

Hardfacing solutions for maximum uptime and longer equipment life

In light of the global acquisition by ESAB of India-based EWAC Alloys, Chris Eibl talks about the expanded range of preventive maintenance, repair and wear-related solutions now available from ESAB South Africa.



EWAC, with more than 50 years of experience in preventive maintenance and repair of industrial machinery, offers a wide range of cost effective solutions for wear-related problems. The company manufactures special welding electrodes, gas brazing rods and fluxes, welding torches and accessories, metal alloy powders, flux-cored wires and wire feeders, polymer compounds and wear resistant plates.

“EWAC’s original focus was the repair and maintenance sector in India and it has become a market leader in hardfacing, providing products and solutions that maximise uptime, extend lifecycles and reduce operating costs. The addition of EWAC’s hardfacing and consumable technologies to ESAB’s portfolio neatly complements our range of high-end welding and cutting products,” begins Eibl.

“Right now in South Africa’s mining, petrochemical, power generation and industrial sectors, operators are more inclined to repair existing assets than to invest in new capital goods,” he explains. “They are striving to keep the equipment they have operating productively for as long as possible,” he tells *African Fusion*.

“The only way to do this is to implement repair and maintenance processes far more effectively,” he advises. “What EWAC offers is a complete range of repair and maintenance consumables and hardfacing solutions that can be used easily and directly to prolong equip-

ment life, as well as adding to the life of new replacement components such as buckets and shovels.

“EWAC also manufactures a range of wear plates and we are now making these available to local industry,” he continues. “When a company buys a new dump truck or front-end loader, ideally they should add wear plates to protect the equipment’s contact surfaces from wearing through. Replacing an entire bucket costs a lot of money, but by using replaceable wear plates to protect the substructure, the life of the original bucket can be extended by three or four times,” he suggests.

Changing the wear plates instead of buying new buckets offers massive savings. The useful life of the asset is prolonged so more production can be extracted, which significantly reduces the total costs of using the machine,” he says.

EWAC manufactures its wear plates using a three-axis robot welding technique and a welding process with controlled cooling. This ensures a coating with low dilution, uniform hardness and exceptional wear properties. The fast, controlled cooling creates an overlay with a dense, extremely tough microstructure that is consistent across the plate.

Features of ESAB’s EWAC wear plate manufacturing process include:

- Robot manufacturing to achieve highly consistent overlay quality and thickness.
- Precise control of the consumables ensures consistent metallurgical properties and high quality plates.
- Low dilution with a uniform microstructure and an optimised matrix to carbides ratio is achieved.
- Special E-Wave weld bead patterns better resist severe abrasive wear.
- Special alloyed wear plates are available for high impact applications.
- A wide range of wear plates meets customer cost-to-performance requirements.

Controlled cooling also promotes low stress – surface relief cracks that form



at right angles to the welding direction do not propagate into the base metal. Plates of up to 30 mm can also be formed using a three-roller hydraulically operated bending machine.

Stoody hardfacing and high-alloy joining

ESAB South Africa is also introducing the Stoody hardfacing range, which is a world-leading producer of welding wires, electrodes, and powders for combating various types of wear and corrosion. “Stoody became an ESAB-owned brand as part of the acquisition of the Victor Group about six years ago and we have now decided to begin actively marketing these alloys here in South Africa,” says Eibl.

Ideal for applications such as mill-roll reclamation, Stoody alloys are engineered to withstand the demands of high impact and/or high abrasion conditions found in metal-to-metal or metal-to-earth applications, including those that are subjected to high temperatures or corrosion.

The extensive Stoody family of welding products for hardfacing includes iron, nickel, cobalt, titanium, tungsten, chromium, niobium and vanadium bearing alloys. “The company offers purpose-designed products for a vast number of specific applications in every industry,” says Eibl, citing mill rolls and continuous casters in the steel industry; dragline bucket and shovel tips for mining; roller crushers and coal grinding rings in the power generation industry; pump housings, seals and impellers for dredging applications; and, for the cement industry, high-pressure clinker rolls – to name a few.

“There is an automated sugar roll rebuilding system in the Stoody range, for example, which is a whole solution that includes matching consumables and the manipulators to do this very

unpleasant task faster, more safely and more cost effectively,” he adds.

“In addition to hardfacing products, ESAB can now also offer Stoody’s full line of high-alloy stainless and nickel-based joining and cladding wires and electrodes that are designed to the suit major industries such as power generation, mining, construction, railroads, steel mills, steel foundries, oil and gas production and exploration as well as the pulp and paper industry,” Eibl informs *African Fusion*.

Credited with its invention Stoody continues to lead innovation in hardfacing alloys and, from its Bowling Green premises in Kentucky, USA, offers complete engineering and laboratory services to ensure high standards of quality control as well as custom metallurgy and product development.

Cutting solutions for maintenance and repair

“Another novel solution for onsite maintenance work is the ESAB ArcAir Slice Pack, which is an exothermic cutting system that can cut steel and a host of other materials very quickly and easily,” continues Eibl.

Working off a 220 V or a 12-volt battery, the Slice torch combines oxygen and electrical power to produce exothermic cutting via a carbon steel consumable rod. A supply of oxygen is fed through the rod and, after touching it against a grounded workpiece or a striker plate, the rod ignites creating a very high temperature flame.

The process can be used to cut virtually any metallic, non-metallic or composite material and, when cutting steel, the ArcAir Slice system needs no pre-heat. Compared to oxyacetylene



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cutting, it cuts 75 mm mild steel three times faster and is twice as fast on 3.0 mm steel, with similar results on other common metals. “The system can also cut aluminium, stainless steel, cast iron and cement, which can’t be done by oxy-acetylene systems,” Eibl notes.

The ArcAir Slice Pack is delivered with all the basic items needed for cutting in a rugged toolbox. “Also included is a collet extension and shield for added protection when piercing,” Eibl notes, adding that the system is ideal for people working regularly onsite and the product will be launched into South Africa in the next few months.

On the other end of the cutting spectrum, ESAB is introducing its latest state-of-the-art high-precision plasma cutting system, the Suprarem™ HDX. This is ESAB’s latest global machine design, offering outstanding performance from a heavy-duty large gantry, resulting in reliable productivity and a machine customised to exact needs. “This high precision automated plasma profiling machine gives laser-like cut quality on thinner materials and next-generation torches and nozzles give longer consumable life and lower cut costs – way cheaper than any laser cutting system can achieve,” he says.

“ESAB South Africa has an extensive range of hi-precision plasma cutting systems that we have been making available to the service industries for many years. These businesses are ide-



Stoody manufactures products such as the Stoody 1102 solid core electrode, which has an all weld metal composition and physical properties similar to those of H-12 tool steel. This makes it ideal for repair welding of components such as bearing housings.



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ally placed to produce profiled products such as cut-to-size wear plates for end-users. Also, operations with large fleets of equipment may find it cost effective to purchase their own ESAB plasma cutting system to meet their wear plate cutting needs,” Eibl suggests.

From a repair perspective, as well as multiple ranges of hardfacing and joining consumables, ESAB now has access to a host of welding and cutting equipment solutions to enable difficult-to-weld surfacing and hardfacing materials to be repaired at local workshops, mines, cement plants and materials handling equipment repair facilities.

“We have solutions that are ideal for the places we are used to seeing in Africa,” Eibl concludes. ■