

The rise of modular milling

As more and more companies are entering the cement industry, there is an increasing need for small, start-up plants which offer the ability to expand as the market demands. These producers are looking to reduce start-up times and initial investment costs without sacrificing output maximums or performance reliability - giving rise to the growing popularity of modular grinding systems.

■ by **Chris Oesch**, Gebr Pfeiffer Inc, USA

The concept of modular grinding systems came into existence to specifically address the need to reduce start up times and initial investments without sacrificing outputs or reliability. Increasingly, equipment manufacturers have been developing modular solutions in an effort to stay ahead of the game. In the case of Gebr Pfeiffer, its 'ready2grind' system was designed as the world's first modular system utilising a vertical roller cement mill. The system is designed as a portable solution for companies in need of quick initial plant set-up or increasing capacity at short notice. It is capable of accommodating fuel, raw milling and finish grinding needs.

Initial installations

Among the first ready2grind installations is an order for LafargeHolcim Colombia. This new cement grinding plant will comprise the clinker feed modular hopper system, Gebr Pfeiffer's ready2grind milling circuit and product storage, plus a packing plant by Claudius Peters.



Gebr Pfeiffer's ready2grind modular system

Gebr Pfeiffer's MVR 2500 C4 will be installed together with a feed system, filter, fan, auxiliary equipment and the complete electrical/control system.

In addition, the solution has been selected for three further plants in Colombia, east Africa and Ecuador. The east Africa project has been in operation since the beginning of 2017. In addition

to coal, clinker and cement raw materials, the ready2grind modular system can also be tailored for grinding limestone, slag, pozzolana and gypsum.

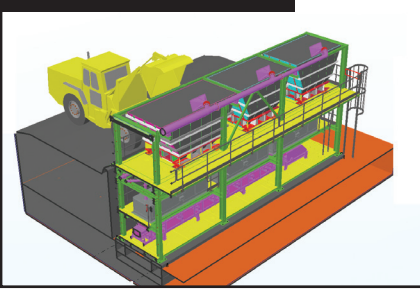
Modular design

The modular design allows for the efficient transport and erection of the grinding plant. Its standard shipping container



Gebr Pfeiffer's ready2grind modular system operational since January 2017 in east Africa

Feed area with three hoppers



size keeps portability as simple and inexpensive as possible. Erection is also straightforward which keeps associated costs to a minimum.

The solution consists of three modular areas:

1. Feed area

Utilising a flexible feed system which offers customers a choice of three hoppers per container for material feed.

2. Grind area

The grind area showcases an optimised Gebr Pfeiffer process design while utilising proven vertical roller mill technology, resulting in the highest efficiency and cost savings. Each of the containers are pre-assembled which helps reduce erection time.

3. Product area

The ready2grind modular mill system offers a flexible product silo system with single-silo or multiple-silo designs.

Optional Swing Mill solution

Gebr Pfeiffer has also incorporated its Swing Mill solution as an option for the ready2grind modular system. The Swing Mill technology allows the customer to alternate, interchangeably, between the types of material to be ground. Given that bulk materials differ considerably in terms of grindability and abrasiveness, the Swing Mill is precisely designed for small to high throughput rates to accommodate various customer needs.

The MVR and MPS grinding principle and high efficiency classifier significantly reduce power consumption compared to conventional ball mills.

Swing Mill grinding options:

- cement raw materials/slag/pozzolana grinding
- limestone or minerals grinding
- coal grinding
- gypsum grinding/gypsum calcining.

Customers are also given flexibility in the plant layout, with options for manual packing, truck loading and palletising, depending on their needs.

Popular advantages

Modular grinding systems offer producers a range of advantages, whether they are establishing a start-up plant, increasing capacity, improving efficiency, reducing emissions, or planning to expand and modernise.

The particular advantages of the ready2grind modular system include:

- high reliability, proven equipment
- efficient, low-cost transport
- fast delivery and quick installation
- minimum installation and commissioning costs
- maximum output at minimal capex
- low investment risk, fast market entry, quick pay-off
- small plant footprint.

Now more than ever, producers have an affordable solution to meet their grinding needs, both present and future. ■



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