Case Study:

MINE EXPANSION SEES ONGOING LOW PROFILE FEEDERS TO AFRICA

Location:
Zambia, Africa

Operation Type:
Copper Ore

Equipment Solution:
Low Profile Feeder

Year:
2013 - ongoing

Scope of Project:

In 2010, our client accquired open-pit copper mine in Zambia, Africa. With an expansion, commencing two years later, it was going to take production to a new capacity of 55mtpa of copper ore, making it one of the largest open-pit copper mines in the world.

They approached us in the early design phase to help streamline their process, by feeding two secondary crushers as well third feeder to bypass the secondary crusher. Allowing the ore to be stockpiled.

The Solution:

In 2013, we were awarded the contract to design, supply and manufacture three LPFs intitally, for the mine expansion. Since then, we have recently supplied another two LPFs with the same specifications, with varying lengths.

Designed in modular bolted sections to fit onto flat rack containers for shipping to Africa, each LPF belt width was limited to 2100mm.

The first two Low Profile Feeders (LPF) are identical feeders but with opposite hand drives. Operating underneath the secondary crusher feed bin and deliver ore to the secondary crushers, with an output of 4,000t/h. These LPFs are designed as cassette-style carry rollers and rail-wheel mounted to allow easier installation of the LPFs. This design also assists with maintenance of crushers, as each LPF can be rolled back to gain clear access to each of the crushers.

The third LPF draws tramp metal laden ore from the bypass bin and delivers it to the secondary crusher discharge conveyor. This LPF is very similar to the other two LPFs apart from three components; removal of rail-wheels, cantilever support, and shear pin blocks, as the feeder is statically fixed but is suitable to be used as a crusher feeder in the future.

In 2018, the mine was going through further processing improvements and Transmin were asked to design and manufacture a fourth LPF, based on the same specifications as the intital LPFs supplied. With an operating capacity of 6,000t/h, this LPF would allow the Secondary Crushed Ore bin discharge to be split onto one of two conveyors. The LPF is designed to feed onto the stockpile feed conveyor.

As with the first two LPFs, this fourth LPF is fitted with rail-wheels to allow it to be rolled back from under chute work so that maintenance tasks can be completed.

In 2020, the customer approached Transmin for a fifth LPF at the same site. This feeder would be deployed in the same application as the fourth LPF, but at another Secondary Crushed Ore bin. The customer also needed an increased throughput of 8,000t/h on this fifth feeder, which required an increased gearmotor duty of 200kW. Again this feeder is fitted with rail-wheels to assist with maintenance tasks.

Today, the five LPFs are still in operation at the mine site.

Benefits of the LPF™

- **Elimination of belt tracking issues**
- **Elevated discharge can be achieved by the introduction of a bend transition**
- **Space saving**
- **Elimination of belt slippage**
- **Minimal product spillage**
- **Conventional belt cleaners for ease of cleaning**
- **Proven industry standard components**

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