

# Starweld answers the call

Steve Hutchinson of Starweld outlines the history of the locally designed and manufactured Starweld brand of micro-processor driven inverter-based welding machines, which have gained a reputation for meeting the performance and reliability requirements of local fabricators. Most notably, they have recently won favour with the South African Railway industry.

**D**rawing on experience gained in the late 1990s and early 2000s, Starweld has steadily grown from a small two-man, start-up operation, that began in 2011 into a company that supplies welding equipment into a variety of key welding market segments.

“Starweld’s microprocessor driven technology, combined with robust, 100% duty-cycle designs, provides the welding market with a wide range of locally manufactured welding machine options that deliver optimal performance in our arduous African conditions,” begins Steve Hutchinson.

## The stainless steel industry

Starweld began its local welding machine manufacturing with the advent of a dedicated dc high-frequency start TIG welding inverter, which offered a built-in pulsed-TIG menu for the South African Stainless Steel Welding Industry. The initial order came from DB Thermal, the renowned provider of component solutions to the South African power, oil and gas industries. Manufacturing of these Starweld power sources took place in a small 200 m<sup>2</sup> mini factory in Boksburg.

The resulting Starweld multi-process



The Starweld digitally controlled Deca Feeder Series, was also introduced for use where precise welding parameters needed to be recorded.



The Starweld CC/CV Quatro power sources delivered to Transnet. These machines are tunnel cooled to prevent contaminated cooling air passing over electrical and other components in the machine.

water cooled AlphaTig 450 amp welder has a high duty cycle. The Starweld Aqua Cooler attaches to the base of any of the Starweld CC/CV machines in the range, creating a single unit that is then mounted onto an undercarriage. The added advantage is that the cooler is powered off the welding machine power source, instead of having to be externally powered from a 220 V auxiliary supply.

The inclusion of an in-line water flow transducer is an industry first for precise electronic monitoring of water flow. The microprocessor in the Aqua Cooler then communicates, via the digital display on the power source, any warnings regarding interruptions to water flow.

## The underground mining industry

Soon after, Starweld developed the ergonomically designed Icon Series of 200, 300 and 400 A dc MMA/stick welding machines for the underground mining industry.

The requirement was for the machines to have a 380 and 525 V input voltage selector switch. This could, however, have been dangerously problematic if the machine was switched to 380 V when plugged into a 525 V supply. It was at this point that Starweld developed a unique AUTO SELECT option, which enables the machine to automatically accept either a 380 or 525 V input supply without the need for a selector switch.

All Starweld machines have a closed-

loop current monitoring feature that ensures the output current settings are maintained by continually monitoring the input power supply and automatically adjusting the output current to compensate for mains fluctuations. “Mining companies in Southern Africa insist that all welding machines that are brought onsite be fitted with a voltage reduction (VDR) system, a low open circuit voltage safety device that removes the risks of electric shock when operators are welding in moist conditions. These devices are often external devices that are retrofitted to the machine. Unfortunately, they can be tampered with and disconnected,” explains Hutchinson.

“All Starweld machines have a built-in, fail-safe, tamper-proof, electronically controlled, VOLT LOC voltage reduction safety system that is installed at no additional cost. The system’s activation is confirmed by the letters ‘LOC’ flashing on the digital display before and after welding.

## The yellow metal industry

Requests were then made for Starweld to develop machines for the Earth Moving sector/yellow metal industry. This market involves manufacturing and repair of excavator buckets, dump trucks bins, undercarriages and tracks used in earth moving and open cast mining machines. The requirement was for heavy duty MIG welding, arc air gouging and submerged arc welding machines.

Two large international welding machine manufacturers had historically controlled the supply of equipment into this market segment, but due to the weakening Rand against the Dollar, prices had escalat-

ed significantly. Due to the excessive cost, spare parts were only being imported when clients ordered them. This meant lengthy time delays, and extended down-times for the customers waiting for their machines to be returned to service.

A larger South African mining equipment hire company, Sandton Plant, was among the first companies to test the Starweld Orion 600 MIG and gouging machine in its Midrand workshops. Apart from the affordable purchase price of the Orion 600, Sandton Plant discovered significant electricity usage savings compared to the more-expensive imported transformer-based welding machines. Spare parts were also readily available, at greatly reduced prices. Sandton Plant recently ordered its sixteenth Orion 600 welding package.

## Success at Transnet

In 2023, Starweld met with Craig Ruthnam. Through his company, Amber Skies in KwaZulu-Natal, Ruthnam has built up extensive experience in dealing with the South African Rail Industry. This made him the ideal partner to introduce Starweld products into Transnet facilities across South Africa.

Early in July 2023, a variety of welding trials were carried out, in various workshops, at Transnet’s Bayhead facility in Durban. These trials were initially begun using the Starweld Quatro MIG welding machines.

Craig Ruthnam points out that, as with all Starweld CC/CV machines, the Quatro power source is tunnel cooled, protecting critical electronic components from becoming damaged from contaminated cooling air. A further advantage of the Starweld CC/CV machines is that they have no mechanical electrical contactors and selector switches. This eliminates issues associated with parts that wear out over time. The problem is accelerated in machines where contaminated cooling air passes over electrical and other components in the machine.

The Transnet trials then extended to the Starweld AlfaTig range. These machines have all the features of the Quatro range, with the added advantages of a high frequency (HF) start function, and a built-in Pulsed TIG welding option, similar to the machine developed for DB Thermal in 2011.

The Starweld digitally controlled Deca Feeder Series was also introduced for use where precise welding parameters needed to be recorded. Wire speed and amperage is digitally set, and wire usage per metre is recorded. Pre- and post gas flow are



The Starweld 1 000 A INFINITY submerged arc welder developed for the yellow metal industry.

manually controlled on the front panel of the feeder and the standard 4-wheel drive feeder has gas flow parameters pre-set on the PC board.

A variety of Starweld MIG welding guns were also tested, including both 5 m air and water cooled guns. The Starweld 10 m push/pull torch was supplied to welders operating inside the rail cars, where the welders required greater freedom of movement. An added benefit is the wire speed, which can be controlled from the gun handle,” Hutchinson tells African Fusion.

The trials proved to be extremely successful and on 26th July 2023 the first Starweld welding machines were delivered to the Bayhead workshops. By the end of October 2023, a total of 83 Starweld machines were operating in various workshops throughout the Durban facility.

Being passionately loyal South Africans, Hutchinson and business partner Robert Case, believe that the most satisfying aspect of the growth of the Starweld brand is that South Africans are once again placing their belief in home-grown South African technologies.

“Not only are Starweld welding machines competing favourably with welding machines manufactured across the world, but employment and growth opportunities are being created for previously disadvantaged South Africans,” he says.

“Ubuntu! I am because we are!” Hutchinson concludes.

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