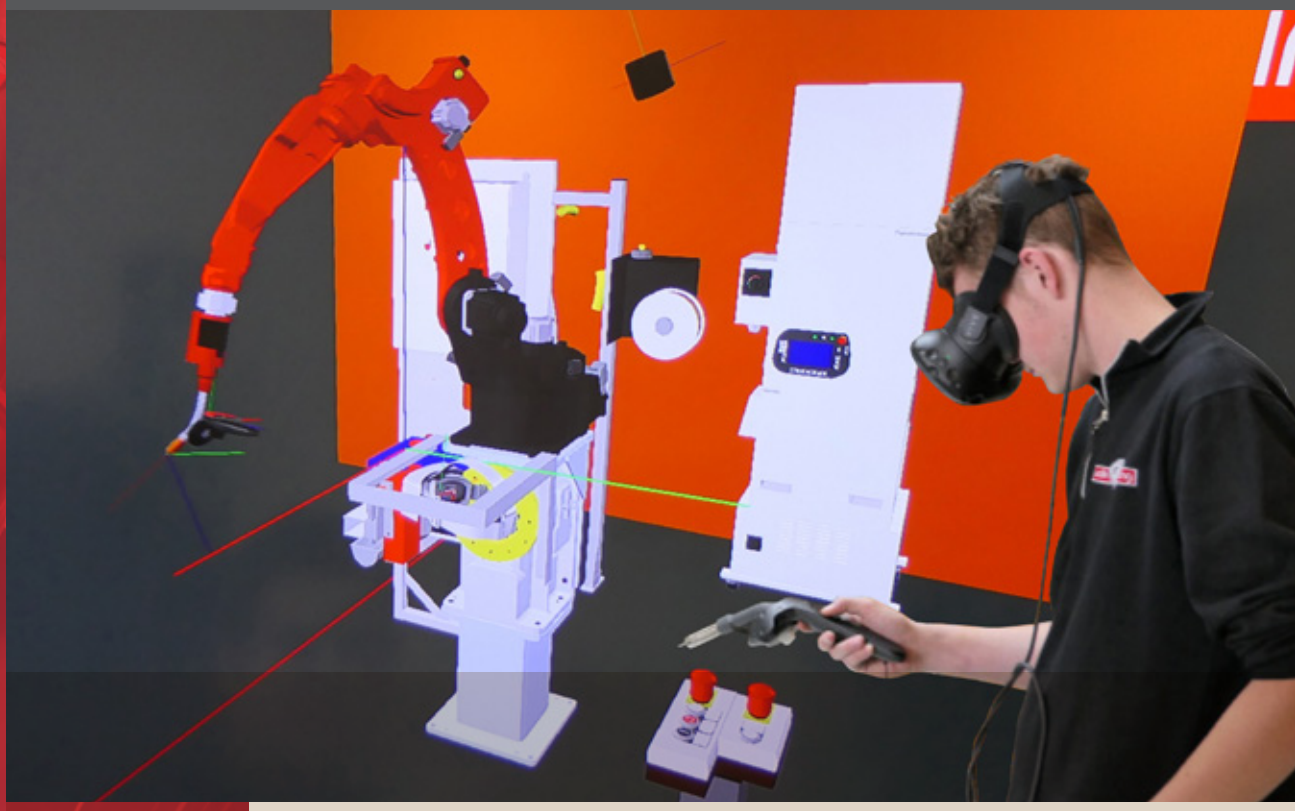
VALK MAILING

a publication of Valk Welding

17th year - 2017 nr. 2



NETHERLANDS

Programming welding robots using VR technologie

Valk Welding has developed a new method of programming welding robots properly and accurately with the use of virtual reality technology. During the German trade show "Schweißen und Schneiden" (welding and cutting), visitors to the Valk Welding booth were able to experience this new method of VR-supported, offsite teaching first hand.

The robot programmer can see the welding robot installation in a virtual 3D environment using a VR headset and in this assigns the welding positions using a handheld torch, which the software translates into a program for the welding robot. This new method of programming a welding robot is a supplement to the existing online, offline and offsite teaching methods and according to the developers provides an added value in regard to the programming from your workstation (offline). Valk Welding uses the powerful DTPS offline programming software, which is used by more than 500 users daily.

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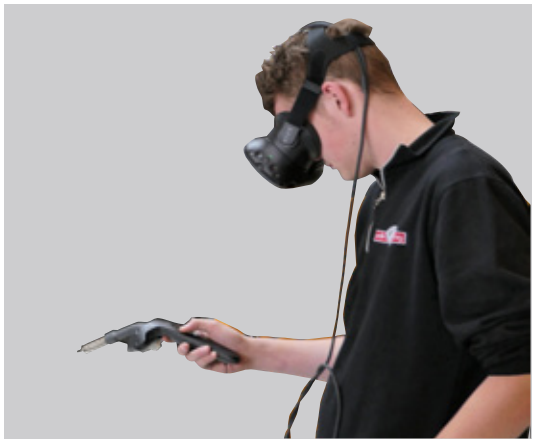
Also in this issue:

valk welding
The strong connection

online teaching with teach pendant

offsite teaching with a manual tool



VR supported offsite teaching

offline programming with DTPS

continued from frontpage

“Quicker, easier and more sensitive than working on a computer”

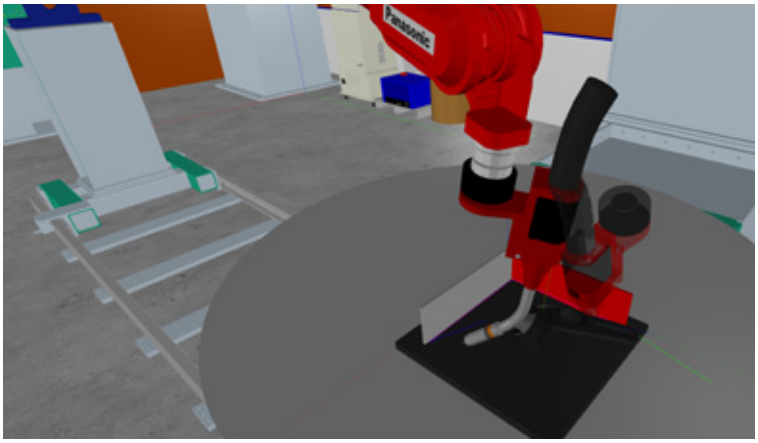
Welding robots can be programmed using a teaching pendant, an advanced controller. With this, the operator moves the robot arm with the torch along the welding positions and in this manner determines the program. The disadvantage of this method is that the welding robot is not in production while programming is carried out. Offline programming with a software program on an external PC provides the solution for this. DTPS, the offline software frequently used by Valk Welding for its welding robot installations, is one of the most frequently utilised tools for this and offers extensive functions with which even the most complex workpieces can be programmed.

Offsite teaching

Anton Ackermans, software developer at Valk Welding, “Experts with a great deal of welding knowledge and experience sometimes have difficulty having to think in 3D at the computer display and would rather hold a welding torch. For this reason, we have developed offsite teaching for that time, with which the operator can click on the welding positions in a physical workpiece with a handheld device, which has the shape of a welding torch.” With the use of cameras, both the welding positions as well as the position of the torch is determined and converted into a program for the welding robot. “This is quicker than working online with a teaching pendant and offline at a workstation and is usually intended for an operator with limited programming knowledge.”

Offsite teaching with VR technology

Valk Welding has now further developed offsite teaching to a virtual environment with the use of VR technology. The robot programmer moves into a virtual 3D environment using the VR headset and there can see both the welding robot installation as well as the workpiece that must be programmed. By clicking the welding points with the handheld device and holding this device in



the desired torchposition, the software translates this data into a program for the welding robot. “The great thing about a virtual situation is that the environment virtually moves along with you when you change position. Everyone stepping into the virtual world immediately has a better feeling for and more insight into the workpiece than from their workstation. What programmers are used to performing offline at their workstation, they you can implement more quickly, easily and instinctively when working in a virtual space. Moreover, there is no need to be present in the production situation when wearing the VR headset,” Ackermans concludes.

New developments at “Schweißen und Schneiden” (Welding and Cutting)

GERMANY

In addition to the application of VR technology during the programming of welding robots, during the German trade show “Schweißen und Schneiden”, Valk Welding presented a number of new developments and upgrades of existing technologies.

Welding robot with large working radius

Of the 6 different Panasonic welding robot types that Valk Welding presented, the HH 020L is the latest type, which has a working radius of 3.2 m and has been especially developed as a cost-reducing alternative for positions that would otherwise require 2 welding robots or a single welding robot with longitudinal displacement.

Hybrid welding robot type

In addition to versions in which the hose package is routed either internally or externally, the welding robot range now also features a hybrid version, in which only the wirecable is routed externally where the welding cable, shielding gas, air and cooling conduits runs through the inside of the robot arm. The cable assembly for wire feeding is light and moves more easily along with all axis movements than a complete package. Moreover, the wire feeding is not affected by tight bends of the “hollow wrist”.

Automatic switching of the gooseneck, wire tip and tungsten electrode

The robot torch systems that Valk Welding has developed for its welding robot systems have a replaceable gooseneck, enabling an easy change from MIG to TIG or wire diameter. In order to be able to also change torch, wire tip and tungsten electrode in unmanned production situations, Valk Welding has developed automatic torch and tool changers.

Integrated welding fume extraction

In parallel with the developments of welding torches with integrated welding fume extraction, Valk Welding has developed a robot welding torch with integrated welding fume extraction. The welding fume is extracted through an additional hose in the welding torch by an external high vacuum filter unit. The current version is a prototype.

Seam tracking with the Arc-Eye laser vision sensor

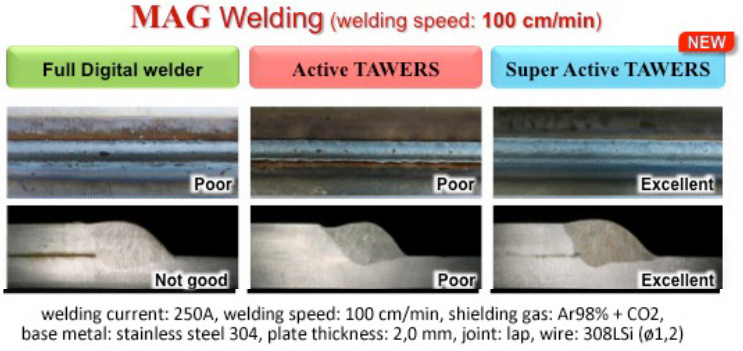
At the previous trade show edition of “Schweißen und Schneiden” (welding and cutting), Valk Welding introduced the first generation of its Arc-Eye seam tracking system. The Arc-Eye laser sensor systems enable the welding robot to accurately track the welding seam during the welding process by scanning its position, width, depth and orientation and automatically correcting the welding robot track where necessary. A particular aspect of this laser sensor is that due to its unique concept, the unit is not inhibited by reflections and as a result is perfectly suited for reflective material types such as aluminium and stainless steel. During the trade show, Valk Welding presented the latest version of the Arc-Eye laser sensor with updated software version.

Arc-Eye Retofit Kit

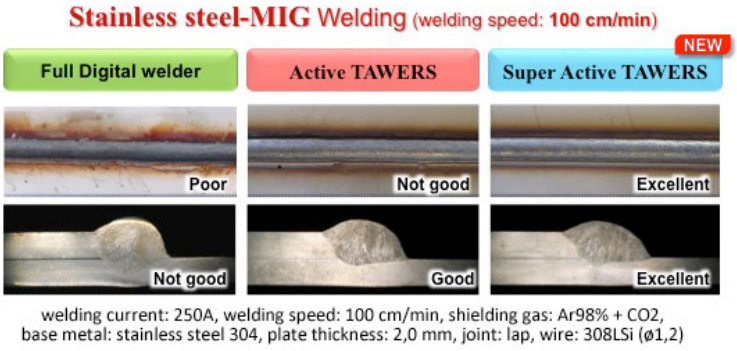
By integrating the Arc-Eye seam tracking vision camera in an motorized X-Y cross slide system, this unit can be utilised in existing welding systems such as: circumferential welding machines, gantry welding systems, column and booms and numerous manipulators. This X-Y cross slide system has been specifically developed for among others the welding of round products such as industrial liquid tanks, containers, pressure vessels and wall segments for tanks. This system is mainly developed to be integrated as a retrofit in an existing system.

Panasonic breaks through a barrier with **Super Active Wire Process**

Panasonic Welding Systems have made further improvements to the existing Active Wire welding process for welding thin-walled materials with low heat input. For that purpose, Panasonic recently launched the Super Active Wire Process. This is a welding process for Panasonic TAWERS welding robots, which surpasses all existing and previously comparable processes in terms of speed, projection, weld shape and heat input. Valk Welding, who use Panasonic TAWERS welding robots in all their welding robot systems, are highly impressed with the first application at a customer site: "This allows us to achieve superior arc quality compared to similar systems now available on the market, with almost projection-free end results and optimal weld shapes. This will considerably enlarge the scope of application of our systems, and will leave established market parties far behind."



welding current: 250A, welding speed: 100 cm/min, shielding gas: Ar98% + CO2, base metal: stainless steel 304, plate thickness: 2,0 mm, joint: lap, wire: 308LSi (ø1,2)



welding current: 250A, welding speed: 100 cm/min, shielding gas: Ar98% + CO2, base metal: stainless steel 304, plate thickness: 2,0 mm, joint: lap, wire: 308LSi (ø1,2)

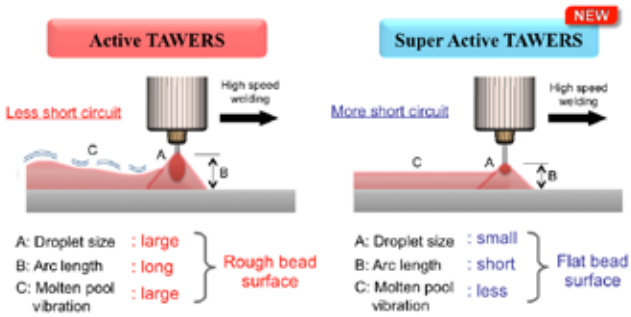
With the introduction of the TAWERS welding robot in late 2004, Panasonic put their first welding robot with fully integrated power source on the market. This is a platform that, thanks to its ultra-rapid data exchange between the power source and the welding robot control, allows software welding processes to be developed for specific welding processes. Since then, Panasonic has launched new process releases every year, such as SP-MAG, HD-Pulse, TAWERS MIG and TIG, AC-MIG, HD-MAG and Active Wire. Until recently, Active Wire and a number of similar systems were the only processes suitable for welding with low heat input. This enabled thin-walled materials to be welded with low burn-in and less spattering, thanks to the integration of a digitally controlled arc and a high-frequency controlled wire movement.

With Super Active Wire Process, Panasonic has again raised the bar in quality and speed. Panasonic claims a 99% reduction in spattering for steel MAG welding, and 96% for stainless. In addition, the Super Active Wire Process results in a smoother weld shape at higher welding speeds. As an example, Panasonic produces a smooth weld shape with optimum penetration when welding 2.3 mm steel at 100 cm/min welding speed and 245 Amp. The same outcomes are achieved with 2 mm stainless steel. These outcomes are also achieved with a push and pull angle.

In order to achieve this higher end result, the frequency of the up-down movement of the welding wire is 5 times higher compared to the previous Active Wire Process. To achieve that, Panasonic uses a motor with high power output combined with a direct-drive transmission that directly controls the welding wire motion at the servo-pull welding torch. The use of forced air cooling allows Super Active Wire Process to be used with a 100% duty cycle up to 245 Amp in MAG welding. The manner in which the short arc is started contributes significantly to reducing spattering. At higher amperage, Super Active Wire Process can be used with plate thicknesses of up to 5 mm.

Valk Welding expects the introduction of Super Active Wire Processto constitute a breakthrough in thin-walled welding.

Smooth weld shape at high welding speeds



Achieved excellent bead appearance with extremely low spatter

Projection-free weld shape with Super Active Wire Process

welded with CMT process

welded with Super Active Wire Process

BELGIUM

SLOVAKIA

Westland produces logistics containers in Slovakia

A large number of competent welders, sufficient space and lower wage costs were more than enough reason for Belgian entrepreneur Karel Louwagie to move the production of containers for the automotive industry to Slovakia 14 years ago. In 2003, Valk Welding was asked to help with moving the existing welding robots and designing the factory. For the Westland company this heralded the start of a successful enterprise, and for Valk Welding it was the reason to set up its own branch in the Czech Republic. By now the Westland has a welding robot system to weld constructions up to 6m long which enabled the company to win a large container order from Volvo.

Before the move to Slovakia, Westland already had Valk Welding welding robots at its Belgian site. Karel Louwagie commented "In the early days I was a little sceptical about welding robots, because a welder's work is a relatively simple action. However, gradually I became convinced of the shorter lead time with welding robots, of the improved quality of the welds and of the certainty that no welds could be forgotten, because everything was pre-set."

Supplier to automotive

In Slovakia, Westland specialised under the name Westmetal SK in engineering and manufacturing containers that are used to move semi-finished products, including complete car bodies, from one production unit to another in a convenient and safe manner.

Opportunities with a larger welding robot

"When we received an RFP from Volvo for an order of 1,300 containers of 6 x 2.2m, it was clear we needed a welding robot to offer a competitive price, so we took the plunge. We are convinced that the large welding robots provide more opportunities. We are now one of the few who can weld such large pieces in series, and that makes us an attractive supplier for OEMs."

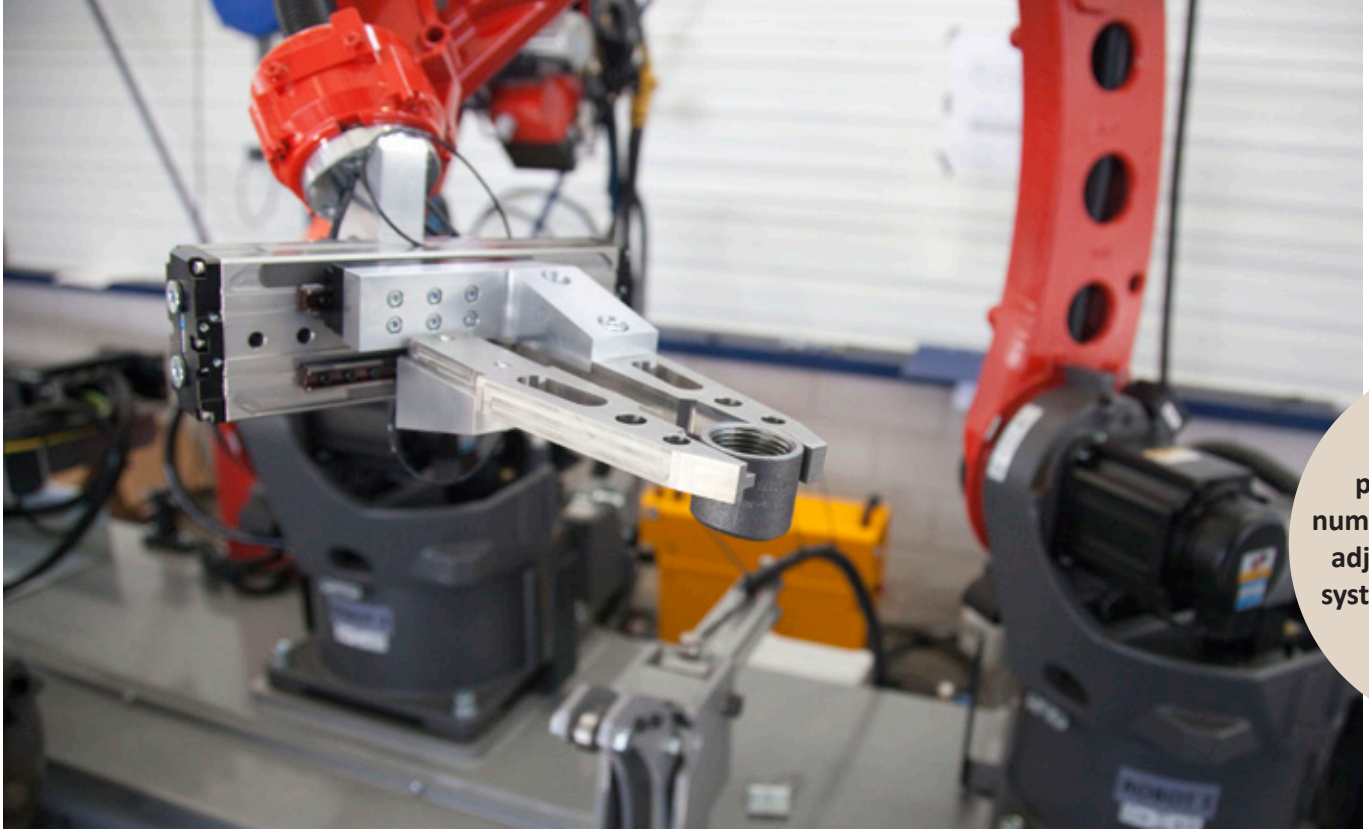
Karel Louwagie continued "The new, large welding robot is in full production for the sub-assembly of car body racks for the Volvo V60, of which we weld one an hour on average. With the order for 1,300 units, the welding robot will be busy for a little while. Meanwhile the smaller robots are used to weld the smaller frames for containers in series.

Support from Valk Welding CZ

Preliminary discussions and the commercial part were handled by Valk Welding Belgium based on a relationship going back to 1995, when the first welding robot was installed in Belgium. The system was built in Alblasserdam (NL) and following purchase it was rebuilt on the client's site in Slovakia in close cooperation with the employees of Valk Welding CZ. Support for programming, calibration and training of the operators was also provided by the employees of Ostrava. Karel Louwagie commented "That's the benefit of working with a robot integrator with sites throughout Europe."

Offline programming

"For programming the welding robots we use the DTPS software. We draw the piece and the corresponding welding mould in 3D (often in Autodesk Inventor) so that everything is visualised and then we convert it into DTPS software. That is how we control the movement of the welding torch. After that, it's only a matter of fine-tuning before starting the robot, in order to correct any inaccuracies in the mould and product," concludes Karel Louwagie continued.
www.westmetal-sk.eu



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Welding robot installation 4.0 for the production of sprinkler pipes

SWEDEN

The production of sprinkler installations means customization, short delivery times and very competitive prices. This sector, like many others, is therefore continuously searching for solutions involving automation. For that reason, Valk Welding has developed a number of systems that have a robot cutting the holes, fitting the couplings and welding the couplings on to the pipes. Based on years of experience, Valk Welding developed a new, unique concept, which was also purchased by the Swedish company Tyco Building Services Products AB. The new system has two separate robots to perform the handling, cutting and welding activities. It turned out to be the ultimate solution, which has a large number of advantages.

Tyco Building Services Products AB is one of the world's largest manufacturers and suppliers of fire safety products, such as sprinkler installations, water mist systems, gas systems, foam systems, fire extinguishers and fire detection systems. Every pipe, including the coupling, is made to exactly the right size. Tyco was the first manufacturer in Sweden to introduce 100% pre-fabrication, which has considerably reduced the on-site assembly time. The company currently distinguishes itself even further by reducing the delivery time to three weeks.

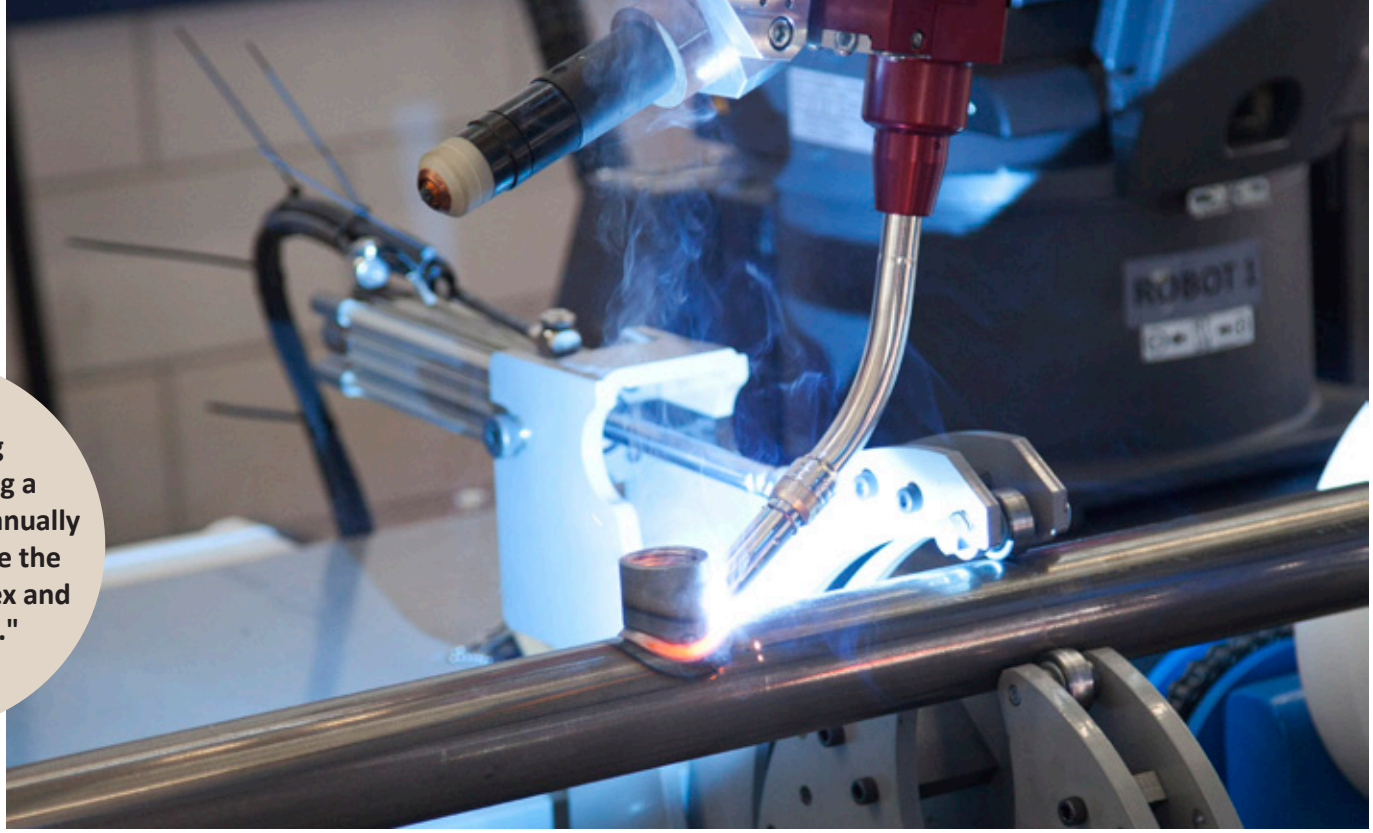
Use of semi-automation not sufficient

Until recently, Tyco Building Services Products used special-automated systems to cut the holes in the long sprinkler installation pipes and also to weld the couplings on to the pipes. Each year, that easily adds up to over 200,000 couplings that are welded on to pipes. Manager Manufacturing Operation Ola Holgersson: "That process still involved too many actions and furthermore, the quality had to be improved, the capacity had to be increased and the automation had to provide a cost saving. So, two years ago, we started looking into the possibility of automating the production process with robots."

New concept by Valk Welding

Tyco visited a number of installations of suppliers in Germany and the United Kingdom. Ola Holgersson: "We kept encountering installations which were far too complex." Via the Swedish trade fair Elmia, Tyco came into contact with Valk Welding. It proposed making a number of parts manually adjustable to make the system less complex and less vulnerable. Tyco immediately had a good feeling about the concept and gave the go-ahead for the construction of the installation and the development of the software in the middle of 2016.

Valk Welding uses two robots, one for handling and one for cutting and welding. What is unique in this case is that it is not the robots that move, but the pipes. A robot controlled positioner with a Schunk chuck jaw clamps and rotates the pipe and moves it into the correct position for the hole to be cut and the coupling to be welded. The simplicity can also be found in the way the couplings are fed. Valk Welding has used a storage feature in which the drawers are fitted at an angle, so that the couplings are always in an easily accessible position for the handling robot. The installation also has a supply conveyor with a storage feature, which is suitable for pipes of all diameters and of lengths up to 7.5 metres, and a removal conveyor with a removal station.



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Simple to program

Application engineer Geoffrey van den Driesche from Valk Welding programmed the positioning of the pipes, the cutting of the holes and the welding of the couplings for all the diameters of pipe used by the customer. The software programs have been split into separate programs for the handling robot and the cutting and welding robot. Switching between the plasma torch and the welding torch is automatically created. Geoffrey van den Driesche: “If the customer wants to use couplings of a different diameter, they can easily program the software with the aid of the macros that we have programmed for them.”

Support from Denmark

Service support was also a critical issue for the Swedish manufacturer. Ola Holgersson: “Valk Welding has proven that they can react quickly from their Danish branch office and that they provide excellent support from the Dutch head office. Marcel Dingemanse, Branch Manager Denmark: “We now have eight employees in Denmark, including a software specialist who recently underwent six months of training at the head office. From our branch office in Nørre Aaby (DK), we are now able to support our Swedish customers with every problem.”

Proof of Concept

Valk Welding sees great market potential for their automation concepts for manufacturers of sprinkler installations. Remco H. Valk: “By not focussing on 100% automation, we have developed a near ultimate solution, with a high degree of reliability and an interesting payback period. We see the system for Tyco Building Services Products as a proof of concept which incorporates all the experience we have gained over the last few years.” www.tfppemea.com

Ola Holgersson: “Valk Welding has proven that they can react quickly from their Danish branch office and that they provide excellent support from the Dutch head office."

www.youtube.com/valkwelding:
Welding of sprinkler pipes

POLAND

Tekla keeps quality and quantity in balance

How do you keep the quality high when numbers increase?

Tekla, the Polish manufacturer of boilers, is benefiting from the rising demand for boilers that comply with the latest environmental standards, but ran into production problems in their process. Where do you get qualified welders from and how do you keep the quality high when numbers increase? It's a problem faced by many companies in the European metalworking industry. Together with the specialists from Valk Welding, owner Krzysztof Tekla took the step towards welding robots with the aim of securing a substantial increase in production and above all high welding quality.

The Polish market for boilers grew strongly in the period between 2006 and 2010. Changes in legislation led households in Poland and surrounding countries to replace their existing boilers en masse with modern low-emission systems. Assisted by European subsidies, many small companies entered the market, resulting in strong competition. Krzysztof Tekla says, “We have a strong market position with the Tekla brand in Poland as well as in the Czech Republic, Romania, Slovakia and Hungary. Our boilers comply with environmental standard EN303-5:2012, while our wide-based portfolio satisfies most requirements on the market. But how do you manage to maintain your position amongst dozens of competitors?”

Welding robot versus hand-held welder

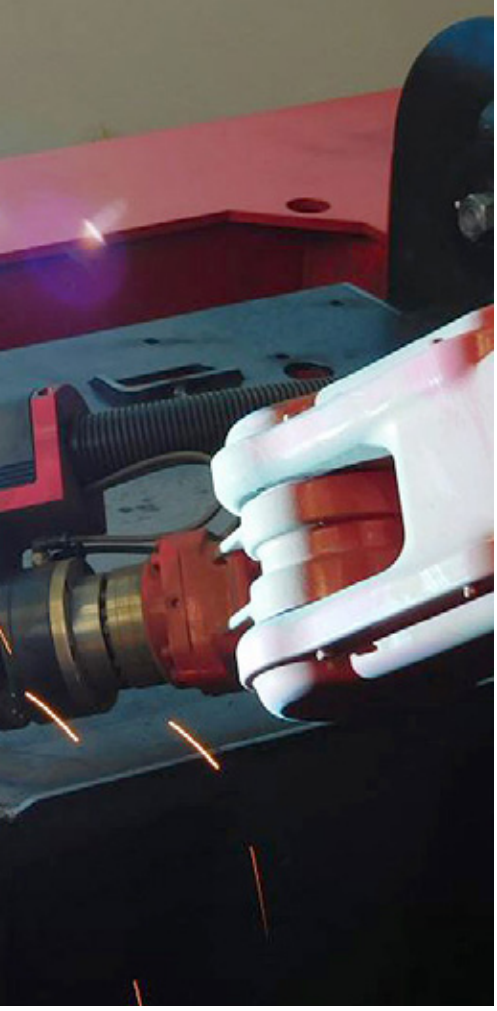
With production numbers increasing to up to 6,000 items per year, two questions play a critical role. How do you achieve the necessary increase in production capacity, and how do you guarantee quality in the process? According to Krzysztof Tekla, “It was impossible to achieve the increase in production due to a lack of qualified welders. The use of welding robots was the only solution. I came across Valk Welding while researching the market. Their concept immediately appealed to me. Moreover, they were able not only to supply the system but also to train our people and support them in the start-up phase. Having visited reference companies and spoken with users, we quickly became convinced that Valk Welding was the right welding robot integrator for us.”

Absolute leak tightness required

The heat exchangers form the heart of the Tekla boilers. For safety reasons, these must be 100% free from leaks. Says Krzysztof Tekla, “Not a single weld can be interrupted, and we are talking about welds of up to 50 m in length. The Panasonic robot TL-1800WG3 now applies the weld to each workpiece with the same parameters and with a clean and spatter-free appearance. We can therefore be sure that each heat exchanger is 100% leakproof.”

Directly visible advantages

“Production has gone up by 40% since the welding robot system was put into operation. Our company’s problem with undercapacity has therefore also been solved, which means that we no longer lose any customers to the competition because of delivery time or quality. Apart from a higher and above all consistent weld quality, we have less friction on the welding wire, wire tips and gas nozzles and we use less shielding gas, due to the use of Wire Wizard components. We no longer have any rework of products either. If a manually welded heat exchanger is not 100% leakproof,



the whole process has to be repeated," explains Krzysztof Tekla.

Investing in robots opens up perspectives

"Automated production is an initiative that you have to carry out with an eye on long term approach. You have to look not only at the costs but above all at the possibilities a robot offers. I can see us using several robots in the future, not only for the welding process," concludes Krzysztof Tekla.

www.teklakotly.pl

Colleague integrators also use Wire Wizard components for their wire feeding

Wire Wizard wire feeding products are now a core part of the Valk Welding product range, but for many of our fellow integrators as well, Wire Wizard has become the number one brand for wire feeding systems. In September of this year, Wire Wizard presented the new catalogue at the Schweissen und Schneiden 2017 trade fair. The new catalogue was warmly received immediately - it has as many as 40 pages full of solutions for wire feeding proposals. The fact that these solutions produce actual savings is increasingly recognised especially in the automotive industry.

Weld central unit measures increased productivity

In order to demonstrate the increase in average performance of a welding cell when using Wire Wizard components for wire feeding, Wire Wizard has launched the Weld central unit. This system measures and analyses all the parameters of a welding cell, and explains exactly how much production time is lost on correcting malfunctions that are often caused by a bad or incorrect wire feeding. With these data in hand, it can be easily shown that improvements could be made and what savings they would bring.

Components for welding torches

In order to complete the range of solutions, Wire Wizard has also launched a product range of welding torch components. For example, a proper inner liner in a cable assembly can already make quite a large difference. Curious? Order our new catalogue - we have it ready for you in a convenient 5-pack. Of course you can also view the digital version on the website: www.wire-wizard.eu

NETHERLANDS

KEMELING
kunststoffen

Welding plastics with a robot

Kemeling Kunststoffen robotizes thermal welding processing

The thermal welding of plastic board material is a nearly fully manual process, in which experienced professionals heat up both board parts with an electric extruder in a continuous motion and simultaneously add material. Kemeling Kunststoffen located in the Dutch town of Naaldwijk had the idea of having a robot perform the work and approached Valk Welding for this. Initially, the plastic welding robot was intended for the thermal welding of large, round fluid tanks, but by now, each free hour is also utilised for other workpieces. Managing director Robert Kemeling, "We continuously discover new applications."

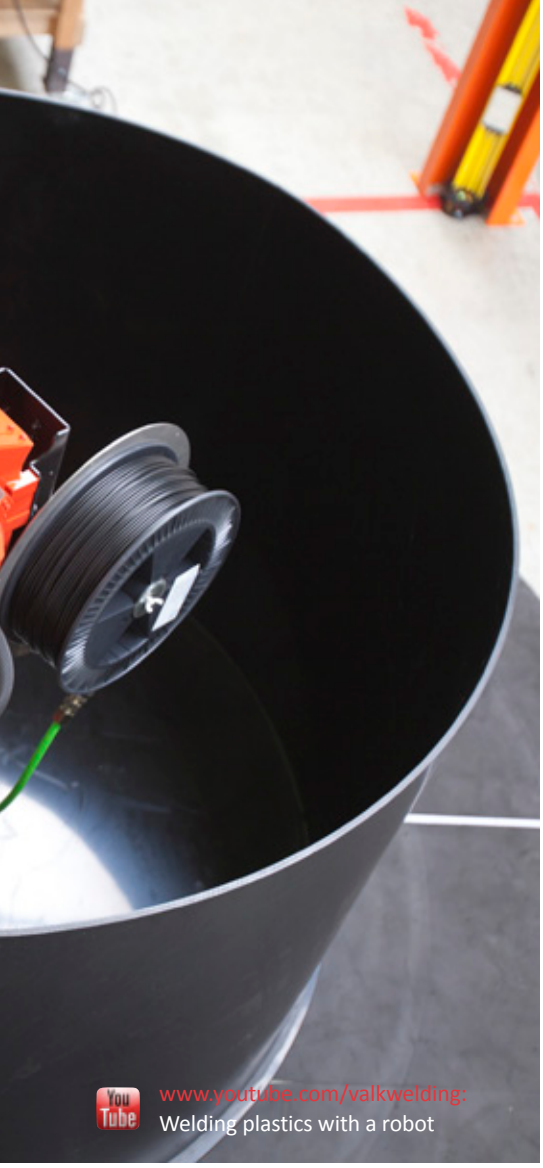
Kemeling Kunststoffen fabricates plastic containers, tanks, wells, boxes and casings for among other agricultural and horticultural applications, shipbuilding and yacht construction, water treatment and civil engineering, etc. Often for the storage of liquid and solid substances. 80% of the products fabricated by the company are made with flat HDPE board with a thickness between 6 and 30 mm. The boards are cut to size, shaped to contours, set and tacked using butt welding or thermal welding, after which the individual components are connected to an end product.

Self-developed concept

Robert Kemeling, "The high quality connection of the board parts requires a certified welder, while a robot can also be operated by a non-certified employee. However, knowledge at an undergraduate level is required for programming. For this reason, we worked out the possibilities of robot automation utilising students. We used a pre-owned robot in order to prepare a test set-up for the thermal welding of the HDPE board. This concept was worked out by Valk Welding to a set-up in which round tanks with a diameter of 3 m were thermally welded both from inside as well as outside on a support plate. The table rotates with a speed that the extruder can keep up with.
Valk Welding's strength in particular lies in the translation of our concept to a working robot cell, with an emphasis on the control of the robot and the communication with the rotating table."

Clean process without critical tolerances

In the course of the process, plastic is added from the coil while the extruder heats up the material of both board parts, causing the three elements to form a molecular connection that is particularly strong. Hessel Luiten, who accompanied the entire project as an graduate 'industrial product designer' intern and is now responsible for the programming and the entire robot installation, "It is a fully clean process, during which no vapours are released contrary to the welding of metal. Moreover, the tolerances are less critical. As long as the robot presses the extruder in the inclined position in the upright angle, the heating will be sufficient to melt the



material. The majority of the knowledge and experience lies in how the dimensional losses that occur as a result of the melting can be compensated."

Saving on labour costs

The greatest financial gain lies in the savings on labour costs and the ensuring of quality. Robert Kemeling, "The capacity of the production is increased because now a single operator works on two containers simultaneously. Moreover, work is performed in a constant, uninterrupted motion, which ensures high, consistent quality. Furthermore, the continuous handling of an extruder is a heavy load for the specialist."
www.kemeling.nl

New: Sparepart case robotsystems

Spare parts for the welding robot always immediately available

The downtime of your welding robot will disrupt your production progress and often causes unnecessary high costs. For this reason, it is of great importance that spare parts are always present in the immediate surrounding of the welding robot. Therefore, Valk Welding has developed a tailor-made spare part case with a complete set of spare/wear parts for your robot installation. In this, you can quickly find all consumables for your robot installation in a well-organized manner. As a result, you can quickly replace the spare parts of your robot installation, ensuring that standstills are limited to an absolute minimum.

This development after realising that spare parts are often not present in the immediate vicinity of the robot and are not kept up-to-date. In this manner, Valk Welding wishes to contribute to an uninterrupted production and support its customers at a high quality level.

The investment in a complete set of spare parts provides considerable cost savings. Moreover, as an introductory offer, Valk Welding offers one case per installation at a one-off strongly reduced rate. In combination with a shock sensor and cable package, depending on your robot installation with VWPR (QE), your cost saving per case can be up to € 600.-.
verkoop@valkwelding.com

Operations Director Jan Bosch and CEO Ulbe Bijlsma

World market leader in heavy lifting bridge systems replaces all welding robots

Strategic choices have been good for Stertil

In the past summer, Valk Welding installed the 10th Panasonic welding robot at Stertil, a manufacturer of dock levellers and lifting bridge systems. The installation forms the completion of a modernisation and improvement campaign, which the manufacturer begun 10 years ago. With this, Stertil also says farewell to the old method of construction.
As a result of the new method, the company is now less dependent on specialised personnel, the duty cycle of the welding robots is increased considerably, the number of factory operators has been halved and sales has increased. We asked CEO Ulbe Bijlsma and Operations Director Jan Bosch which strategy formed the basis for this success.

The Stertil Group with its head office in the Frisian town of Kootstertille develops and builds dock levellers under the Stertil Dock Products name and lifting bridge systems under the Stertil Koni brand. The products are sold worldwide through eight sales offices plus their own production facilities in the USA and China as well as a dealer network.

Limited efficiency during welding production
When the current CEO took over the management of Stertil around 14 years ago, the company was writing red figures. “It was time to develop a clear strategy. On the basis of thorough market research and a business analysis, we set up a new organization and put together a new management team. One of the first weak points we encountered in production was the limited efficiency in (welding) production. The components for the dock levellers and lifting bridge systems are built in a multitude of types and sizes, in which a separate tacking and welding fixture was used for each type and dimension. The existing robots always had to wait until the fixture had been changed and the workpiece had been tacked. As a result, these robots were forced to stand idle for a long time. Efficiency had to be increased considerably,” Ulbe Bijlsma explains.

To a modular structure

One of the initiatives was the implementation of a modular product design for the dock levellers. Then, on the basis of this, an optimal method of production was examined. “We had developed an automatically adjustable fixture, in which we could quickly switch between the different models. By having the tacking process run parallel with the welding robot, the robot additionally was not forced to wait for the tacking, therefore it was possible to double the duty cycle. With this, we said farewell to the old method of working”, Jan Bosch explains.

To modern technology

Jan Bosch, “We experienced various malfunctions with the previous robots and were confronted with outdated technology and inefficient methods of programming. By moving to a modular structure, we have also made a step towards modernisation. The Panasonic welding robots are lighter and faster, can be programmed offline and all components are 100% tuned to each other within Panasonic’s all-in-one concept and communicate 1-to-1 with the robot controller. Ten years ago, we started with the replacement of the first three robots and since then have gradually replaced the subsequent units. This year, with the 10th unit, we have replaced all existing robots with the modern Panasonic welding robots.

NETHERLANDS

Furthermore, an additional amount has been ordered for the production of newly developed products."

Strategic choice

"Until mid-2005, we manufactured lifting bridges for both passenger cars as well as for the heavier segment. The former market is large, but also features a large number of suppliers. The latter, heavier segment provides more opportunity for distinction. We made the decision to only continue in that segment and have set ourselves the goal of becoming the best in this market", Ulbe Bijlsma explains. "In the meanwhile, we have become the world's market leader in the heavier segment with a dedicated production facility in the USA and an assembly facility in China. Our lifting bridges for the lighter segment are today almost only sold in the Netherlands."

Improved cycle

"We have considerably improved the entire cycle of tacking, welding and cleaning by means of the modularisation of the product design, automation effort, offline programming and modern welding fixtures. Since we have performed these improvements both with the production of the dock levellers as well as the lifting bridge systems, both departments are no longer strictly separated, but instead employees work on components for both product groups. Furthermore, the first welding robot installation of Valk Welding has already been taken into operation in our USA branch. The programs, which were created and used in the Netherlands, can be applied one-to-one, without any corrections due to the calibration of the systems" Jan Bosch explains.

Improve output further

"The replacement of the first welding robot was a nerve-racking event; both the new method as well as the new technology first had to prove itself. However, everyone quickly saw the benefits, as a result of which the new method and the new welding robots were rapidly accepted. In the meanwhile, we have become a key account at Valk Welding. We are happy to benefit from their knowledge and points for improvement are quickly implemented and we are able to continuously raise the bar. In this manner, Valk Welding helps us in improving the output further," Ulbe Bijlsma states.

www.stertil.com

NETHERLANDS

HITACHI

ADK positioner improves safety and ergonomics for employees

In accordance with Dutch health and safety legislation, employees are at all times required to work safely and ergonomically in order to prevent physical injury. At the Hitachi Construction Machinery (Europe) NV (HCME) production plant in Amsterdam, we are very strict in ensuring that. The group has taken a major step in that respect with the commissioning of two positioners, where the large, heavy excavator booms are rotated so employees can work on them at shoulder height from any side. These special positioners were developed, built and supplied by ADK Techniek.

The HCME plant at Amsterdam builds excavators and wheel loaders for the European market. The control components are supplied by Hitachi Construction Machinery in Japan, and the production of structural elements, coating and final assembly are done in Amsterdam. High finishing quality is one of the hallmarks of Hitachi. That's why all arms and booms for the machines are sanded and grounded in two steps prior to coating. Production Engineer Roeland Meijer: "This is a labour-intensive part of our production, with priority for employee safety and ergonomics. This implies that employees should be able to sand and ground all sides of the arms and booms at shoulder height, whether they are standing up or sitting down. The arms and the 2-piece boom are therefore suspended in positioners - only the heaviest booms were until recently just placed on the work floor. In order to prevent any complaints from arising, we searched for a supplier who would be able to supply the right positioners for our purposes."

Not a standard solution

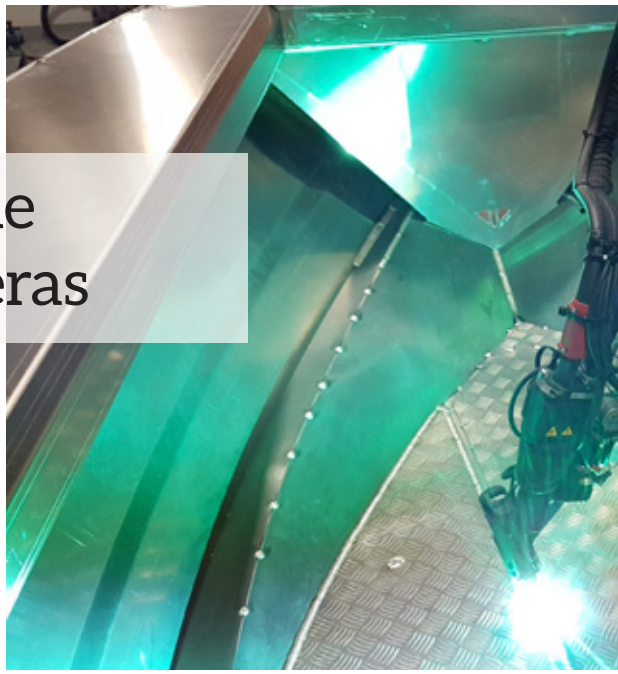
ADK Techniek, part of the Valk Welding Group, specialises in engineering and building custom machines for positioning, welding and cutting automation; for HCME they developed a set of custom-built positioners on a rail system, in which the booms, weighing 7 tons each, can be positioned. Henry van Schenkhof of ADK Techniek: "The booms are banana-shaped, so their centre of gravity is outside the centre. This places high demands on clamping and on the rotational torque. In addition, HCME required that the distance between the two positioners and the product support should be rapidly adjustable. The two positioners are therefore placed on a rail, with one positioner able to be moved manually. In addition, we created a set of rapidly exchangeable adapters for each model, so all models have optimal clamping."

Roeland Meijer continues: "ADK came up with solutions, clear concepts and a properly elaborated proposal. It is clear that they have ample experience in building these custom positioners. After installation we were also given a full on-the-job training, after which we were able to work with the positioners ourselves. Our employees are very happy, and we now also need less time for the whole sanding and grounding process."

www.hitachicm.eu

AUSTRALIA

Panasonic partners worldwide integrates Arc-Eye laser cameras



With the development of the Arc-Eye laser camera on Panasonic welding robots, Valk Welding has developed a unique welding tracking system, which has now been deployed by several Panasonic dealers worldwide. A key project is the application of the Arc-Eye laser camera with AC Mig weldingapplication by the Australian robot integrator Orion Automation Systems Pty Ltd for the robotic welding of aluminum fishing boats.

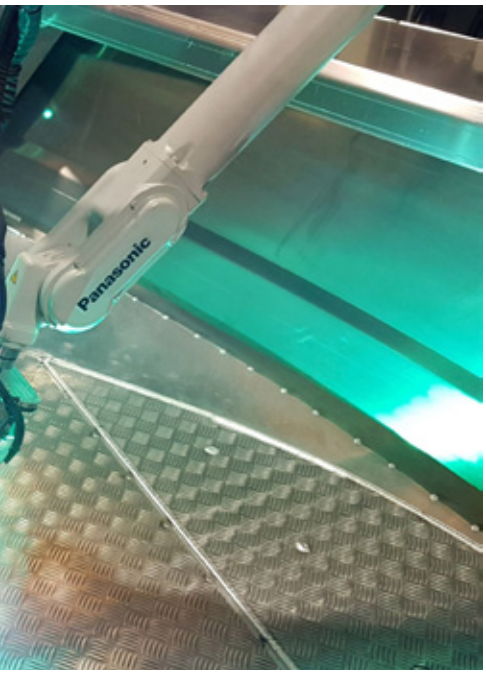
Remco H. Valk explains: “As a preferred Panasonic system integrator, we use the Arc Eye laser camera not only for our own applications, but we share the system also with our Panasonic partners worldwide. In almost every continent, we now have a partner who uses these cameras for integration into Panasonic welding robots. Jeff Fordham, owner of the Australian robot integrator Orion Automation Systems Pty Ltd, together with their Australian customer, visited us and a number of references to assess and discuss the application for welding aluminum workpieces. After intensive training at our technical training center and online support during installation, Orion Automation Systems has successfully refined this automation project,”

Orion Automation Systems

Orion Automation Systems Pty Ltd is the distributor for Panasonic Robot Welding Systems in Australia and New Zealand with over 30 years of robotic welding experience, providing robotic MIG & TIG welding systems, robotic plasma cutting systems & robotic laser welding systems to industry.
Owner Jeff Fordham tells us about the project: “We were approached by a major manufacturer of recreational fishing boats to assist them with the investigation of automating the welding of their aluminum boats through the use of Panasonic Welding Robots. The boats are manufactured by welding various grades and thickness of plate aluminum and at that time completed by manual operations.”

Trials at Panasonic Welding System's Technical Centre in Japan

Jeff Fordham: “Orion Automation completed robotic welding trials at Panasonic Welding System's Technical Centre in Japan using Panasonic's Robotic Active Welding Technology to weld the various grades of aluminum. Upon presentation of the robotically welded samples to the customer, further investigation was invested to identify over 100 metres of welds per hull that would be able to be robotically welded.”



Shape changes due to heat input

"As the boat hulls are manufactured in stages in sections that are tack welded, it was recognized that the hull structure changes shape as it is welded due to the heat input and the characteristics of welding aluminum. Therefore live positional corrections of the Panasonic Robot Welding manipulators was determined as necessary during welding," explained Jeff Fordham.

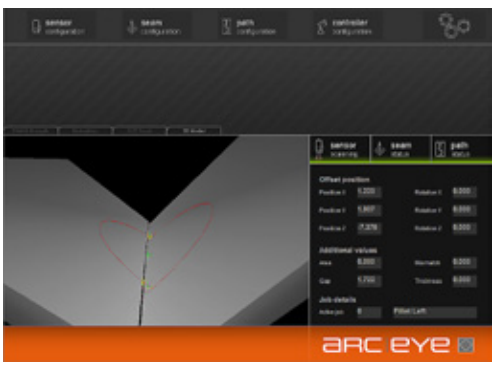
"We knew that Valk Welding and Panasonic Robot Welding Systems have worked together to provide the Arc-Eye laser camera as a tracking solution, which is seamlessly integrated to the Panasonic Robot Controllers. We decided to visit Valk Welding's operations in Alblasserdam, the Netherlands, together with the customer, to test the Arc-Eye laser camera system's ability to track the sections of the customer's hull sections and to confirm suitability for the Arc-Eye laser camera to track the highly reflective aluminum grades."

Demonstration at Valk Welding

Valk Welding demonstrated the Arc-Eye Laser camera at their workshops, and also at their customer's factories who rely on the Arc-Eye laser camera to guide the Panasonic welding robots to accurately weld products. Once the project was underway, Orion Automation Systems technicians completed extensive training at Valk Welding's facilities in the Netherlands.

During testing of the Arc-Eye laser camera in Australia at Orion Automations System's facility, Valk Welding's engineers provided on line support to assist with specific seam tracking programming by the use of remote connection. Through the installation and commissioning of the Arc-Eye laser camera with the Panasonic welding robots, Valk Welding continued to support Orion Automation Systems to ensure that the systems were successfully commissioned.

www.orionautomation.com.au



ARC EYE

The Arc-Eye laser camera systems enable the welding robot to accurately track the welding seam during the welding process by scanning its position, width, depth and orientation and automatically correcting the welding robot track where necessary. The sensor of Arc-Eye laser camera registers all measurement deviations within the scanning range of the laser sensor. This does away with the need to measure deviations beforehand and correct them manually in the welding program. This substantially increases the return and quality of the robotised welding process.

3D-printed ship propeller becomes reality

At RAMLAB in Rotterdam, a prototype of the world's first 3D-printed ship propeller was recently presented. In order to comply with the stringent inspection requirements of Bureau Veritas, the material characteristics of the prototype were thoroughly tested. Using the knowledge and experience gained with the production of this prototype, a second certified copy will be printed, which will next year be installed on a DamenShipyards tugboat for practical testing. The production of the 3D-printed ship propeller weighing 400 kg is a milestone in 3D production technologies. It demonstrates that bulky metal components can be produced at lower cost and in less time than with existing technologies.

3D-printing set to turn the ship-building industry upside down

The production of the 3D-printed ship propeller, measuring 1350 mm, was achieved by a consortium consisting of Damen Shipyards Group, RAMLAB, Promarin, Autodesk and Bureau Veritas. The ship propeller, made of a nickel-aluminium-bronze (NAB) alloy, was produced using the Wire Arc Additive Manufacturing (WAAM) method with a Valk Welding welding robot and Autodesk software. After printing, the ship propeller was CNC-milled at the Autodesk 'Advanced Manufacturing Facility' in Birmingham (UK).

It was important that insight should be rapidly gained into the material characteristics of the 3D-printed ship propeller so as to meet the stringent inspection requirements of Bureau Veritas. "3D-printed materials are built up layer by layer," says Kees Custers, Project Engineer at the Damen Shipyards R&D department. "As a consequence, they exhibit different physical characteristics in different directions (anisotropy). Steel or cast materials on the other hand have the same characteristics in all directions (isotropy). For the inspection, samples were tested for tensile strength and static load-bearing capacity."

The production of the 3D-printed ship propeller weighing 400 kg is a milestone in 3D production technologies. "The challenge is to translate a 3D CAD file from the computer into a a physical product. That is a complicated matter, because the ship propeller has a double-curve geometric form with a number of challenging overhanging sections," explains Kees Custers.

Large potential

In terms of the capacity of RAMLAB to print objects with maximum dimensions of 7x2x2 m, the 3D printing of a ship propeller of this magnitude is a real breakthrough in the maritime industry.
"This technology represents a fundamental change in the production methods of metal parts, and will have a large effect on supply chains."
www.ramlab.com

Tradeshows

MSV
Brno, Czech Republic
09 - 13 october 2017

Metavak
Gorinchem, Netherlands
31 october - 2 november 2017

SEPEM Nord-Ouest 2018
Rouen, Frankrijk
30 januar - 1 februar 2018

TechniShow 2018
Utrecht, Netherlands
20 - 23 march 2018

Industrie 2018
Paris, France
27 - 30 march 2018

Elmia Automation 2018
Jönköping, Sweden
15 - 18 may 2018

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