Afrox GasReach with Miller ArcReach: A 360° construction site solution

Johann Pieterse, Afrox Business Manager for the Manufacturing Industries, talks about the expanding range of Afrox 360° application solutions for the welding industry. An exciting development is the combination of Miller ArcReach technology with the Afrox GasReach solution, an Afrox-developed Multi-User Pressure Panel (MUPP) for distributing gas to multiple welders working at height and in other difficult-to-reach locations.

frox started working on the " development of its Multi-User Pressure Panel (MUPP) in 2019, at the request of the HydraArc team, which was experiencing welding at height issues during general maintenance on boilers. The key problem was the need to lift argon gas cylinders up into the boiler to give welders access the shielding gas needed for TIG weld repair procedures, and the space taken up by such cylinders on narrow walkways and cramped work areas," says Pieterse.

"We proposed, designed and tested a solution that leaves the gas cylinders on the ground in a safe, secure, and convenient fenced-off area, with a single steel reinforced high-pressure gas hose delivering shielding gas into a pressure-regulated MUPP with eight outlet valves near the welders. Conventional shielding gas flowmeters are connected to the outlet valves, and the pressure in the unit is increased to a level just sufficient to equalise shielding gas flow to each of the eight welders, irrespective of which of the eight valves are opened or closed." Initially designed for GTAW, the solution

has proven effective for any gas shielded welding process, including GTAW, GMAW, FCAW and MCAW. In addition to solving the cylinder clutter problem in power generation boilers, the system has also provided a safer solution to cylinder handling in other industries, where welding is often done on suspended platforms, limited access locations or other workstations where space for equipment is limited.

To further complement the GasReach offer, Afrox has recently introduced Miller's ArcReach technology. The key feature of this technology is that Miller has eliminated the need for a control cable between the power source and the ancillary equipment. The communication between the power source and the equipment is done via the welding cables: pure and simple.

"This means that we can immediately increase the distance from the power source up to a hundred metres, thereby



getting rid of the clutter and only taking the ancillary equipment into hard-to-reach places. It also eliminates the high level of maintenance required by qualified personnel to maintain control cables and torch extensions on site," explains Pieterse.

Key to making ArcReach possible is Cable Length Compensation (CLC[™]), which automatically ensures that the voltage at the arc matches the required set value. CLC[™] compensates for the voltage drop in the long cable lengths between the power source and the remote components, which provides the welder with the exact set values of voltage and current.

ArcReach technology can be used with multiple arc welding processes. A welder can use GTAW to weld an open root, and then change directly to SMAW for the fill and cap by simply unplugging the GTAW torch from the Miller ArcReach Stick/TIG remote and plugging in the SMAW electrode holder. The system automatically senses the process change and switches from GTAW mode to SMAW mode. Polarity Reversing technology automatically changes the polarity from DCEN to DCEP and the current (amperage) control is done directly on the remote.

Likewise, if the welder needs to switch to GMAW or FCAW, the welding cables can be connected to an ArcReach suitcase feeder, while the multi-process power source remains well away from the workstation. The ArcReach suitcase feeder is also available in a smaller 8-inch version, which is ideally suited for use in workspaces with small access openings.

Maximum benefit and cost savings are ultimately realised when the Miller ArcReach SmartFeeder is connected to the power source, because then the open root and the fill and cap welding can be done with the same equipment, the same wire and the same shielding gas. This advanced technology enables the welder to use RMD, a pulse-modified short-circuit mode, to deposit a perfect single-run open root much faster than when using the conventional GTAW process. In addition, RMD eliminates the need for a hot pass, with the result that the GTAW process in conventional large bore pipe welding is replaced with a process that is often five times faster than depositing the conventional GTAW root and hot pass.

Once the root has been welded, the welder can immediately switch the wire feeder to GMAW-P mode and start to rapidly fill the weld. Capping is done using the same mode.

The process is ideally suited for welding with solid or metal cored wire, which eliminates slag formation and slag inclusions. Using metal cored wires adds even more productivity gains and cost saving benefits, so it is recommended that a metal cored wire is used whenever a suitable product is available. Compared to conventional processes, RMD and GMAW technology is at least three times faster than conventional GTAW and SMAW, and the resulting savings are often more than 80% per kg of deposited weld metal.

Numerous procedures for this Afrox 360° solution have now been successfully qualified. These include carbon steel, stainless steel and low alloy creep resistant steel applications. The procedures have been successfully applied in large bore boiler pipe repairs, workshop build-up and cladding, as well as in-situ repair welding and replacement welds in power generation boilers and petrochemical gasifier plants. They offer per metre welding cost savings of up to 80% compared to traditional GTAW and SMAW procedures.

Welding parameters can be programmed and stored directly onto the SmartFeeder, or welders can store their own programs and settings on a memory card. These optimised settings are then immediately available to the welders as soon as their shift start, and there is no need to spend valuable production time optimising the settings at the start of each shift.

The latest Miller addition to this system is a remote induction-heater system, which offers fast, safe and precise pre-weld heating of up to 315 °C. The system is powered via the welding cables from the same multi-process welding power source used with the remote, the suitcase feeder or the SmartFeeder. A separate induction power supply is no longer required. The system controls and records the entire pre-heating cycle and interpass temperatures, which enables the contractor to save on the cost of hiring an external heat treatment contractor and eliminates delays caused by the schedule of an external service provider.

Once pre-heating is done, the welder can immediately start welding, with an absolute minimum of setup delay and without the need to move away from his or her onsite welding station.

Miller ArcReach technology, for which Afrox is the exclusive agency, combined with the GasReach MUPP shielding gas delivery system, offers an ideal 360° solution. The combination of Miller and Afrox equipment and quality delivers advanced technology, first-class consumables and high purity shielding gases directly to where they are used, eliminating the need to return to the power source to make parameter adjustments or to manage numerous shielding gas cylinders around the point of work. This provides optimum productivity when welding.

'Don't walk, weld' is the key Miller phase ArcReach systems are powered by the

used to describe the benefits of ArcReach. This points to the time saving and safety advantages that result from removing the need for welders to walk to and from the power source and their welding stations. extraordinarily robust XMT 350 FieldPro with Polarity Reversing technology, which includes Auto-line that auto adjusts to any input voltage from 208 to 575 V. The same power source can be used for all the different ArcReach combinations described above. Originally launched in the early '90s, the Miller XMT power source technology is constantly improved and updated, and the power sources are well known for their reliability and robustness. The ArcReach

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Miller ArcReach technology combined with the GasReach MUPP shielding gas delivery system from Afrox offers an ideal 360° solution for welding at height and in difficult-to-reach locations.



Afrox's GasReach solution uses its Multi-User Pressure

Panel (MUPP) with eight

outlet valves close to the

welders to avoid having to

transport heavy gas

cvlinders to hiah and

difficult to reach places.

The FieldPro range of equipment enables welders to access and switch between different welding processes without having to leave the workstation. Weld don't Walk!

technology can also be used with some of the well-known and reliable Miller engine drives, without losing any of the high-end control capability.

The Afrox MI Team has been using its 360° Application Solutions Programme to solve real customer problems, thereby adding value to customers for a long time. A survey of the customer site provides valuable information to create a proposition for solving a problem or increasing profitability, and this is followed by implementation of the solution and ongoing customer support.

The Miller ArcReach and Afrox GasReach combination offers new and unique opportunities to improve welding profitability and safety in a wide range of industries, taking modern welding technology to levels and places not previously imagined.

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