter was rented from BS Baumaschinen Service in Inzigkofen and they delivered it to site. Gypsum from this quarry near Bochingen is partially being used to supply another local gypsum supplier. However, a large part of the production is carried to another quarry nearby, also owned by Bantle. In theory, the General Manager and the Blasting Manager had made an estimation of the cost savings they expected to achieve and it was now time to see if these were going to be realised in practice.

Extracting gypsum using a hydraulic breaker mounted on an excavator is generally a slow and difficult procedure for both man and machine. During the testing period, also the chain cutter made high demands on the equipment. However, compared to the breaker the chain cutter worked with less vibration resulting in lower maintenance requirements for the excavator and at the same time, it made life better for the operator. A brief comparison of the methods: The material produced by the breaker lies on the ground in large blocks that have to be broken down



The company Gebrüder Bantle & Co. KG have recently started using a KEMROC EK 140 chain cutter as their primary tool for production at one of the gypsum quarries.



In addition to efficient utilisation of power from the excavator hydraulics, the new production method also uses the weight of the chain cutter to great effect.



In the KEMROC chain cutter, a patented cutter chain running between two cutter heads is used to get maximum productivity from the available width of the attachment.

by the breaker before the ore can be sent to the processing plant for being crushed down in an impact. Using the chain cutter has made the extraction process more efficient by eliminating many of these production processes. With the chain cutter, the excavator operator starts the production process by placing the chain cutter at the top of the wall of gypsum and allows it to cut its way down to the bottom, using the weight of the attachment to help provide the necessary down force to cut the gypsum smoothly. The material produced by the chain cutter has a much smaller grain size. It doesn't require any extra work before being transported to the processing plant, and it produces much lower crushing costs.

Higher Productivity, Lower Costs

On completion of a six-week trial with the EK 140 with 800 mm wide cutter head, Georg Bantle and Armin Kopf analysed the results. They found that in addition to creating a more comfortable, less strenuous working environment for both the excavator and the operator, the KEMROC chain cutter had a higher production rate than the hydraulic breaker. "The production method worked tip-top", said Armin Kopf, "With the rental machine, we achieved a production rate from 50 to 80 tons per hour which is significantly better than we were achieving with the breaker." Following discussions with Bertram Zebrowski from BS Baumaschinen Service GmbH, KEMROC's agent in southern Germany, it was agreed to provide the 800 mm wide cutter head of the chain cutter by a 900 mm wide cutter head. Bertram Zebrowski predicted that productivity could be increased by about 20 % using a chain cutter with a wider cutter head. The specialists from Georg Bantle have been very pleased with the increased productivity and the cost savings achieved by the massive reduction in material passing through the impact crushers. The General Manager, Mr Georg Bantle said, "Changing the production method by replacing the hydraulic breaker with a chain cutter has lowered labour costs and freed up personnel for use in other operational areas."

Where possible, the management at Bantle will introduce the chain cutter to other gypsum quarries. The Blasting Manager, Mr Armin Kopf says, "Wherever we are extracting gypsum and we cannot drill and blast, we will try this new production method using the chain cutter." Since September 2017, the company has opened a subsidiary called Bantle-Entsorgung-Rückbau Bösinggen which currently employs about ten people. This is a recycling and disposal company and Mr Georg Bantle thinks that they will find uses for the chain cutter in this company, too. ■

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KEMROC[®]
revolution of cutting



For round attack picks, working in soft material such as gypsum is a very light application. As a result, operating costs in terms of fuel and wear are low.



The chain cutter produces a smaller, more consistent grain size material than the hydraulic breaker resulting in savings down the line in crushing costs and material handling.