MASTERING THE ART OF FILTRATION.

Modern filtration for the mining industry.

A filter press is well known as the ideal way to produce a perfect cup of coffee. When the plunger is fully depressed you get a flavorsome brew, free of grit, while the coffee grounds are left as a "cake" at the bottom. A similar process is applied, on a much larger scale, in the mining and minerals processing industry. Here, filtration is not about taste, but about managing vast volumes of slurry, recovering water, and reducing environmental impact.



ANDRITZ MiningMaster ME4

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THE MECHANICS BEHIND MODERN FILTRATION

In mining and minerals processing, slurry, which is a mix of water and very fine solids, needs to be dewatered efficiently. Filter presses perform this task, among others, by pumping the slurry through filter plates and cloths. The liquid passes through, forming a solid "cake" that can be further handled or disposed of safely. The result is dry solids on one side and clear filtrate at the other side, enabling both easy material management and water reuse.

Filtration is growing in importance as the increasing volume of tailings generated is creating a variety of environmental challenges, while water itself is becoming an increasingly valuable resource that needs to be preserved. Efficient separation is therefore essential for both sustainability and cost control.

Every drop counts
As water becomes an increasingly valuable resource, efficient dewatering helps mining operations recover water while reducing the volume of tailings.

MiningMaster ME4: DESIGNED FOR HIGH-PERFORMANCE FILTRATION

ANDRITZ filter presses have long been a key component in mining operations, particularly for tailings filtration to enable dry stacking and safe material disposal.

Building on this experience and incorporating extensive customer feedback, the new MiningMaster ME4 overhead filter press has been engineered to handle higher volumes of mine residues while reducing residual moisture and maximizing process water recovery.

What makes this filter press so revolutionary? The MiningMaster ME4 delivers enhanced productivity, greater flexibility, and improved operational efficiency – supported by a maintenance-friendly design that further minimizes downtime.

Higher productivity is enabled by an extended filtration area. The MiningMaster ME4 accommodates larger filter plates of up to 2,500 × 2,600 mm and up to 240 chambers, allowing filtration volumes of up to 60,000 liters per machine. Its modular design also allows capacity expansion through additional filter elements, providing flexibility to handle increasing throughput requirements. At the same time, the optimized design contributes to efficient resource usage and reduced operational footprint.

Shorter cycle times are achieved, for example, through a linked plate system, which allows multiple filter plates to be discharged simultaneously. This is complemented by an intelligent cloth washing feature with high-pressure double cloth washing at 60–80 bar, ensuring effective cloth regeneration while maintaining consistent performance.

Greater flexibility is built into the system through its modular concept. The design allows adaptation to different process requirements and enables capacity adjustments with additional filter elements.

Unrestricted lifting of cloths and plates without special tools improves maintenance. This enables faster and easier cloth and plate changes, reducing downtime and improving overall operational efficiency.

THE FUTURE OF RESOURCE-EFFICIENT FILTRATION

The MiningMaster ME4 reflects a broader shift in mining: from handling waste to actively managing resources. By reducing residual moisture and enabling water recovery rates of up to 95 %, filtration becomes a key enabler of sustainable operations.

At the same time, improved automation and intelligent control systems open the door to digitalized filtration processes, where parameters are continuously optimized and maintenance becomes predictive rather than reactive.

By combining mechanical innovation with intelligent automation, ANDRITZ is helping its customers set new benchmarks in efficiency, safety, and environmental responsibility.

Next-generation filtration
The new MiningMaster ME4 filter press from ANDRITZ combines higher throughput, improved water recovery, and easier maintenance to help mining operations handle growing volumes of tailings more efficiently.

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