

# Custom engineered drive services for mining and minerals processing

Philip van Rensburg of Bonfiglioli South Africa, talks about custom engineered drive solutions to meet arduous mining and processing needs in South Africa.



While Bonfiglioli South Africa has direct access to globally recognised and robust planetary, right-angle bevel-helical, and parallel shaft helical series gearboxes, which are designed to meet the rigorous demands of mines and minerals processing plants all over the world, the company's National Sales Manager, Philip van Rensburg points out that the mining industry seldom buys off-the-shelf products. "We pride ourselves on our engineering expertise and our ability to understand the specific needs of an application, which enables us to customise the drive solutions we offer to best suit any application," he says.

"The mining environment in South Africa is particularly tough. Mines and their processing plants are often in remote locations where reliable equipment that can cope with the duty of the application is essential. Meeting the needs from a drive perspective requires much more than a 'good gearbox'. Every aspect of the solution needs to be considered and engineered to best meet the need, under the specific environmental conditions of the site," he argues.

Bonfiglioli's commercial and technical departments therefore work very closely with OEM partners to identify the requirements for a particular mine and the specific conditions of the location where the equipment is to operate. "This in-depth study of the mine's application and environment is a prerequisite to delivering a lasting, reliable and cost effective drive solution," he suggests.

Elaborating, he says that mining and minerals processing involves numerous processes with inherent difficulties. Unforeseen equipment problems will often trigger plant downtime and disrupt production. The difficult working conditions, stringent safety regulations and intensifying competitiveness, each add to the complexity of the equipment required. In addition, due to falling ore grades, mines are also being forced to process more difficult ores.

"We therefore broaden our clients' scope of supply by building turnkey project solutions, using a combination of a broad premium-quality portfolio of products, supported by sound application and local knowledge as well as overseas support from our parent company in Italy," he says.

Some key solutions that Bonfiglioli SA delivers to the South African mining industry include:

- Conveyor drives with greater load bearing capabilities, soft start systems and robust build quality that can function continuously in situations demanding high torque and in temperatures ranging from -40 to +50 °C.
- Apron Feeders are required to handle high shock loads and to have excellent start-up torque capabilities. Found in the front end of many mining operations, Apron Feeders are typical applications for our compact and unique combinations of bevel helical and planetary drives, which deliver low speed at high torque.
- Crushing solutions utilising our HD helical bevel drives that can run around the clock to deliver maximum uptime and which can be customised with adapter torque arms and labyrinth sealing.
- Unloading Wagon Tippers utilise compact multi-drive inline planetary solutions for both electric and hydraulic designs.
- Jaw crushers track drives that have a high load capacity and are fitted with mechanical seals designed to last a lifetime.
- Drilling machine designs that have space limitations use our compact planetary gear range to accommodate a broad variety of torques.
- Stackers and reclaimers, for which we engineer multiple specialised drives to guarantee that the design requirements are met.
- Large mobile excavators and mining

shovels that deliver both high levels of performance and the highest possible efficiency.

"In the minerals processing sector, we engineer belt filter solutions that have a high degree of adaptability in terms of layout and mounting points, in addition to being resistance to severe dusty and general environmental conditions. Our belt filter drives can be hydraulic- or electric-driven and they are designed to be simple to install onsite," adds van Rensburg.

Bonfiglioli's vertical linear planetary gearboxes with very high reduction ratios – offering output speeds as low as 0,01 rpm – are ideal for use on Thickeners, Clarifiers and Stirrers. These have to be engineered with particular attention to torque overload.

In addition, for Flotation tanks, Bonfiglioli offers helical bevel or parallel shaft gearmotors with strengthened bearings able to withstand the impeller radial/axial loads and air intake pass-through holes. "And our spiral-classifier drives offer straightforward installation, versatile mounting and great performance in difficult environments.

"At Bonfiglioli we strive to add long-term value to the drives product line we offer – initially via upfront local engineering, local assembly and local sourcing – followed up with repair, testing, commissioning and, where required, servicing – in order to further improve and maximise system uptime and productivity," concludes van Rensburg.

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