Wirtgen │ Cutting as an alternative to blasting

The Wirtgen 220 SM is breaking new ground in the field of gypsum mining in Brazil

By mining by cutting, a Wirtgen Surface Miner at the Chorado mine in Grajaú in north-eastern Brazil eliminates the need for conventional extraction methods such as drilling and blasting and enables cost-efficient operations with minimal harmful emissions. The deployment of the 220 SM is a technological game changer with a focus on productivity, sustainability, and safety.

The Surface Miner realises a vision for the future

In Brazil, resources have been mined and quarried by drilling and blasting for over 100 years. This was also the standard method used for many years by Gesso Integral at the open-cast mine. However, for CEO Marcos Vasconcelos Ferreira, the not exactly environmentally friendly mining method with its particular need for strict safety precautions no longer represented a forward-looking, state-of-the-art solution: ‘We wanted to achieve high productivity with a tight focus on sustainability.’ During his search for a more sustainable and efficient extraction method, the company CEO came across the Surface Miner from Wirtgen, which cuts, crushes, and, if required, also loads the cut and crushed rock into trucks in a single pass. The raw materials are selectively extracted in purest quality, which allows optimum exploitation of mineral deposits. The potential of the machine and the advantages of the new extraction method were clear: no more drilling, no more blasting, lower emissions, increased safety on the open-cast mining site and outstanding cost-efficiency. The deployment of the first Surface Miner was a technological game changer that more than doubled productivity at the open-cast mine. The purchase of a second 220 SM Surface Miner enabled production at the mine to be increased by 84%.

A personal success story

The success story also has a personal side to it. The company was deliberately looking for an operator with no previous experience with large machines for the new Surface Miner. Marlete Ribeiro Souza Guajajára was recruited locally and trained as a machine operator. ‘My boss told me that he needed an unskilled person he could train from scratch for the job. And that person turned out to be me. At the time, I had never even learned how to ride a bike, a motorcycle or drive a car.’ His trust in the abilities of his new employee paid off. In the meantime, working with the Surface Miner has become second nature to Marlete, and she knows how to make the best of the machine’s advantages. ‘It’s a very comfortable machine that makes our daily work here much easier.’

Efficient mining operations with the 220 SM

Mining by cutting enables the selective extraction of raw materials with outstanding purity. At the same time, it reduces noise and dust emissions and increases safety at the mine. Thanks to low-vibration extraction, the method also enables the exploitation of mineral deposits in the immediate neighbourhood of infrastructure or residential areas. With an average cutting depth of 23 cm and a cutting width of 2.2 m, the Surface Miner enables the company to achieve a production volume of 1.25 million tonnes of gypsum per year. The piece sizes of the cut and crushed material are already ideal for numerous commercial uses and eliminate the need for a classical pre-crushing stage. The Chorado Mine in Grajaú clearly illustrates how increased efficiency and sustainability in the extraction of mineral resources can go hand-in-hand with greater safety in open-cast mining.

**Photos:**

  
W\_pic\_jr\_220SM\_Brazil\_0001  
The 220 SM from Wirtgen selectively extracts raw materials to a cutting depth of up to 300 mm.

   
W\_pic\_jr\_220SM\_Brazil\_0003  
Marcos Vasconcelos Ferreira, CEO at Gesso Integral, was searching for a forward-looking solution with high productivity and found it in Wirtgen surface mining technology.



W\_pic\_jr\_220SM\_Brazil\_0008  
Machine operator Marlete Ribeiro Souza Guajajára makes use of the unique advantages of the Surface Miner in her daily work.

  
W\_pic\_jr\_220SM\_Brazil\_0004

In the federal state of Maranhão in north-eastern Brazil, Wirtgen Surface Miners are being used for the open-cast mining of a gypsum deposit at the Chorado Mine in Grajaú.

Please note: The photographs shown here are only previews. If you wish to publish them in other media, please download the higher resolution (300 dpi) versions from the link provided here.

**Videos:**



[Click here to view the video.](https://youtu.be/zAI028B4GcM)

**[You can find more videos on the Wirtgen Group YouTube channel](https://www.youtube.com/@WirtgenGroup).**

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