

Surface Mining in Quarry Applications

By Colin Ford

Acceptance of surface miners in Quarrying applications is growing in some parts of the world and Wirtgen believes it could benefit some Australian Quarry operations. Quarries with the right geological deposits and layout can benefit from the productivity and cost benefits of Surface mining.

Around 50% of the surface miners already in use operate in limestone quarrying applications and are ideal closer to residential areas where noise and vibration from blasting can be an issue. The difference between using the machine in mining compared with quarrying is that the rock is generally harder than ores and this can impact on production rates. However in areas where drilling and blasting is prohibited surface miners can offer an alternative approach for aggregate extraction.

Wirtgen developed its surface miner range in the 1980's as a follow on from its road milling technology and uses the same basic drum mounted milling tool concept. The machines were aimed at large open cut mines and are much larger than their road building counterparts.

The recently released 4200SM is the largest model in the range and completes the latest generation of models which Wirtgen started to roll out in 2000. The 211 tonne 4200SM has a 4200mm cutting width and can mine a depth of up to 650mm in hard rock and 830mm in softer rock in one pass at speeds of up to 20m per minute.

The drum and picks can be matched to meet a customers specific requirements for material gradation. The machine has a 180 degree slewable height adjustable conveyor and can load 240 tonne capacity dump trucks at a rate of 300 tonnes per hour.

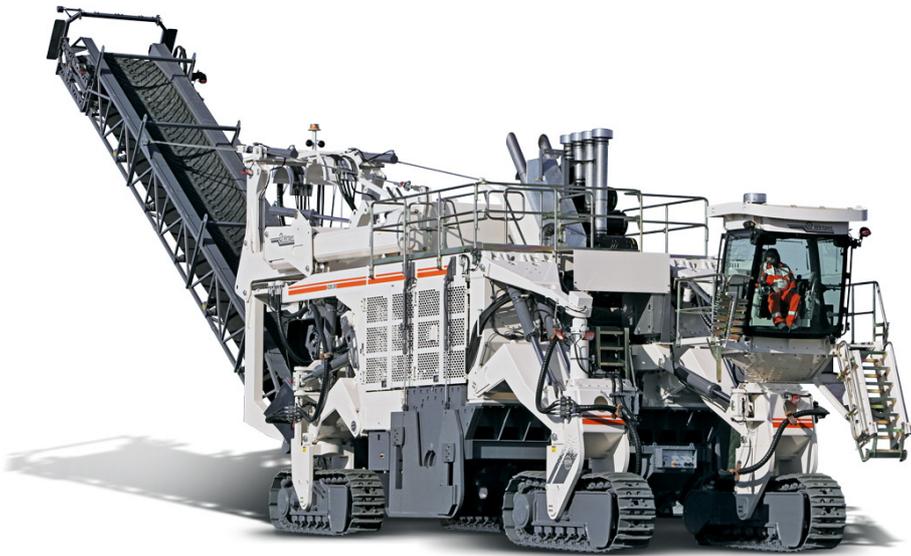
The machine is mounted on four steerable crawlers with three different steering options which can deliver a small turning circle of 12.5 metres.

Safety has been a high priority with the design. The machine is surrounded by walkways and stairs with handrails. Access to the cab is by hydraulic fold down steps and all daily maintenance points have ground level access. The machine has been designed to meet all necessary statutory regulations.

The first of the 4200SM's has been delivered to FMG for use at its Cloudbreak mine site and is being used to mine iron ore.

Although the 4200SM may be too large for many quarry applications the two smaller surface miners 2200SM and 2500SM have found acceptance in numerous quarries around the world.

Wirtgen Surface miners can provide a solution for quarry operators who have environmental restrictions which means drilling and blasting may not be permissible or highly restricted. They can also mean no need for primary crushing and can save double handling by direct loading of cut and crushed material into trucks for transport from site.



4200SM the largest Surface miner in the Wirtgen Fleet