



Navigate application development and complex projects with Afrox

African Fusion talks to Johann Pieterse, MI Technical Manager of Afrox, about Afrox's long history of applications development for assisting its customers in implementing complex projects efficiently and safely.

"Afrox strives to provide solutions to Industry Partners that greatly improve productivity, reduce production time and cost, while ensuring better safety for artisans," begins Johann Pieterse.

Afrox has a long, rich history of developing technologically advanced solutions, supporting industries from petrochemical, mining, power generation, right through to complex construction projects. Afrox's expertise and application capabilities lay the foundation for a successful project. A notable example is a solution Afrox developed a few years ago, which is currently being utilized in the construction of a new steam boiler for a paper producer in Richards Bay.

Another example of a technologically advanced solution is the Afrox Gas Reach MUPP service offer. During shutdowns at power-generation sites, welding occurs in boilers at typical heights of 70 m, where the norm has always been to use stick (SMAW) welding electrodes because to get cylinders of shielding gas, people and equipment into these boilers has always been very difficult and a potential safety risk, "and lifting cylinders is a real mission" Pieterse adds.

"Because of the danger of a cylinder

falling, a designated drop zone has to be established every time a cylinder is lifted or removed from a working platform. Over and above the time it takes to arrange a crane, it takes about 20 minutes to take each full cylinder up and another 20 minutes to get the empty one down again, so easily over an hour of a welder's time might be wasted while the shielding gas is replaced," Pieterse tells AF.

Furthermore, using multiple gas cylinders on raised platforms also creates significant other risks, not only because they need to be moved from the crane area to where the gas is required, but there may also be excessive numbers of hose connections running along the platforms, creating tripping hazards and increasing the chance of hose leaks, contributing to weld failures. This identified risk can expand the number of safety inspections required on a platform.

"A few years ago, we received a request from one of our customers to develop a solution to effectively and safely perform TIG welds at height in the boilers. Shielding gas and welding solutions are at the core of our business, and we strive to do whatever we can to assist customers in using our products effectively, efficiently and safely," Pieterse says.



Afrox has developed a solution for high-integrity pipe welding based on the use of metal-cored arc welding (MCAW) consumables with modern power sources such as the Miller XMT FieldPro.

Afrox responded to the call, and the Afrox MUPP offer was developed, specifically with welding at heights in mind! The MUPP not only improves productivity, but it also makes the site a lot safer. This is because the shielding gas cylinders, which can weigh up to 100 kg when full, remain on the ground in a safe, secure and convenient fenced-off area. Nobody has to ever lift a cylinder onto or handle it on a platform, he explains.

The multi-user pressure panel, or MUPP, has proved effective wherever several welders working in a confined space or at height need access to shielding gas. Importantly, it enables more efficient gas shielded welding processes such as TIG/GTAW, MIG/MAG/GMAW, MCAW, and FCAW to be used in far more difficult to reach places.

The shielding gas feeding each MUPP is supplied from manifolded cylinder pallets (MCP) of the specified shielding gas required, which are available in convenient bundles of 15 cylinders per pallet that can be managed from the ground. A single high-pressure braided-steel hose connects each pallet of gas to a pressure-regulated MUPP in the welding area, which has eight connection points to independently supply up to eight welders at the same time without cross-interference.

On boiler projects such as the one currently in progress at Richards Bay, this enables the contractor to locate an MUPP

at three different levels where work is being carried out. Each welder simply connects the gas hose to a point on the MUPP for regulated access to the shielding gas they require.

"Every welder can pre-set their gas flow, and this will be retained, no matter how many other welders are welding at that time," Pieterse assures.

Afrox's metal-cored arc welding solution

Further, in support of the boiler industry and introduced several years ago, Afrox developed an application for high-integrity pipe welding based on the use of metal-cored arc welding (MCAW) consumables with modern power sources such as the Miller XMT FieldPro.

Traditionally, high-integrity pipe welding has always been done using gas tungsten arc welding (GTAW/TIG) for the root pass, followed by shielded metal arc welding (SMAW/stick) for the fill and capping runs. "This traditional way is still widely accepted and few are willing to consider alternatives," Pieterse says, adding that this is neither cost-effective nor productive.

"When Miller XMT FieldPro machines first became available, we started to develop pipe welding procedures that used metal-cored welding wire and the machine's RMD function for root welding, followed by the ProPulse mode for the fill

and capping runs," says Pieterse.

This welding procedure is currently being used for the construction of the Richards Bay boiler, not for large bore pipes, but for all of the long structural welds required. The contractor estimates that the switch to using this procedure, which is coupled with the use of the Afrox MUPP, Argoshield Universal gas, and the Hobart MEGAFIL seamless metal-cored wire, will increase welding productivity on the project by up to 2-3 times, while maintaining weld integrity.

"We sell productivity," says Pieterse. "From carefully selected products from some of the leading brands in the world, we develop solutions that can deliver on all of a



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customer's needs, be it for boiler construction, shutdowns, chemical or petrochemical plants, ship repair, fabrication, or any other welding-related project or need.

"And we offer the backup needed, including training the welders that will be working on the site. For the Richards Bay project, for example, we took our equipment to the contractors' labour broker in Witbank to train the welders on the metal-cored arc welding process using Miller's RMD and ProPulse options," he relates.

In addition, he says that safety, health, the environment, and quality are non-negotiable in Afrox. "Any welding application solution we develop incorporates this ethos, particularly where gases are involved," Pieterse concludes.

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The Miller Pipeworx family of products, available exclusively from Afrox in South Africa, is purpose-designed for onsite pipe welding.



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