

African Castolin Eutectic licence agreement secured

Following the signing of a technology transfer and licence agreement with wear coatings solutions specialist, Castolin Eutectic, Hlakani Engineering is bringing wear plate manufacturing and vertical rolling mill refurbishment capabilities to South Africa. Johan van Niekerk outlines the company's new offering.

Castolin Eutectic was founded in Switzerland in 1906 after Jean-Pierre Wasserman developed a low-temperature brazing solution for the repair of cast iron components. Today the company offers numerous cost-effective repair and maintenance solutions using welding, brazing and thermal spraying technologies in over 100 countries across the world.

Having signed up as a Castolin Eutectic licensee, Hlakani Engineering is currently installing and commissioning Castolin technology to bring its globally renowned refurbishment and life-extension offerings into South Africa and Southern Africa. "Castolin's solutions are widely used all over the world to extend life and reduce overall operational costs in cement, mining, power, petrochemical and the steel market segments," says Van Niekerk.

"Hlakani is a black woman-owned

company with a B-BBEE Level 2 score and this agreement enables us to tender for and deliver turn-key refurbishment projects to equipment operators across the region," he adds.

Summarising the offering, Van Niekerk says that Hlakani intends to introduce a comprehensive range of Castolin services, including:

- Vertical rolling mill (VRM) coating technology for the weld refurbishment of worn cement and coal mill rollers and tables to original profiles.
- The manufacture and distribution of CastoDur Diamond Weld overlay plate (CDP).
- CastoTube technology for internally coated mild steel tubes and pipes.
- Boiler coating using thermal spray technology – Whertec.
- Wear resistant ceramic tiles – Casto-Ceram.
- Anti-wear polymer coating services



Some areas of mill media have higher wear rates and Castolin Eutectic is able to use harder wires in these areas to extend the total wear life of the mill.

and repair of all metals, including difficult-to-weld metals such as Ni-Hard castings – Mecatec.

VRM refurbishment

Globally, Castolin Eutectic has developed state-of-the-art VRM roller and table welding technology for in-situ welding with advance welding control systems. Simultaneously using up to six welding heads, deposition rates can be maximised to reduce mill outage to an absolute minimum. By taking repair solutions to site, time and handling costs for the removal and re-installation of mill table and rollers are also avoided.

Hlakani's top priority is VRM technology transfer, which will start from March/April 2019. "VRM repairs are done by shipping to site a fully equipped container, consisting of six mill kits, power sources, wire and control equipment. We then set up to rebuild the mill rollers in situ. We start by using arc air gouging, if required, to remove material in problem areas, where delamination has occurred, for example. We will then usually decouple the mill gearbox and connect a Castolin rotator linked to our control system outside," Van Niekerk explains.

A maximum of six welding power sources and welding heads can be placed on positioners above the table or rollers and the welding is done using

self-shielded flux-cored wires using an open-arc process. "This technology enables deposition rates of up to 60 kg per hour to be achieved, which enables the entire refurbishment to be completed within three to four days.

"And the process is under full automatic control. Variables such as heat input, wire feed speeds, deposition rates and deposit yield are carefully optimised to give the best result in the fastest possible time. We will typically deposit up to 5.0 t of welding wire on three mill rollers and a table, so every 1.0% yield loss results in 50 kg of wasted wire," he notes.

The consumables? "We will typically use the TeroMatec EO 8355 wire to produce a surface with a Rockwell C hardness of 58 to 61, but we can go to higher alloyed wires, such as the TeroMatec EO 8338 wire, which has niobium and boron additions, or to the EO 8348 open-arc wire with niobium, vanadium and boron, which produces hardnesses of up to 64 HRC – and the top of the range grade EO 8342 can deliver hardness values of 63 to 67 HRC," he responds.

"Also, some areas of mill media have higher wear rates and we are able to use harder wires in these areas to extend the total wear life of the mill," Van Niekerk tells *African Fusion*.

The Hlakani site work container is scheduled for delivery in Middelburg in March and will be available for onsite repairs. Castolin has four site repair teams all over Africa, which will be responsible for training Hlakani VRM site work teams.

Wear plate manufacture

Hlakani is also now set up for the manufacture of Castolin Eutectic's wear resistant chrome carbide-based CDP overlay plate. "We are in the process of setting up a flat-bed welding process to enable us to manufacture the Castolin Eutectic CDP range," says Van Niekerk. "The facility will be able to produce CDP plate of up to 1.9x3.0 m, starting with a +4.0 mm chrome-carbide overlay on 6.0 mm substrate (6+4). We will also be offering a wider range of wear plates from Castolin such as laser-clad plate where thin, light wear plates are required and PTA tungsten clad plates. In the range we will also have special plates with wear thickness up to 30 mm of cladding for the mining industry.

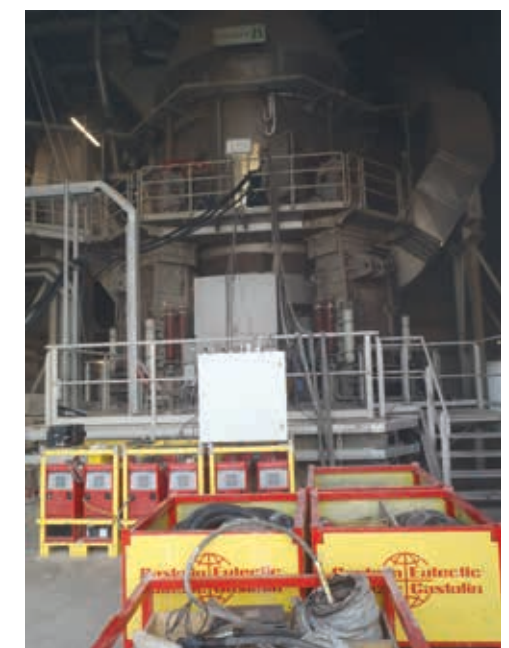
"Hlakani site services also offer a full installation and site maintenance service for fabricated wear liners for mobile equipment, materials handling bins and chutes. Our new wear plate manufacturing capability enables us to supply custom wear plates that are locally produced and installed by our own people," he says.

Castolin's CDP plate is an engineered solution offering exceptional wear resistance due to the ultra-hard carbide phases anchored in a tough matrix. Their hardness is typically 2-3 times higher than the abrasive media used in industrial and materials handling processes.

"The unique geometry of the hard phases firmly anchored within a tough matrix prevents premature 'washing



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A maximum of six welding power sources can be used, with welding heads placed above the table or rollers.

out' from the softer matrix by abrasive wear," Van Niekerk explains.

"The cooling control used during manufacture also results in low levels of dilution into the substrate, resulting in reliable and constant wear rates that are guaranteed throughout the entire thickness of the overlay," he adds.

"Castolin has been developing its technologies over many years and has deservedly emerged as a market leader, particularly in VRM coatings," concludes Van Niekerk. ■



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