Advanced sub-arc welding from Steinmüller

Senior Welding Engineer, Friedrich Schwim, outlines his company's submerged-arc welding (SAW) capabilities, which set the benchmark for excellence in this process, reinforcing Steinmüller Africa's position as a fabrication leader for the power and petrochemical industries.

Steinmüller Africa's comprehensive fabrication offering includes state-of-the-art submerged-arc welding (SAW), a welding process where the arc is submerged under a blanket of flux in powder form. While this process is well-established in the industry, Steinmüller Africa's advanced equipment has extended the SAW process to more applications, such as fabricating membrane walls for boilers, for example.

With advanced machinery, including one of the only two PEMA machines in the country and the only Oerlikon SAW stub welding machine in South Africa, among others, the company is well equipped. Using this machinery, Steinmüller Africa can provide its clients with fast and cost-effective turnkey fabrication solutions. SAW ensures minimal weld repairs and offers a faster weld solution, increasing plant uptime. These capabilities position Steinmüller Africa to deliver welding services to effectively meet the growing demands of the energy and industrial sectors.

SAW is a specialised welding technique that reduces impurities from entering the weld pool by burying the entire arc in a pool of flux, resulting in cleaner welds. Its significantly higher welding speed and semi-automatic nature reduce the need for human intervention, making it stand out from other welding solutions in South Africa.

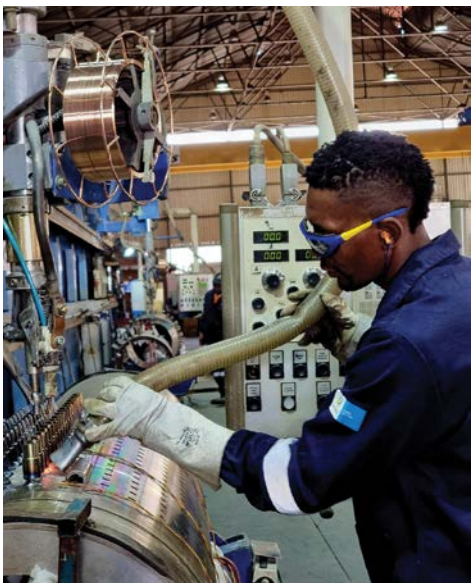
It is commonly used to weld plates and pipes, as well as large and small stub-to-header assemblies. Steinmüller Africa's expertise is supported by its fleet of three boom welders, the Oerlikon welding machine for header-to-stub welds and the PEMA machine which features six welding heads for welding membrane walls, offering more welding capacity.

SAW has few limitations barring those involving in-position welding. However, components can be manipulated into the flat position, which results in no significant limitations beyond the thickness of the material. Additionally, SAW offers a more controlled and efficient process compared to manual gas tungsten arc welding (GTAW) and shielded metal arc welding (SMAW), which rely on gas and flux-coating respectively for arc protection.

With the change in available consumables such as flux and gas, and Steinmüller Africa's exclusive cutting-edge technology, SAW can effectively be used across a range of applications. These factors make the company the ideal solution provider for clients' welding requirements.

Although SAW offers numerous advantages, it comes with challenges including moisture absorption in the flux and the welding position. Steinmüller Africa overcomes these challenges by adhering to rigorous standards: the flux is baked according to the manufacturer's guidelines and kept hot during welding to prevent moisture absorption. Welding parameters are carefully determined during planning and are strictly monitored throughout the process. In some cases, production test pieces are welded to ensure the quality is up to specification standards.

Furthermore, Steinmüller Africa selects welder operators based on their skills and interest in the process, ensuring they are both engaged and knowledgeable about the techniques used. Operating SAW machinery requires specialised expertise. To ensure compliance with all governing standards and to ensure optimal machinery use, Steinmüller Africa provides in-house training for its SAW welders.



Steinmüller Africa has the only Oerlikon SAW machine for stub-to-header welding in South Africa.

With successful welding services and installations at various Eskom power stations and Sasol plants, Steinmüller Africa continues to set the benchmark for excellence in SAW applications, reinforcing its position as a leader in the industry.

Senior Welding Engineer Friedrich Schwim concludes: "Steinmüller Africa is always investigating opportunities to optimise component fabrication to ensure the highest quality and cost-effectiveness. We also ensure faster manufacturing times while remaining competitive in terms of fabrication costs in the industry."

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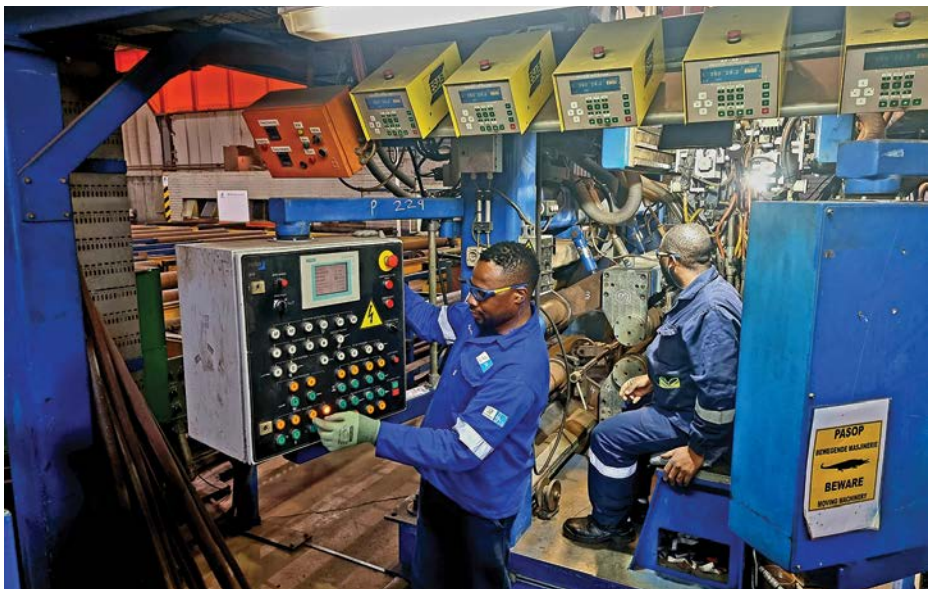

Steinmüller Africa's cutting-edge PEMA SAW machine features six welding heads for welding membrane wall panels for steam boilers.