ArcWorld: Yaskawa's quick-start robotic welding solution

National projects manager for Yaskawa Southern Africa, Sean Low, talks about ArcWorld, a Yaskawa robot welding innovation that offers affordable, compact and very simple to install robotic automation.

Yaskawa Southern Africa is in the process of supplying its first three ArcWorld robot welding systems in South Africa. "The first two of these systems have already been delivered, while the third will be arriving in mid-November and the jigs by mid-December. We will then install the jigs into the cell, set up the communications, do some calibration to match the real jig alignment with the virtual models used for path programming and, within days, these systems will be producing parts," says Yaskawa SA's Sean Low.

The systems have been brought in by the Tier 1 automotive manufacturing supplier, AeroKlas Duys, one of the companies in the supplier zone for Ford in Silverton. "AeroKlas Duys first came to us looking for custom-built robot cells, but immediately saw the benefits of our compact and integrated ArcWorld robot welding systems and ordered three of them," adds Low.

These ArcWorld systems will be used to manufacture the rear bumper step assembly for the new Ford Ranger and Amarok. "They have chosen to couple the systems with SKS welding equipment, the European brand that has been Yaskawa's longstanding equipment partner. They will be using SKS's KF pulse GMAW welding process. All the welding procedures have already been developed and the robot programming done offline – before the jigs have even arrived – by working off 3D CAD models of the jigs using Yaskawa's MotoSim offline programming software," he notes.

ArcWorld systems are designed for quick start-up and high productivity at low investment costs. The concept is a completely integrated and compact solution made to be as easy as possible to deploy. "When a system arrives at a customer's workplace, it is designed to be removed from the container and put onto its wheels on the floor. It can then be quickly moved into position, connected to power and fitted with the welding jigs.

The systems come with built-in jacking bolts that enable the whole cell to be firmly supported above its wheels when in use and, if the customer decides to change the assembly flowline for any reason, the jacks can be raised, the power unplugged and the whole system simply wheeled to its new position on the assembly floor.

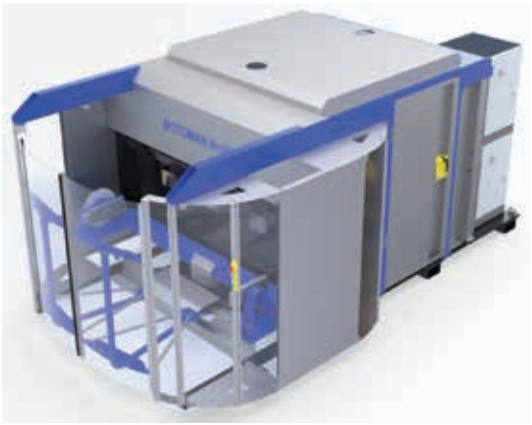
ArcWorld Systems are all built in a common frame with a sheet metal cabin around them. Everything is integrated, interconnected and merged together as a single machine. Systems can have one or two robots, with various positioners such as turntables, head- and tailstocks and a host of others. These are customisable from a catalogue of options to suit the specific fabrication needs, while retaining considerable amounts of flexibility.

ArcWorld's two stations with one robot are ideal for separate work flows, for example, while a model with one station and two robots offers excellent utilisation of floor area – and robot options with 1.4 m or 2.0 m reach are selectable.

The systems being installed at Ford have two robots each and have a total footprint of 2.5 m by 5.0 m. Worktop positioners come in standard configurations with 1.6 m or 2.0 m wide tables and are built to match standard jig mounting configurations.

"While these are used with SKS welding power sources, we can couple ArcWorld robot systems to any welding machine brand, including our own Moto Weld brand. Automotive OEMs often like to retain global consistency, so we are happy to pre-install any brand of equipment into our systems.

"Another big advantage is that, being enclosed cabins built in Europe to EU standards, they come with the required



stringent European safety features, so no additional guards or light curtains are needed to comply with local requirements. All the customer need do is provide a fume extraction point and a power connection and make the shielding gas accessible, which makes installation very rapid and risk free," Low suggests.

"Yaskawa SA has come through challenging COVID times and we are now experiencing a boost in enquiries with a number of new projects going ahead. The pandemic has driven manufacturers to rethink their processes with automation and robotics featuring strongly in reducing health-related risks.

"Coupled to this change, is robot welding training and our training centre is very active. Training for robot operators is essential, so with every one of our systems, we offer a training course to ensure we are growing the skills base of robot operators. The SAIW Robot Welder course is also ongoing to meet the need for operators who can better react to welding related problems.

"By delivering this easy to install, flexible, compact and cost-effective solution, ArcWorld is making it easier than ever to integrate robotics into welding processes," Low concludes. ***arcworld.eu***