

# Sanipipe's UHP orbital welding capability

Sanipipe Engineering Services has established a new orbital welding capability for the delivery of food grade and ultra-high purity (UHP) welding pipework for the food, beverage, HVAC and pharmaceutical industries. *African Fusion* talks to MD, Donald Johnson; QA manager Andre Hodnett; and health and safety and orbital welding coordinator, Ian Munazvo.

Sanipipe Engineering Services was formed in 2005 when its current MD, Donald Johnson, who was working with a project house as a qualified boiler-maker at the time, was prompted by some colleagues to establish his own company. "With the support of those I already knew, I started a small fabrication company offering high-end TIG welding services, mostly for food and beverage and HVAC projects, but also for the steam boiler sector," Johnson tells *African Fusion*.

"We are contractors to consultants such as High Calibre Engineering, Project Assignment, AECI Water, Appletizer (Coca-Cola), BBI Solutions, PepsiCo Simba, PepsiCo Ceres Fruit Juices and Aspen Pharmacare. We get design drawings and isometrics from them, and we fabricate exactly according to their technical specifications," he adds.

In a drive to deliver better weld quality, the company was certified to ISO 9001 2015 in 2016, and just before Covid hit in 2020, Sanipipe was awarded ISO 3834-2 certification by the SAIW. The move to adopt orbital welding technology into the company's offering began with enquires from the South African pharmaceutical industry. "We could

not reach the purity standards required for pharmaceutical work without orbital welding so, following some good advice from Polysoude, we took the plunge. We now have two Polysoude orbital welding systems with all the orbital heads we need to accommodate pipe diameters from 10 mm to 104 mm," Johnson tells *African Fusion*.

From the outset, Sanipipe has focused on the specific pipe welding needs required for sanitary applications, ie, those for the food, beverage, pharmaceutical, oil & gas and similar industries. As well as ensuring that the pipe welds are flaw-free and mechanically sound, sanitary welds must also be very smooth, uncontaminated and easily cleanable to maintain the required standards of hygiene. Stainless steel tubing is usually used as a food-safe contact material but, to remove any chance of contamination inside of these tubes, the surface finish must be free of any discontinuities that could become sites for microbial growth.

In addition, to maintain a smooth and corrosion-free surface in the inside of the welded pipes and tubes, oxidation must be avoided. During welding, therefore, the weld seams must be back purged to



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exclude oxygen, using an inert gas such as argon.

"Our orbital welding, together with back purging, enables us to meet these requirements at the highest levels," continues Johnson. "For most food & beverage applications, 304L and 316L stainless tube is acceptable, but for the pharmaceutical industry, we use UHP-grade Dockweiler tubing, which comes with an electro-polished surface finish of the highest quality," he says, adding that this gives Sanipipe the ultra-high purity (UHP) welded tubing compatibility needed to service the pharmaceutical and medical industry at the highest quality levels.

"We can accommodate wall thicknesses of between 1.2 and 3.0 mm, typically ASTM Schedule 5 or 10, and we can produce an orbital TIG weld in a single pass without the need for filler material," continues Sanipipe's orbital welding coordinator, Ian



A UHP fabrication for Coca-Cola being completed at Sanipipe's Cape Town facility.

Munazvo. "The welding heads enable us to get a near perfect fit up with no gap, and our procedures enable us to slope in and out so as to avoid stop-start imperfections."

To purge the oxygen from the inside of the pipe and to ensure adequate purge purity levels while welding, Sanipipe is using a system recommended by Polysoude. "We use a TECPEN MAP oxygen analyser to ensure that all the oxygen has been removed from inside the pipe before starting to weld, which gives us precise oxygen measurements. We typically need to have less than 20 ppm of oxygen in the purge gas but for some of the critical pharmaceuti-



Borescope inspection is regularly used to determine the finished quality of the inside surfaces of tubes and pipes.



Carbon filters for AECI water at CERES Fruit Juices.

cal applications, this can be as low as 5.0 ppm," says Munazvo, adding that welding and purging at this level is done according to the requirement of the ASME, Bioprocessing Equipment (BPE) code.

Sanipipe can also offer pipe and tube system cleaning services for any newly installed or repaired circuit. "We offer three stages of cleaning, including degreasing, pickling and passivation. These would all be completed one after the other, and we can do this at our Cape Town facility or onsite anywhere in South Africa," he adds.

## The advantages of ISO 3834 certification

In the past, International Standards did not play a big part in South Africa's fabrication industry, so when things went wrong, there was very little traceability, says QA manager, Andre Hodnett. That has all changed, though, particularly where higher quality work is required.

"ISO 3834 certification is now a must for contractors wishing to do work in our field. It assures clients that when a fabrication is completed by an ISO 3834 approved

company, it has been done properly at every step of the process, and the finished product meets all the requirements. And a full set of documentation is available to prove this," he says.

"In the event of problems occurring in service, the documents can be used to trace what or who is responsible, for insurance companies or the Department of Labour, for example," Hodnett says, adding that ISO 3834-2 is like a guarantee that welding work is being done to the highest quality standards.

"Our procedures, qualifications, certifications and the specialist focus we have on sanitary welding put us one step above our competitors. Now with the new orbital welding capability to meet UHP sanitary standards, we do not believe anyone can touch us," concludes Donald Johnson.

<https://sanipipe.co.za>



The Sanipipe team, from left: Trevor Cekiso, procurement; Ian Munazvo, HSE and Orbital Welding Co-Ordinator; Jacqueline Schippers, office administrator; Phillip Mushonga, projects manager; Gino Cooper, maintenance manager; Andre Hodnett, quality manager; and Donald Johnson, managing director.