Taking on the world with its innovative welding technology

World-wide distributors and ongoing global deals for K-TIG's automated welding systems, as well as a severe shortage of welders across the globe, is helping the Adelaide high tech welding manufacturer succeed on all fronts. By Carole Goldsmith.

ASX-listed, Adelaide high-tech welding manufacturer K-TIG, is accelerating its global expansion, exporting its state-of-the-art welding technology system world-wide, with distributors across 20 countries. Among these are the USA, the UK, Korea, Malaysia New Zealand, Singapore, India, Belgium, Norway and France.

K-TIG is the developer and manufacturer of a patented, high productivity welding technology known as Keyhole TIG. This February, it landed new distribution deals in Europe with Turkey's pipeline equipment supplier BMC Marine Muhendislik Limited and with Spanish/Portuguese manufacturer MetaWelding. K-TIG's latest Asian distributor is Jacom Vietnam Ltd, which has clients in key industries suited to K-TIG's capability across oil and gas, aviation, ship building and steel fabrication sectors.

The company's three new distributor appointments across Europe and Asia reflect a push to expand third party sales channels to complement the hi-tech welder's direct sales force. A key focus of this strategy is the appointment of welding integration distributors who represent proficient fabrication technologies and services. K-TIG's Managing Director, Adrian Smith says specialist automation integrators are essential in incorporating K-TIG's unique technology into a turnkey welding solution across industries: "Our newly formed distributorships with these three companies present an exciting opportunity for us to continue to grow sales around the world."

There is a severe shortage of trained welders in Australia and globally, primarily due to COVID lockdowns and reduced welding training opportunities, advises Smith: "This is leading to a world-wide trend of manufacturers investing in high-tech welding automation, as they can't get the required trained welding workforce."

Fortune Business Insights, August 2021, Welding market share and COVID impact analysis, 2021-2028 forecast, re-enforces Smith's comments. It reports that the global welding workforce shortage is a major factor behind the high adoption of robotic welding across major industries. The global welding market is projected to grow from $20.99bn in 2021 to $28.66bn in 2028 at a Compound Annual Growth Rate (CAGR) of 4.6% in forecast period, 2021-2028.

The latest welding workforce data enforced by the American Welding Society reveals that 314,000 new welding professionals are projected to be required in the US alone by 2024, with 78.500 on average, welding jobs to be filled annually in the US, from 2021 to 2024.

K-TIG is expanding rapidly in the US market with automated welding solutions to alleviate this welding professional's shortage. Last November K-TIG announced a Tier One distributorship with US Precision Welding Automation Systems company MITUSA, to supply integrated K-TIG products across the USA and into Mexico. Smith says specialist automation integrators were essential in incorporating K-TIG's unique technology into a turnkey welding automation solution across many industries. "Our newly formed distributorship with MITUSA is an exciting growth opportunity enabling us to increase sales across the United States and extend into Mexico. MITUSA is a highly regarded welding automation company specialising in automated can seamers, offering both technical and logistical expertise for customers in North America," Smith says.

K-TIG – Innovative welding

K-TIG is establishing an R&D facility within Adelaide's Factory of the Future

The company is expanding its Adelaide operations, announcing this February that K-TIG will build an R&D facility within BAE Systems Australia's Factory of the Future, where it will demonstrate and further evolve the application of its robotic welding capabilities.

"The aim of having the R&D facility within the Factory of the Future at the Tonsley Innovation District, was to prove that K-TIG's technology can not only expand Australia's shipbuilding capability but it has vast industrial applications," says Smith. "The Factory of the Future is under

development by BAE Systems and Flinders University and will connect businesses and sectors, which are of growing importance to the national economy."

When asked what the K-TIG system is, Smith explains: "Our Keyhole TIG technology which is also a type of Gas Tungsten Arc Welding (GTAW), consists of a welding torch with power supply and water-cooling system combined with our electronic controller that connects with various forms of automation."

"Our system welds thicker materials faster and at a higher quality than other welding methods. This technological edge results in dramatic productivity increases and can give our customers a distinct advantage over their competitors."

K-TIG technology reduces multi-hour conventional TIG welds to just minutes, while providing the sort after cleanliness of TIG/GTAW. It finishes to a quality standard, which meets the most demanding requirements of the nuclear, aerospace and defence industries, advises Smith. In addition to the speed advantages over TIG/GTAW, the K-TIG technology reduces power and gas consumption by up to 95% and dramatically reduces labour costs.

"The K-TIG system sells for around $100,000, which includes commissioning it, building it into a client's automation system and training employees on its use," advises Smith. "It can be integrated with most types of welding automation components, including positioners, rotators, headstock, tail stock, turning rolls, column & boom manipulators, longitudinal steamers, buggies, carriages and robots."

The welding torch and system was six years in development before its first commercial sale, advises Smith. It was invented by CSIRO scientists as a novel welding form in 2009. After being granted the intellectual property (IP) for the invention in 2010, the scientists worked on its commercialisation from 2010 to 2019, winning its first commercial sale to GE Welding in 2015.

With many system sales under its belt by 2019, they sold the business to investors in 2019 and K-TIG Limited was born, after its listing on the ASX in October 2019. The company has been capturing the Australian and global welding automation market ever since. "K-TIG's keyhole welding process is the culmination of 10 years of intense research. This research developed the physics that underpinned the K-TIG process, a high speed, single pass, full penetration welding technology that reduces the need for wire," says Smith.

Trained with Degrees in both Science and Electrical/Electronics Engineering and an MBA, all from Adelaide University, Smith also has an extensive career path in manufacturing senior management and skills training. He came on board at K-TIG, just over two years ago as Executive Director and then as MD since November 2020. The global business employs 28 people including 19 in Adelaide, a team of four in the UK and five in the USA.

Its automated welding system is used across many industries and Smith provides some examples of its diversity: "We're used a lot in the oil and gas industry in the production of the tanks and vessels, pressure vessels and in transport industries for tankers, and welding piping. "Primus Pipe and Tube in Florida use our technology to weld its pipes and tubes. A UK-based company, Darchem uses K-TIG to create nuclear waste containers. When they decommission a nuclear waste site, they put all the waste material into these large containers, which are around three cubic metres in size. Our technology is used in the container's production. "Melbourne-based company Fuelcraft successfully integrated our K-TIG system on a new project with the Australian Government, to supply diesel storage tanks used in Antarctica, given the harsh conditions the vessels would face. Many Australian SMEs can advance their capacity and capabilities by installing our welding system, especially with the shortage of welders in Australia and globally," Smith advises proudly.

Future plans

Expanding its workforce and facilities is on the horizon for K-TIG's future plans with additional employees scheduled for the USA, Europe, Asia and the Middle East. "We can ship our welding systems around the world and these global personnel can provide additional tech support, training and sales at the client's workplace."

On 9 February this year, K-TIG announced to the ASX, that it had signed a formal agreement with the UK Nuclear Advanced Manufacturing Research Centre (Nuclear AMRC) to develop a turnkey robotic welding cell. This may be used for the production of nuclear storage containers, each holding 3 m^3 of intermediate level waste (ILW). Up to 17,000 stainless-steel containers are needed for the decommissioning of the UK Sellafield nuclear site, as part of a GBP £1.5bn procurement plan currently scheduled to commence in FY 2023/24.

K-TIG will maintain all Intellectual Property and commercialisation rights to the robotic welding cell developed, which can be adapted and rolled out across the globe.

"This agreement takes our nuclear strategy from planning to execution. It will provide us with the foundation to enter into a fabrication joint venture or acquire an appropriate business," advises Smith. "We are now moving towards realising long- term revenue from the nuclear sector by offering a world-leading nuclear storage solution and creating value for our shareholders.

"Our collaboration with the Nuclear AMRC is a generational leap in technology for the fabrication industry. The project aims to show the nuclear industry and the wider fabrication sector, the benefits of an Industry 4.0 approach. It will showcase how K-TIG's technology combats the challenges of labour market shortages and volatile metal market prices."

Smith is certainly positive, as K-TIG offers a bright future for its employees, clients, distributors and investors alike. AMT

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K-TIG team: (L to R) Vanessa Mercurio, Adrian Smith, Jayne Osborne, Bill Kelly and Ben Mitchell with K-TIG's advanced welding system and containment vessel made from stainless steel.

Adrian Smith, Managing Director, with K-TIG's advanced welding system