

Spidler® - Revolutionising Mining Practices

According to good asset management practices, approximately 10% of all conveyor idler rollers should be replaced annually to manage the risk of physical failures. In an average iron ore port operation, this figure means that more than 10,000 idler rollers require replacement each year.

Safety and uninterrupted production have always been paramount for modern mining operations. Most mining areas are subject to constant improvement and innovation in order to better realise safety and production goals. One such area is that of conveyor systems, which form the backbone of bulk material handling in most mining operations.

Due to the high equipment utilisation rates, this target is rarely achieved, as, idler roller change-outs is a physical and hazardous task. Coupled with the fact that a single idler roller breakdown typically results in around 69 minutes of production downtime, this means that good idler roller asset management can result in significant safety and production benefits. Accordingly, an efficient and safe way to change-out idler rollers without affecting production has long been sought after by the resources industry.

At an average iron ore port operation, a typical production delay due to a single idler roller failure causes more than \$1 million of lost revenue per delay. Meaning that 20 failures per year could cost in excess of \$20 million. By using the Spidler® to replace faulty idler rollers means that production can continue uninterrupted, which equates to a significant value proposition. However, it is only half of the estimated total value and cost savings the Spidler® can deliver to a single conveyor through changing conveyor operating and maintenance practices.

In response to the physical and financial risks involved in manually changing conveyor idler rollers, Sandpit Innovation and Lewis Australia have developed the Spidler®, an advanced robotic machine designed to replace carrier idler rollers while the conveyor continues to operate.

“Considerable time and effort was spent in understanding the current people and process elements used to manage and replace conveyor idler rollers,” said Sarah Coleman, Director of Sandpit Innovation.

Such inherent understanding of the people and process elements has shown that the Spidler® has four main value drivers that deliver substantial value and results:

- **⌘ Overcoming health and safety risks** - using robotics and automation technology to eliminate human safety concerns.
- **⌘ Increase production** - average unplanned idler roller change out causes around 69 minutes of production downtime.
- **⌘ Extend roller life and reduce labour** - idler rollers are changed on condition and do not require manual intervention.
- **⌘ Reduce shutdown time** - idler rollers can be changed at any time and do not require large batch change-outs.

Running on light gauge rails mounted to the conveyor stringer frame, the Spidler® is not limited by surrounding terrain, weather conditions or conveyor angle, which were all highlighted as key limitations in potential designs.

“We analysed the potential operational value in changing different aspects of the process and the commonalities between designs, allowing us to design a machine that was truly fit-for-purpose and addressed the core problems,” added Sarah Coleman.

The Spidler® enables work identification and the work management process to be fully optimised and provides the following:

The Spidler® can provide the means to detect rapid failures & random failures

Since the machine is ‘on-line’, it supports a reliability based change-out strategy

The Spidler® can support new operating philosophies which are currently not attainable

For more information on the Spidler® and to see a virtual tour, visit

www.spidler.com.au