

11 June 2013

Shock and ore

Locally developed products continue to provide solutions to mining problems

Ongoing development of improved shock sub assemblies continues as local miners seek more cost effective and longer lasting replacements for expensive parts supplied by original equipment suppliers.

Until recently local mines were at the mercy of inflated prices from equipment suppliers, who also incurred high import costs as a result of the large size and weight of the assemblies. However, one of the top mining companies decided enough-was-enough and began collaborating with local engineered rubber manufacturer, Tega Industries, to develop a better, more cost effective home-grown solution.

Since then Tega Industries has perfected a technique to manufacture the massive assemblies locally at a more competitive price. In addition, the locally developed product has factored local operating conditions into the formula, resulting in a far more rugged and reliable product.

Engineered solution

The shock sub's main purpose is to protect the transmission of large continuous drill rigs from damage caused by vibrations, jolts and twists. It acts as a large rubber coupling (16 to 28 inches in diameter) between the transmission and the drill shaft and relies on the shock absorbing abilities of the rubber to soak up excessive movement. Simultaneously a friction plate provides protection from overpowering in the event that the drill bit gets stuck and stops turning.

Traditional shock subs are designed to sheer in order to protect the transmission. At a massive financial cost, plus hours of lost production, the expense has become increasingly difficult to justify. As a result the South African alternative is increasingly being favoured over its comparatively fragile and expensive imported rivals.

Tega Industry's shock assembly design is carefully engineered to protect the sub assembly, as well as the drills valuable transmission system. By incorporating a clever mechanical anti-slip mechanism into the shock sub, engineers have built in a high level of protection that protects it against overpowering and gives it considerably more durability in the field.

Different strokes

“A shock-sub can last two weeks or it can last a year depending on how Drilling is operated. After one too many expensive mistakes from operators we were asked by one of the country’s leading iron ore supplier to find the best solution to increase the durability of these assemblies in tough rock conditions.

“Working with some of the best polymer scientist, technologists and mechanical engineers we were able to develop what is probably the worlds toughest shock sub. In its development we dotted every I and crossed every T to ensure we minimised the effect of events that may lead to its failure in the field. We even went as far as preventing oil/air mixtures (from leaky compressed air lines) from ingress into the assembly.

“By excluding causes of failures we were able to concentrate on perfecting the mechanical operation of the product and optimising rubber formulae for local mining operations,” says Tega mining specialist Fred Weigelt.

Top companies

He continues that Tega Industries’ shock assemblies are currently supplied to leading iron, uranium and copper mining companies throughout southern Africa. The large scale of these opencast mines requires high productivity from drill rig fleets and has led to the rapid adoption of the local technology.

Due to this success, demand has also grown from other sectors where smaller drill rigs are experiencing similar products. Having started with the development of the massive 28 inch shock subs for giant open cast mines Tega Industries has subsequently begun producing 22 inch and 16 inch varieties for other mining clients.

“Diamond and coal miners typically use smaller machines and are not yet aware of the improved solution from Tega Industries. Being a engineered rubber specialist, we will even be able to apply the technology to other rigs and develop cost saving or stronger alternatives for other applications as well,” concludes Fred.

Tega Industries, Vishal Gautam, Tel: (011) 421 9916, Fax: (011) 421 9920, Email: vishal.gautam@tegaindustries.co.za, Web: www.tegaindustries.com