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from legacy to
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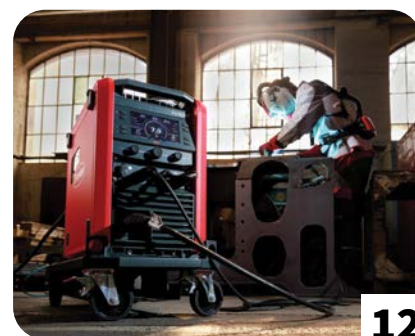
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The SAIW has shaped technical excellence for over 77 years. Today, we're forging a new chapter - anchored in credibility, driven by innovation, and focused on leading Africa's welding and inspection future. From AI-powered training to global certifications, we're not just rebuilding. We're redefining.

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This year has been a year of transformation for the SAIW. We ended last year in disarray, needing to make some urgent interventions to secure the sustainability and credibility of the Institute. I am pleased to say that this process has been largely successful.

First and foremost, we needed to drastically improve our interaction with students in terms of turnaround times between examinations, results being made available and certificates being issued. This turnaround has been most successful. We have appointed several new lecturers, who are enthusiastic and doing well. And until all positions are filled, we have secured the services of contractors to help deliver the services and turnaround performance our students deserve. We are also carefully monitoring complaints, which enables us to act quickly on the issues students are experiencing.

Since July, student numbers on all our courses have been healthy, and complaints have decreased significantly. We are going further, though, to improve every aspect of the student experience. At the starting point of this process is the new SAIW website. We have incorporated an easy-access portal into the website, enabling potential students to browse our courses with immediate access to register and pay for a course. We have developed a new Student Management System that integrates with this portal, which will soon provide students with quick access to their exam results. Additionally, their end-of-course certificates will be made available digitally as soon as all course requirements have been met. Work is also underway automate the setting of examinations and mark-

ing, which will remove some of the workload from lecturers and allow all students to receive same-day results for each examination they take.

We are striving to modernise our welding courses. As well as having introduced virtual welding units into our courses to help welders adapt more quickly to real-world welding, we are also introducing laser welding to our offering. We hope this process will extend the SAIW's reach into the automotive manufacturing industry and its many Tier 1 and Tier 2 suppliers. Beyond that, it's a way of making welding more exciting for the upcoming digital-age generation.

With Necsa, the SAIW has also initiated upskilling our NDT training team in preparation for the full launch of the Necsa Centre of Excellence for NDT. This is in preparation for the nuclear new-build programme outlined in the 2025 Draft of ESKOM's Integrated Resource Plan (IRP), which now has Government approval. The initial training course in the advanced NDT Techniques has now been completed, and our SAIW specialist NDT Team is primed to take this programme forward in the new year.

Our surveys suggest that this modern approach is what students want, and that our initiatives are bearing fruit.

Also very pleasing is the successful transformation of our Certification services. For Company Certification, for example, we are now using a digital platform to capture and store the necessary documentation to certify a company according to the SAIW ISO 3834 Company Certification Scheme. This makes the management of compliance according



to the scheme far more efficient, for both SAIW auditors and the company seeking certifications. The digital database of certified companies can be easily kept up to date. Once the development is completed, companies and their clients will be able to access this database via the SAIW Website.

Also being digitised in the near future are our Personnel Certification databases, including the Competent Person's (CP), Inspectors or Pressurised Equipment (IPE), NDT and IIW databases of registered professionals.

I thank the welding community for their commitment and support for the SAIW throughout this process: for continuing to believe that we are on the right path and that the SAIW is the best organisation to deliver to their expectations. And thank you to all the staff, both those who are new and those who have persevered with us. You are making a positive impact, and it is being noticed.

I wish you all a peaceful, restful and happy end-of-year break, and I look forward to continuing this journey with you in the new year.

Joseph Zinyana

SAIW Board and Management Team

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CORE MMA expands Böhler's extensive equipment portfolio

AF talks to Keith Saunders, Equipment Business Development Manager for the MEA region of voestalpine Böhler Welding, about the company's expanded welding equipment range which, as well as the premium Uranos and heavy-duty Terra ranges, now includes the CORE MMA range of modern single-phase MMA and lift-TIG welding power sources, built for the most demanding environments.



To appreciate the strong foundation of voestalpine Böhler Welding's current range of state-of-the-art inverter-based welding equipment, we must go back to 1979 – the year Selco, a proud family-owned manufacturer of arc welding equipment for 40 years, was established. With a passion and focus on innovative solutions, the company was among the pioneers of portable inverter-based technology in the design and manufacture of welding power sources, which is now the industry standard.

In June 2019, Voestalpine acquired Selco and shortly thereafter introduced the Terra and Uranos ranges of high-end welding equipment to the market, complement-

ing the company's extensive portfolio of premium welding consumables.

The introduction of the next-generation product, URANOS NX, was launched in October 2021 as a premium welding machine, built to optimise welding performance for the full range of materials and consumables, with synergistic programmes customised for welding applications using Böhler consumables.

The TERRA NX followed in 2023, a robust, reliable, productive and easy-to-use welding machine for heavy-duty applications in the metal fabrication and mechanical industries. Built to 'Get the job done', the TERRA NX is optimised for steel welding to make 'perfect weld seams' easy to achieve.

TERRA NX: ensures productivity while maintaining quality

The TERRA NX range is designed for industrial applications, with reliability and productivity in mind. "The focus has been to make the machines easier for a welder to use, to help them achieve the quality needed for every job. The machines have a full colour display, with an interface that is intuitive and easy for a welder to use," says Keith Saunders.

TERRA machines produce a reactive and dynamic arc that is optimised for heavy-duty steel welding. The units are reliable and robust, and the welding programs are all upgradable, which means that each machine can be customised to an individual welder's needs and preferences, he continues.

There are 13 different TERRA options in the range: five standard MIG/MAG options and five PULSE MIG/MAG options with output capacity ranging from 320 A to 500 A and three TIG DC HF machines ranging from 270 A to 400 A. From a welding characteristic perspective, each machine offers various options designed to optimise welding characteristics and performance: ArcDrive and RapiDeep for MIG/MAG machines; ArcDrive,

The CORE 210 MMA features Advanced Pulsed MMA for better out-of-position, thin plate and pipe welding applications; TIG LIFT and TIG LIFT Spot Welding, a cost-effective solution where space is limited and frequency-sensitive devices are present; and Welding Parameter Storage.

RapiDeep, PulsDrive, and QuickPulse for PULSE MIG/MAG machines; and DcDrive, DcPulse, FastPulse and EasyArc for the TIG DC HF units.

"The TERRA NX is our industrial workhorse: a robust, reliable and economical machine for heavy industry, making it our fastest mover and ideal for the demanding South African work environment," he adds.

URANOS NX for optimised performance

"Within voestalpine Böhler, we talk about a Böhler arc and a Universal arc. Our Böhler arc programmes have been meticulously developed to suit specific Böhler Welding consumables, delivering optimum machine and wire performance," continues Saunders.

URANOS NX welding systems are developed with this whole solution philosophy in mind. They offer all the features of the TERRA platform, but with increased memory, faster communication capacity and enhanced integration between welding consumables and machine parameters. This focus on specific welding requirements makes it the ideal solution for welding jobs involving complex alloys and the highest levels of weld quality.

URANOS NX welding systems use a high-speed CANBUS internal communication system, which is totally immune to electromagnetic noise, minimising deviation at the arc and enabling the system to respond much more quickly.

They are delivered with customer-specific job applications in mind, featuring more than 600 welding programs tailored for various applications and industry



Voestalpine Böhler Welding has launched the CORE MMA range of modern single-phase MMA and lift-TIG welding power sources, built for the most demanding onsite and workshop environments.



The TERRA NX is an industrial workhorse: a robust, reliable and economical machine for heavy industry.

The URANOS NX features a high-speed CANBUS communication system, which is immune to electromagnetic noise, and enables the system to respond much more quickly.



segments, including carbon steel, stainless steel, nickel alloys, cladding, hard-facing, and dedicated crane and lifting packages. These programs are developed to ensure a perfect fit between the welding task and the consumables. The URANOS NX has the capacity to hold a further 240 customer programs based on their field experience.

Additionally, URANOS NX inverters are designed to include patented greenWave® technology, which enables significantly better energy efficiency through optimised power consumption. Conforming to the strictest EN61000 standards, greenWave delivers a reduction in reactive energy consumption of between 70 and 100%, and over 50% reductions in joule-effect losses, both of which help to reduce power consumption and associated CO₂ emissions.

Packed with Böhler's full suite of welding arc control features, URANOS offers a state-of-the-art solution for any combination of filler material, welding process and application.

For both TERRA NX and URANOS NX machines, it's all about communication. voestalpine Böhler Welding has developed a software platform, weldNet, that enables standard synergic welding lines to be uploaded to the Terra NX range of machines as well as customised synergic lines for the Uranos range of machines.

Within weldNet, Process Manager provides a digital monitoring solution that optimises welding activities. With weldNet® Process Manager, all weld details are recorded in a central, secure database that is easily accessible and always up to

date. This automated system ensures that all members of the welding team have the latest data, increasing transparency and reducing reliance on manual records.

For enhanced security, Process Manager runs exclusively on proprietary on-premises hardware, with all information securely stored locally within the company's network. This ensures complete control over data and eliminates any reliance on cloud-based solutions, Saunders notes.

And while all machines are delivered with a standard set of welding programs and software, should a customer need a welding line for a new application or material, even on a one-off basis, this can be downloaded via weldNet and added to the machine, he adds.

CORE MMA: built to last!

In September 2025, the company launched its latest addition to the equipment range. With a completely new look, this single-phase range of portable welding power sources, CORE MMA, is designed to suit on-site work on the most challenging sites.

The CORE series for MMA welding is a new generation of single-phase, portable welding machines engineered for performance and designed to meet the demands of professionals in light fabrication, light construction and the repair sector. "Our CORE welding equipment is designed to deliver unmatched reliability, on shop floors, on-site or in extreme outdoor conditions. The design reflects decades of welding expertise combined in each unit," notes Keith Saunders.

The range includes three models: the CORE 165, the CORE 185 and the CORE 210, all of which feature a high-grade, hybrid-composite and galvanised steel construction. They have 'wind tunnel' cooling management, which keeps the electronics dust-free while delivering adequate cooling. They also feature automatic input voltage sensing and switching for either 115 V or 240 V single-phase, with an allowable input voltage fluctuation of ±15 %.

Combined, these features make CORE MMA power sources reliable, durable, and resilient. The largest version, the CORE 210, weighs in at just 9.5 kg. They are built to last, and a five-year warranty on all models backs this up.

"The range offers premium performance with a stable and smooth arc across all electrode types. Synergic functions offer quicker set-up times and transitions between different welding tasks, while the expansive high-contrast display ensures readability, indoors and outdoors," says Saunders.

Advanced, customisable, easy-to-read controls make setting parameters intuitive, and smart monitoring features keep welders informed. CORE's ergonomic design is free from sharp edges, and the handle and shoulder strap make these machines easy to carry to where the welding is needed.

The CORE 165, CORE 185 and CORE 210 all include Adjustable Hot Start and Arc Force functions to ensure smooth arc starts and to prevent electrode sticking. Additional features in the CORE 185 and CORE 210 include:

- Advanced Pulsed MMA, which offers welders better out-of-position and thin plate capabilities with a more stable and manageable arc, reduced spatter, less post-weld cleaning and faster travel speed. This feature is ideal for welding thin-gauge materials, out-of-position welding, or pipe welding applications.
- TIG LIFT and TIG LIFT Spot Welding, in which arc initiation is controlled so the tungsten electrode can touch the workpiece without contamination or sticking. TIG Lift is a cost-effective solution, suitable for use where space is limited and frequency-sensitive devices are present.
- Welding Parameter Storage, which enables specific parameters for welding procedures to be saved so consistent and repeatable results can be achieved for future work.

"Power, portability, easy set-up and smart features, combined with up-to-date welding technology, enable our CORE MMA welding equipment to deliver consistency and performance in the toughest conditions," says Saunders.

"We are a leader in the welding industry with extensive consumable and equipment product portfolios and welding expertise. We understand complex welding applications and can offer comprehensive and unique solutions to deliver the perfect weld seam," concludes Keith Saunders.

www.voestalpine.com/welding



The SAIW 2.0 Transformation Project

SAIW Training and Technical Manager, Confidence Lekoane, highlights the progress being made towards the full implementation of the SAIW 2.0 Renewal Project.

Throughout this year, the SAIW has focused on stabilising day-to-day operations, strengthening the Institute's certification infrastructure, advancing its digitisation strategy, modernising its training and certification offerings, and securing the long-term sustainability of the organisation.

"We have now completed a massive business restructuring process, which has made a significant impact on stabilisation across the organisation. We are not entirely where we want to be yet, but the overwhelming backlog and daily operational pressure have eased considerably," says Lekoane.

She adds that significant progress has been achieved in both company and personnel certification, as well as in the digitisation of several key systems critical to the SAIW's future.

"We have now completed a massive business restructuring process, which has made a significant impact on stabilisation across the organisation. We are not entirely where we want to be yet, but the overwhelming backlog and daily operational pressure have eased considerably," says Lekoane.

Digital transformation

The newly launched SAIW Website highlights the comprehensive nature of the SAIW's digital transformation. "We have made excellent progress on the website, which has received very positive feedback," she says.

The completely redesigned website is more than just a repository for information and news; it has been designed as a portal for all current and future SAIW members, students and clients to access exactly what they need from their own phones, tablets or computers.

Embedded in the new site is direct access from anywhere to the newly developed cloud-based student management system, along with the online Course Prospectus, which provides searchable information about SAIW course offerings and the delivery calendar for each course. A student wishing to take a course can register with SAIW through a process as simple as registering for any online shopping platform.

Once registered, a course can be booked, and students will instantly receive a system-generated quotation. Work is still being done on resits of examinations, transition exams, and recertification, which we hope will be bookable via this system in the near future to improve customer service and turnaround time.

To enhance training quality and consistency, SAIW has implemented a Learning Management System (LMS) to manage and deliver training. This is a digital platform where students can access learning materials online, while lecturers can upload notes, videos and assignments. Assessments and quizzes can be done on the platform in preparation for examinations. The platform also serves as a centralised communication and announcements platform between lecturers and students.

"We are exploring the possibility of marking exam papers automatically, which



SAIW's Technical and Training manager, Confidence Lekoane.

is not only faster – potentially within minutes of having completed an exam – but it can also improve marking consistency and reduce bias," she explains.

Most importantly, SAIW is committed to ensuring dramatic improvement in the time between exam completion and the release of results, one of the Institute's biggest customer-service priorities," Lekoane assures *African Fusion*.

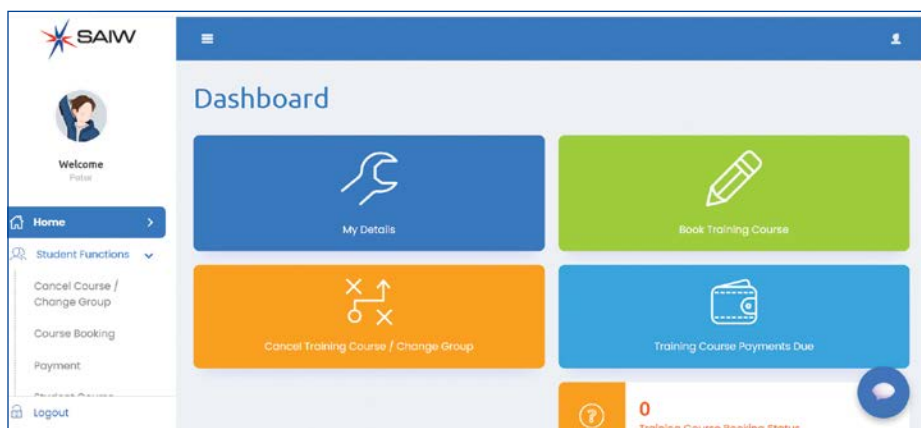
Also in the development pipeline is a system to compile examination questions for all the courses offered. In this regard, Artificial Intelligence (AI) can help to ensure consistent examination standards year to year and optimise language use to better suit the broad range of students who do not speak English as their first language.

This innovation positions SAIW at the forefront of modern assessment best practice and aligns with international expectations for training and certification bodies.

Personnel and Company Certification

The development of Personnel and Company Certifications is underway. The Certification infrastructure has been updated, and a new filing infrastructure has been installed.

For ISO 3834 Company Certification, SAIW has introduced the digital auditing System, Weldex, which can manage all aspects of ISO 3834, from welder qualifications to quality management, eliminating paperwork and offering certified companies real-time insights into their operations. Integrating this purpose-developed and proven system into the ISO 3834 Certification offering meets a core aim of delivering affordable operational excellence to the South African fabrication industry, while fulfilling the SAIW's core mandate of



The completely redesigned SAIW 2.0 website has been designed as a portal for all current and future SAIW members, students and clients to access exactly what they need.



driving up quality standards.

The Weldex system provides a comprehensive digital solution, from preparation before an audit to a paperless auditing process that can be conducted via a tablet or laptop. “This reduces complexity, improves the company experience and makes ISO 3834 certification more affordable and accessible,” she assures.

The National Personnel Certification databases of accredited persons, which the SAIW manages on behalf of the SAQCC for Competent persons (CP), Inspectors of Pressurised Equipment (IPE), NDT personnel and IIW-accredited welding technologists and welding engineers, are also being digitised and modernised to make them easy to access and automatically updated.

Training and Technical success.

Since July, Lekoane reports, the number of students enrolled in SAIW Welding Coordination, Welding Inspection, Practical Welding, NDT, Competent Persons, and all of ASME, AWS, and other training courses has increased again.

“We have recently developed an Introduction to Laser Welding training course, which focuses on the fundamentals of laser technology, laser safety, suitable applications, and hands-on practical laser welding. Laser welding is particularly well-suited to thin-sheet welding, making it ideal for those entering or already involved in the automotive industry. The course has now been added to the prospectus and is available from 2026.

On the technical side, she says the SAIW Materials Testing Laboratory is ready and available to assist clients and suppliers with approvals, welding procedures and any other testing work. “In addition, consultants are on hand to add value to projects and businesses through productivity and quality improvement, problem solving, development work and investigation services.

Build national capacity in advanced NDT methods.

Non-destructive testing (NDT) is crucial for ensuring the safety of critical components and systems in nuclear facilities, as well as for enhancing the quality of industrial products and ensuring the safe operation of equipment and plants, including metallic and concrete structures and constructions.

South Africa is embarking on expanding its nuclear programme, which will see the construction of a multipurpose research reactor and 2 500 MW of nuclear generation capacity, which will require critical skills development, such as advanced NDT



Ray Turner, a global specialist in the ToFD NDT method, presents an ‘expert’ training course to the SAIW team of specialists: Front from left: Lesego Mocumi, Ray Turner, Mark Digby. Back row: Mark du Plessis and Jan Cowan.



The SAIW Materials Testing Laboratory Team – comprising Kegomoditswe Dire, Metallurgical Technician; Rumani Mawela, Metallurgical Laboratory Assistant; and Walter Mahlangu, Laboratory Assistant – is ready and available to assist clients and suppliers with approvals, welding procedures, and any other testing work.

techniques, to ensure the programme can be safely and successfully implemented.

“In view of South Africa’s relatively limited NDT capabilities, advanced NDT methods, including Phased Array Ultrasonic Testing (PAUT) and Time of Flight Diffraction (ToFD), are becoming increasingly important in industry as they improve the probability of flaw detection and dramatically increase the reliability of inspection results. To address this national skills gap, the International Atomic Energy Agency (IAEA) is providing support to build the capacity required for these advanced methods,” explains SAIW Technical and Training Manager, Confidence Lekoane. “

As part of this support, the SAIW, through its cooperation with NECSA and the IAEA, is receiving specialised train-the-trainer programmes to enhance internal capability. The overseas expert for ToFD, Ray Turner, has already completed the first phase of training with the SAIW NDT training and

examination team: Mark Digby, Jan Cowan, Clayton Calvert, and experienced NDT technicians Mark du Plessis and Lesego Mocumi. The PAUT training is scheduled for early next year,” she adds.

With this growing capability, the SAIW intends to offer these advanced NDT courses independently in the near future,” she tells *African Fusion*.

“We continue to strive to help the welding, fabrication and engineering industries better meet the challenges they currently face, and we are now receiving a great deal of positive feedback from our students and the public regarding the excellent progress we are making. We are inviting anyone wishing to make suggestions or comments to go to our new website, where we now have a communication channel for input on any aspect of the SAIW’s service delivery or developmental progress,” Confidence Lekoane concludes.

<https://www.saiw.co.za>



Aurex Constructors: for uncompromised excellence

Aurex Constructors is a proudly South African construction, maintenance and turnaround service provider for the oil, gas, chemicals and mining sectors, as well as the thermal and renewable power sectors. *African Fusion* meets with Sector Director Clive Garner and Quality Manager Wentzel Houston.

Aurex Constructors, which traces its roots back to the 1980s as Kentz Engineers and Constructors, was initially focused on electrical and instrumentation (E&I) work, particularly on maintenance and shutdown projects. The company built a strong presence in the petrochemical and oil and gas sectors of Southern Africa.

“Over the years, we’ve established ourselves as a leading provider in the energy industry, delivering construction, turnarounds and maintenance solutions,” says Clive Garner, Sector Director for Oil, Gas, Chemicals and Mining at Aurex Constructors. In 2014, Kentz was acquired by SNC-Lavalin and continued to serve as a leading contractor in the energy space. Then in 2020, following a management buyout led by current CEO, Stuart Kent, the business re-emerged as Aurex Constructors.

Following the buyout, Aurex retained its core team and operational focus in South Africa, preserving its reputation and client relationships. The company has since expanded its footprint across sub-Saharan Africa, delivering comprehensive SMEIPP services – structural, mechanical, electrical,

instrumentation, piping and platework – across tankage and terminal infrastructure, mineral processing facilities and energy plants spanning petrochemical, renewable, and thermal technologies,” Garner tells *AF*.

Fabrication facilities and capacities

Aurex’s fabrication facility in Chamdor, Krugersdorp, west of Johannesburg, is a strategic enabler of the company’s operations. Originally established to support field execution, it now plays a pivotal role in delivering high-quality, preassembled components that drive efficiency, safety and performance across the company’s business lines. “We have nearly 24 000 m² of space at this facility, with 7 000 m² of under-roof manufacturing workshops,” says Garner.

According to the company’s Quality Manager, Wentzel Houston, the Chamdor facility has maintained ISO 3834-2 since 2012, ensuring consistent welding quality and traceability. “Our fabrication work adheres to global standards including ASME B31.1, B31.3 and VIII Div 1 Appendix 10,” he explains. “We specialise in high-pressure piping systems, small to



Aurex Constructors’ operations director Clive Garner, along with quality manager Wentzel Houston.

medium-sized pressure vessels, and heat exchangers of up to 6.0 metres in diameter.”

The facility also supports the fabrication of tank components for on-site assembly and the fabrication of structural steel support systems. It is critical to our tankage and terminals division and is widely used across mining, petrochemical, and renewable energy sectors. “We complete 60-70% of the welding under controlled conditions in the Chamdor workshop, while preparing the remaining joints for efficient on-site assembly,” Houston adds.

Additional facilities extend Aurex’s operational reach. “Our Head Office in Midrand, Gauteng, houses management and functional support teams, along with engineering services for the renewable energy sector and detailing services for tankage and terminal projects,” says Garner.

“In Secunda, we’ve optimised the layout of our facility to deliver real value to clients and projects,” he continues. “Dedicated zones for training, assessments and coding of welders and project staff ensure that every team member deployed meets our exacting standards. This translates directly into safer, faster and more reliable execution in the field, especially on high-specification projects where quality and compliance are non-negotiable.”

The Secunda site also includes a centralised warehouse for assets and equipment. “It serves as a logistics hub for managing, servicing and maintaining our fleet of vehicles, cranes, welding machines and other critical tools. Keeping our assets in peak condition ensures uninterrupted project delivery and rapid mobilisation,” Garner tells *AF*.

In Namibia, Aurex Constructors operates from an office in Walvis Bay, where workshop facilities support the company’s first tank contract in Lüderitz for the local terminal sector. “We’ve also introduced site-specific training and assessment protocols to ensure our teams are equipped to meet



Aurex Constructors’ Chamdor facility has maintained ISO 3834-2 since 2012, ensuring consistent welding quality and traceability.



Above: For piping with wall thicknesses up to 6.0 mm, Aurex typically use GTAW, which allows for precise control and high-quality welds with minimal rework. Right: On thicker-bore piping with wall thicknesses exceeding 10 mm, Aurex consistently achieves rejection rates below 2.5%.

project demands and client expectations from day one," he explains. "This approach reinforces our commitment to safe, high-quality delivery in new markets."

In Mozambique, Aurex Constructors Limitada operates from Maputo, supporting the country's growing energy sector. The team has delivered and is actively executing tank construction projects in Beira and Matola, contributing to the development of terminal infrastructure and fuel storage capacity.

These projects involve SMEIPP scope and are closely coordinated with the fabrication hub in South Africa. The Mozambique operation also provides detailing, site support and project integration services, ensuring seamless execution aligned with client expectations. "As part of Aurex's Southern Africa footprint, Mozambique strengthens our ability to mobilise skilled teams and deliver compliant, high-quality tankage solutions across borders," he adds.

Welding choices

Aurex employs a range of welding processes tailored to project specifications and client requirements. Houston explains that GTAW/TIG, SMAW/stick, GMAW/MIG/MAG, and FCAW are all routinely used across the company's fabrication and field operations.

"For piping with wall thicknesses up to 6.0 mm, we typically use GTAW, which allows for precise control and high-quality welds with minimal rework," says Houston. "We've built a strong team of highly skilled welders who consistently meet the quality standards required for these applications," he adds.

For thicker sections and structural steel, Houston notes that GMAW with solid wires is preferred due to its speed and cost-effectiveness, while flux-cored wires are used where enhanced mechanical properties are required. "GMAW is generally our go-to for productivity, but flux-cored options can offer better performance depending on the material and design," he adds.

Orbital welding capabilities are avail-

able where precision and repeatability are critical, particularly in high-spec piping systems. "Ultimately, the choice of process depends on the technical requirements and client preference," Houston says. "Some end users restrict certain methods, so we always engage early to determine the best-fit approach before finalising welding procedure specifications (WPSs) and conducting quality acceptance testing," he assures.

On the consumable side, Aurex relies on trusted consumable brands, such as Böhler Welding and ESAB, for critical applications, with Afrox providing accessible day-to-day supplies. "We select welding equipment based on project requirements rather than brand preference, and we're actively evaluating advanced technologies, including pulse welding modes, to enhance our productivity and precision further," he adds.

ISO 3834 accreditation

The Chamdor workshop was the first facility to be ISO 3834 certified in 2012," says Houston. At the time, the primary driver was the need to fabricate pressure vessels and components that met the evolving standards of the energy and petrochemical sectors.

As client expectations evolved, so did Aurex's quality framework. "More and more clients began specifying ISO-3834 compliance, so we extended our certification across all our facilities, including Secunda and Namibia, and to all of our onsite welding activities," he tells AF.

Houston continues: "Once embedded, the culture of ISO 3834 had a measurable impact. Over the past five years, we have consistently met our reject rate target of under 4%, and for the past two years, we've brought that down to below 2.5%," he tells AF. These figures reflect performance across all certified sites, including field-based work.

"In our controlled workshop, the results are even stronger," he adds. "At Chamdor, for example, we achieved a 100% weld

acceptance rate last year. That's because we can detect and correct variations in real time before they cause downstream issues," he explains.

Aurex also differentiates its quality metrics by application to drive continuous improvement. "On tanks and linear welds, we're achieving a zero-defect rate, and on the thicker bore piping, of over 10 mm wall thickness, we're consistently below 2.5%," he notes. "Our current overall average rate is down to 1.9%, which reflects the strength of our systems, our people, and our commitment to quality."

New markets: Expanding with purpose

Aurex is expanding its footprint across Southern Africa to meet growing demand for energy infrastructure, fuel distribution and sustainable power solutions. With South Africa's refining capacity declining, Garner is seeing increased investment in infrastructure to support the import and distribution of fuel. "This includes tank farms and fuel distribution hubs that support offloading and redistribution across the region."

In Namibia, Aurex is constructing on-site fuel tank infrastructure to support terminal operations, which is expected to unlock further opportunities in the local mining sector. In Mozambique, the company is executing tank refurbishment and construction projects in Matola and Beira, strengthening the country's fuel storage and distribution capacity while supporting key clients in the energy and petrochemical space.

In addition, Aurex has been delivering utility-scale solar photovoltaic (PV) projects for over 12 years, establishing itself as a trusted partner in South Africa's renewable energy landscape. With over 1.3 GW of installed solar PV capacity across 16 solar plants, the company offers flexible support across the full EPC scope, including trenching, cabling, mechanical, electrical and instrumentation services. Recent highlights include solar projects ranging from 10 MW to 140 MW, as well as the flagship 540 MW solar park with battery storage in Kenhardt, Northern Cape – one of the largest hybrid solar and storage projects in the world.

"Our diversified portfolio, welding expertise and proven quality standards enable us to deliver tailored solutions for tankage, terminals, petrochemical facilities, mining operations and renewable energy projects across Southern Africa," Garner concludes. "We're not just responding to market shifts, we're helping shape the region's energy future."

www.aurex.com

Coreweld 46 LS: for faster, cleaner and more efficient welding

African Fusion talks to ESAB South Africa's product manager for filler metals, Kevin Xaba, about the premium gas-shielded, low-silica metal-cored wire, Coreweld 46 LS, a high-deposition, low-heat-input welding consumable designed to deposit exceptionally low amounts of silica on the weld surface.

ESAB Coreweld metal-cored wires have been developed to meet the needs of demanding welding applications for structural steel, heavy equipment, pressure vessels, petrochemical plants, offshore rigs, railway vehicles, ships and general fabrication. "ESAB pioneered the development of gas-shielded flux-cored welding (FCAW) nearly 60 years ago, so we can now offer the broadest variety of carefully crafted mild steel and low alloy flux- and metal-cored wires," says Kevin Xaba, ESAB South Africa's product manager for filler materials.



ESAB offers complete fabrication solutions, along with the support needed to ensure that products such as Coreweld deliver the results fabricators need.

"Fabricators have a wide range of welding processes and consumables to choose from, each with their own advantages and disadvantages. Within this mix, metal-cored wires are becoming increasingly popular because they offer higher deposition rates and faster travel speeds, and improved cost-effectiveness," he continues.

Metal-cored welding wire comprises tubular wire filled with metal powders, alloying elements and arc stabilisers. "Our Coreweld metal-cored wires combine high deposition rates and efficiencies, high travel speeds, excellent penetration and ease of use. They also provide excellent arc stability and outstanding penetration and wetting, with superior root and sidewall fusion," Xaba notes.

ESAB Coreweld 46 LS

Coreweld 46 LS is a high productivity wire capable of welding at high deposition rates with relatively low heat input compared to solid wires. This is due to a higher current density. "Coreweld 46 LS is a fantastic metal-cored wire for fabricating and/or repairing yellow-metal equipment such as the dump truck and excavator buckets used in South Africa's mining and construction sectors," notes Xaba.

Most notably, he says the Coreweld 46 LS is formulated to remove silica deposits from the weld metal, producing an exceptionally clean weld surface free of silicon islands.

Designed for welding both thin and thick steel plates with Ar+CO₂ shielding gas mixtures, Coreweld 46 LS produces a wider



arc than conventional solid wires, allowing larger gaps to be accommodated. The wire classification is SFA/AWS A5.18: E70C-6M H4; EN ISO 17632-A: T 46 4 M M20 2 H5 and has approvals from all the following: BV: 4Y40 H5 (M20 and M21); DB: 42.039.38; VdTÜV: 12152; ABS: 4Y400M H5; BV: 4Y40 H5; CE: EN 13479; DNV: IV Y40MS(H5) (M20 & M21); and UKCA: EN 13479.

Delivering yield strength of 485 MPa, tensile strength of 545 MPa, 29% elongation, Charpy impact values of 72 J at -40 °C, and diffusible hydrogen levels of less than 4.0 ml/100 g, this wire is ideal for welding C-Mn steels, including those susceptible to hydrogen-induced cracking. "Deposition rates are a particular advantage, with the 1.2 mm wire diameter offering 1.3-8.0 kg/h, depending on amperage and voltage settings," Xaba adds.

A yellow-metal success story

In a case study for a component fabricator supplying a mobile equipment OEM, the fabricator increased productivity by 17% by switching from a conventional metal-cored welding consumable to ESAB's Coreweld 46 LS.

"The fabricator was producing hydraulic links for mobile vehicles using two robot-based welding systems and a competitor's metal-cored wire. Production capacity was limited by the accumulation of silicon islands during multi-pass welds. This forced the operator to stop each robot for five minutes to remove the silicon islands from the welds of every component before restarting the welding cycle.

"The switch to using a 1.2 mm Coreweld 46 LS eliminated the need for inter-pass grinding, enabling the robots to complete each component without interrupting the cycle. In addition, the welding capacity at both welding stations increased by 17%. Combined, the switch resulted in total production cost savings of 13% and an annual cost savings of €60 000," Xaba explains.

"While very low levels of silica on the weld surface were key to this success,



A component fabricator supplying a mobile equipment OEM increased productivity by 17% by switching from a conventional metal-cored welding consumable to ESAB's Coreweld 46 LS.

delivering savings on downtime per cycle for each robot station, Coreweld 46 LS also offers other production advantages: a high deposition rate with relatively low heat input compared to solid wires, for example, and if used manually, these wires are easier to use than solid wires and offer far better productivity for those still using stick electrodes,” he adds.

Remanufacturing mine drill bits

Citing a second Coreweld 46 LS success story, Kevin Xaba says the wire is also ideal for weld repair and build-up applications.

In a welding remanufacturing department, two welding robots were being used with solid wire to build up the profiles of worn drill bits before hard-facing. Several problems were encountered: the 1.2 mm solid wire required a relatively low deposition rate to minimise heat input; excessive spatter caused downtime for cleaning the welding torches; and costly grinding operations were necessary to remove spatter from each component. This was causing capacity shortages and production bottlenecks.

Test welding was performed using the ESAB 1.4 mm Coreweld 46 LS wire, yielding very good results: essentially no spatter



“Coreweld 46 LS is a fantastic metal-cored wire for fabricating and/or repairing yellow-metal equipment such as the dump truck and excavator buckets used in South Africa’s mining and construction sectors,” notes Xaba.

and a significantly higher deposition rate. The company therefore decided to switch from the previously used 1.2 mm solid wire to a 1.4 mm Coreweld 46 LS wire. This increased production capacity by 42% at the two robot stations. It also resulted in less downtime due to lower torch-cleaning requirements and less time spent cleaning spatter from drill bits after welding.

The total production cost for this part of the remanufacturing operations was reduced by 17%, resulting in annual cost savings of €100 000 from these two robot stations.

“In this case study, the higher deposition rate associated with Coreweld 46 LS was the critical factor, and because of the



ESAB Coreweld metal-cored wires offer faster, cleaner and more effective welding, while meeting the needs of demanding welding applications for structural steel, heavy equipment, pressure vessels, petrochemical plants, offshore rigs, railway vehicles, ships and general fabrication.

higher current density associated with metal-cored wires, the heat input could be kept low at the higher deposition,” Xaba explains, adding that lower silicon levels compared to using solid GMAW wires are also an advantage in this type of application.

“As a world leader in Welding, cutting equipment and consumables, we at ESAB can offer complete fabrication solutions for virtually every application, along with the support needed to ensure that products such as our Coreweld 46 LS deliver the results that South African fabricators need,” concludes Kevin Xaba.

www.esabsa.co.za



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Fronius Fortis: flexible, networked and powerful MIG/MAG

Fronius has launched its next-generation Fortis series MIG/MAG and Multiprocess system, a versatile range of solutions for high-quality manual MIG/MAG, TIG and MMA welding with an all-new modern design that meets the diverse requirements of small and medium-sized businesses.

The new generation Fronius Fortis range was launched at FABTECH in Chicago (USA) and SCHWEISSEN & SCHNEIDEN in Essen (Germany) in September this year. "Fortis combines robust technology and intuitive operation with maximum connectivity to set new standards in the metalworking industry," said Peter Fronius, Head of System Solutions at Fronius International.

The Fortis product range comprises several powerful devices operating in the 270-500 A welding current range. They are available as either compact all-in-one systems or as split versions with external wire feeders, which provide a significantly extended operating range. All models can be equipped with proven Fronius functions, including pulse welding, SynchroPulse, stitch welding, TAC tacking, HotStart and anti-stick.

The Fortis XT complements the portfolio as a highly energy-efficient all-rounder for

three-phase mains voltages ranging from 200 to 600 V and single-phase operation at up to 320 A, featuring an advanced cellular electrode (CEL) welding mode. As a result, these machines are ideally suited for worldwide use, saving energy thanks to their higher power factor and offering a higher output characteristic curve for even greater welding performance.

Rounding off the range is the Fortis Duo, which combines a compact Fortis MIG/MAG machine with an additional, external wire feeder, enabling the use of two wire spools and two welding torches from a single power source. "This enables the welder to easily switch between different materials or wire diameters at the touch of a button, all without any retooling," explained Michael Eisterhuber, Product Line Manager at Fronius International. "Users save an

enormous amount of time through this feature, which is ideal for frequently

The Fortis product family covers the 270-500 A range. Compact all-in-one systems that can include integrated water cooling, or split versions with external wire feeders for a significantly extended operating range, are available.



Rounding off the range is the Fortis Duo, which combines a compact Fortis MMA machine with an additional, external wire feeder, enabling the use of two wire spools and two welding torches from a single power source.

changing tasks in contract manufacturing, steel construction or welded assembly."

Developed for flexible working

In many companies, welding tasks change daily, with new materials and different seam shapes on various components. The Fronius Fortis was developed as a solution to aid in this dynamic. With up to 240



Fronius' latest-generation Fortis manual MIG/MAG welding system range offers powerful, flexible, and fully digitalised welding performance.

welding characteristics specially optimised for steel, stainless steel and aluminium, Fortis guarantees reliable results, even in demanding applications such as vertical-up seams, root passes or thin sheet metal joints.

Multiprocess—one device for every process

MIG/MAG, TIG or MMA? It doesn't matter: Fortis variants with multi-process functions are available for power levels up to 500 A, accommodating all standard welding processes and delivering the highest-quality results. "With Multiprocess, Fortis is not only versatile but also fit for the future. These systems are equipped for all possible future tasks that may not even be known today," said Peter Fronius. "It is therefore the ideal and extremely flexible solution for companies dealing with a wide range of applications."

Intuitive operation and welding parameter wizards

"A central element of the Fortis series is our completely new operating concept," said Eisterhuber. "The clear 7-inch colour display with dynamic visualisations, self-explanatory graphics, and a multilingual menu with over 30 languages to choose from makes operation particularly easy – even for less experienced users."

Three robust rotary and push buttons allow precise adjustments and parameter selection, even when wearing welding gloves. All-important working and welding parameters are also visible on the first menu level. Necessary settings can



The split Fortis, equipped with an external wire feeder, ensures a maximum operating range of up to 20 m with an interconnecting hose pack. The Pulse function can also be used with an intermediate hose pack up to 15 m long.

be saved, and the newly integrated welding parameter wizard guides the welder to ideal settings in just a few steps, resulting in fewer errors, less down-time, and improved efficiency and quality in production.

Maximum connectivity – ready for digital manufacturing

Thanks to Wi-Fi and Bluetooth as standard connectivity features, the Fortis can be fully integrated into the Fronius software landscape. The machines are compatible with WeldCube Air, WeldCube Premium, WeldCube Navigator, and Central User Management for user administration, seamless welding data documentation, fleet management and process reliability.

The innovative Vizor Connect welding helmet can also be connected wirelessly, ensuring maximum comfort and protection. NFC readers, wireless remote controls and extensive documentation functions are available as optional extras.

Sustainability and longevity

The new housing concept for the Fortis series relies on a high proportion of recyclable aluminium (53%) and reduces the use of plastic. The devices are particularly easy to maintain, durable and designed for tough use in harsh conditions. They



Available in over 30 languages, the clear 7-inch colour display with dynamic visualisations makes operation particularly easy.

are extensively tested and protected by a casing purpose-designed to safeguard the sophisticated technology inside. Fortis XT impresses with energy savings of up to 16%, making it not only extremely powerful but also resource-efficient.

For those wishing to experience the new levels of user-friendliness and performance that Fronius Fortis machines offer, they are now available in South Africa for live testing at Fronius' Smart Hub in Midrand, through all branches of Bolt & Engineering Distributors Group (B.E.D.), and through Proac Engineering in the Eastern Cape.

www.fronius.com/en-za/south-africa



The next generation of
manual MIG/MAG-
welding

Fortis

As flexible as your work

Welding tasks are often a challenge, especially for small and medium-sized companies. Every job brings new requirements and different materials. Some of the tasks change on a daily basis, as do the required welding processes. This calls for a welding machine that can be adapted perfectly to these dynamic conditions. With up to 240 optimized characteristics that

have been specially developed for the requirements of steel construction, the Fortis series impresses with its reliable welding performance. In addition to steel, this MIG/MAG welding machine also masters materials such as aluminum and stainless steel effortlessly, especially in combination with the pulsed arc.

More at:
www.fronius.com/fortis



Two decades of growing agri equipment success

A collaboration that began over twenty years ago between Bolt and Engineering Distributors (B.E.D.) Klerksdorp and BPI Manufacturing continues to drive agricultural equipment reliability and innovation across South Africa's agricultural sector.

United by the shared values of service, trust and technical excellence, B.E.D. Klerksdorp and BPI Manufacturing exemplify what long-term supplier-customer partnerships can achieve.

Based in Bothaville in the Free State, BPI Manufacturing is an original equipment manufacturer (OEM) that produces a range of high-performance implements, including grain trailers, fertiliser spreaders and tillage tools. Founded in 1968, the company has grown into a key player in the Agricultural Sector, supported by enduring relationships, such as its partnership with B.E.D.

Lukas Brits of BPI Manufacturing says the business was built on a foundation of strong supplier relationships: "Our history is based on the relationship between supplier and customer," says Brits. "When we moved our operations to Bothaville, the connection with B.E.D. Klerksdorp became integral to how we manufacture and support our products."

From custom gearboxes and sprockets to tailored power take-off (PTO) shafts and bearings, B.E.D. provides engineered drive-train solutions aligned with BPI's unique equipment specifications. More than just a parts supplier, B.E.D. is a deeply embedded Agri equipment partner, working alongside BPI's design team to co-create components optimised for performance and uptime in harsh on-farm conditions.

Ian Lloyd, Operations Manager of B.E.D. Klerksdorp notes: "We understand the demands of agricultural timelines and supply our valued customers, such as BPI, with those needs in mind. Whether it is a rapid gearbox replacement during harvest time or pre-season planning of bearing kits, we ensure that BPI can deliver to its customers without interruption."

B.E.D. supplies BPI with a comprehensive range of premium SKF agricultural bearings, including dust-resistant, maintenance-free options which extend equipment life and reduce failure rates. Brits explains: "BPI Manufacturing does not compromise on quality. SKF products have proven themselves in the field, and our clients recognise that. When farmers see a BPI implement, they know it is made from the best components."

B.E.D.'s support is reinforced by its national network of 13 branches, which enable swift product supply, technical advice and consistent service levels across the country. "We are a large organisation operating on tight seasonal schedules," says Brits. "We cannot wait for weekly deliveries or chase multiple suppliers. With B.E.D., someone is on our premises almost every day. This support helps us keep our promises to farmers"

B.E.D.'s value goes beyond parts supply. Its welding division, in partnership with leading technology providers such as Fronius, equips BPI and its dealer network with access to advanced welding tools and mobile power systems, including portable AccuPocket battery welders. "B.E.D. brings the latest innovations right to the farm," explains Brits. "They do not just deliver the product, they deliver the knowledge!"

"While visiting farms in Middelburg, I saw a BPI grain trailer being used," says Kobus Moolman, Bearing Division Product Specialist for Agri at B.E.D., Klerksdorp. "I can confidently say that every component, from bearings to gearboxes, was provided by B.E.D. BPI's colleagues and customers also know our products across the country, making it easier for us to support dealers and co-operatives nationwide."

The ultimate goal of the B.E.D. - BPI partnership is to maximise uptime and reliability for farmers. This requires more

than technical know-how; it requires mutual trust, clear communication and responsiveness to changing demands: "If a BPI implementer has an issue, the farmer calls us, and we call B.E.D. We know the problem will be solved fast. That is why we trust them. We are not just planning for the next season. We are building the future of agriculture together," says Brits.

For B.E.D., the relationship with BPI is a valid showcase of its broader strategy to deliver value through responsiveness, customisation and long-term trust. "Our goal is to make it easier for OEMs such as BPI to manufacture with confidence, and for farmers using the implements they make to work without delays.

Our valued partnership is a model for the way in which we strive to support the entire agri value chain," Moolman concludes.

www.bolteng.co.za



From left: Kobus Moolman, Bearing Division Product Specialist for Agri at B.E.D.; Pieter Venter, Managing Director at BPI; Lukas Brits, General Manager at BPI; and Pieter Joubert, B.E.D. Area Sales Manager.



Lukas Brits, General Manager at BPI, with one of BPI's Debulking Trailers.

Steinmüller Africa: South Africa's strategic welding innovator

At Mondi's Richards Bay paper mill, Steinmüller Africa is leading an 18-month boiler construction project, Vuselela, that showcases a powerful blend of engineering excellence and cutting-edge technologies, marking a major milestone for the paper and pulp sector and Africa's broader industrial progress.



Steinmüller's senior welding engineer, Friedrich Schwim.

Contracted to erect a new boiler to meet the future needs of a Mondi paper mill in Richards Bay, Steinmüller Africa is currently engaged in Project Vuselela, a welded-assembly project for an imported process steam boiler for Mondi's Paper Mill in Richards Bay.

"We have a team of approximately 130-200 skilled professionals onsite, including 28 welders. We are responsible for the full mechanical installation, including the welded assembly and installation of all the steel structures, pressure parts, fans, flue gas ducts, tanks and critical systems such as the air preheater and flue gas damper," says Steinmüller's senior welding engineer, Friedrich Schwim.

The process steam boiler is being built as an eventual replacement for four very old boilers on the site that are currently delivering process steam to the mill. Thousands of metres of continuous welding are required. "The new Mondi boiler is known as a circulating fluidised bed (CFB) boiler, a more modern design that is cleaner, more cost-effective and fuel-flexible," Schwim

tells AF, adding that while some components are being manufactured locally, most are being imported as pre-fabricated and prepped sub-assemblies and sections for assembly onsite.

"We started with the first components in October 2024, and we expect to be pressure testing by February 2027, in time for the handover in about June," he says.

Welding process choices and innovations

Steinmüller uses various welding processes for its construction projects, including conventional stick and tungsten inert gas (TIG) welding, as well as advanced metal-cored welding processes that have recently been qualified.

"On this project, most of the boiler tubing is small bore – 45 and 51 OD – with a relatively thin wall thickness, typically 4.0 mm, so these are all completed using the TIG welding process for both root and capping runs. We wanted to use some orbital welding for these, but all the tubes are pre-cut to length with a V-preparation.

Orbital welding requires a squarer prep, which would not have been possible without changing the length of each pipe section," he explains, adding that for the capping runs on tubes with larger wall sizes, stick electrodes are used following the TIG root runs.

A lot of the welding, however, involves long, continuous plate-work welds that do not have to hold pressure. "Here, we have developed and qualified some advanced, deposition-efficient procedures based on using a metal-cored welding consumable," says Schwim.

The process was initially qualified using a Miller welding machine, where the RMD mode – a modified short-arc process with superior puddle control – could effectively control the fusion of the weld root. In contrast, a pulse mode was qualified for the fill and capping runs. "We are still using the two original Miller machines we bought for this work, but we have now found other brands with similar short-arc and pulse modes that offer equivalent weld quality," he says.

On the gas side, the metal-cored wire enables higher CO₂ levels in the gas mix, delivering better penetration. "For these long structural welds, we are using a universal gas mix with between 20 and 25% CO₂. This gives us a good combination of weld stability and penetration," says Schwim.

The use of advanced, modified short-arc and pulse modes on Mondi's Vuselela boiler project has increased productivity by 2-3 times while maintaining weld integrity. This is projected to cut welding time by at least 50%. "By strategically reengineering proven technologies, we are achieving a perfect balance between speed and quality," says Schwim. "This level of efficiency is crucial for fast-paced, large-scale projects like this," he adds.

Safety first solutions

Mondi is very strict on safety requirements, continues Schwim, especially with respect to lifting gas bottles into a boiler under construction. "Gas cylinders have to be



Steinmüller Africa is leading an 18-month boiler construction project for the pulp and paper industry. Shown here is the pre-fabricated steam drum, the heart of the boiler, being lifted into place.



A flue gas stack is being prefabricated at the construction site.

lifted into and out of the boiler one bottle at a time, so for 24 welders, there will have to be 24 separate lifts to get them all safely supplied at height. And when the cylinders are empty, a separate lift must be arranged to remove and replace each one. So it was important for us to incorporate Afrox's Multi-User Pressure Panel (MUPP) into this project," Schwim explains.

Although still working on the ground, Steinmüller is already utilising this solution. "It is just easier to have one single manifold pack of gas stored somewhere permanently, so that a welder never has to fetch and carry full and empty gas cylinders around the site," he notes.

The idea underpinning the MUPP solution is to leave gas cylinders on the ground in a safe, secure and convenient fenced-off area. A single braided steel hose connects the gas to a pressure-regulated MUPP with eight connection points, allowing eight welders to be serviced simultaneously. Initially developed for at-height welding on boilers, the solution enables an MUPP to be installed where welders work, eliminating the need to lift gas cylinders into the boiler.

"We think it works well. We plug it in, check for leaks and then we can supply eight welders at the same time," says Friedrich Schwim. "We plan to have three teams of welders working at three different levels, so we have invested in three of these multi-user panels for the Vuselela Project," he adds.

This is not the first time Steinmüller has adopted this solution, having used it on the Camden Power Station site. "We also find it useful in our workshops. In the Pretoria workshop, for example, we used a MUPP when we built the Eskom HP heaters, because it results in less gas having to be moved to the point of welding," he adds.

Mitigating against challenging conditions

Richards Bay's high humidity poses significant corrosion challenges. To mitigate this, Steinmüller Africa has deployed laser cleaning technology to remove surface contaminants without compromising weld integrity. "Laser cleaning is ideal, because these components are already prepped, and while it does come with a protective weld primer applied, some components had already started rusting on arrival. Laser cleaning quickly removes this rust without changing the tube length or the prep accuracy.

After laser cleaning, a weld pre-primer is applied: "I'm quite surprised at how good modern weld pre-primers are. It's the first time I have worked with them, and once the joint is laser cleaned and the primer is sprayed on, it's still not rusted two weeks later. So the prep can be lightly brushed and it's ready to weld."

The primer has been extensively tested and proven successful in maintaining weld integrity in high-moisture conditions without affecting the welding performance or the properties of the finished weld.

Other Steinmüller Innovations

Beyond the Mondi boiler project, Steinmüller Africa is pioneering new lifecycle extension technologies for Eskom's high-pressure heaters, which preheat water before it enters boilers. These heaters often develop tube leaks that were previously repaired by manual plugging, with limitations on the size of the plug that can be inserted.

Now, through a two-year research and development (R&D) process, Steinmüller Africa has developed and qualified a non-standard explosive plugging process for sealing larger tube diameters, which



A pre-fabricated conical section being installed in the Mondi boiler.



A boiler membrane wall panel. For long structural welds, Steinmüller uses a qualified metal-cored wire procedure. Laser cleaning is used before welding, and a weld prep primer is added after.

was previously unfeasible. "We have been doing explosive weld plugging for the past 12 years, but we could only repair 17 to 18.5 mm OD tube holes. We've now developed an approved procedure for bigger plugs, based on Eskom's current needs," Schwim explains.

"When an HP Heater tube started to leak, these were repaired by cutting off the tube, pressing in a cap and welding a seal around the outside edge. Weld fusion was limited to the surface area around the cap and this could corrode through relatively quickly. The fusion zone of the explosive plug is longer, across the full thickness of the heater shell, so there is much more material to resist corrosion. In addition, we can use a plug with a little nickel in it to resist corrosion," he explains.

"Our ability to reengineer technology, adapt to environmental realities and deliver under pressure defines who we are," says Schwim. "We are building more than infrastructure, we are laying foundations for Africa's industrial resilience," he concludes.

<https://steinmullerafrica.com>

Discover Our New Range of Stainless Steel Products



**Complete Welding & Gas Solutions –
Engineered for Excellence**

Air Products' 17025 laboratory accreditation

Ntombifuthi Taiwe and Thapelo Mogapi from Air Products have been instrumental in obtaining ISO/IEC 17025:2017 accreditation for the two central and three satellite laboratories, ensuring that Air Products' gases meet purity requirements and contamination limit specifications.

Air Products is recognised for maintaining high safety and quality standards. The latest ISO/IEC 17025:2017 accreditation, obtained from the South African National Accreditation System (SANAS), is a testament to the company's commitment to ensuring compliance with the highest levels of testing and calibration in its laboratories. Although it is referred to as an accreditation, it is the minimum standard to which all Air Products' laboratories are expected to operate.

Air Products Laboratories

The company runs two central laboratories in South Africa, one in Vanderbijlpark, where the first liquid oxygen/liquid nitrogen plant was commissioned back in 1971, and a second in Kempton Park, where the company manufactures and supplies industrial gases, such as oxygen, nitrogen, argon and hydrogen, and specialty blends, such as those used for welding and cutting.

In addition, Air Products has smaller satellite laboratories at its distribution depots in Cape Town, Pinetown in KZN, and Gqeberha, which support the automotive, manufacturing, and diversified food industries of the Eastern Cape.

In terms of the services provided, these laboratories ensure that Air Products' gases meet the purity requirements and contamination limit specifications. All the gases and mixtures manufactured by the company must be analysed, which means all testing equipment must be routinely calibrated.

Air Products also offers a gas-blending service for any chemically viable gas mixtures, including speciality welding and cutting mixtures, as well as modified atmospheric packaging (MAP) gases for extending the shelf life of fresh food.

For this testing, these Air Products facilities are typically equipped with gas chromatographs featuring various detectors, gas analyser instruments for specific gases, moisture analysers, and other standard contamination sensors.

Laboratory Approvals

For all of these laboratories, ISO 17025 Accreditation has now been added to Air Products' extensive list of approvals,

accreditations and certifications, which include ISO 9001 (Quality), ISO 45001 (Health and Safety), ISO 14001 (Environment) and FSSC 22000 (Food Safety). The newly acquired Laboratory accreditation provides numerous benefits for the company's laboratories, including enhanced credibility, increased customer confidence, and improved operational efficiency. In essence, the accreditation's core focus is to establish and maintain a reliable and competent laboratory.

Developed by the International Organisation for Standardisation (ISO), the ISO 17025 accreditation for Laboratories is a globally recognised standard for testing and calibration laboratories. It provides a framework for laboratories to demonstrate their competence, impartiality and consistent operation, ensuring the accuracy and reliability of their results.

According to Thapelo Mogapi, Specialty Gas Manager at Air Products, preparation for the accreditation application process began in 2016. The project formally started in October 2018, following extensive planning, and was completed in early 2025.

He explains the process in further detail: "The application started with training to understand the standard. A process followed this to ensure the technical competency of all our laboratory personnel, the accuracy of calibration for the equipment, and the traceability of measurements, including validation test methods.

"The accreditation is essentially the implementation of a quality management system to ensure that specific technical requirements are met. It is valid for a period of five years, with periodic audits conducted by an accredited body," says Mogapi.

Mogapi concludes that producing reliable, accurate results is essential to building trust with customers and regulatory bodies. "This 17025 accreditation,



Ntombifuthi Taiwe and Thapelo Mogapi from Air Products played a crucial role in obtaining the ISO/IEC 17025:2017 accreditation.



Thapelo Mogapi, Specialty Gas Manager at Air Products' laboratory in Kempton Park.

combined with Air Products' high levels of customer service, will certainly play a crucial role in further enhancing the company's competitiveness and position as a market leader," he says.

Air Products positively impacts consumers' lives every day, serving customers across a wide range of industries, including food and beverage, mining, petrochemicals, primary metal and steel manufacturers, welding and cutting, and laboratory applications.

Founded in 1969, Air Products South Africa has established a reputation for its innovative culture, operational excellence, and commitment to safety, quality, and the environment. In addition, the company aims to continue its growth and market position in the Southern African region.

www.airproducts.co.za

A refocused Abicor Binzel SA adopts a direct

African Fusion meets Abicor Binzel South Africa MD, Christo Gelderblom, Application Development Manager, Thembinkosi Matyeka, and Technical Sales Specialists, Wessel Papenfus and Johannes Holtzhausen, to discuss the integration of the THERMACUT® product line and Abicor Binzel's EWR2 gas management products.

Abicor Binzel South Africa has been on an aggressive transformation path since early 2023, says Christo Gelderblom, MD of Abicor Binzel South Africa. "We can now offer a complete range of fabrication solutions for manual and CNC cutting; welding solutions for manual, robotic, cobot; fully automated and orbital welding; as well as a range of specialist components – special electrodes, tungsten and molybdenum-based special materials, tailored alloys and pre-and post-welding chemicals," he tells *African Fusion*.

Binzel has been a key developer, manufacturer and supplier for over 75 years, specialising in welding technology, products and system solutions within the ABICOR GROUP. These solutions simplify the daily work of welders, while distinguishing themselves for their high quality, long service life, efficient raw material utilisation, and reduced environmental impact.

"With regard to personnel, we have brought on several specialists in these fields, who have good reputations, industry knowledge and relevant qualifications. We have also changed from relying on an office-based sales force and traditional distributors to a direct customer-centric distribution network with technical support from local and global specialists, which enables us to offer more cost-effective and reliable solutions and services," adds Gelderblom.

Holtzhausen adds that before a customer makes a significant investment in new welding or cutting technology, Abicor Binzel will assess the manufacturing environment

and special requirements. This may involve making demo equipment available for testing at the customer's site or demonstrating the technical capabilities of the product range at its fully equipped demo centre in Kempton Park.

The THERMACUT brand, for example, was previously sold through a distributor in South Africa. However, earlier this year, the Czech Republic-based THERMACUT k.s. terminated the relationship and assigned the sole distribution rights of the THERMACUT product line to Abicor Binzel SA.

"People who are already using THERMACUT plasma systems often use non-OEM aftermarket spares, which are cheaper, but the quality is inconsistent, frequently resulting in very short consumable life. We are now able to aggressively focus on these customers, convincing them that a better local supply of quality OEM torch consumables can positively impact their bottom line. This approach has enabled us to significantly expand THERMACUT sales over the past two to three months," says Holtzhausen.

SAIW's new THERMACUT HD-125®

In support of the SAIW's renewal strategy, Abicor Binzel SA has delivered a fully equipped THERMACUT plasma CNC cutting system to the SAIW, which will support the needs of the



Johannes Holtzhausen programs the compact THERMACUT EX-TRACK CNC system.

SAIW Welding School. "We have installed a 1.6x3.2 m THERMACUT EX-TRACK® CNC cutting table that can be used for plasma and oxy-fuel cutting," says Abicor Binzel SA's Technical Sales Specialist, Wessel Papenfus.

The cutting table features a water-bed system, which captures and quenches hot metal particles and airborne fumes. This eliminates the need for downdraft air extraction and ducting, helping keep the plate cool and, in turn, reducing distortion.

The THERMACUT CNC system is built around the company's compact EX-TRACK CNC cutting system. "The controller sits on the deck of the track and any cut profile that a fabrication shop needs can be entered into this system," Papenfus explains, adding that the THERMACUT EX-TRACK CNC system can be easily retrofitted onto any cutting table.

The SAIW's system is equipped with a THERMACUT EX-TRAFIRE® 125 HD, a plasma cutting inverter ideal for demanding applications. "This heavy-duty plasma system is designed for heavy fabrication in industries such as shipyards, petrochemical plants, steel mills, steel service centres and general fabrication shops. In addition to plate cutting, the system offers grid cutting, gouging and surface marking.

Key features include gouging with a high removal rate, extremely high cutting speeds, automatic gas identification for air, nitrogen or oxygen, fine, deep, or wide marking, and optional flush-marking applications using current levels below 20 A. "The system offers low investment costs and 20% longer consumable lifetime, which combine to deliver lower operating costs and better productivity.

The maximum pierce thickness for steel plate is 25 mm, but from an edge, the 125 HD system can accommodate a 60 mm plate thickness. "We can offer several differ-



Abicor Binzel South Africa can retrofit its Thermacut cutting solutions to any cutting table.

distribution model



Thembinkosi Matyeka and Wessel Papenfus working on the SAIW's new THERMACUT HD-125 plasma CNC cutting system.

ent plasma machines, though. The smallest is the 45 HD, which can accommodate a 25 mm plate, while the 65 HD, 85 HD, and 105 HD can produce a quality cut through material 38 mm, 45 mm, and 50 mm thick, respectively.

In addition, the SAIW's system is also fitted with an oxy-fuel cutting system that can be used to cut through much thicker plate, if necessary.

Installation, training and ongoing support for all Abicor Group products are now also managed directly by Abicor SA in Kempton Park. "As we did with the SAIW THERMACUT system, after installation and commissioning, we organise training sessions for our customers before handover, making sure onsite teams are fully able to operate their systems successfully," Wessel Papenfus tells *African Fusion*.

THERMACUT plasma consumables

Well-known for the quality of its torches and torch consumables, THERMACUT plasma cutting torches feature a conventional design, with the plasma torch sized to match the maximum capacity of the plasma power source being used. "The consumables are all torch- and capacity-specific, so we offer torches for each of the four different power sources. As well as the HD range for those cutting continuously, we also offer a standard SD range of plasma cutters for those with less arduous needs, each of which comes with its own set of matching torch consumables," Papenfus points out.

From an aftermarket perspective, he notes that THERMACUT has leveraged its expertise in torch development to produce aftermarket torch consumables for many of the plasma cutting brands operating in South Africa. "We can supply plasma torch consumables for about 80% of the plasma cutting torches currently being used. And these consumables are manufactured us-

The THERMACUT HD-125 plasma cutting inverter is ideal for demanding applications.



ing similar materials and processes as our THERMACUT OEM consumables, so they are competitive in terms of quality and life with OEM equivalents, but more cost-effective," he notes, adding that local supply ensures availability of stock, and that customers with issues have technical support to identify corrective measures.

The Abicor Binzel EWR 2 Gas-Management-System

Developed to align with Industry 4.0, the Abicor Binzel EWR 2 system utilises a high-speed solenoid valve to regulate shielding gas flow in real time, synchronising it with the welding current. The system can compensate for external factors, such as changes in ambient temperature, a changing gas inlet, or counterpressure from the connected cable assembly, guaranteeing gas consumption savings by controlling gas flow more precisely than traditional systems.

"Savings potential with the EWR 2 can be amazingly high," notes Thembinkosi Matyeka, Application Development Manager at Abicor Binzel SA. He says the system comes with an easy-to-use calculator for shielding gas cost savings, enabling the system's investment payback to be determined in advance.

Recounting a recent success at a local vehicle component OEM in the Eastern Cape, he says: "We came across some older and relatively simple gas economiser units on the manufacturer's automated welding cells, which, according to the OEM's representative, realised a three-month investment payback in gas savings when they were first installed.

"So we presented our EWR 2 solution to another component manufacturer and tested it on one of the 31 robotic stations at the assembly plant," Matyeka tells *AF*.

When tested in normal bypass mode without the Binzel EWR 2 intervention, the



As well as offering significant savings, the Abicor Binzel EWR 2 Gas-Management-System takes the guesswork out of optimising the gas flow rate and prevents operators from adjusting gas regulators or flow meters.

normal gas consumption was 59,45 l per session at an average pressure of 2.97 bar. When the Binzel EWR 2 was in use, consumption per session decreased to 42.87 l at 3.05 bar, resulting in 28% savings. "So you can imagine the savings that will accrue across all 31 welding stations," he says.

The system is easily installed and calibrated to continuously regulate and monitor gas flow and pressure. The gas flow is activated by a Hall-effect current probe on the welding cable and adjusted to match the welding current as closely as possible. It is equally effective for automatic or manual welding processes and can be retrofitted to any existing system.

The Binzel EWR 2 is suitable for all shielding gases and is designed to accommodate inlet pressures ranging from 1.0 to 6.0 bar and flow rates from 2.0 to 30 l/min.

"The system takes the guesswork out of optimising the gas flow rate and prevents operators from adjusting gas regulators or flow meters. It also detects gas leaks, giving an early warning as soon as a hose or connection is compromised," notes Thembinkosi Matyeka.

The refocused Abicor SA

"Both locally and globally, Abicor is now in a better position to support our customers directly," says Gelderblom. "We are well known across the globe for our welding torch capability, especially the MB40 GMA welding torches, but we have now significantly expanded our welding and cutting offerings, particularly in the automation space.

"We have re-established our presence and are refocused on supporting all of the Abicor Group's brands," he concludes.

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LASER CUTTING AND WELDING

DEKRA enhances HIC inspection offering

DEKRA Industrial South Africa has strengthened its position as a leader in hydrogen-induced cracking (HIC) inspections through a strategic combination of advanced non-destructive testing (NDT) techniques, investment in state-of-the-art inspection equipment and global technical collaboration.

DEKRA Industrial has enhanced its capability to provide clients in the petrochemical, refinery, and related industries with the accuracy, confidence and reliability required for early detection and management of cracking and damage within steel assets.

“Hydrogen-induced cracking remains one of the most critical threats to the integrity of pressure vessels, pipelines and steel infrastructure in the petrochemical sector,” says Bennie Groenewald, Business Line Manager, NDT/Advanced NDT at DEKRA Industrial. “Our advanced inspection portfolio – particularly in HIC detection – is not only technically robust but backed by DEKRA Industrial’s global network and local expertise. With continuous investment in equipment and people, we are setting new standards for asset integrity in South Africa’s petrochemical sector.”

Precision techniques

Unlike surface damage, HIC occurs internally due to atomic hydrogen diffusing into steel structures, leading to blistering and stepwise cracking. The challenge lies in accurately detecting early-stage damage before it escalates to catastrophic failure.

To meet this challenge, DEKRA Industrial employs a phased approach which incorporates:

- Total focusing method (TFM) for high-resolution ultrasonic imaging and sub-surface defect detection as small as 20 µm.
 - Time-of-flight diffraction (TOFD) using ultra-low angle (ULA) techniques for enhanced probability of detection and length sizing
 - Metallographic verification and destructive testing where needed, to ensure complete characterisation of damage.
- These methods enable the qualitative and quantitative evaluation of HIC, significantly enhancing maintenance planning, repair decisions and operational safety.

Global expertise, local capability

What gives DEKRA Industrial a unique competitive edge is the integration of global research and development (R&D), European standards and hands-on field experience in the South African context. Backed by



Photo by CEphoto, Uwe Arndes

Hydrogen-induced cracking (HIC) occurs internally due to atomic hydrogen molecules (H) diffusing into steel structures at high temperatures. On cooling, these hydrogen atoms recombine to form hydrogen gas (H₂), which has a significantly higher volume. This raised the internal pressure/stress, leading to blistering and stepwise cracking.

the DEKRA Group’s international innovation and research teams, the company has direct access to the latest techniques, procedures and technical feedback from similar NDT inspections performed across the world.

In support of this, DEKRA Industrial South Africa has recently invested in new advanced inspection equipment, specifically tailored for HIC and related forms of damage. This includes next-generation phased array ultrasonic testing (PAUT) units and data-processing software, now operational across key sites in the local petrochemical sector.

Furthermore, three senior DEKRA NDT specialists, each certified to Level 2 and 3, have undergone specific international training to ensure their effective use of these technologies. This investment in people and technology ensures that inspection results are interpreted with a high degree of accuracy and consistency, providing clients with actionable insights that drive informed decisions.

Beyond HIC

While HIC is a primary focus of DEKRA Industrial’s inspection offerings, the company also offers expertise in detecting high-temperature hydrogen attack (HTHA), using techniques such as advanced velocity ratio measurement (AVR), automated ultrasonic backscatter techniques (AUBT), and high-sensitivity TOFD.

In addition, DEKRA Industrial’s Remote Access Inspection (RAI) capabilities – soon to be introduced locally – will support safer and more efficient inspections in confined or hazardous environments. By deploying crawler-based, camera- or drone-assisted

inspection tools, the company can perform HIC and HTHA assessments without exposing inspection team members to unnecessary risk or requiring prolonged shutdowns.

Commitment to safety

As part of its broader mission, DEKRA Industrial remains committed to promoting safety, reliability and technical excellence in the industries it serves. From fossil fuel facilities to hydrogen infrastructure and green energy projects, the company’s inspection technologies are tailored to support the evolving needs of the South African and African industrial landscape.

With 100 years of experience in 2025, in many vertical industry sectors through its global parent company, DEKRA Industrial SA has established a formidable reputation as a leader in inspection services, non-destructive testing (NDT), material testing, laboratory services, advanced NDT, asset integrity services and NDT inspection and corrosion control for rope access and lifting. In addition, the company offers comprehensive vendor inspection and expediting services, as well as vehicle mapping.

The company also offers accredited industry training through its adult-based education and occupational skills training division, the Institute of Learning (IOL).

“For a petrochemical refinery, a hydrogen plant or a remote pressure vessel site, our approach is always rooted in accuracy, safety and international best practice,” concludes Groenewald. “We do not just find cracks, we help our clients to ensure asset integrity and prevent potentially catastrophic failure.”

<https://dekrarsa.com>

Afrox Hardgoods, ready to support you all the way

African Fusion talks to Afrox's Dewald Bodenstein, Head of Hardgoods, and Johann Pieterse, MI Technical Manager, about Afrox's Hardgoods product offering and the comprehensive welding solutions Afrox can provide to fabricators.

“Afrox is here to support you all the way,” begins Dewald Bodenstein, the newly appointed Head of Hardgoods for Afrox. “Through our extensive network, we are well-suited to offer a wide range of products to service our customers’ needs. If you require technical advice on gas and gas welding equipment, arc equipment and welding procedures, then Afrox is your go-to place,” he assures.

Afrox can support its customers with a wide range of value-added services, from the renowned and highly sought after safety solutions, which bring peace of mind to any manager or business owner knowing that their workforce has the knowledge and skill to use gas and gas equipment safely and productively, to our total 360° welding solutions, whereby our accredited International Welding Engineer and International Welders can provide dedicated welding process, procedure and training support,” he adds.

“Being the exclusive and preferred supplier of numerous brands, not only into South Africa but into sub-Saharan Africa,

Afrox is well positioned to bring you quality products, such as class-leading Afrox Saffire Gas Equipment, Afrox Vitamax, Miller Welding Equipment, Hobart filler materials and our extensive range of Böhler filler materials,” continues Bodenstein.

The Miller slogan: ‘We build the quality welding products you need to help build our world’ rings true. Afrox supports this vision by backing the Miller brand. The extensive network can provide the correct welding equipment required for any application. Backed by machine repair partners nationwide, customers can have peace of mind knowing that, regardless of what happens, they will be supported.

For welding stainless steel pipe, Johann Pieterse continues, Afrox has a Miller-based solution. “We know that stainless pipe fabricators work hard. They now have the opportunity to work smarter by using the modified short-circuit GMAW process from Miller, Regulated Metal Deposition (RMD), as a substitute for GMAW and GTAW processes in the root pass.

“Pipe fabricators are particularly sceptical about short-circuit GMAW, and with good reason. With traditional GMAW, short circuits occur at erratic intervals and with varying intensity. As a result, the weld puddle undergoes considerable agitation. To prevent lack-of-fusion defects, the operator must work to control and manipulate the weld puddle. High-speed video demonstrates how the short circuit ‘explosion’ causes the weld puddle to splash up and freeze on the sidewall of the pipe, which is how cold lap occurs. It also leads to spatter and extensive clean-up time,” he explains.

Because it requires a great deal of skill to produce code-quality root welds with traditional short-circuit GMAW, many fabricators avoid the process, and many end-users do not include it in their list of approved procedures. Fortunately, technological advances are changing the game,” he notes.

With RMD™ technology, the welding system anticipates and



Dewald Bodenstein.



Johann Pieterse.

controls the short circuit, then reduces available welding current to create a consistent metal transfer. Precisely controlled metal transfer ensures uniform droplet deposition, allowing the welder to control the puddle more easily. High-speed video shows that, with RMD, stable short circuits create only minor ripples in the weld puddle, which in turn allow consistent tie-in to the sidewalls. With a stable and more controllable weld puddle, apprentice operators can quickly and easily learn to create uniform, high-quality welds, assures Pieterse.

For stainless steel pipe, Miller welding machines with RMD enhance welding quality and productivity. The process is easy to learn, enabling more work to be done faster and at a higher quality rate.

Another premium solution from Miller is 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. Communication between the power source and the equipment is achieved through the welding cables. “This means we can immediately increase the distance from the power source by 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 long cable lengths between the power source and remote components, providing 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



RMD eliminates the need for a hot pass, resulting in a process that often replaces the conventional GTAW process for welding large-bore pipes.



Afrox's Miller PipeWorxFieldPro range is purpose-designed for pipe welding projects.

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 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 safely out of the way from the workstation. ArcReach suitcase feeders are also available in smaller 8-inch versions, which are ideally suited for use in workspaces with access restrictions.

Maximum benefit and cost savings are ultimately realised when the Miller ArcReach SmartFeeder is connected to the power source, as this allows for open root with RMD fill and cap welding to be performed with the same equipment, wire and shielding gas.

In addition, RMD eliminates the need for a hot pass, resulting in a process that often replaces the conventional GTAW process for large-bore pipe welding, delivering five times faster weld deposits compared to a traditional GTAW root and hot pass weld sequence. Once the root has been welded, the welder can immediately switch the wire feeder to GMAW-P mode and begin rapidly filling the weld, with capping done using the same mode.

The efficient 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 whenever a suitable consumable is available. Compared to conventional processes, RMD and GMAW technology is at least three times faster than traditional GTAW and SMAW, with productivity savings often exceeding 80% per kilogram of deposited weld metal.

"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," says Pieterse.

"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 starts, and there is no need to spend valuable production time optimising the settings at the start of each shift," continuous Dewald Bodenstein.

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. Once pre-heating is complete, the welder can immediately start welding, with an absolute minimum of setup delay and without the need to move away from their 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 Afrox 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 at the point of work. This provides optimum productivity when welding.

'Don't walk, weld' is the key Miller phrase used to describe the benefits of ArcReach. This highlights the time-saving and safety advantages that result from



The class-leading Afrox Saffire Gas Equipment range and Afrox's 360° gas safety solution training bring peace of mind to any manager or business owner.

eliminating the need for welders to walk to and from the power source and their welding stations.

ArcReach systems are powered by the extraordinarily robust XMT 350 FieldPro with Polarity Reversing technology, which includes Auto-Line, which automatically adjusts to any input voltage from 208 V to 565 V. The same power source can be used for all the different ArcReach combinations described above. Initially launched in the early 1990s, the Miller XMT power source technology has undergone continual improvement and updates, and the power sources are well known for their reliability and robustness. The ArcReach 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 their operations over long periods of time. By surveying a customer site, we can extract valuable information to create a value proposition that addresses problems and enhances profitability. Following implementation, this is supported with ongoing customer support," assures Johann Pieterse.

"The Miller ArcReach and Afrox GasReach combination offers new and unique opportunities to enhance welding profitability and safety across a wide range of industries, elevating modern welding technology to levels and locations previously unimaginable.

"Interested? Our Hardgoods MI Technical team would be happy to support you with your next welding project, because your success is our success," he concludes.

www.afrox.co.za

Unique Welding's expanding footprint

In industrial welding, Unique Welding has emerged as one of South Africa's most influential players. From its early beginnings to its current position as the country's largest independent distributor of gas and welding products, the company has been defined by bold thinking, technical mastery and a deeply held belief in the power of partnerships.

With 14 branches across South Africa and a network of independent distributors that reaches into every industrial hub, Unique Welding's name has become synonymous with reliability, innovation, and quality. Its impact now stretches beyond the borders of South Africa, influencing regional industries and setting new standards for excellence across the continent.

What distinguishes Unique Welding is its role as a comprehensive solutions provider. The company has mastered the art of bridging product supply with practical expertise, delivering welding and gas systems that meet the specific, evolving needs of industries as varied as mining, automotive, construction, manufacturing, and energy.

Rather than offering an off-the-shelf approach, the company's strength lies in customisation. Unique Welding listens first to understand how each business operates, what challenges it faces, and what efficiencies can be unlocked. From there, its team designs and delivers tailored solutions that streamline processes, lower costs, and improve productivity.

This adaptability has positioned Unique Welding as a trusted long-term partner to both small workshops and multinational corporations. Whether a client requires precision TIG systems for delicate fabrication or heavy-duty MIG machines for large-scale production, Unique Welding ensures every solution is engineered for performance and backed by dependable technical support.

The Innovative Thermamax range

At the heart of Unique Welding's reputation for excellence lies its own

The Thermamax range includes MIG, TIG, and MMA welding machines, as well as plasma cutters, gas-cutting equipment, laser welding solutions and specialised consumables.

brand, Thermamax. Designed in close collaboration with leading international manufacturers, the Thermamax range has established itself as a benchmark for modern welding technology in South Africa.

The line includes MIG, TIG, and MMA welding machines, as well as plasma cutters, gas-cutting equipment, laser welding solutions and specialised consumables. Each product is designed to withstand harsh industrial conditions while delivering accuracy, efficiency, and safety. This commitment to engineering excellence has earned Thermamax a loyal following among welders and fabricators who rely on their equipment every day.

But innovation at Unique Welding isn't just about better machines, it's about making advanced technology accessible. Thermamax products are competitively priced, offering exceptional value without compromising on quality or compliance. Every item in the range meets stringent international safety and performance standards, making it a preferred choice across industries where precision and reliability are non-negotiable.

Over time, the Thermamax brand has come to symbolise the company's philosophy: advanced technology, practical design and measurable value.

Quality and supply chain mastery

Quality is not an afterthought at Unique Welding, it's a defining principle. The company operates under ISO 9001:2015 certification, accredited by TÜV Rheinland South Africa, ensuring that every process,



Unique Welding recognises that excellence depends on the skilled professionals who connect customers with solutions.

from sourcing to delivery, meets globally recognised standards for consistency, traceability, and continuous improvement. This accreditation reflects a commitment to operational excellence and underpins the trust customers place in every product that bears the Unique Welding name.

A great product means little without the infrastructure to deliver it efficiently. Unique Welding's competitive edge is reinforced by its robust, strategic supply chain system that integrates sourcing, product development, procurement, logistics, warehousing and final delivery.

This full-cycle management approach allows the company to maintain tight control over product quality and availability. By collaborating closely with its key global suppliers, Unique Welding ensures that shipments arrive on schedule, stock levels remain stable, and customers experience minimal lead times.

Behind the scenes, a specialised logistics team monitors every step of the journey ensuring that, even in times of market disruption, clients can count on consistent supply. The result is a business that not only sells products but keeps entire industries moving.

Training and Technical Support

Unique Welding recognises that true excellence depends on people, the skilled professionals





Above: Unique Welding's collaboration with its parent, Air Products, ensures access to world-class gas and welding technologies supported by global standards of excellence.

Left: Unique Welding's supply chain integrates sourcing, product development, procurement, logistics, warehousing and final delivery.

who connect customers with solutions. That's why the company invests heavily in the training and continuous development of its teams.

Its dedicated training centre is the beating heart of this commitment, offering in-depth technical instruction to sales personnel and support staff. Every team member is equipped with comprehensive product knowledge and an understanding of how to translate features into tangible benefits for customers.

For clients, this expertise extends beyond the sales floor. Unique Welding offers on-site technical training, enabling welders and technicians to gain hands-on experience with Thermamax equipment. These sessions not only build confidence but also help companies optimise their operations, extend machine life, and minimise downtime.

The company's demonstration centre, located at its head office, further strengthens this ecosystem of learning. Here, new technologies are showcased through live demonstrations, product launches and technical workshops. Customers and staff alike benefit from seeing the equipment in action, a valuable opportunity to test performance, ask questions and exchange insights.

By combining education with practical experience, Unique Welding cultivates a network of skilled professionals who can support the industry from within.

Empowerment and responsibility

As a BBEEE Level 4 contributor, Unique Welding is committed to fostering empowerment, inclusion and community development within South Africa. The company operates as a division of Weldamax (Pty) Ltd, a proud subsidiary of Air Products South Africa, a partnership that strengthens both its local roots and global reach.

Since Air Products acquired Weldamax

in 2022, Unique Welding has benefited from enhanced technical resources, advanced safety systems, and strategic investment. This collaboration bridges local expertise with international best practice, ensuring that South African industries can access world-class gas and welding technologies supported by global standards of excellence.

But empowerment at Unique Welding goes beyond compliance metrics. It is woven into the company culture through staff development, supplier partnerships, and community engagement projects aimed at uplifting the next generation of artisans and engineers. By aligning commercial growth with social impact, Unique Welding ensures that progress is not only profitable but purposeful.

Serving South African industry

South Africa's industrial landscape is vast and diverse, encompassing a wide range of activities, from energy and chemical production to transportation, food processing, and heavy construction. Meeting such a spectrum of needs requires flexibility and foresight, qualities that have become central to Unique Welding's success.

In the energy and chemical sectors, the company's focus on safety and precision has made it a preferred supplier for projects where compliance and reliability are critical. In the food and beverage industry, where hygiene and process integrity are paramount, Unique Welding's solutions support efficient, contamination-free operations.

For construction and manufacturing, the emphasis shifts to durability and throughput. Here, Thermamax machines deliver the power and endurance needed to sustain large-scale production while keeping costs manageable. And in mining, one of South Africa's most demanding environments, the company's customised systems

withstand extreme conditions while boosting productivity and safety.

This cross-sector agility, combined with dependable after-sales support, has helped Unique Welding earn the trust of leading enterprises across the country.

The road ahead

Unique Welding's story is one of continual reinvention. From its modest origins to its current national leadership, the company has never lost sight of its founding principles: quality, service, and innovation. Each expansion, every new branch, and every partnership has been guided by a commitment to deliver better solutions and foster lasting relationships.

As the industrial world transitions toward greater automation, digitisation and environmental responsibility, Unique Welding is already exploring the next generation of welding and gas technologies. Its focus on efficiency, energy savings and digital monitoring reflects a forward-looking approach that positions the company to lead South Africa and Africa into a more sustainable industrial era.

At every stage of its journey, Unique Welding has proven that success is not just about selling products, it's about creating value, empowering people and driving progress. Its unwavering dedication to innovation and service continues to inspire confidence among customers, employees, and partners alike.

As the company looks toward the future, one truth remains clear: Unique Welding is not only shaping the present of South Africa's welding and gas industry, it is defining its future. Through its expanding network, advanced technologies, ISO-certified quality systems, and steadfast commitment to excellence, the company stands poised to continue revolutionising the way industries across Africa connect, build and grow.

<https://uniquewelding.co.za>

Cosmo delivers fibre laser cutting solution

African Fusion talks to Petrus Pretorius, General Manager of the Cosmo Group, and Johan Griesel, General Manager of Pretoria-based steel construction specialist, Jubilee Suppliers, about the state-of-the-art 6.0 kW Jinan Acme/Max Photonics fibre-laser cutting system recently installed in Jubilee's Pretoria workshop.

Founded in 2021, Jubilee Suppliers is a manufacturer and construction specialist in structural steel installations in South Africa and across Africa. "I completed my apprenticeship as a fitter and turner in the mining industry, but mining wasn't for me, so I joined my father in his construction company," Johan Griesel tells *AF*.

"I grew up on a farm, though, where I developed a love for working with steel, cutting and welding to make all kinds of structures for the farm. In 2001, my wife and I opened a new steel construction and contracting company, which we ran until 2021 when we stepped up again to form Jubilee Suppliers to be able to broaden the variety of products and services we could offer," he adds.

Laser cutting at Jubilee

From a fabrication perspective, Jubilee receives structural steel detailing, typically as DWG CAD files, which are then used to cut and fabricate the components needed for onsite construction. Accuracy is imperative to ensure on-site construction proceeds without delay. "We strive to ensure that the steelwork we manufacture can be assembled onsite like a Meccano set. Whether

bolted or welded, every individual piece of the final construction must be joined securely to the surrounding pieces," notes Griesel, adding that the starting point for achieving this is precision CNC laser cutting.

On the laser, Jubilee typically cuts base and connection plates, brackets and flange cleats, which are then welded onto cut-to-length steel channel sections. The completed component set is then shipped to the site for the erection of the steel structure.

"In one section of our factory, we also manufacture, under licence, a patented grid for storm water drainage. The ones currently being manufactured are destined for use on the runways at Dar es Salaam Airport. The bars are precision-cut with slots, assembled into a grid, and then welded at the end of each bar to secure the grid structure.

"We then fasten these grids into a cast frame using snap-off bolts – to prevent theft once they are installed – before sending them to be galvanised. The result is a very strong grid structure capable of carrying a significant load (up to 1 000 kN), including a Boeing jet passing over them on take-off and landing.

"These grids are very intricate structures

that we could not manufacture without the accuracy of our laser cutters," Griesel points out.

The 6.0 kW Jinan Acme CNC cutting system

The new laser recently acquired from Cosmo Group is a 6.0 kW Acme laser with a Max Photonics fibre-laser cutting head.

The fully closed unit, featuring a 3.0×1.5 m double exchange table, boasts a heavy-duty, stable structure for accurate performance and a design life of over 100 000 hours. A high-strength cast aluminium gantry with a double-drive structure carries the laser welding head, enabling high cutting speeds.

Most notable about this system is its double-exchange worktable, featuring a fully enclosed laser-cutting area. This enables the machine to be safely unloaded and reloaded while the previously loaded plate is being cut. Once a cutting cycle is complete, the worktables are exchanged again, minimising delay between cycles.

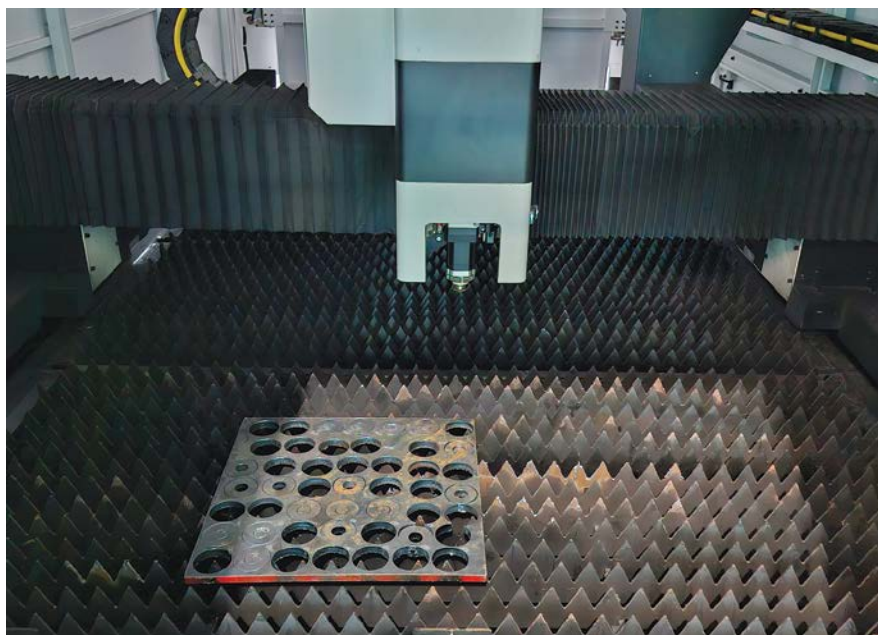
A CypCut/Beckhoff CNC cutting control system supports flexible production and easy operation, while imported high-precision transmissions and servo systems ensure precise cutting and efficiency. The machine's enclosures and safety guards all meet CE safety standards, ensuring operator protection at all times.

Key features included in the Jinan Acme fibre laser CNC cutting systems range include:

- **Double exchange tables:** Two automated work platforms enable alternate operation. While one table is cutting, the operator can load or unload material on the other, providing a continuous workflow and eliminating the downtime traditionally associated with material handling.
- **High efficiency and speed:** With the dual-table setup, Acme's machines can boost production efficiency by up to 40%, with table exchange typically tak-



Jubilee Suppliers' new 6.0 kW Jinan Acme CNC cutting system, recently acquired from Cosmo Group, features a Max Photonics fibre-laser cutting head, a 3.0×1.5 m double-exchange worktable, and a fully enclosed laser-cutting area.



When using oxygen, the 6.0 kW Max Photonics fibre-laser cutting system can deliver a 24 mm cut with exceptional cut quality.

- ing between 15 and 25 seconds.
- **High-power fibre laser sources:** Jinan Acme uses reputable fibre laser sources from brands such as IPG, Raycus and MAX Photonics, with power options ranging from 1.0 kW to 30 kW. This allows for faster cutting speeds and lower operating costs compared to traditional CO₂ lasers.
- **Material versatility:** The systems can cut a wide range of sheet materials, including carbon steel, stainless steel, aluminium, copper and galvanised steel, in various thicknesses.
- **High accuracy and repeatability:** Precision engineering and a sturdy, anti-deformation machine body ensure a high degree of accuracy. The system typically offers positioning accuracy of 0.03 mm and repeatability of 0.02 mm.
- **Full protective cover:** Many Acme systems include a fully enclosed cover that meets safety standards such as CE and FDA. This protects operators from laser radiation, cutting debris and noise.
- **Automated operations:** The machines have advanced CNC control systems that are easy to operate and reduce the need for manual intervention. They can also feature automatic focus adjustment on the cutting head, which optimises cutting conditions for different material thicknesses.
- **Automatic nesting software:** Integrated software optimises the cutting path and layout of parts on a sheet to maximise material utilisation and minimise waste.
- **Safety interlocks and fume extraction:** An enclosed cutting area, along

with automatic fume extraction, emergency stop functions and safety interlocks, guarantees a safer working environment.

- **Heavy-duty welded frame:** The machine body is constructed from high-quality, whole steel plates that are welded and then heat-treated to ensure exceptional stability and resistance to deformation over a long service life.
- **High-precision transmission:** Quality components from international brands such as Yaskawa and Panasonic servo motors and Taiwan-manufactured guide rails, gears and racks ensure smooth, reliable and precise movement.
- **High-quality cutting head:** The systems use auto-focusing laser cutting heads from brands such as Raytools and Precitec, which feature a double-layered, contamination-proof design to protect the lens.

“From our new 6.0 kW Acme laser cutter, we can achieve a high-quality cut in a carbon steel sheet up to 10 mm thick using compressed air as the assist gas. And when using oxygen instead, we can go up to 24 mm while still achieving exceptional cut quality. We tend not to push our machines to their maximum, though, so this machine will be used for cutting material between 16 and 20 mm thick,” says Johan Griesel.

The first set of components to be cut on the machine? “We are building a luxury lodge in the Kruger Park at the moment, and we will be cutting the base plates, cleats and other components starting from next week. We expect it will take five or six sheets of 16 mm plate for all the components we need,” he adds.



Jubilee Suppliers manufactures, under licence, a patented grid for storm water drainage. The bars are precision-cut with slots, assembled into a grid, and then welded at the end of each bar to secure the grid structure.

The future of laser cutting

Petrus Pretorius says Cosmo Group is seeing strong demand for laser-cutting and welding equipment in South Africa. “We have ordered three more of these Acme fibre laser cutting systems for our new showroom, which we will open next year, so that customers can come in and see what we can do for them.

The one that Johan bought was actually supposed to be one of these, but he bought it before it reached our warehouse,” he says, adding that, at the time of writing, the other two were due to arrive in the next week or so.

“The intention is to showcase the 3.0 kW and the 6.0 kW versions, each with a 3×1.5 m exchange table, and a 3.0 kW CNC laser system with an open 3×1.5 m table, which has a smaller footprint,” says Pretorius.

When asked about the current state of modern CNC fibre-laser technology compared to CNC plasma alternatives, he notes that, cost-wise, laser cutting is now approaching the cost of plasma cutting systems and is, in fact, cheaper for thinner plate sections. “This Acme CNC system can be fitted with a 30 kW fibre laser, which can cut through 80 mm material, which is potentially competitive in terms of costs on thicker sections as well,” he points out.

Handheld laser welding machines are also gaining popularity. “By mid-January, we will receive 10 laser welding machines as well. We can’t get enough of these new handheld machines, which are proving highly effective in modern fabrication shops,” Pretorius concludes.

<https://cosmogroups.co.za>

GSI celebrates 40 years

First Cut's training subsidiary, Gas Safety International (GSI), is proud to celebrate 40 years of pioneering work in compressed gas safety, training and equipment supply. This impressive milestone highlights a legacy of saving lives and shaping safety culture in the mining and industrial sectors.

Founded in 1985, GSI was established to provide gas safety training, technology, and equipment. In September 1986, one of the worst South African industrial incidents occurred while using oxy-acetylene equipment, which tragically claimed 178 lives. This shocking incident served as a wake-up call for the mining sector, spurring national awareness of the need for higher gas safety standards.

"Looking back, it has been an amazing rollercoaster of experiences. The most rewarding part has been seeing the impact of training and education on safety incident reduction," says Peter Rohlssen, Managing Director of GSI. "If we have prevented just one incident and saved one life, then it has all been worth it."

Over the past four decades, GSI has become synonymous with compressed gas safety, creating awareness where previously little existed. Its training course remains the only one accredited by the Engineering Council of South Africa (ECSA). It has evolved from a single-day programme into a comprehensive five-day course, delivered in English, Afrikaans and several African languages.

"Awareness is the key," says Rohlssen. "If companies do not know the risks, then there is no awareness of a gap or short-

coming in terms of their safety procedures and culture. However, once they see the dangers, they understand the importance of addressing them. GSI has played a pivotal role in filling that safety gap through comprehensive compressed gas safety education and equipment solutions."

GSI's reputation has also grown internationally, with Rohlssen being invited to speak at numerous global safety symposia, some of which followed major mining incidents abroad. These experiences reinforced his commitment to knowledge sharing and challenging unsafe compressed procedures and practices in the industry.

In 2021, GSI was acquired by First Cut, bringing together nearly 110 years of combined expertise. For First Cut, the acquisition was a natural extension of its mission to deliver complete cutting, welding and grinding solutions with safety at the core.

"When we first encountered GSI, it quickly became clear that their specialised knowledge in compressed gas safety complemented our product range, spread across our broad national distribution network," says Ian McCrystal, CEO of First Cut. "The synergy with GSI was therefore not only logical, but also essential to ensure that we differentiated ourselves in the market based on safety. We work extensively in the mining, manufacturing and fabrication sectors, where safety is essential—particularly when cutting, welding and grinding. Together, First Cut and GSI can now deliver a stronger, more comprehensive offering to



Ian McCrystal, CEO of First Cut, and Peter Rohlssen, MD of GSI.

our mutual customers."

Although integrating cultures takes time, both Rohlssen and McCrystal believe that the relationship is beginning to bear fruit. "We are starting to see our sales teams dovetail, with the benefits of this partnership becoming clear, particularly in the mining and manufacturing industries," says McCrystal.

Far from slowing down at 40, GSI continues to innovate, with incremental improvements to the patent-pending S.A.T. (Safety Advanced Technology) valve system, developed by GSI in collaboration with Messer Cutting Systems globally. The S.A.T. system was designed to dramatically reduce the safety risks associated with the use of compressed gas. This innovation underscores GSI's commitment to continual improvement, building on decades of incremental enhancements in both compressed gas safety training and product design.

"Turning 40 does not mean complacency," says Rohlssen. "On the contrary, our recent innovations show that GSI is as dynamic as ever. The legacy we are building is one of discipline, structure, and adherence to international safety standards. My plea to industry is simple: be proactive in preventing safety incidents - rather than reactive after they occur."

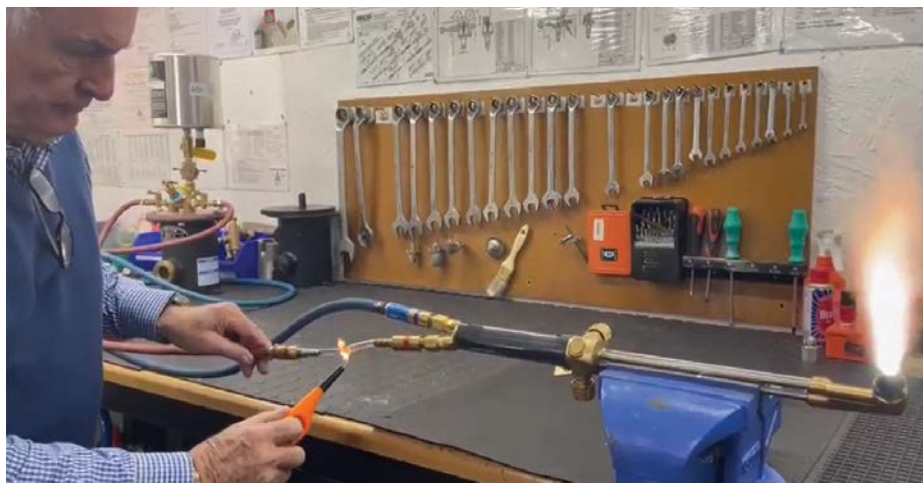
Looking ahead, First Cut and GSI together see opportunities to expand their compressed gas safety solutions into new sectors locally and internationally. Successful international projects in India and Europe already demonstrate the export potential of GSI's compressed gas safety technology and training.

"Going forward, compressed gas safety will remain a serious topic and a vital operational requirement," adds Rohlssen. Our role is to keep compressed gas safety top of mind at all times, across all industries," he concludes.

<https://gas-safety.co.za>



Scan the QR code or click on the thumbnail image here to see a video of how GSI's SAT system shuts off the gas in the event of an acetylene hose failure.



Kriel and Majuba teams hit 1 million RCR-free hours

Steinmüller Africa has set a new benchmark in operational excellence, with its site teams at the Kriel and Majuba power stations each exceeding 1 000 000 recordable case-rate-free (RCR-free) hours, which are operating periods without a single recordable injury or illness requiring medical treatment beyond first aid. This accomplishment, which establishes a new standard in industrial safety performance, was reached via two distinct paths: a rapid eight-month campaign at Kriel involving 950 personnel during critical outages, and a sustained three-year cultural initiative at Majuba.

The results provide compelling proof that rigorous safety systems are a direct enabler of quality, efficiency and reliable project delivery. Achieved between 11 August 2024 and 30 April 2025, the milestone occurred while the team was executing complex work during critical planned outages. This high-velocity performance was engineered through a non-negotiable framework of daily controls, including rigorous toolbox talks, continuous risk assessments, dual Eskom and SMA permit-to-work systems, and visible leadership walkabouts.

Targeted technologies, such as drone

inspections to identify maintenance leaks, were strategically deployed to minimise human exposure in high-risk zones. To mark the achievement, team members were awarded commemorative milestone jackets, reinforcing the value placed on their collective discipline.

The Majuba achievement showcases the power of long-term cultural discipline. Over the course of three years, the team forged its million-hour record not with temporary measures, but with a deeply embedded philosophy of shared accountability. This commitment permeated every level of the operation, from site management and planning to skilled and unskilled trades. The team's operating rhythm was defined by empowered hazard reporting, continuous skills refreshers, and a core principle of keeping safety procedures 'live, not laminated'. With milestone jackets now awarded, the team has already set its next target: 2 000 000 RCR-free hours.

These results showcase two paths to operational certainty," said Rudolph Botha, Group Manager: HSE, Steinmüller Africa. "Kriel demonstrates high-tempo execution under pressure, while Majuba proves the



The foundation of zero harm: a daily safety briefing for the Kriel team, whose rigorous controls delivered one million hours without a recordable injury.

power of a three-year cultural marathon. Both confirm that zero harm and quality delivery are the same discipline, earned through thousands of correct decisions on the ground."

A client representative added, "A million incident-free hours isn't just a safety metric; it's a performance advantage that translates directly into reliability and quality."

The focus now shifts to the future. Majuba is targeting its next milestone, while Kriel is focused on sustaining high-performance momentum. With these twin achievements, Steinmüller Africa has demonstrated what is possible. The focus now is to make this exceptional standard of zero-harm performance the repeatable expectation on every project, every day.

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YASKAWA SA and IMS-SA launch Megmeet laser welding cell

Yaskawa Southern Africa has partnered with Industrial Manufacturing Systems South Africa (IMS-SA) to introduce the Megmeet laser welding cell. This groundbreaking solution combines precision robotics with cutting-edge laser technology.



Devon Prinsloo, Project Manager at Yaskawa Southern Africa.



Hannes Crouse, Director of IMS-SA.

Marking a first for the local market, Yaskawa SA, in partnership with IMS-SA, has installed a fully integrated Megmeet robotic laser welding system, which allows all welding parameters to be controlled directly from the robot teach pendant, streamlining production and setting a new standard for automation in South Africa.

"The Megmeet laser welding cell represents a major step forward for local manufacturing," says Devon Prinsloo, National Project Manager at Yaskawa Southern Africa. "It's one of the first solutions in its price range to offer full integration with the robot control system, meaning welding parameters can be adjusted on the fly. This allows South African manufacturers to access world-class technology at a cost-effective scale, helping them remain competitive both locally and globally."

A key differentiator is accessibility. Traditional robotic laser welding systems can cost tens of millions of rands, making them unaffordable for most businesses. The Megmeet laser welding cell, in con-

trast, delivers advanced capabilities at a significantly more accessible investment level, opening the door for medium-sized manufacturers to adopt automation once considered out of reach.

The collaboration leverages Yaskawa's expertise in robotic automation and motion control alongside IMS-SA's role as a specialist integrator and supplier of Megmeet's laser technology. IMS-SA also supplies safety enclosures and application engineering, with both companies providing ongoing technical support to ensure the system remains internationally competitive.

"IMS-SA exists to give manufacturers reliable, locally supported automation systems that improve productivity and ensure repeatable quality," explained Hannes Crouse, Director of IMS-SA. "By combining Megmeet's proven laser technology with Yaskawa's precision robotics, we are providing a seamlessly integrated solution with ongoing local support and training. That's what makes this partnership so valuable."

The Megmeet laser welding cell is particularly suited to industries reliant on thin-sheet fabrication, including automotive, appliance manufacturing, aerospace, rail and general sheet metal production. Beyond major sectors, it can also be applied to products such as electrical enclosures, elevator components, signage and stainless steel kitchen equipment. From aluminium battery enclosures to stainless steel panels, the system ensures defect-free welds that meet both structural and aesthetic requirements.

Key differentiators for the laser welding system include:

- Deep penetration laser welding with minimal heat distortion.
- Adaptive vision systems for real-time responsiveness.
- Compact, modular design for quick deployment and integration.
- Industry 4.0 readiness with diagnostics and data integration.
- Customisable options from 1.5 kW to 3.0 kW, with single or dual wire, with

advanced versions also featuring integrated cameras for weld monitoring.

By reducing reliance on scarce welding talent, improving throughput and lowering per-unit welding costs, the solution addresses many of the challenges facing South African manufacturers today. The enclosed design adds safety, further enhancing its appeal for modern production environments.

Notably, the partnership also addresses concerns often raised around automation and job displacement. Rather than reducing opportunities for human workers, the Megmeet laser welding cell creates new pathways for upskilling and career growth. Operators and technicians are trained to work alongside robotic systems, while higher production volumes generate demand for additional roles upstream and downstream in the production pipeline.

"While some may see robotics as a threat to jobs, the reality is quite the opposite," adds Crouse. "Higher throughput means more work on both the start and finish lines of production. Coupled with the need for skilled operators, the technology creates a healthier, more sustainable employment landscape."

"This partnership is about building a smarter, more competitive manufacturing base in South Africa," concludes Prinsloo. "We invite customers to test the system on their own products and experience firsthand the productivity and quality gains it can deliver."

Yaskawa is a global leader in robotic automation and motion control technology, providing advanced solutions that drive efficiency, precision and innovation in manufacturing. With a strong presence in Southern Africa, Yaskawa supports industries across automotive, packaging, welding and beyond.

As a supplier of Megmeet welding technologies and an integration partner to Yaskawa, IMS-SA helps South African manufacturers adopt globally competitive technologies tailored to their unique challenges.

www.yaskawa.za.com



The Megmeet laser welding cell is particularly suited for industries that rely on thin-sheet fabrication, including automotive, appliance manufacturing, aerospace, rail, and general sheet metal production.



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