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MULTOTEC TROMMELS OPERATING IN ALL FOUR CORNERS OF THE WORLD

Specialised equipment supplier Multotec is a leading manufacturer of trommel screens to the global mining industry, having supplied these products to mining operations around the world for the past two decades, including remote areas such as Outer Mongolia, Papua New Guinea and Kazakhstan.

“We’ve literally supplied our trommels to all four corners of the earth,” Anthony Yell, Multotec screening product manager, says. “What differentiates us in the marketplace is that we review each application and harness Finite Element Analysis (FEA) to design our trommels for a fatigue life of five years. But the reality is that, provided customers maintain the polyurethane or rubber linings in good condition, our trommels can last well in excess of this period.

“These trommel frames are not throwaway items — they are designed to last for years in customer specific applications and duties, and we’ve been able to establish a strong track record of longstanding units in the field, because FEA allows us to design to suit specific operating conditions accurately. Our frames comply with the industry standard BS 7608:1993, which focuses on fatigue design and assessment of steel structures, and are designed to function below these maximum stress levels to optimise fatigue life. Such is our confidence in these products that mechanical and process guarantees are provided with all trommels sized and manufactured by Multotec.

“Increasingly mines are commissioning single stream plants to reduce capital costs. The downside of this is that equipment needs to be very reliable and run for periods of 12 to 14 weeks without stopping. Mills are increasing in size and tonnages are climbing to achieve higher throughputs and to reduce operating costs, especially in the copper sector. This makes it critical to correctly manage peripheral speed and install trommel panels that can go the distance for these extended operating periods.”

Related to this is a trend that is seeing mill manufacturers use pulp lifters to convey the feed through the mill more quickly to achieve these higher throughputs. Downstream, Yell says Multotec

is responding by adding baffle plates into its trommels to reduce the velocity of the mill discharge and ensure its trommels operate efficiently.

Multotec has supplied some of the world's largest trommel screens including two SAG mill trommels 5 050 mm in diameter by 5 088 mm long with feed rates of 3 400 tph and two ball mill trommels each 5 050 mm in diameter by 6 288 mm long with feed rates of 4 050 tph to a copper mine in Peru.

Yell says that beyond six metre in diameter, these units become less feasible, from a manufacturing and a process point of view, because of the difficulties associated with transporting such large items of equipment as well as the fact that peripheral speed, and consequently wear rate, increases exponentially.

Earlier this year, the company supplied its single biggest trommel order — two 52 ton self-driven trommel screens to a mineral sands project in Senegal, West Africa. These self-driven trommel screens have inside diameters of 3 365 mm and are 16 544 mm in length. Each unit is capable of handling 4 375 tons per hour of solids feed, or 12 888 cubic metres per hour of pulp.

A company in Saudi Arabia processing material with a low pH level recently ordered trommels comprising a combination of heavy duty wedgewire and laser cut wear resistant steel panels to screen out the material. Butyl rubber lining was also selected to handle the highly corrosive environment.

"The diversity of these orders proves that Multotec is able to respond to a spectrum of specific customer requirements by designing purpose-built trommels in the most cost effective and efficient manner," says Yell.

Multotec manufactures both self-driven and mill and scrubber trommels. Self-driven trommel screens have been designed in a number of different ways over the years, but Multotec's large self driven trommel design uses a direct hydraulic drive coupled to the discharge end of the trommel, which simplifies the drive arrangement and support mechanism. Not only has this drive proven reliable, it also facilitates variable speed which allows the optimisation of the trommel to suit changes in mining conditions.

The company offers impact resistant rubber trommel panels for SAG mill applications and polyurethane panels typically for ball mill applications where sliding abrasion is the major concern. Rubber panels are also used on scrubber trommels, where the maximum lump size can exceed 250 mm. The impact resistance of rubber extends panel life. A combination of high alumina ceramic with rubber or polyurethane is also proving very successful in combating wear and impact on mill ends and pulp liner applications.

“In both SAG and ball mills, trommels work as guard screens to prevent oversize material such as scats, tramp material and worn steel balls from going through the sump pumps and cyclones,” Yell explains. “In a scrubber application, trommels are used to size material and produce a minus 25 plus 1 mm fraction for further beneficiation.”

Multotec manufactures a vast range of polyurethane and rubber screen panels to suit the specific duty of the trommel screen. The range consists of injection moulded polyurethane and rubber modular panels and cast polyurethane and compression moulded rubber panels for the larger trommel frames. The panels are then rolled to the radius of the specific trommel. The scroll is designed to suit the trommel duty and can be manufactured as a bolt-on continuous unit or cast on modular units and can be configured to optimise the retention time.

“The modular design of our polyurethane and rubber panel systems makes the trommels user friendly and cost effective,” he adds. “During operation the feed-end panels of the trommel usually see more wear and the customer is able to easily replace only the worn panels at the end of their effective life, rather than having to replace the complete set of panels.

“We’ve also designed in an important safety feature — all our panels can be installed and removed from inside the trommel, so it’s not necessary for technicians to work on the outside of the unit. “

A range of double trommels is available to produce multiple products, equipped with a special mounting flange designed to assist with installation and removal of trommel panels.

Multotec is a TUV ISO 9001 certified company and uses extensive quality assurance procedures in the manufacture of trommel screens to ensure that a high quality product is produced.

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