



Miller XMT 350 FieldPro: a process game changer for high integrity welding?

Afrox business development manager, Johann Pieterse, outlines the potentially game changing features of the latest Miller XMT 350 FieldPro multi-process welding system, which offers the potential to finally enable semi-automatic welding processes to be adopted for high-integrity root, butt and pipe welding in the petrochemical and power industries.

Available exclusively through Afrox in Southern Africa, the Miller XMT 350 FieldPro multi-process welding inverter is designed to simplify onsite pipe and other root welding applications and to improve the productivity of maintenance, repair and shut down welding activities.

"We at Afrox, with various industry partners, are currently developing high integrity semi-automatic welding solutions for the petrochemical and power generation sectors. So we have decided to take a closer look at the equipment being used in the process," says Afrox's Johann Pieterse.

The XMT 350 FieldPro is an advanced portable 425 A multi-process welding inverter that offers stick and carbon arc cutting; dc TIG and pulsed TIG with a lift-arc function; as well as advanced GMAW with pulsed MIG with RMD functionality; along with flux-cored and metal-cored features and programmes.

Although the XMT 350 FieldPro offers the user the latest high-tech technologies, it is purpose built for rugged onsite use at power, petrochemical and industrial plants, boasting, amongst others, the following features:

- Arc Reach – Remote control of the power source without a cord. The technology uses the existing weld cable to communicate welding control information between the feeder or remote and power

source. This technology eliminates the need for control cords, and their associated problems and costs.

- Complete control at the weld joint – Automatic voltage drop adjustment eliminates the need to adapt to less than optimal settings due to long welding cables and all parameters can be set remotely or on the wire feeder for easy changing of setups or weld processes with the touch of a button.
- Auto-line – For portability and reliability, Auto-Line allows for any input voltage (208 to 575 V, single- or three-phase) with no manual linking. It provides plug and play convenience in any job setting and is an ideal solution for dirty or unreliable input power.

While suitable for general purpose welding, the FieldPro – with the addition of the Arc Reach Smart Feeder – has been specifically developed with semi-automatic pipe welding in mind. The traditional way of joining thick-walled pipe is to weld a TIG root into the seam first, followed by a hot pass and manual stick (MMA) fill and capping runs.

The FieldPro Arc Reach system incorporates the capability to move away from traditional manual and slow pipe welding procedures that require high levels of skill, to the semi-automatic GMAW processes, most notably, metal-cored welding.

"The process allows TIG-quality welding to be achieved utilising the advantages of simpler gas metal arc welding (GMAW)

or metal-cored arc welding processes," says Pieterse. "It uses the same welding equipment for the root, fill and capping passes and incorporates two advanced weld-deposition control options, RMD and ProPulse," says Pieterse.

For the root pass, Miller has developed a technology called RMD (Regulated Metal Deposition) to control metal transfer during short-arc GMAW welding. This controlled

deposition eliminates the chances of cold lapping or lack of fusion, produces less spatter and results in a higher quality root pass around the pipe. The stability of the process lessens the puddle manipulation required by the welder and is more tolerant to high-low conditions, reducing training requirements. Weld bead profiles are thicker than conventional TIG root welds, and this eliminates the need for a hot pass, again improving weld productivity and reducing welding costs.

The ProPulse feature is then used for the fill and capping passes. This optimised pulsing system operates under constant voltage (CV) mode during peak and background periods, but the ramp up and ramp down rates and the initial peak and background current levels are under constant current (CC) control.

This enables a shorter arc length to be used with a narrower arc cone and less heat input than with traditional spray pulse transfer. Also, arc wandering and variations in tip-to-work distances are virtually eliminated, providing easier puddle control for in-position and out-of-position welding and reducing welder training times. The process also improves fusion and fill at the toes of the weld, permitting higher travel speeds and higher deposition.

While improving quality and improving productivity by as much as 80%, the system is easy to use and this supports training and development of local skills in much shorter time frames than those required for traditional processes.

"The XMT 350 FieldPro is not just a product, but rather a complete welding solution that introduces new technology into the market that will add value for our customers," says Pieterse, adding that Afrox's welding application development team is currently very excited about some recent successes that may prove to be a game changer for South Africa's power and petrochemical industries. We look forward to sharing these successes with the industry in the very near future," he concludes. ■



The Miller XMT 350 FieldPro with its ArcReach wire feeder.